



IAEA
International Atomic Energy Agency

IAEA ANNUAL REPORT 2023

Annex Information

Table A1. Regular Budget allocation and utilization of resources in 2023 by Programme and Major Programme (in euros)

Major Programme (MP)/Programme	Original budget	Adjusted budget	Expenditure	Resource utilization	Balance
	US\$1/€1	US\$1/€0.925			
	a*	b**	c	d = c/b	e = b - c
MP1 — Nuclear Power, Fuel Cycle and Nuclear Science					
Overall management, coordination and common activities	3 739 513	3 699 214	4 011 921	108.5%	(312 707)
Nuclear Power	10 157 814	10 029 751	9 846 992	98.2%	182 760
Nuclear Fuel Cycle and Waste Management	10 172 566	10 050 418	10 086 206	100.4%	(35 788)
Capacity Building and Nuclear Knowledge for Sustainable Energy Development	11 678 334	11 535 173	11 385 648	98.7%	149 525
Nuclear Science	9 866 530	9 788 460	9 700 639	99.1%	87 820
Total Major Programme 1	45 614 757	45 103 016	45 031 406	99.8%	71 609
MP2 — Nuclear Techniques for Development and Environmental Protection					
Overall management, coordination and common activities	9 512 095	9 459 957	9 555 305	101.0%	(95 348)
Food and Agriculture	12 964 300	12 853 082	12 928 309	100.6%	(75 227)
Human Health	9 700 043	9 597 259	9 494 818	98.9%	102 441
Water Resources	4 133 797	4 100 547	4 098 738	100.0%	1 809
Marine Environment	5 192 676	5 148 941	5 144 659	99.9%	4 282
Radiochemistry and Radiation Technology	4 884 406	4 840 167	4 776 875	98.7%	63 292
Total Major Programme 2	46 387 316	45 999 953	45 998 705	100.0%	1 248
MP3 — Nuclear Safety and Security					
Overall management, coordination and common activities	4 359 253	4 305 252	4 382 803	101.8%	(77 551)
Incident and Emergency Preparedness and Response	4 921 609	4 861 107	4 780 533	98.3%	80 574
Safety of Nuclear Installations	11 790 078	11 623 075	11 530 369	99.2%	92 706
Radiation and Transport Safety	8 459 276	8 348 693	8 288 347	99.3%	60 346
Radioactive Waste Management and Environmental Safety	4 241 080	4 184 643	4 116 585	98.4%	68 058
Nuclear Security	7 081 249	6 974 105	6 961 251	99.8%	12 855
Total Major Programme 3	40 852 546	40 296 875	40 059 888	99.4%	236 988
MP4 — Nuclear Verification					
Overall management, coordination and common activities	15 614 613	15 500 318	15 785 362	101.8%	(285 044)
Safeguards Implementation	144 887 099	143 162 301	142 832 914	99.8%	329 387
Other Verification Activities	3 296 933	3 236 774	3 217 361	99.4%	19 413
Total Major Programme 4	163 798 645	161 899 394	161 835 637	100.0%	63 756
MP5 — Policy, Management and Administration Services					
Policy, Management and Administration Services	89 850 548	89 154 505	89 145 700	100.0%	8 805
Total Major Programme 5	89 850 548	89 154 505	89 145 700	100.0%	8 805
MP6 — Management of Technical Cooperation for Development					
Management of Technical Cooperation for Development	29 443 795	29 122 292	29 098 685	99.9%	23 607
Total Major Programme 6	29 443 795	29 122 292	29 098 685	99.9%	23 607
Total Operational Regular Budget	415 947 607	411 576 035	411 170 021	99.9%	406 014
Major Capital Investment Funding Requirements***					
MP1 — Nuclear Power, Fuel Cycle and Nuclear Science	-	-	-	-	-
MP2 — Nuclear Techniques for Development and Environmental Protection	1 626 182	1 620 922	578 799	35.7%	1 042 123
MP3 — Nuclear Safety and Security	325 237	325 237	320 002	98.4%	5 235
MP4 — Nuclear Verification	1 084 122	1 084 122	-	0.0%	1 084 122
MP5 — Policy, Management and Administration Services	3 469 191	3 469 190	1 739 448	50.1%	1 729 742
MP6 — Management of Technical Cooperation for Development	-	-	-	-	-
Total Capital Regular Budget	6 504 732	6 499 471	2 638 249	40.6%	3 861 223
Total Agency Programmes	422 452 339	418 075 506	413 808 269	99.0%	4 267 236
Reimbursable Work for Others	3 334 842	3 334 842	4 339 980	130.1%	(1 005 139)
Total Regular Budget	425 787 181	421 410 348	418 148 250	99.2%	3 262 098

* General Conference resolution GC(SPL.3)/RES/2 of January 2023 — original budget at \$1/€1.

** Original budget revalued at the United Nations operational average rate of exchange of €0.925 to \$1.

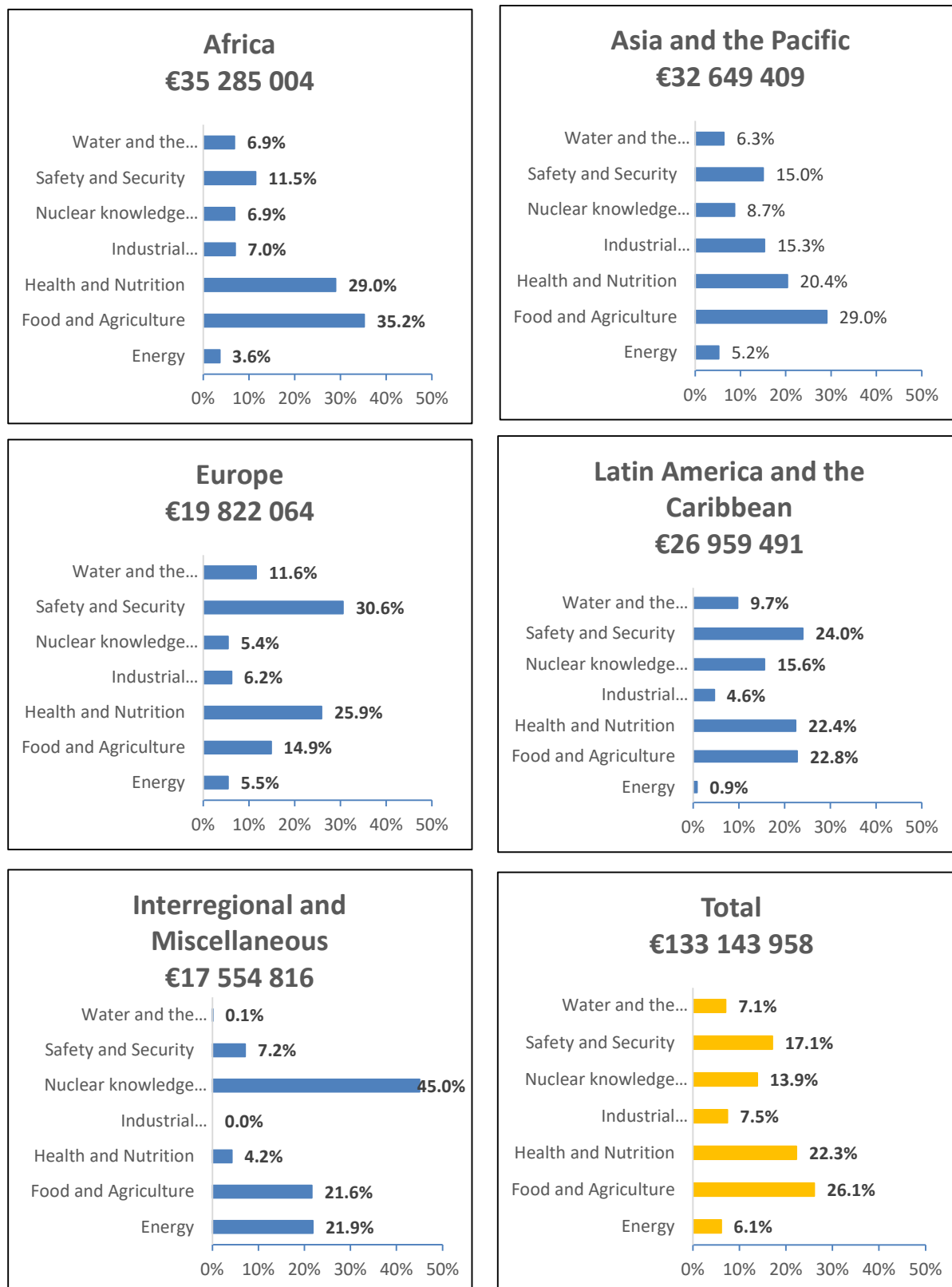
*** Additional information about the Major Capital Investment Fund can be found in note 39d of *The Agency's Financial Statements for 2023*.

Table A2. Extrabudgetary regular programme fund resource utilization in 2023 by Programme and Major Programme (in euros)

Major Programme (MP)/Programme	2023 net expenditure
MP1 — Nuclear Power, Fuel Cycle and Nuclear Science	
Overall management, coordination and common activities	310 994
Nuclear Power	4 970 016
Nuclear Fuel Cycle and Waste Management	3 884 135
Capacity Building and Nuclear Knowledge for Sustainable Energy Development	4 828 369
Nuclear Science	392 145
Total Major Programme 1	14 385 659
MP2 — Nuclear Techniques for Development and Environmental Protection	
Overall management, coordination and common activities	13 159 466
Food and Agriculture	5 564 079
Human Health	403 679
Water Resources	457 972
Marine Environment	1 778 615
Radiochemistry and Radiation Technology	779 085
Total Major Programme 2	22 142 896
MP3 — Nuclear Safety and Security	
Overall management, coordination and common activities	6 268 902
Incident and Emergency Preparedness and Response	13 460 904
Safety of Nuclear Installations	6 426 479
Radiation and Transport Safety	4 593 198
Radioactive Waste Management and Environmental Safety	1 742 785
Nuclear Security	32 392 838
Total Major Programme 3	64 885 107
MP4 — Nuclear Verification	
Overall management, coordination and common activities	7 033 436
Safeguards Implementation	16 203 633
Other Verification Activities	5 183 690
Total Major Programme 4	28 420 759
MP5 — Policy, Management and Administration Services	
Policy, Management and Administration Services	5 110 394
Total Major Programme 5	5 110 394
MP6 — Management of Technical Cooperation for Development	
Management of Technical Cooperation for Development	1 671 867
Total Major Programme 6	1 671 867
Total extrabudgetary programme funds	136 616 681

Table A3(a). Disbursements (actuals) of the Technical Cooperation Fund by technical field and region in 2023**Summary of all regions
(in euros)**

Technical Field	Africa	Asia and the Pacific	Europe	Latin America and the Caribbean	Interregional and Miscellaneous	PACT	Grand Total
Energy	1 279 727	1 705 794	1 082 401	231 374	3 836 117	0	8 135 412
Food and Agriculture	12 420 770	9 483 930	2 944 441	6 133 861	3 800 193	0	34 783 194
Health and Nutrition	10 220 838	6 648 633	5 126 278	6 049 828	744 263	873 173	29 663 013
Industrial Applications/ Radiation Technology	2 461 636	4 996 495	1 228 500	1 249 778	0	0	9 936 408
Nuclear knowledge development and management	2 432 209	2 837 049	1 080 205	4 204 198	7 905 003	0	18 458 664
Safety and Security	4 051 360	4 905 748	6 063 378	6 464 640	1 255 582	0	22 740 708
Water and the Environment	2 418 466	2 071 759	2 296 862	2 625 812	13 659	0	9 426 558
Grand Total	35 285 004	32 649 409	19 822 064	26 959 491	17 554 816	873 173	133 143 958

Table A3(b). Graphical representation of the information in Table A3(a)

Note: See Table A3(a) for the full titles of the technical fields.

Table A4. Amount of nuclear material under Agency safeguards at the end of 2023 by type of agreement

Nuclear material	Comprehensive safeguards agreement^a	INFCIRC/66-type agreement	Voluntary offer agreement	Quantity in significant quantities (SQs)
Plutonium ^b contained in irradiated fuel and in fuel elements in reactor cores	158 097	4 119	23 531	185 747
Separated plutonium outside reactor cores	1 221	5	10 892	12 118
High enriched uranium (equal to or greater than 20% U-235)	156	2	0	158
Low enriched uranium (less than 20% U-235)	19 475	471	1 064	21 010
Source material ^c (natural and depleted uranium and thorium)	12 439	1 726	2 723	16 888
U-233	18	0	0	18
Total SQs of nuclear material	191 406	6 323	38 210	235 939

Amount of heavy water under Agency safeguards at the end of 2023 by type of agreement

Non-nuclear material^d	Comprehensive safeguards agreement	INFCIRC/66-type agreement	Voluntary offer agreement	Quantity in tonnes
Heavy water (tonnes)		411.1		411.8^e

^a Includes nuclear material under Agency safeguards in Taiwan, China; excludes nuclear material in the Democratic People's Republic of Korea.

^b The quantity includes an estimated amount (9 000 SQs) of plutonium in fuel elements loaded into reactor cores and plutonium in other irradiated fuel, which has not yet been reported to the Agency under agreed reporting procedures.

^c This table does not include material within the terms of subparagraphs 34(a) and 34(b) of INFCIRC/153 (Corrected).

^d Non-nuclear material subject to Agency safeguards under INFCIRC/66/Rev.2-type agreements.

^e Includes 0.7 tonnes of heavy water under Agency safeguards in Taiwan, China.

Table A5. Number of facilities and material balance areas outside facilities under Agency safeguards during 2023

Type	Comprehensive safeguards agreement ^a	INFCIRC/66-type agreement ^b	Voluntary offer agreement	Total
Power reactors	248	18	1	267
Research reactors and critical assemblies	143	3	0	146
Conversion plants	17	0	0	17
Fuel fabrication plants	36	3	1	40
Reprocessing plants	10	0	1	11
Enrichment plants	17	0	3	20
Separate storage facilities	140	2	4	146
Other facilities	77	0	0	77
Facility subtotals	688	26	10	724
Material balance areas containing locations outside facilities ^c	640	1	2	643
Total	1328	27	12	1367

^a Covering safeguards agreements pursuant to the Treaty on the Non-Proliferation of Nuclear Weapons and/or the Treaty of Tlatelolco and other comprehensive safeguards agreements; includes facilities in Taiwan, China.

^b Covering facilities in India, Israel and Pakistan.

^c Includes 81 material balance areas in States with amended small quantities protocols.

Table A6. Conclusion of safeguards agreements, additional protocols and small quantities protocols (as of 31 December 2023)

State ^a	Small quantities protocols ^b	Safeguards agreements ^c	INFCIRC	Additional protocols
Afghanistan	Amended: 28 Jan. 2016	In force: 20 Feb. 1978	257	In force: 19 Jul. 2005
Albania ¹		In force: 25 Mar. 1988	359	In force: 3 Nov. 2010
Algeria		In force: 7 Jan. 1997	531	Signed: 16 Feb. 2018
Andorra	Amended: 24 Apr. 2013	In force: 18 Oct. 2010	808	In force: 19 Dec. 2011
Angola	In force: 28 Apr. 2010	In force: 28 Apr. 2010	800	In force: 28 Apr. 2010
Antigua and Barbuda ²	Amended: 5 Mar. 2012	In force: 9 Sep. 1996	528	In force: 15 Nov. 2013
Argentina ³		In force: 4 Mar. 1994	435	
Armenia		In force: 5 May 1994	455	In force: 28 Jun. 2004
Australia		In force: 10 Jul. 1974	217	In force: 12 Dec. 1997
Austria ⁴		Accession: 31 Jul. 1996	193	In force: 30 Apr. 2004
Azerbaijan		In force: 29 Apr. 1999	580	In force: 29 Nov. 2000
Bahamas ²	Amended: 25 Jul. 2007	In force: 12 Sep. 1997	544	
Bahrain	In force: 10 May 2009	In force: 10 May 2009	767	In force: 20 Jul. 2011
Bangladesh		In force: 11 Jun. 1982	301	In force: 30 Mar. 2001
Barbados ²	X	In force: 14 Aug. 1996	527	
Belarus		In force: 2 Aug. 1995	495	Signed: 15 Nov. 2005
Belgium		In force: 21 Feb. 1977	193	In force: 30 Apr. 2004
Belize ⁵	Amended: 21 Jun. 2021	In force: 21 Jan. 1997	532	
Benin	In force: 17 Sep. 2019	In force: 17 Sep. 2019	930	In force: 17 Sep. 2019
Bhutan	X	In force: 24 Oct. 1989	371	
Bolivia, Plurinational State of ²	X	In force: 6 Feb. 1995	465	In force: 7 Dec. 2023
Bosnia and Herzegovina		In force: 4 Apr. 2013	851	In force: 3 Jul. 2013
Botswana		In force: 24 Aug. 2006	694	In force: 24 Aug. 2006
Brazil ⁶		In force: 4 Mar. 1994	435	
Brunei Darussalam	Amended: 2 Sep. 2021	In force: 4 Nov. 1987	365	
Bulgaria ⁷		Accession: 1 May 2009	193	Accession: 1 May 2009
Burkina Faso	Amended: 18 Feb. 2008	In force: 17 Apr. 2003	618	In force: 17 Apr. 2003
Burundi	In force: 27 Sep. 2007	In force: 27 Sep. 2007	719	In force: 27 Sep. 2007
Cabo Verde	In force: 7 Sep. 2022	In force: 7 Sep. 2022	1048	In force: 7 Sep. 2022
Cambodia	Amended: 16 Jul. 2014	In force: 17 Dec. 1999	586	In force: 24 Apr. 2015
Cameroon	Amended: 15 Jul. 2019	In force: 17 Dec. 2004	641	In force: 29 Sep. 2016
Canada		In force: 21 Feb. 1972	164	In force: 8 Sep. 2000

State ^a	Small quantities protocols ^b	Safeguards agreements ^c	INFCIRC	Additional protocols
Central African Republic	In force: 7 Sep. 2009	In force: 7 Sep. 2009	777	In force: 7 Sep. 2009
Chad	In force: 13 May 2010	In force: 13 May 2010	802	In force: 13 May 2010
Chile ⁸		In force: 5 Apr. 1995	476	In force: 3 Nov. 2003
China		In force: 18 Sep. 1989	369*	In force: 28 Mar. 2002
Colombia ⁸		In force: 22 Dec. 1982	306	In force: 5 Mar. 2009
Comoros	In force: 20 Jan. 2009	In force: 20 Jan. 2009	752	In force: 20 Jan. 2009
Congo	In force: 28 Oct. 2011	In force: 28 Oct. 2011	831	In force: 28 Oct. 2011
Costa Rica ²	Amended: 12 Jan. 2007	In force: 22 Nov. 1979	278	In force: 17 Jun. 2011
Côte d'Ivoire		In force: 8 Sep. 1983	309	In force: 5 May 2016
Croatia ⁹		Accession: 1 Apr. 2017	193	Accession: 1 Apr. 2017
Cuba ²		In force: 3 Jun. 2004	633	In force: 3 Jun. 2004
Cyprus ¹⁰		Accession: 1 May 2008	193	Accession: 1 May 2008
Czech Republic ¹¹		Accession: 1 Oct. 2009	193	Accession: 1 Oct. 2009
Democratic Republic of the Congo		In force: 9 Nov. 1972	183	In force: 9 Apr. 2003
Denmark ¹²		In force: 1 Mar. 1972	176	In force: 22 Mar. 2013
		In force: 21 Feb. 1977	193	In force: 30 Apr. 2004
Djibouti	In force: 26 May 2015	In force: 26 May 2015	884	In force: 26 May 2015
Dominica ⁵	X	In force: 3 May 1996	513	
Dominican Republic ²	Amended: 11 Oct. 2006	In force: 11 Oct. 1973	201	In force: 5 May 2010
Democratic People's Republic of Korea		In force: 10 Apr. 1992	403	
Ecuador ²	Amended: 7 Apr. 2006	In force: 10 Mar. 1975	231	In force: 24 Oct. 2001
Egypt		In force: 30 Jun. 1982	302	
El Salvador ²	Amended: 10 Jun. 2011	In force: 22 Apr. 1975	232	In force: 24 May 2004
<i>Equatorial Guinea</i>	<i>Approved: 13 Jun. 1986</i>	<i>Approved: 13 Jun. 1986</i>		
Eritrea	In force: 20 Apr. 2021	In force: 20 Apr. 2021	960	In force: 20 Apr. 2021
Estonia ¹³		Accession: 1 Dec. 2005	193	Accession: 1 Dec. 2005
Eswatini	Amended: 23 Jul. 2010	In force: 28 Jul. 1975	227	In force: 8 Sep. 2010
Ethiopia	Amended: 2 Jul. 2019	In force: 2 Dec. 1977	261	In force: 18 Sep. 2019
Fiji	X	In force: 22 Mar. 1973	192	In force: 14 Jul. 2006
Finland ¹⁴		Accession: 1 Oct. 1995	193	In force: 30 Apr. 2004
France		In force: 12 Sep. 1981	290*	In force: 30 Apr. 2004
	Amended: 25 Feb. 2019	In force: 26 Oct. 2007 ¹⁵	718	
Gabon	Amended: 30 Oct. 2013	In force: 25 Mar. 2010	792	In force: 25 Mar. 2010
Gambia, The	Amended: 17 Oct. 2011	In force: 8 Aug. 1978	277	In force: 18 Oct. 2011

State ^a	Small quantities protocols ^b	Safeguards agreements ^c	INFCIRC	Additional protocols
Georgia		In force: 3 Jun. 2003	617	In force: 3 Jun. 2003
Germany ¹⁶		In force: 21 Feb. 1977	193	In force: 30 Apr. 2004
Ghana		In force: 17 Feb. 1975	226	In force: 11 Jun. 2004
Greece ¹⁷		Accession: 17 Dec. 1981	193	In force: 30 Apr. 2004
Grenada ²	X	In force: 23 Jul. 1996	525	
Guatemala ²	Amended: 26 Apr. 2011	In force: 1 Feb. 1982	299	In force: 28 May 2008
<i>Guinea</i>	<i>Signed: 13 Dec. 2011</i>	<i>Signed: 13 Dec. 2011</i>		<i>Signed: 13 Dec. 2011</i>
Guinea-Bissau	In force: 23 Jun. 2022	In force: 23 Jun. 2022	1005	In force: 23 Jun. 2022
Guyana ²	X	In force: 23 May 1997	543	
Haiti ²	Amended: 22 Jan. 2020	In force: 9 Mar. 2006	681	In force: 9 Mar. 2006
Holy See	Amended: 11 Sep. 2006	In force: 1 Aug. 1972	187	In force: 24 Sep. 1998
Honduras ²	Amended: 20 Sep. 2007	In force: 18 Apr. 1975	235	In force: 17 Nov. 2017
Hungary ¹⁸		Accession: 1 Jul. 2007	193	Accession: 1 Jul. 2007
Iceland	Amended: 15 Mar. 2010	In force: 16 Oct. 1974	215	In force: 12 Sep. 2003
		In force: 30 Sep. 1971	211	
		In force: 17 Nov. 1977	260	
		In force: 27 Sep. 1988	360	
India¹⁹		In force: 11 Oct. 1989	374	
		In force: 1 Mar. 1994	433	
		In force: 11 May 2009	754	In force: 25 Jul. 2014
Indonesia		In force: 14 Jul. 1980	283	In force: 29 Sep. 1999
Iran, Islamic Republic of ²⁰		In force: 15 May 1974	214	Signed: 18 Dec. 2003
Iraq		In force: 29 Feb. 1972	172	In force: 10 Oct. 2012
Ireland		In force: 21 Feb. 1977	193	In force: 30 Apr. 2004
Israel		In force: 4 Apr. 1975	249/Add.1	
Italy		In force: 21 Feb. 1977	193	In force: 30 Apr. 2004
Jamaica ²		In force: 6 Nov. 1978	265	In force: 19 Mar. 2003
Japan		In force: 2 Dec. 1977	255	In force: 16 Dec. 1999
Jordan		In force: 21 Feb. 1978	258	In force: 28 Jul. 1998
Kazakhstan		In force: 11 Aug. 1995	504	In force: 9 May 2007
Kenya	In force: 18 Sep. 2009	In force: 18 Sep. 2009	778	In force: 18 Sep. 2009
Kiribati	X	In force: 19 Dec. 1990	390	Signed: 9 Nov. 2004
Korea, Republic of		In force: 14 Nov. 1975	236	In force: 19 Feb. 2004
Kuwait	Amended: 26 Jul. 2013	In force: 7 Mar. 2002	607	In force: 2 Jun. 2003
Kyrgyzstan	X	In force: 3 Feb. 2004	629	In force: 10 Nov. 2011

State ^a	Small quantities protocols ^b	Safeguards agreements ^c	INFCIRC	Additional protocols
Lao People's Democratic Republic	Amended: 24 Jun. 2022	In force: 5 Apr. 2001	599	Signed: 5 Nov. 2014
Latvia ²¹		Accession: 1 Oct. 2008	193	Accession: 1 Oct. 2008
Lebanon	Amended: 5 Sep. 2007	In force: 5 Mar. 1973	191	
Lesotho	Amended: 8 Sep. 2009	In force: 12 Jun. 1973	199	In force: 26 Apr. 2010
Liberia	In force: 10 Dec. 2018	In force: 10 Dec. 2018	927	In force: 10 Dec. 2018
Libya		In force: 8 Jul. 1980	282	In force: 11 Aug. 2006
Liechtenstein		In force: 4 Oct. 1979	275	In force: 25 Nov. 2015
Lithuania ²²		Accession: 1 Jan. 2008	193	Accession: 1 Jan. 2008
Luxembourg		In force: 21 Feb. 1977	193	In force: 30 Apr. 2004
Madagascar	Amended: 29 May 2008	In force: 14 Jun. 1973	200	In force: 18 Sep. 2003
Malawi	Amended: 29 Feb. 2008	In force: 3 Aug. 1992	409	In force: 26 Jul. 2007
Malaysia		In force: 29 Feb. 1972	182	Signed: 22 Nov. 2005
Maldives	Amended: 21 May 2021	In force: 2 Oct. 1977	253	
Mali	Amended: 18 Apr. 2006	In force: 12 Sep. 2002	615	In force: 12 Sep. 2002
Malta ²³		Accession: 1 Jul. 2007	193	Accession: 1 Jul. 2007
Marshall Islands		In force: 3 May 2005	653	In force: 3 May 2005
Mauritania	Amended: 20 Mar. 2013	In force: 10 Dec. 2009	788	In force: 10 Dec. 2009
Mauritius	Amended: 26 Sep. 2008	In force: 31 Jan. 1973	190	In force: 17 Dec. 2007
Mexico ²⁴		In force: 14 Sep. 1973	197	In force: 4 Mar. 2011
Micronesia, Federated States of	In force: 1 Sep. 2021	In force: 1 Sep. 2021	962	
Monaco	Amended: 27 Nov. 2008	In force: 13 Jun. 1996	524	In force: 30 Sep. 1999
Mongolia	X	In force: 5 Sep. 1972	188	In force: 12 May 2003
Montenegro	In force: 4 Mar. 2011	In force: 4 Mar. 2011	814	In force: 4 Mar. 2011
Morocco		In force: 18 Feb. 1975	228	In force: 21 Apr. 2011
Mozambique	In force: 1 Mar. 2011	In force: 1 Mar. 2011	813	In force: 1 Mar. 2011
Myanmar	X	In force: 20 Apr. 1995	477	Signed: 17 Sep. 2013
Namibia	Amended: 4 Jul. 2022	In force: 15 Apr. 1998	551	In force: 20 Feb. 2012
Nauru	Amended: 1 Dec. 2023	In force: 13 Apr. 1984	317	Approved: 22 Nov. 2023
Nepal	X	In force: 22 Jun. 1972	186	
Netherlands, Kingdom of the	X	In force: 5 Jun. 1975 ¹⁵ In force: 21 Feb. 1977	229 193	In force: 30 Apr. 2004
New Zealand ²⁵	Amended: 24 Feb. 2014	In force: 29 Feb. 1972	185	In force: 24 Sep. 1998
Nicaragua ²	Amended: 12 Jun. 2009	In force: 29 Dec. 1976	246	In force: 18 Feb. 2005
Niger		In force: 16 Feb. 2005	664	In force: 2 May 2007

State ^a	Small quantities protocols ^b	Safeguards agreements ^c	INFCIRC	Additional protocols
Nigeria		In force: 29 Feb. 1988	358	In force: 4 Apr. 2007
North Macedonia	Amended: 9 Jul. 2009	In force: 16 Apr. 2002	610	In force: 11 May 2007
Norway		In force: 1 Mar. 1972	177	In force: 16 May 2000
Oman	X	In force: 5 Sep. 2006	691	
		In force: 5 Mar. 1962	34	
		In force: 17 Jun. 1968	116	
		In force: 17 Oct. 1969	135	
		In force: 18 Mar. 1976	239	
		In force: 2 Mar. 1977	248	
Pakistan		In force: 10 Sep. 1991	393	
		In force: 24 Feb. 1993	418	
		In force: 22 Feb. 2007	705	
		In force: 15 Apr. 2011	816	
		In force: 3 May 2017	920	
Palau	Amended: 15 Mar. 2006	In force: 13 May 2005	650	In force: 13 May 2005
Panama ⁸	Amended: 4 Mar. 2011	In force: 23 Mar. 1984	316	In force: 11 Dec. 2001
Papua New Guinea	Amended: 6 Feb. 2019	In force: 13 Oct. 1983	312	
Paraguay ²	Amended: 17 Jul. 2018	In force: 20 Mar. 1979	279	In force: 15 Sep. 2004
Peru ²		In force: 1 Aug. 1979	273	In force: 23 Jul. 2001
Philippines		In force: 16 Oct. 1974	216	In force: 26 Feb. 2010
Poland ²⁶		Accession: 1 Mar. 2007	193	Accession: 1 Mar. 2007
Portugal ²⁷		Accession: 1 Jul. 1986	193	In force: 30 Apr. 2004
Qatar	In force: 21 Jan. 2009	In force: 21 Jan. 2009	747	
Republic of Moldova	Amended: 1 Sep. 2011	In force: 17 May 2006	690	In force: 1 Jun. 2012
Romania ²⁸		Accession: 1 May 2010	193	Accession: 1 May 2010
Russian Federation		In force: 10 Jun. 1985	327*	In force: 16 Oct. 2007
Rwanda	In force: 17 May 2010	In force: 17 May 2010	801	In force: 17 May 2010
Saint Kitts and Nevis ⁵	Amended: 19 Aug. 2016	In force: 7 May 1996	514	In force: 19 May 2014
Saint Lucia ⁵	Amended: 23 Nov. 2021	In force: 2 Feb. 1990	379	
Saint Vincent and the Grenadines ⁵	X	In force: 8 Jan. 1992	400	
Samoa	X	In force: 22 Jan. 1979	268	
San Marino	Amended: 13 May 2011	In force: 21 Sep. 1998	575	
Sao Tome and Principe	In force: 31 Mar. 2023	In force: 31 Mar. 2023	1082	In force: 31 Mar. 2023
Saudi Arabia	X	In force: 13 Jan. 2009	746	
Senegal	Amended: 6 Jan. 2010	In force: 14 Jan. 1980	276	In force: 24 Jul. 2017
Serbia ²⁹		In force: 28 Dec. 1973	204	In force: 17 Sep. 2018
Seychelles	Amended: 31 Oct. 2006	In force: 19 Jul. 2004	635	In force: 13 Oct. 2004

State ^a	Small quantities protocols ^b	Safeguards agreements ^c	INFCIRC	Additional protocols
Sierra Leone	X	In force: 4 Dec. 2009	787	Signed: 31 Oct. 2022
Singapore	Amended: 31 Mar. 2008	In force: 18 Oct. 1977	259	In force: 31 Mar. 2008
Slovakia ³⁰		Accession: 1 Dec. 2005	193	Accession: 1 Dec. 2005
Slovenia ³¹		Accession: 1 Sep. 2006	193	Accession: 1 Sep. 2006
Solomon Islands	X	In force: 17 Jun. 1993	420	
<i>Somalia</i>				
South Africa		In force: 16 Sep. 1991	394	In force: 13 Sep. 2002
Spain		Accession: 5 Apr. 1989	193	In force: 30 Apr. 2004
Sri Lanka		In force: 6 Aug. 1984	320	Approved: 12 Sep. 2018
State of Palestine ³²	In force: 7 Sep. 2022	In force: 7 Sep. 2022	1050	
Sudan	Amended: 19 Feb. 2021	In force: 7 Jan. 1977	245	
Suriname ²	Amended: 31 Oct. 2022	In force: 2 Feb. 1979	269	
Sweden ³³		Accession: 1 Jun. 1995	193	In force: 30 Apr. 2004
Switzerland		In force: 6 Sep. 1978	264	In force: 1 Feb. 2005
Syrian Arab Republic		In force: 18 May 1992	407	
Tajikistan		In force: 14 Dec. 2004	639	In force: 14 Dec. 2004
Thailand		In force: 16 May 1974	241	In force: 17 Nov. 2017
<i>Timor-Leste</i>				
	<i>Signed: 6 Oct. 2009</i>	<i>Signed: 6 Oct. 2009</i>		<i>Signed: 6 Oct. 2009</i>
Togo	Amended: 8 Oct. 2015	In force: 18 Jul. 2012	840	In force: 18 Jul. 2012
Tonga	Amended: 3 Apr. 2018	In force: 18 Nov. 1993	426	
Trinidad and Tobago ²	X	In force: 4 Nov. 1992	414	
Tunisia		In force: 13 Mar. 1990	381	Signed: 24 May 2005
Türkiye		In force: 1 Sep. 1981	295	In force: 17 Jul. 2001
Turkmenistan		In force: 3 Jan. 2006	673	In force: 3 Jan. 2006
Tuvalu	Amended: 1 Dec. 2022	In force: 15 Mar. 1991	391	
Uganda	Amended: 24 Jun. 2009	In force: 14 Feb. 2006	674	In force: 14 Feb. 2006
Ukraine		In force: 22 Jan. 1998	550	In force: 24 Jan. 2006
United Arab Emirates		In force: 9 Oct. 2003	622	In force: 20 Dec. 2010
United Kingdom	Signed: 6 Jan. 1993	In force: 14 Dec. 1972 ³⁴ Signed: 6 Jan. 1993 ¹⁵ In force: 31 Dec. 2020 ³⁵	175 951*	In force: 31 Dec. 2020 ³⁵
United Republic of Tanzania	Amended: 10 Jun. 2009	In force: 7 Feb. 2005	643	In force: 7 Feb. 2005
United States of America	Amended: 3 Jul. 2018	In force: 9 Dec. 1980 In force: 6 Apr. 1989 ¹⁵	288* 366	In force: 6 Jan. 2009
Uruguay ²		In force: 17 Sep. 1976	157	In force: 30 Apr. 2004
Uzbekistan		In force: 8 Oct. 1994	508	In force: 21 Dec. 1998

State ^a	Small quantities protocols ^b	Safeguards agreements ^c	INFCIRC	Additional protocols
Vanuatu	In force: 21 May 2013	In force: 21 May 2013	852	In force: 21 May 2013
Venezuela, Bolivarian Republic of ²		In force: 11 Mar. 1982	300	
Viet Nam		In force: 23 Feb. 1990	376	In force: 17 Sep. 2012
Yemen	X	In force: 14 Aug. 2002	614	
Zambia	X	In force: 22 Sep. 1994	456	Signed: 13 May 2009
Zimbabwe	Amended: 31 Aug. 2011	In force: 26 Jun. 1995	483	In force: 21 Sep. 2021

Key

Bold States not party to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) whose safeguards agreements are of INFCIRC/66-type.

Italics States Parties to the NPT that have not yet brought into force comprehensive safeguards agreements (CSAs) pursuant to Article III of the NPT.

* Voluntary offer safeguards agreement with NPT nuclear-weapon States.

X 'X' in the 'small quantities protocols' column indicates that the State has an operative small quantities protocol (SQP). 'Amended' or 'In force' indicates that the operative SQP is based on the revised SQP standardized text.

NB: This table does not aim at listing all safeguards agreements that the Agency has concluded. Not included are agreements under which the application of safeguards has been suspended upon the entry into force of a CSA. Unless otherwise indicated, the safeguards agreements referred to are CSAs concluded pursuant to the NPT.

^a An entry in this column does not imply the expression of any opinion whatsoever on the part of the Agency concerning the legal status of any country or territory or of its authorities, or concerning the delimitation of its frontiers.

^b Provided that they meet certain eligibility criteria (including that the quantities of nuclear material do not exceed the limits set out in paragraph 37 of INFCIRC/153 (Corrected)), countries have the option to conclude an SQP to their CSAs that holds in abeyance the implementation of most of the detailed provisions set out in Part II of the CSAs as long as eligibility criteria continue to apply. This column contains countries whose CSA with an SQP based on the original standard text has been approved by the Board of Governors and for which, as far as the Secretariat is aware, these eligibility criteria continue to apply. For those States that have accepted the revised standard SQP text (approved by the Board of Governors on 20 September 2005) the current status is reflected.

^c The Agency also applies safeguards for Taiwan, China, under two agreements, which entered into force on 13 October 1969 (reproduced in INFCIRC/133) and 6 December 1971 (reproduced in INFCIRC/158), respectively.

¹ *Sui generis* comprehensive safeguards agreement. On 28 November 2002, upon approval by the Board of Governors, an exchange of letters entered into force confirming that the safeguards agreement satisfies the requirement of Article III of the NPT.

² Safeguards agreement is pursuant to both the Treaty of Tlatelolco and the NPT.

³ Date refers to the safeguards agreement concluded between Argentina, Brazil, ABACC and the Agency. On 18 March 1997, upon approval by the Board of Governors, an exchange of letters entered into force between Argentina and the Agency confirming that the safeguards agreement satisfies the requirements of Article 13 of the Treaty of Tlatelolco and Article III of the NPT to conclude a safeguards agreement with the Agency.

⁴ The application of safeguards for Austria under the NPT bilateral safeguards agreement (reproduced in INFCIRC/156), in force since 23 July 1972, was suspended on 31 July 1996, on which date the agreement of 5 April 1973 between the non-nuclear-weapon States of Euratom, Euratom and the Agency (reproduced in INFCIRC/193), to which Austria had acceded, entered into force for Austria.

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- ⁵ Date refers to a safeguards agreement pursuant to Article III of the NPT. Upon approval by the Board of Governors, an exchange of letters entered into force (for Saint Lucia on 12 June 1996 and for Belize, Dominica, Saint Kitts and Nevis and Saint Vincent and the Grenadines on 18 March 1997) confirming that the safeguards agreement satisfies the requirement of Article 13 of the Treaty of Tlatelolco.
- ⁶ Date refers to the safeguards agreement concluded between Argentina, Brazil, ABACC and the Agency. On 10 June 1997, upon approval by the Board of Governors, an exchange of letters entered into force between Brazil and the Agency confirming that the safeguards agreement satisfies the requirement of Article 13 of the Treaty of Tlatelolco. On 20 September 1999, upon approval by the Board of Governors, an exchange of letters entered into force confirming that the safeguards agreement also satisfies the requirement of Article III of the NPT.
- ⁷ The application of safeguards for Bulgaria under the NPT bilateral safeguards agreement (reproduced in INFCIRC/178), in force since 29 February 1972, was suspended on 1 May 2009, on which date the agreement of 5 April 1973 between the non-nuclear-weapon States of Euratom, Euratom and the Agency (reproduced in INFCIRC/193), to which Bulgaria had acceded, entered into force for Bulgaria.
- ⁸ Date refers to a safeguards agreement pursuant to Article 13 of the Treaty of Tlatelolco. Upon approval by the Board of Governors, an exchange of letters entered into force (for Chile on 9 September 1996; for Colombia on 13 June 2001; for Panama on 20 November 2003) confirming that the safeguards agreement satisfies the requirement of Article III of the NPT.
- ⁹ The application of safeguards for Croatia under the NPT bilateral safeguards agreement (reproduced in INFCIRC/463), in force since 19 January 1995, was suspended on 1 April 2017, on which date the agreement of 5 April 1973 between the non-nuclear-weapon States of Euratom, Euratom and the Agency (reproduced in INFCIRC/193), to which Croatia had acceded, entered into force for Croatia.
- ¹⁰ The application of safeguards for Cyprus under the NPT bilateral safeguards agreement (reproduced in INFCIRC/189), in force since 26 January 1973, was suspended on 1 May 2008, on which date the agreement of 5 April 1973 between the non-nuclear-weapon States of Euratom, Euratom and the Agency (reproduced in INFCIRC/193), to which Cyprus had acceded, entered into force for Cyprus.
- ¹¹ The application of safeguards for the Czech Republic under the NPT bilateral safeguards agreement (reproduced in INFCIRC/541), in force since 11 September 1997, was suspended on 1 October 2009, on which date the agreement of 5 April 1973 between the non-nuclear-weapon States of Euratom, Euratom and the Agency (reproduced in INFCIRC/193), to which the Czech Republic had acceded, entered into force for the Czech Republic.
- ¹² The application of safeguards for Denmark under the NPT bilateral safeguards agreement (reproduced in INFCIRC/176), in force since 1 March 1972, was suspended on 21 February 1977, on which date the agreement of 5 April 1973 between the non-nuclear-weapon States of Euratom, Euratom and the Agency (reproduced in INFCIRC/193) entered into force for Denmark. Since 21 February 1977, INFCIRC/193 also applies to the Faroe Islands. Upon Greenland's secession from Euratom as of 31 January 1985, INFCIRC/176 re-entered into force for Greenland. The Additional Protocol for Greenland entered into force on 22 March 2013 (reproduced in INFCIRC/176/Add.1).
- ¹³ The application of safeguards for Estonia under the NPT bilateral safeguards agreement (reproduced in INFCIRC/547), in force since 24 November 1997, was suspended on 1 December 2005, on which date the agreement of 5 April 1973 between the non-nuclear-weapon States of Euratom, Euratom and the Agency (reproduced in INFCIRC/193), to which Estonia had acceded, entered into force for Estonia.
- ¹⁴ The application of safeguards for Finland under the NPT bilateral safeguards agreement (reproduced in INFCIRC/155), in force since 9 February 1972, was suspended on 1 October 1995, on which date the agreement of 5 April 1973 between the non-nuclear-weapon States of Euratom, Euratom and the Agency (reproduced in INFCIRC/193), to which Finland had acceded, entered into force for Finland.
- ¹⁵ The safeguards agreement is in connection with Additional Protocol I to the Treaty of Tlatelolco.
- ¹⁶ The NPT safeguards agreement of 7 March 1972 concluded with the German Democratic Republic (reproduced in INFCIRC/181) is no longer in force with effect from 3 October 1990, on which date the German Democratic Republic acceded to the Federal Republic of Germany.
- ¹⁷ The application of safeguards for Greece under the NPT bilateral safeguards agreement (reproduced in INFCIRC/166), in force since 1 March 1972, was suspended on 17 December 1981, on which date the agreement of 5 April 1973 between the non-nuclear-weapon States of Euratom, Euratom and the Agency (reproduced in INFCIRC/193), to which Greece had acceded, entered into force for Greece.
- ¹⁸ The application of safeguards for Hungary under the NPT bilateral safeguards agreement (reproduced in INFCIRC/174), in force since 30 March 1972, was suspended on 1 July 2007, on which date the agreement of 5 April 1973 between the non-nuclear-weapon States of Euratom, Euratom and the Agency (reproduced in INFCIRC/193), to which Hungary had acceded, entered into force for Hungary.
- ¹⁹ The application of safeguards for India under the safeguards agreement between the Agency, Canada and India (reproduced in INFCIRC/211), in force since 30 September 1971, was suspended as of 20 March 2015. The application of safeguards for India under the safeguards agreements between the Agency and India reproduced in the following INFCIRC's was

suspended as of 30 June 2016: INFCIRC/260, in force since 17 November 1977; INFCIRC/360, in force since 27 September 1988; INFCIRC/374, in force since 11 October 1989; and INFCIRC/433, in force since 1 March 1994. Items subject to safeguards under the aforementioned safeguards agreements are subject to safeguards under the safeguards agreement between India and the Agency (reproduced in INFCIRC/754), which entered into force on 11 May 2009.

- ²⁰ On 16 January 2016, as notified in its letter to the Director General of 7 January 2016, Iran began to provisionally apply its additional protocol in accordance with Article 17(b) of the additional protocol, pending its entry into force. The additional protocol, which was provisionally applied by Iran as of 16 January 2016, has not been applied since 23 February 2021.
- ²¹ The application of safeguards for Latvia under the NPT bilateral safeguards agreement (reproduced in INFCIRC/434), in force since 21 December 1993, was suspended on 1 October 2008, on which date the agreement of 5 April 1973 between the non-nuclear-weapon States of Euratom, Euratom and the Agency (reproduced in INFCIRC/193), to which Latvia had acceded, entered into force for Latvia.
- ²² The application of safeguards for Lithuania under the NPT bilateral safeguards agreement (reproduced in INFCIRC/413), in force since 15 October 1992, was suspended on 1 January 2008, on which date the agreement of 5 April 1973 between the non-nuclear-weapon States of Euratom, Euratom and the Agency (reproduced in INFCIRC/193), to which Lithuania had acceded, entered into force for Lithuania.
- ²³ The application of safeguards for Malta under the NPT bilateral safeguards agreement (reproduced in INFCIRC/387), in force since 13 November 1990, was suspended on 1 July 2007, on which date the agreement of 5 April 1973 between the non-nuclear-weapon States of Euratom, Euratom and the Agency (reproduced in INFCIRC/193), to which Malta had acceded, entered into force for Malta.
- ²⁴ The safeguards agreement was concluded pursuant to both the Treaty of Tlatelolco and the NPT. The application of safeguards under an earlier safeguards agreement pursuant to the Treaty of Tlatelolco, which entered into force on 6 September 1968 (reproduced in INFCIRC/118), was suspended as of 14 September 1973.
- ²⁵ Whereas the NPT safeguards agreement and SQP with New Zealand (reproduced in INFCIRC/185) also apply to Cook Islands and Niue, the additional protocol thereto (reproduced in INFCIRC/185/Add.1) does not apply to those territories. Amendments to the SQP entered into force only for New Zealand on 24 February 2014 (reproduced in INFCIRC/185/Mod.1).
- ²⁶ The application of safeguards for Poland under the NPT bilateral safeguards agreement (reproduced in INFCIRC/179), in force since 11 October 1972, was suspended on 1 March 2007, on which date the agreement of 5 April 1973 between the non-nuclear-weapon States of Euratom, Euratom and the Agency (reproduced in INFCIRC/193), to which Poland had acceded, entered into force for Poland.
- ²⁷ The application of safeguards for Portugal under the NPT bilateral safeguards agreement (reproduced in INFCIRC/272), in force since 14 June 1979, was suspended on 1 July 1986, on which date the agreement of 5 April 1973 between the non-nuclear-weapon States of Euratom, Euratom and the Agency (reproduced in INFCIRC/193), to which Portugal had acceded, entered into force for Portugal.
- ²⁸ The application of safeguards for Romania under the NPT bilateral safeguards agreement (reproduced in INFCIRC/180), in force since 27 October 1972, was suspended on 1 May 2010, on which date the agreement of 5 April 1973 between the non-nuclear-weapon States of Euratom, Euratom and the Agency (reproduced in INFCIRC/193), to which Romania had acceded, entered into force for Romania.
- ²⁹ The NPT safeguards agreement concluded with the Socialist Federal Republic of Yugoslavia (reproduced in INFCIRC/204), which entered into force on 28 December 1973, continues to be applied for Serbia to the extent relevant to the territory of Serbia.
- ³⁰ The application of safeguards for Slovakia under the NPT bilateral safeguards agreement with the Czechoslovak Socialist Republic (reproduced in INFCIRC/173), in force since 3 March 1972, was suspended on 1 December 2005, on which date the agreement of 5 April 1973 between the non-nuclear-weapon States of Euratom, Euratom and the Agency (reproduced in INFCIRC/193), to which Slovakia had acceded, entered into force for Slovakia.
- ³¹ The application of safeguards for Slovenia under the NPT bilateral safeguards agreement (reproduced in INFCIRC/538), in force since 1 August 1997, was suspended on 1 September 2006, on which date the agreement of 5 April 1973 between the non-nuclear-weapon States of Euratom, Euratom and the Agency (reproduced in INFCIRC/193), to which Slovenia had acceded, entered into force for Slovenia.
- ³² The designation employed does not imply the expression of any opinion whatsoever concerning the legal status of any country or territory or of its authorities, or concerning the delimitation of its frontiers.
- ³³ The application of safeguards for Sweden under the NPT bilateral safeguards agreement (reproduced in INFCIRC/234), in force since 14 April 1975, was suspended on 1 June 1995, on which date the agreement of 5 April 1973 between the non-nuclear-weapon States of Euratom, Euratom and the Agency (reproduced in INFCIRC/193), to which Sweden had acceded, entered into force for Sweden.
- ³⁴ Date refers to the INFCIRC/66-type safeguards agreement, concluded between the United Kingdom and the Agency, which remains in force.

³⁵ The voluntary offer safeguards agreement between the United Kingdom and the Agency (reproduced in INFCIRC/951) and the additional protocol thereto (reproduced in INFCIRC/951/Add.1) entered into force on 31 December 2020 at 23:00 GMT.

Table A7. Participation in multilateral treaties for which the Director General is the depositary (status as of 31 December 2023)

State/Organization ^a	P&I	ENC	AC	CNS	JC	CPPNM	A/CPNPM	VC	PVC	CSC	JP
* Afghanistan						X					
* Albania	X	X	X	X	X	X	X				
* Algeria		X	X			X	X				
Andorra						X					
* Angola		X		X		X	X				
* Antigua and Barbuda						X	X				
* Argentina	X	X	X	X	X	X	X	X	X	X	
* Armenia		X	X	X	X	X	X	X			
* Australia	X	X	X	X	X	X	X				
* Austria		X	X	X	X	X	X				
* Azerbaijan						X	X				
* Bahamas						X					
* Bahrain		X		X		X	X				
* Bangladesh		X	X	X		X	X				
* Barbados											
* Belarus	X	X	X	X	X	X	X	X	X		
* Belgium	X	X	X	X	X	X	X				
* Belize											
* Benin	X	X	X	X	X	X	X	X	X	X	X
Bhutan											
* Bolivia, Plurinational State of	X	X	X	X	X	X	X	X			
* Bosnia and Herzegovina	X	X	X	X	X	X	X	X	X		
* Botswana		X	X		X	X	X				
* Brazil	X	X	X	X	X	X	X	X			
* Brunei Darussalam	X										
* Bulgaria	X	X	X	X	X	X	X	X			X
* Burkina Faso		X	X			X	X				
* Burundi											
* Cabo Verde						X					
* Cambodia		X	X	X		X					

State/Organization ^a	P&I	ENC	AC	CNS	JC	CPPNM	A/CPPNM	VC	PVC	CSC	JP
* Cameroon	X	X	X			X	X	X			X
* Canada	X	X	X	X	X	X	X			X	
* Central African Republic						X					
* Chad						X	X				
* Chile	X	X	X	X	X	X	X	X			X
* China	X	X	X	X	X	X	X				
* Colombia	X	X	X			X	X				
* Comoros						X	X				
* Congo	X	X		X	X	X	X				
* Costa Rica		X	X			X	X				
* Côte d'Ivoire	X	X	X			X	X				
* Croatia	X	X	X	X	X	X	X	X			X
* Cuba	X	X	X	X	X	X	X	X			
* Cyprus	X	X	X	X	X	X	X				
* Czech Republic	X	X	X	X	X	X	X	X			X
Dem. People's Rep. of Korea											
* Dem. Rep. of the Congo	X					X					
* Denmark	X	X	X	X	X	X	X				X
* Djibouti						X	X				
* Dominica						X					
* Dominican Republic		X				X	X				
* Ecuador	X	X	X			X	X				
* Egypt	X	X	X	X				X			X
* El Salvador		X	X			X	X				
Equatorial Guinea						X					
* Eritrea	X	X	X		X	X	X				
* Estonia	X	X	X	X	X	X	X	X			X
* Eswatini						X	X				
* Ethiopia											
* Fiji						X	X				
* Finland	X	X	X	X	X	X	X				X
* France		X	X	X	X	X	X				X

State/Organization ^a	P&I	ENC	AC	CNS	JC	CPPNM	A/CPNPM	VC	PVC	CSC	JP
* Gabon		X	X		X	X	X				
* Gambia, The											
* Georgia	X	X	X		X	X	X				
* Germany	X	X	X	X	X	X	X				X
* Ghana	X	X	X	X	X	X	X	X	X	X	X
* Greece	X	X	X	X	X	X	X				X
* Grenada						X					
* Guatemala		X	X			X					
* Guinea						X					
Guinea-Bissau						X					
* Guyana						X					
* Haiti											
* Holy See	X										
* Honduras						X					
* Hungary	X	X	X	X	X	X	X	X			X
* Iceland	X	X	X	X	X	X	X				
* India	X	X	X	X		X	X			X	
* Indonesia	X	X	X	X	X	X	X				
* Iran, Islamic Republic of	X	X	X								
* Iraq	X	X	X			X					
* Ireland	X	X	X	X	X	X	X				
* Israel		X	X			X	X				
* Italy	X	X	X	X	X	X	X				X
* Jamaica	X					X	X				
* Japan	X	X	X	X	X	X	X			X	
* Jordan	X	X	X	X	X	X	X	X	X		
* Kazakhstan	X	X	X	X	X	X	X	X	X		
* Kenya						X	X				
Kiribati											
* Korea, Republic of	X	X	X	X	X	X	X				
* Kuwait	X	X	X	X		X	X				
* Kyrgyzstan					X	X	X				

State/Organization ^a	P&I	ENC	AC	CNS	JC	CPPNM	A/CPPNM	VC	PVC	CSC	JP
* Lao People's Dem. Rep.		X	X			X	X				
* Latvia	X	X	X	X	X	X	X	X	X		X
* Lebanon	X	X	X	X		X		X			
* Lesotho	X	X	X		X	X	X				
* Liberia											
* Libya		X	X	X		X	X				
* Liechtenstein		X	X			X	X				
* Lithuania	X	X	X	X	X	X	X	X			X
* Luxembourg	X	X	X	X	X	X	X				
* Madagascar		X	X	X	X	X	X				
* Malawi		X	X		X	X	X				
* Malaysia		X	X								
Maldives											
* Mali		X	X	X		X	X				
* Malta				X	X	X	X				
* Marshall Islands						X	X				
* Mauritania		X	X		X	X	X				
* Mauritius	X	X	X		X			X			
* Mexico	X	X	X	X	X	X	X	X			
Micronesia, Federated States of											
* Monaco		X	X			X	X				
* Mongolia	X	X	X			X					
* Montenegro	X	X	X	X	X	X	X	X	X	X	X
* Morocco	X	X	X	X	X	X	X	X	X	X	X
* Mozambique	X	X	X			X	X				
* Myanmar		X	X	X		X	X				
* Namibia		X	X			X	X				
Nauru						X	X				
* Nepal											
* Netherlands, Kingdom of the	X	X	X	X	X	X	X				X
* New Zealand	X	X	X			X	X				
* Nicaragua	X	X	X			X	X				

State/Organization ^a	P&I	ENC	AC	CNS	JC	CPPNM	A/CPPNM	VC	PVC	CSC	JP
* Niger	X	X	X	X	X	X	X	X	X		
* Nigeria	X	X	X	X	X	X	X	X			
Niue						X					
* North Macedonia		X	X	X	X	X	X	X			
* Norway	X	X	X	X	X	X	X				X
* Oman	X	X	X	X	X	X	X				
* Pakistan	X	X	X	X		X	X				
* Palau	X					X					
* Panama		X	X			X	X				
* Papua New Guinea											
* Paraguay	X	X	X	X	X	X	X				
* Peru		X	X	X	X	X	X	X			
* Philippines	X	X	X			X	X	X			
* Poland	X	X	X	X	X	X	X	X	X		X
* Portugal	X	X	X	X	X	X	X				
* Qatar		X	X	X		X	X				
* Republic of Moldova	X	X	X	X	X	X	X	X			
* Romania	X	X	X	X	X	X	X	X	X	X	X
* Russian Federation	X	X	X	X	X	X	X	X			
* Rwanda		X	X		X	X	X	X			
* Saint Kitts and Nevis	X					X	X				
* Saint Lucia						X	X				
* Saint Vincent and the Grenadines		X	X					X			X
* Samoa											
* San Marino						X	X				
São Tomé and Príncipe											
* Saudi Arabia		X	X	X	X	X	X	X	X		
* Senegal	X	X	X	X	X	X	X	X			
* Serbia	X	X	X	X	X	X	X	X			
* Seychelles						X	X				
* Sierra Leone											
* Singapore	X	X	X	X		X	X				

State/Organization ^a	P&I	ENC	AC	CNS	JC	CPPNM	A/CPPNM	VC	PVC	CSC	JP
* Slovakia	X	X	X	X	X	X	X	X			X
* Slovenia	X	X	X	X	X	X	X				X
Solomon Islands											
Somalia											
* South Africa	X	X	X	X	X	X					
South Sudan											
* Spain	X	X	X	X	X	X	X				
* Sri Lanka		X	X	X							
State of Palestine							X	X			
* Sudan							X				
Suriname											
* Sweden	X	X	X	X	X	X	X				X
* Switzerland	X	X	X	X	X	X	X				X
* Syrian Arab Republic	X	X	X	X	X	X	X				
* Tajikistan	X	X	X		X	X	X				
* Thailand	X	X	X	X	X	X	X				
Timor Leste											
* Togo							X				
* Tonga							X				
* Trinidad and Tobago							X	X			
* Tunisia	X	X	X	X		X	X				
* Türkiye	X	X	X	X	X	X	X				X
* Turkmenistan		X	X				X	X			
Tuvalu											
* Uganda							X				
* Ukraine	X	X	X	X	X	X	X	X			X
* United Arab Emirates		X	X	X	X	X	X		X	X	X
* United Kingdom	X	X	X	X	X	X	X				
* United Republic of Tanzania		X	X				X				
* United States of America		X	X	X	X	X	X			X	
* Uruguay	X	X	X	X	X	X	X	X			X
* Uzbekistan					X	X	X				

State/Organization ^a	P&I	ENC	AC	CNS	JC	CPPNM	A/CPPNM	VC	PVC	CSC	JP
* Vanuatu											
* Venezuela, Bolivarian Republic of		X									
* Viet Nam	X	X	X	X	X	X	X				
* Yemen						X					
* Zambia						X					
* Zimbabwe	X	X	X	X	X	X	X	X	X		X
Euratom		X	X	X	X	X	X				
FAO		X	X								
WHO		X	X								
WMO		X	X								

P&I	Agreement on the Privileges and Immunities of the IAEA
ENC	Convention on Early Notification of a Nuclear Accident
AC	Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
CNS	Convention on Nuclear Safety
JC	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
CPPNM	Convention on the Physical Protection of Nuclear Material
A/CPPNM	Amendment to the Convention on the Physical Protection of Nuclear Material
VC	Vienna Convention on Civil Liability for Nuclear Damage
PVC	Protocol to Amend the Vienna Convention on Civil Liability for Nuclear Damage
CSC	Convention on Supplementary Compensation for Nuclear Damage
JP	Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention
*	Agency Member State
X	Party

^a An entry in this column does not imply the expression of any opinion whatsoever on the part of the Agency concerning the legal status of any country or territory or of its authorities, or concerning the delimitation of its frontiers.

Table A8. Member States that have concluded a Revised Supplementary Agreement (RSA) Concerning the Provision of Technical Assistance by the Agency (status as of 31 December 2023)^a

Afghanistan	Gabon	Nigeria
Albania	Gambia, The	North Macedonia
Algeria	Georgia	Oman
Angola	Ghana	Pakistan
Antigua and Barbuda	Greece	Palau
Argentina	Guatemala	Panama
Armenia	Guyana	Paraguay
Azerbaijan	Haiti	Peru
Bahrain	Honduras	Philippines
Bangladesh	Hungary	Poland
Belarus	Iceland	Portugal
Belize	Indonesia	Qatar
Benin	Iran, Islamic Republic of	Republic of Moldova
Bolivia, Plurinational State of	Iraq	Romania
Bosnia and Herzegovina	Ireland	Rwanda
Botswana	Israel	Saint Lucia
Brazil	Jamaica	Saint Vincent and the Grenadines
Brunei Darussalam	Jordan	Saudi Arabia
Bulgaria	Kazakhstan	Senegal
Burkina Faso	Kenya	Serbia
Burundi	Korea, Republic of	Seychelles
Cambodia	Kuwait	Sierra Leone
Cameroon	Kyrgyzstan	Singapore
Central African Republic	Lao People's Democratic Republic	Slovakia
Chad	Latvia	Slovenia
Chile	Lebanon	South Africa
China	Lesotho	Spain
Colombia	Liberia	Sri Lanka
Comoros	Libya	Sudan
Congo	Lithuania	Syrian Arab Republic
Costa Rica	Madagascar	Tajikistan
Côte d'Ivoire	Malawi	Thailand
Croatia	Malaysia	Togo
Cuba	Mali	Trinidad and Tobago
Cyprus	Malta	Tunisia
Czech Republic	Marshall Islands	Türkiye
Democratic Republic of the Congo	Mauritania	Turkmenistan
Djibouti	Mauritius	Uganda
Dominica	Mexico	Ukraine
Dominican Republic	Mongolia	United Arab Emirates
Ecuador	Montenegro	United Republic of Tanzania
Egypt	Morocco	Uruguay
El Salvador	Mozambique	Uzbekistan
Eritrea	Myanmar	Vanuatu
Estonia	Namibia	Venezuela, Bolivarian Republic of
Eswatini	Nepal	Viet Nam
Ethiopia	Nicaragua	Zambia
Fiji	Niger	Zimbabwe

^a In 2023, The Gambia concluded an RSA with the Agency. By the end of the year, there were 144 States party to an RSA.

**Table A9. Acceptance of Amendment to Article VI of the Agency's Statute
(status as of 31 December 2023)¹**

Afghanistan	Libya
Albania	Liechtenstein
Algeria	Lithuania
Argentina	Luxembourg
Austria	Malta
Belarus	Mexico
Belgium	Monaco
Bosnia and Herzegovina	Morocco
Brazil	Myanmar
Bulgaria	Namibia
Canada	Netherlands, Kingdom of the
Colombia	Norway
Croatia	Pakistan
Cyprus	Panama
Czech Republic	Peru
Denmark	Poland
El Salvador	Portugal
Estonia	Republic of Moldova
Ethiopia	Romania
Finland	San Marino
France	Slovakia
Germany	Slovenia
Greece	South Africa
Holy See	Spain
Hungary	Sweden
Iceland	Switzerland
Ireland	Tunisia
Israel	Türkiye
Italy	Ukraine
Japan	United Kingdom
Kazakhstan	Uruguay
Korea, Republic of	Uzbekistan
Latvia	

^a In 2023, Namibia and Uzbekistan accepted the Amendment to Article VI of the Agency's Statute. By the end of the year, there were 65 States.

Table A10. Acceptance of Amendment to Article XIV.A of the Agency’s Statute (status as of 31 December 2023)²

Albania	Liechtenstein
Algeria	Lithuania
Argentina	Luxembourg
Australia	Malta
Austria	Mexico
Belarus	Monaco
Belgium	Myanmar
Bosnia and Herzegovina	Namibia
Brazil	Netherlands, Kingdom of the
Bulgaria	Norway
Canada	Pakistan
Colombia	Peru
Croatia	Poland
Cyprus	Portugal
Czech Republic	Republic of Moldova
Denmark	Romania
Ecuador	San Marino
Estonia	Seychelles
Finland	Slovakia
France	Slovenia
Germany	South Africa
Greece	Spain
Holy See	Sweden
Hungary	Switzerland
Iceland	Syrian Arab Republic
Iran, Islamic Republic of	Tunisia
Ireland	Türkiye
Italy	Ukraine
Japan	United Kingdom
Kazakhstan	
Kenya	
Korea, Republic of	
Latvia	

² In 2023, Namibia accepted the Amendment to Article XIV.A of the Agency’s Statute. By the end of the year, there were 62 States.

Table A11. Multilateral treaties negotiated and adopted under the auspices of the Agency and/or for which the Director General is the depositary (status and relevant developments)

Agreement on the Privileges and Immunities of the IAEA (reproduced in INFCIRC/9/Rev.2). In 2023, there were 3 new Parties to the Agreement. By the end of the year, there were 95 Parties.

Convention on Early Notification of a Nuclear Accident (reproduced in INFCIRC/335). Entered into force on 27 October 1986. In 2023, there was 1 new Party to the Convention. By the end of the year, there were 133 Parties.

Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (reproduced in INFCIRC/336). Entered into force on 26 February 1987. In 2023, there was 1 new Party to the Convention. By the end of the year, there were 128 Parties.

Convention on Nuclear Safety (reproduced in INFCIRC/449). Entered into force on 24 October 1996. In 2023, there were 2 new Parties and 1 Contracting State to the Convention. By the end of the year, there were 93 Parties.

Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (reproduced in INFCIRC/546). Entered into force on 18 June 2001. In 2023, there was 1 new Party and 1 Contracting State to the Convention. By the end of the year, there were 89 Parties.

Convention on the Physical Protection of Nuclear Material (reproduced in INFCIRC/274/Rev.1). Entered into force on 8 February 1987. In 2023, the status of the Convention remained unchanged with 164 Parties.

Amendment to the Convention on the Physical Protection of Nuclear Material (reproduced in INFCIRC/274/Rev.1/Mod.1/Corr.). Entered into force on 8 May 2016. In 2023, there were 4 new Parties to the Amendment. By the end of the year, there were 135 Parties.

Vienna Convention on Civil Liability for Nuclear Damage (reproduced in INFCIRC/500). Entered into force on 12 November 1977. In 2023, there was 1 new Party to the Convention. By the end of the year, there were 45 Parties.

Optional Protocol Concerning the Compulsory Settlement of Disputes (reproduced in INFCIRC/500/Add.3). Entered into force on 13 May 1999. In 2023, the status of the Protocol remained unchanged with 2 Parties.

Protocol to Amend the Vienna Convention on Civil Liability for Nuclear Damage (reproduced in INFCIRC/566). Entered into force on 4 October 2003. In 2023, there was 1 new Party to the Protocol. By the end of the year, there were 16 Parties.

Convention on Supplementary Compensation for Nuclear Damage (reproduced in INFCIRC/567). Entered into force on 15 April 2015. In 2023, the status of the Convention remained unchanged with 11 Parties.

Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention (reproduced in INFCIRC/402). Entered into force on 27 April 1992. In 2023, there was 1 new Party to the Protocol. By the end of the year, there were 34 Parties.

Regional Co-operative Agreement for Research, Development and Training Related to Nuclear Science and Technology (RCA), 2017 (reproduced in INFCIRC/919). Entered into force on 11 June 2017. In 2023, there were 2 new Parties to the Agreement. By the end of the year, there were 21 Parties.

African Regional Co-operative Agreement for Research, Development and Training Related to Nuclear Science and Technology (AFRA) (reproduced in INFCIRC/935). Entered into force on 4 April 2020. In 2023, there were 8 new Parties to the Agreement. By the end of the year, there were 31 Parties.

Agreement to further extend the Co-operation Agreement for the Promotion of Nuclear Science and Technology in Latin America and the Caribbean (ARCAL) (Second Extension) (reproduced in

INFCIRC/582/Add. 5). Entered into force on 5 September 2020. In 2023, the status of the Agreement remained unchanged with 21 Parties.

Co-operative Agreement for Arab States in Asia for Research, Development and Training Related to Nuclear Science and Technology (the 2017 ARASIA) (reproduced in INFCIRC/929). Entered into force on 28 July 2020. In 2023, there was 1 new Party to the Agreement. By the end of the year, there were 7 Parties.

Agreement on the Establishment of the ITER International Fusion Energy Organization for the Joint Implementation of the ITER Project (reproduced in INFCIRC/702). Entered into force on 24 October 2007. In 2023, the status of the Agreement remained unchanged with 7 Parties.

Agreement on the Privileges and Immunities of the ITER International Fusion Energy Organization for the Joint Implementation of the ITER Project (reproduced in INFCIRC/703). Entered into force on 24 October 2007. In 2023, the status of the Agreement remained unchanged with 6 Parties.

Table A.12. Nuclear power reactors in operation and under construction in the world^a

Country	Reactors in operation		Reactors in suspended operation		Reactors under construction		Nuclear electricity supplied	
	No. of units	Total MW(e)	No. of units	Total MW(e)	No. of units	Total MW(e)	TW(e).h	Nuclear share %
Argentina	3	1 641			1	25	9.0	6.3
Armenia	1	416					2.5	31.1
Bangladesh					2	2 160		
Belarus	2	2 220					11.0	28.6
Belgium	5	3 908					31.3	41.2
Brazil	2	1 884			1	1 340	13.7	2.2
Bulgaria	2	2 006					15.5	40.5
Canada	19	13 699					83.5	13.7
China	55	53 152			24	24 948	406.5	4.9
Czech Republic	6	3 934					28.7	40.0
Egypt					3	3 300		
Finland	5	4 394					32.8	42.0
France	56	61 370			1	1 630	323.8	64.8
Hungary	4	1 916					15.1	48.8
India	19	6 290	4	639	8	6 028	44.6	3.1
Iran, Islamic Republic of	1	915			1	974	6.1	1.7
Japan	12	11 046	21	20 633	2	2 653	77.5	5.5
Korea, Republic of	26	25 825			2	2 680	171.6	31.5
Mexico	2	1 552					12.0	4.9
Netherlands, Kingdom of the	1	482					3.8	3.4
Pakistan	6	3 262					22.4	17.4
Romania	2	1 300					10.3	18.9
Russian Federation	37	27 727			3	2 700	204.0	18.4
Slovakia	5	2 308			1	440	17.0	61.3
Slovenia	1	688					5.3	36.8
South Africa	2	1 854					8.2	4.4
Spain	7	7 123					54.4	20.3
Sweden	6	6 944					46.6	28.6
Switzerland	4	2 973					23.4	32.4
Türkiye					4	4 456		
United Arab Emirates	3	4 011			1	1 310	31.2	19.7
United Kingdom	9	5 883			2	3 260	37.3	12.5
Ukraine	15	13 107			2	2 070	NA	NA
United States of America	93	95 835			1	1 117	742.4	18.5
Worldwide^b	413	371 539	25	21 272	59	61 091	2 508.7^c	N/A

Note: NA — Not Available, N/A — Not Applicable.

^a Source: Agency's Power Reactor Information System (PRIS) (www.iaea.org/pris) as per data provided by Member States by 16 June 2024.

- ^b The total figures include the following data from Taiwan, China: 2 units, 1 874 MW(e) in operation and 17.2 TW·h of electricity supplied, accounting for 6.9% of the total electricity mix.
- ^c The total electricity production does not include Ukraine as operational data was not submitted for the year 2023.

Table A13. Member State participation in selected Agency activities in 2023

Member State	No. of research contracts and agreements	No. of Collaborating Centres	Services provided to Member States		
			ALMERA ¹	Dosimetry audits for radiotherapy	Plant irradiation services
Afghanistan					
Albania	4				
Algeria	11			1	
Angola	1				
Antigua and Barbuda					
Argentina	60	1	2	18	
Armenia	2				
Australia	39	1	3	8	
Austria	9	1	4	4	
Azerbaijan	5				
Bahamas	1			2	
Bahrain					
Bangladesh	21			8	
Barbados					
Belarus	7		1		
Belgium	19		2	1	
Belize					
Benin	1				
Bolivia, Plurinational State of				10	
Bosnia and Herzegovina	1		3	8	2
Botswana	1			8	
Brazil	60	3	5	11	
Brunei Darussalam				3	
Bulgaria	5		2	22	
Burkina Faso	13	1		4	1
Burundi					
Cambodia	2				
Cameroon	8				
Canada	41	1	3	7	
Central African Republic					1
Chad	2				
Chile	15		1		
China	108	8	4	22	
Colombia	6			20	
Comoros					
Congo					
Costa Rica	10	1	1		
Côte d'Ivoire					
Croatia	17		2	12	2
Cuba	14		3	10	

Member State	No. of research contracts and agreements	No. of Collaborating Centres	Services provided to Member States		
			ALMERA ⁱ	Dosimetry audits for radiotherapy	Plant irradiation services
Cyprus			1	3	
Czech Republic	12		1	14	
Democratic Republic of the Congo					1
Denmark	4		1		
Djibouti					
Dominica					
Dominican Republic					
Ecuador	9		1	2	
Egypt	32	2	2	18	
El Salvador					
Eritrea					1
Estonia	2		1	4	
Eswatini					
Ethiopia	8		1		
Fiji					
Finland	9		1	1	
France	60	5	5	13	1
Gabon					
Georgia	1				
Germany	47		4	10	5
Ghana	30	1		2	2
Greece	27		6	15	1
Grenada					
Guatemala	3			3	
Guyana					
Haiti					
Holy See					
Honduras					1
Hungary	19	2	3	29	1
Iceland			1		
India	64	1	3	47	1
Indonesia	46	2	1		
Iran, Islamic Republic of	20		4	3	
Iraq			1	13	1
Ireland	2		1		
Israel	8		2	20	
Italy	42	3	8	5	
Jamaica	4		1		
Japan	34	4	5	4	
Jordan	10	1	1	9	

Member State	No. of research contracts and agreements	No. of Collaborating Centres	Services provided to Member States		
			ALMERA ¹	Dosimetry audits for radiotherapy	Plant irradiation services
Kazakhstan	3		1	6	
Kenya	22		1	5	1
Korea, Republic of	28	3	2	2	
Kuwait	7	1	1		1
Kyrgyzstan	2				1
Lao People's Democratic Republic	1				
Latvia	3		1	13	
Lebanon	7		1	20	
Lesotho	1				
Liberia					
Libya					
Liechtenstein					
Lithuania	8		3	3	
Luxembourg	1		1		
Madagascar	1		1		
Malawi	1				1
Malaysia	31	1	1	12	
Mali					
Malta					
Marshall Islands					
Mauritania				3	1
Mauritius	4				
Mexico	38	2	3	40	
Monaco					
Mongolia	3		1	3	
Montenegro			1		
Morocco	20	3	1		
Mozambique	2				
Myanmar	4		1	7	
Namibia	6				1
Nepal	3				
Netherlands, Kingdom of the	7	1	4	1	1
New Zealand	6		1		
Nicaragua					
Niger	1				
Nigeria	5		1	7	1
North Macedonia	6		1	3	1
Norway	6	1	2	1	
Oman				7	
Pakistan	38	3	1		
Palau					

Member State	No. of research contracts and agreements	No. of Collaborating Centres	Services provided to Member States		
			ALMERA ⁱ	Dosimetry audits for radiotherapy	Plant irradiation services
Panama	1		1	4	
Papua New Guinea	1				
Paraguay				9	
Peru	8	1	1	7	
Philippines	16		1	30	1
Poland	24	1	6	6	3
Portugal	10	1	1	5	
Qatar	3		1	2	
Republic of Moldova	1			1	
Romania	23		4	35	
Russian Federation	32	2	4	55	
Rwanda	1				
Saint Kitts and Nevis					
Saint Lucia					
Saint Vincent and the Grenadines					
Samoa					
San Marino					
Saudi Arabia	5		2	13	1
Senegal	6			2	
Serbia	19		5	14	1
Seychelles					
Sierra Leone	1				
Singapore	6	1	4	15	
Slovakia	6	1	3	5	2
Slovenia	11		1	7	1
South Africa	39	1	3		
Spain	40	2	2	2	
Sri Lanka	9		1	16	
Sudan	5				
Sweden	13		3	11	
Switzerland	9	2	3		
Syrian Arab Republic	5		1	1	
Tajikistan	1		1		
Thailand	28		2	25	
Togo					
Tonga					
Trinidad and Tobago	2			2	
Tunisia	25		1	2	
Türkiye	22		2	18	
Turkmenistan					

Member State	No. of research contracts and agreements	No. of Collaborating Centres	Services provided to Member States		
			ALMERA ^a	Dosimetry audits for radiotherapy	Plant irradiation services
Uganda	8			3	
Ukraine	19		1	43	
United Arab Emirates	2	1	4	3	
United Kingdom	45	2	6	10	4
United Republic of Tanzania	6			4	1
United States of America	107	3	7	9	
Uruguay	7		1	4	
Uzbekistan	1		1	1	
Vanuatu					
Venezuela, Bolivarian Republic of			2	46	
Viet Nam	28		3	25	
Yemen					
Zambia	6		1		
Zimbabwe	6				

^a ALMERA: Analytical Laboratories for the Measurement of Environmental Radioactivity.

Table A14. Advisory Missions on Regulatory Infrastructure for Radiation Safety and Nuclear Security (RISS) in 2023

Type	Country
RISS	Antigua and Barbuda
RISS	Benin
RISS	El Salvador
RISS	Honduras
RISS	Saint Kitts and Nevis

Table A15. Emergency Preparedness Review (EPREV) missions in 2023

Type	Country
EPREV follow-up	Canada

Table A16. IAEA-designated International Centres based on Research Reactors (ICERRs)

Type	Organization/research centre	Country	Year of designation/redesignation
ICERR	National Centre for Nuclear Energy, Sciences and Technology (CNESTEN)	Morocco	2023
ICERR	Institute for Nuclear Research Pitești	Romania	2020
ICERR	Korea Atomic Energy Research Institute	Korea, Republic of	2019
ICERR	Belgian Nuclear Research Centre (SCK CEN)	Belgium	2017/2023
ICERR	Idaho and Oak Ridge National Laboratories of the US Department of Energy	United States of America	2017/re-designation in process
ICERR	Research Institute of Atomic Reactors	Russian Federation	2016/2022
ICERR	French Alternative Energies and Atomic Energy Commission (CEA), in partnership with the Institute for Radiological Protection and Nuclear Safety (IRSN)	France	2015/2020

Table A17. Independent Safety Culture Assessment (ISCA) missions in 2023

Type	Country
ISCA follow-up	Thailand

Table A18. Integrated missions of the Agency's Programme of Action for Cancer Therapy (imPACT) in 2023

Type	Country
imPACT	Cambodia
imPACT	Comoros
imPACT	Djibouti
imPACT	El Salvador
imPACT	Ethiopia
imPACT	Fiji
imPACT	Guinea
imPACT	Jordan

imPACT	Papa New Guinea
imPACT	Venezuela, Bolivarian Republic of

Table A19. Integrated Nuclear Infrastructure Review (INIR) missions in 2023

Type	Country
INIR Phase 1	Estonia
INIR Phase 1 follow-up	Kazakhstan

Table A20. Integrated Nuclear Infrastructure Review for Research Reactors (INIR-RR) missions in 2023

Type	Country
INIR-RR	Kenya

Table A21. Integrated Regulatory Review Service (IRRS) missions in 2023

Type	Country
IRRS follow-up	Australia
IRRS	Belgium
IRRS	Czech Republic
IRRS follow-up	Germany
IRRS	Morocco
IRRS	Netherlands, Kingdom of the
IRRS	Poland
IRRS	Romania
IRRS	Saudi Arabia

Table A22. Integrated Research Reactor Utilization Review (IRRUR) missions in 2023

Type	Country
IRRUR	Iran, Islamic Republic of
IRRUR	United States of America (Idaho National Laboratory)
IRRUR	United States of America (Massachusetts Institute of Technology)

Table A23. Integrated Review Service for Radioactive Waste and Spent Fuel Management, Decommissioning and Remediation (ARTEMIS) missions in 2023

Type	Country
ARTEMIS	Belgium
ARTEMIS	Croatia
ARTEMIS	Czech Republic
ARTEMIS	Greece
ARTEMIS	Italy
ARTEMIS	Lithuania
ARTEMIS	Netherlands, Kingdom of the
ARTEMIS	Portugal
ARTEMIS	Slovakia
ARTEMIS	Sweden

Table A24. Integrated Safety Assessment of Research Reactors (INSARR) missions in 2023

Type	Country
INSARR	Belgium
INSARR follow-up	Czech Republic
INSARR	Iran, Islamic Republic of
INSARR	Iran, Islamic Republic of
INSARR	Philippines

Table A25. International Nuclear Management Academy (INMA) missions in 2023

Type	Organization/research centre	Country
INMA	Sofia University “St. Kliment Ohridski”	Bulgaria
INMA	Ontario Tech University	Canada
INMA	KEPCO International Nuclear Graduate School	Korea, Republic of
INMA	University of Idaho	United States of America

Table A26. International Nuclear Security Advisory Service (INSServ) missions in 2023

Type	Country
INSServ	Cambodia
INSServ	Georgia
INSServ	Viet Nam

Table A27. International Physical Protection Advisory Service (IPPAS) missions in 2023

Type	Country
IPPAS	Kuwait
IPPAS	Netherlands, Kingdom of the
IPPAS	Nigeria
IPPAS	Switzerland
IPPAS	Zambia

Table A28. Knowledge Management Assist Visits (KMAVs) in 2023

Type	Nuclear organization ^a	Country
KMAV	Armenian nuclear power plant	Armenia
KMAV	Nuclear Power Plants Authority	Egypt
KMAV	Agency of Nuclear Radiation and Safety	Georgia
KMAV	Nuclear Power Corporation of India Limited	India
KMAV	École Polytechnique Fédérale de Lausanne (EPFL)	Switzerland
KMAV	National Centre for Nuclear Science and Technology (CNSTN)	Tunisia

^a Nuclear organizations include operators, regulators, technical support organizations and education providers.

Table A29. Occupational Radiation Protection Appraisal Service (ORPAS) missions in 2023

Type	Country
ORPAS	Botswana

Table A30. Operation and Maintenance Assessment for Research Reactors (OMARR) missions in 2023

Type	Country
Pre-OMARR	Brazil
OMARR	Iran, Islamic Republic of
OMARR	Thailand

Table A31. Operational Safety Review Team (OSART) missions in 2023

Type	Country
OSART	Belgium
OSART follow-up	China
OSART	France
OSART follow-up	France
OSART follow-up	France
OSART	Netherlands, Kingdom of the
OSART	Russian Federation
OSART follow-up	Russian Federation
OSART	Slovakia
OSART	United Kingdom
OSART	United States of America

Table A32. Safety Aspects of Long Term Operation (SALTO) missions in 2023

Type	Country
SALTO follow-up	Bulgaria
SALTO follow-up	Spain
SALTO	Sweden

Table A33. Site and External Events Design (SEED) missions in 2023

Type	Country
SEED	Kazakhstan
SEED	Jordan
SEED	Morocco
SEED	Türkiye
SEED	Uganda
SEED	Uzbekistan

Table A34. Technical Safety Reviews (TSRs) in 2023

Type	Country
Probabilistic Safety Assessment	Bulgaria

Table A35. Coordinated research projects initiated in 2023

Nuclear Power

- Role of Nuclear Cogeneration within the Context of Sustainable Development
- Technologies Enhancing the Competitiveness and Early Deployment of Small Modular Reactors

Nuclear Fuel Cycle and Waste Management

- Challenges, Gaps and Opportunities for Managing Spent Fuel from Small Modular Reactors
- R&D to Advance Decommissioning of Legacy Reactors
- Standardization of Sub-sized Specimens for Post-Irradiation Examination and Advanced Characterization of Fuel and Structural Materials for Small Modular Reactor and Advanced Reactor Applications
- Deep Borehole Disposal Options

Nuclear Science

- Sub-cellular Imaging and Irradiation using Accelerator-based Techniques
- Nuclear Data Needs for Basic Sciences and Applications
- Formation and Properties of Molecules in Edge Plasmas

Food and Agriculture

- An Integrative Approach to Enhance Disease Resistance Against Fusarium Wilt (Foc TR4) in Banana – Phase II
- Assessing the Fate, and Environmental Impact of Plastics in Soil and Crop Ecosystems Using Isotopic Techniques
- Enhancing Laboratory Preparedness for the Detection and Control of Emerging and Re-emerging Zoonotic Diseases – ZODIAC in Asia and the Pacific
- Reproductive Biology of Male Aedes Mosquitoes for SIT Applications
- Innovative Nuclear and Related Molecular Approaches for Detection and Characterization of Antimicrobial Resistance in Animal Production Environment

Human Health

- Total Energy Expenditure Across the Life Course in Low- and Middle-income Countries
- Using the Iron Isotope Dilution Technique to Assess the Influence of Inflammation on Long-term Iron Absorption and Loss

Water Resources

- Development of Radiometric Methods to Measure and Study Hydrodynamics of Constructed Wetlands
- Tritium and Noble Gases for Pollution Vulnerability Assessment of Shallow Aquifers

Marine Environment

- Optimizing Nuclear Techniques to Assess Microplastic Pollution in Coastal Areas

Radiochemistry and Radiation Technology

- Development and Implementation of Cultural Heritage Preservation using Ionizing Radiation Technology
- Strengthening the Use of Biomass for Synthesis of Bioplastics and Other Compounds, Using Radiation Technology
- Development of Potential ¹⁷⁷Lu Radiopharmaceuticals: Design, Radiolabelling and Nonclinical Evaluation

Safety of Nuclear Installations

- Climate Change Challenges to the Safety of Nuclear Installations

Nuclear Security

- Enhancing Computer Security for Radiation Detection Systems
- Nuclear Security Implications of Counterfeit, Fraudulent and Suspect Items (CFSI)
- Nuclear Forensics Science to Bridge the Radiological Crime Science to the Nuclear Forensics Laboratory

Table A36. Coordinated research projects completed in 2023**Nuclear Power**

- Modular High Temperature Gas Cooled Reactor Safety Design
- HTGR Reactor Physics, Thermal-Hydraulics and Depletion Uncertainty Analysis
- Probabilistic Safety Assessment (PSA) Benchmark for Multi-Unit/Multi-Reactor Sites
- Assessing Technical and Economic Aspects of Nuclear Hydrogen Production for Near-term Deployment

Nuclear Fuel Cycle and Waste Management

- Fuel Materials for Fast Reactors

Nuclear Science

- Data for Atomic Processes Related to Neutral Beams in Fusion Plasma
- Ion Beam Induced Spatio-temporal Structural Evolution of Materials: Accelerators for a New Technology Era
- Network of Small and Medium Size Magnetic Confinement Fusion Devices for Fusion Research
- Accelerator Simulation and Theoretical Modelling of Radiation Effects - SMoRE-II

Food and Agriculture

- Improving Resilience to Drought in Rice and Sorghum through Mutation Breeding
- Integration of the SIT with Biocontrol for Greenhouse Insect Pest Management
- Integrated Radiometric and Complementary Techniques for Mixed Contaminants and Residues in Foods

Human Health

- Radiation Therapy Planning of Non-Small Cell Lung Cancer based on PET/CT (Radiation Oncology component)
- Resource Sparing Curative Radiotherapy for Locally Advanced Squamous Cell Cancer of the Head and Neck
- Gated-SPECT in the Planning of Ischemia Guided PCI in STEMI Patients
- E-Learning for Teaching and Assessing Competency in Radiotherapy Contouring for Multidisciplinary Teams in Low and Middle Income Countries
- Application of Stable Isotope Techniques in Environmental Enteric Dysfunction Assessment and Understanding its Impact on Child Growth
- Randomized Phase III Clinical Trial of Stereotactic Body Radiation Therapy versus Transarterial Chemoembolization in Hepatocellular Carcinoma

Water Resources

- Use of Long-lived Radionuclides for Dating Very Old Groundwaters
- Global Monitoring of Nitrogen Isotopes in Atmospheric Waters
- Isotope-enabled Models for Improved Estimates of Water Balance in Catchments
- Isotope Techniques for the Evaluation of Water Sources for Domestic Supply in Urban Areas

Marine Environment

- Radioanalytical and Isotopic Studies of Climate Trends and Variability in Marine Paleo-records

Radiochemistry and Radiation Technology

- Development of Radiometric Methods for Exploration and Process Optimization in Mining and Mineral Industries

Nuclear Security

- Advancing Radiation Detection Equipment for Detecting Nuclear and Other Radioactive out of Material Out of Regulatory Control

Table A37. Publications issued in 2023**Nuclear Power**

- Advancing the State of the Practice in Uncertainty and Sensitivity Methodologies for Severe Accident Analysis in Water Cooled Reactors of PWR and SMR Types — IAEA TECDOC
- Comparative Evaluation of Nuclear Energy System Options — IAEA TECDOC
- Country Nuclear Power Profiles — Non-serial Publication
- Design Basis Reconstitution for Long Term Operation of Nuclear Power Plants — IAEA TECDOC
- Fatigue Assessment in Light Water Reactors for Long Term Operation: Good Practices and Lessons Learned — IAEA Nuclear Energy Series
- Institutional Strength in Depth in the Nuclear Industry to Sustain Operational Excellence — IAEA TECDOC
- Integrated Life Cycle Risk Management for New Nuclear Power Plants — IAEA Nuclear Energy Series
- Managing Human Resources in the Field of Nuclear Energy — IAEA Nuclear Energy Series
- Methodologies for Assessing Pipe Failure Rates in Advanced Water Cooled Reactors — IAEA Nuclear Energy Series
- Nuclear Power Reactors in the World — Reference Data Series
- Nuclear–Concentrated Solar Power Hybrid Energy System Part-Task Simulator — Training Course Series
- Nuclear–Renewable Hybrid Energy Systems — IAEA Nuclear Energy Series
- Nuclear–Wind Hybrid Energy System Part-Task Simulator — Training Course Series
- Operating Experience with Nuclear Power Stations in Member States 2023 Edition — Operating Experience with Nuclear Power Stations in Member States
- Passive Autocatalytic Recombiner Part-Task Simulator — Training Course Series
- Research Reactor Exercises for Higher Education Programmes — IAEA TECDOC
- Status of Molten Salt Reactor Technology — Technical Reports Series
- Suitability Evaluation of Commercial Grade Products for Use in Nuclear Power Plant Safety Systems — IAEA TECDOC
- Terms for Describing Advanced Nuclear Power Plants — IAEA Nuclear Energy Series
- Theoretical Foundations and Applications of Computational Fluid Dynamics in Nuclear Engineering — Training Course Series
- Vendor and User Requirements and Responsibilities in Nuclear Cogeneration Projects — IAEA Nuclear Energy Series

Nuclear Fuel Cycle and Materials Technology

- A Taxonomy for the Decommissioning of Nuclear Facilities — IAEA TECDOC
- Assessment of Post-irradiation Examination Techniques for Advanced Reactor Fuel and Materials — IAEA TECDOC
- Considerations for the Back End of the Fuel Cycle of Small Modular Reactors — IAEA TECDOC
- Decontamination Methodologies and Approaches — IAEA Nuclear Energy Series
- Energy Neutral Mineral Processing with High Temperature Reactors: Resource Identification, Uranium Recovery and Thermal Processes — IAEA TECDOC
- Global Inventories of Secondary Uranium Supplies — IAEA TECDOC
- Global Status of Decommissioning of Nuclear Installations — IAEA Nuclear Energy Series
- Milestones in the Development of National Infrastructure for the Uranium Production Cycle — IAEA Nuclear Energy Series
- Post-irradiation Examination Techniques for Research Reactor Fuels — IAEA Nuclear Energy Series
- Technical Approaches for the Management of Separated Civilian Plutonium — IAEA Nuclear Energy Series
- The Metallurgy of Zirconium — Non-serial Publication

Capacity Building and Nuclear Knowledge for Sustainable Energy Development

- A Nuclear Knowledge Management Course for University Master's Level Programmes — Training Course Series
- Energy, Electricity and Nuclear Power Estimates for the Period up to 2050 — Reference Data Series
- Nuclear Energy and Climate Change: Questions and Answers on Progress, Challenges and Opportunities — Non-serial Publication
- Nuclear Energy and Climate Change: Questions and Answers on Progress, Challenges and Opportunities — Non-serial Publication (Arabic)
- Nuclear Energy in Climate Resilient Power Systems — Non-serial Publication
- Nuclear Energy in Climate Resilient Power Systems — Non-serial Publication (Arabic)
- Nuclear Energy in Mitigation Pathways to Net Zero — Non-serial Publication
- Nuclear Energy in Mitigation Pathways to Net Zero — Non-serial Publication (Arabic)

Nuclear Science

- Agenda ARCAL 2030 — IAEA TECDOC
- Certification of Activity Concentration of Radionuclides in IAEA-479 Milk Powder — IAEA Analytical Quality in Nuclear Applications Series
- Cold Neutron Sources: Practical Considerations and Modern Research — IAEA TECDOC
- Fundamentals of Magnetic Fusion Technology — Non-serial Publication
- Guidelines for the Determination of Standardized Semiconductor Radiation Hardness Parameters — Technical Reports Series
- IAEA World Fusion Outlook 2023 — Non-serial Publication
- Integrated Research Reactor Utilization Review (IRRUR) Guidelines — IAEA Services Series
- Intercomparison of k0-NAA Software Packages — IAEA TECDOC
- Nuclear Data Newsletter No. 74, February 2023
- Nuclear Data Newsletter No. 75, July 2023

Food and Agriculture

- Animal Production and Health Newsletter, No. 78, July 2023
- Food Safety and Control Newsletter Vol. 2, No. 2, July 2023
- Insect Pest Control Newsletter No. 100, January 2023
- Insect Pest Control Newsletter No. 101, July 2023
- Plant Breeding and Genetics Newsletter No. 50, January 2023
- Plant Breeding and Genetics Newsletter No. 51, July 2023
- Plant Breeding and Genetics Newsletter No. 52, January 2024
- Soils Newsletter Vol. 45, No. 2, January 2023
- Soils Newsletter Vol. 46, No. 1, July 2023

Human Health

- Advances in Boron Neutron Capture Therapy — Non-serial Publication
- Artificial Intelligence in Medical Physics — Training Course Series
- Basics of Quality Management for Nuclear Medicine Practices — IAEA Human Health Series
- Clinical Applications of SPECT-CT — IAEA Human Health Series
- Dosimetry in Brachytherapy – An International Code of Practice for Secondary Standards Dosimetry Laboratories and Hospitals — Technical Reports Series
- Education of Radiation Metrologists for Secondary Standards Dosimetry Laboratories — Training Course Series
- Establishing a Secondary Standards Dosimetry Laboratory — IAEA Human Health Series
- Establishing and Improving Interventional Radiology — IAEA Human Health Series
- Guidelines on Professional Ethics for Medical Physicists — Training Course Series
- Handbook of Basic Quality Control Tests for Diagnostic Radiology — IAEA Human Health Series

- National Networks for Radiotherapy Dosimetry Audits — IAEA Human Health Reports
- PET-CT for the Management of Cancer Patients: a Review of the Existing Evidence — IAEA Human Health Series
- SSDL Newsletter Issue No. 77, May 2023
- SSDL Newsletter Issue No. 78, December 2023
- Worldwide Implementation of Digital Mammography Imaging — IAEA Human Health Series

Environment

- Determination of Environmental Remediation End States — IAEA Nuclear Energy Series
- Developing Cost Estimates for Environmental Remediation Projects — IAEA Nuclear Energy Series (French)
- Prospective Radiological Environmental Impact Assessment for Facilities and Activities — IAEA Safety Standards Series (Russian)
- Radiation Protection of the Public and the Environment — IAEA Safety Standards Series (French, Russian)
- Regulatory Control of Radioactive Discharges to the Environment — IAEA Safety Standards Series (French, Russian)
- Technical Aspects Related to the Design and Construction of Engineered Containment Barriers for Environmental Remediation — Technical Reports Series
- Ten Years of Remediation Efforts in Japan — IAEA TECDOC
- The Environmental Behaviour of Uranium — Technical Reports Series
- Towards Best Practices in Isotope-Enabled Hydrological Modelling Applications — IAEA TECDOC
- User Manual for NORMALYSA v.2.3 — IAEA TECDOC
- Worldwide Interlaboratory Comparison on the Determination of Trace Elements in Fish Sample IAEA-MESL-ILC-TE-BIOTA-2021 — IAEA Analytical Quality in Nuclear Applications Series

Radioisotope Production and Radiation Technology

- Guidance for Preclinical Studies with Radiopharmaceuticals — IAEA Radioisotopes and Radiopharmaceuticals Series
- Pain Palliation of Bone Metastases: Production, Quality Control and Dosimetry of Radiopharmaceuticals — IAEA Radioisotopes and Radiopharmaceuticals Series
- Specific Considerations and Guidance for the Establishment of Ionizing Radiation Facilities — IAEA Radiation Technology Series

Incident and Emergency Preparedness and Response

- Arrangements for Public Communication in Preparedness and Response for a Nuclear or Radiological Emergency — IAEA Safety Standards Series (Russian)
- Arrangements for the Termination of a Nuclear or Radiological Emergency — IAEA Safety Standards Series (Russian)

Safety of Nuclear Installations

- Accident Management Programmes for Nuclear Power Plants — IAEA Safety Standards Series (Chinese, Russian)
- Ageing Management and Development of a Programme for Long Term Operation of Nuclear Power Plants — IAEA Safety Standards Series (Chinese, Russian)
- Ageing Management for Nuclear Fuel Cycle Facilities — Safety Reports Series
- Ageing Management for Research Reactors — IAEA Safety Standards Series
- Applicability of IAEA Safety Standards to Non-Water Cooled Reactors and Small Modular Reactors — Safety Reports Series

- Application of Probabilistic Methods for the Safety Assessment and the Reliable Operation of Research Reactors — Safety Reports Series
- Commissioning for Nuclear Power Plants — IAEA Safety Standards Series (Chinese)
- Commissioning of Research Reactors — IAEA Safety Standards Series
- Communication and Consultation with Interested Parties by the Regulatory Body — IAEA Safety Standards Series (French, Russian)
- Construction for Nuclear Installations — IAEA Safety Standards Series (Russian)
- Core Management and Fuel Handling for Research Reactors — IAEA Safety Standards Series
- Deterministic Safety Analysis for Nuclear Power Plants — IAEA Safety Standards Series (Russian)
- Development and Management of Regulatory Oversight for Operation of a First Nuclear Power Plant — IAEA TECDOC
- Establishing the Infrastructure for Radiation Safety — IAEA Safety Standards Series (Chinese, French Spanish)
- Experience in Applying IAEA Principles for Design Safety to New Nuclear Power Plants — IAEA TECDOC
- Functions and Processes of the Regulatory Body for Safety — IAEA Safety Standards Series (French, Russian, Spanish)
- Hazards Associated with Human Induced External Events in Site Evaluation for Nuclear Installations — IAEA Safety Standards Series
- Instrumentation and Control Systems and Software Important to Safety for Research Reactors — IAEA Safety Standards Series
- Licensing Process for Nuclear Installations — IAEA Safety Standards Series (Russian)
- Licensing Process for the Construction, Commissioning and Operation of Nuclear Power Plants — Safety Reports Series
- Maintenance, Periodic Testing and Inspection of Research Reactors — IAEA Safety Standards Series
- Member States' Experiences and Insights from Maintaining Safety, Security and Reliable Nuclear Industry Operations During the Covid-19 Pandemic — Technical Reports Series
- Meteorological and Hydrological Hazards in Site Evaluation for Nuclear Installations — IAEA Safety Standards Series (Russian)
- Multi-unit Probabilistic Safety Assessment — Safety Reports Series
- Operating Experience Feedback for Nuclear Installations — IAEA Safety Standards Series (Chinese)
- Operational Limits and Conditions and Operating Procedures for Research Reactors — IAEA Safety Standards Series
- Organization, Management and Staffing of the Regulatory Body for Safety — IAEA Safety Standards Series (French, Russian, Spanish)
- Periodic Safety Review for Nuclear Power Plants — IAEA Safety Standards Series (Chinese)
- Radiation Protection and Radioactive Waste Management in the Design and Operation of Research Reactors — IAEA Safety Standards Series
- Radiation Safety of Accelerator Based Radioisotope Production Facilities — IAEA Safety Standards Series (Russian)
- Safe Use of Smart Devices in Systems Important to Safety in Nuclear Power Plants — Safety Reports Series
- Safety Classification of Structures, Systems and Components in Nuclear Power Plants — IAEA Safety Standards Series (Russian)
- Safety of Conversion Facilities and Uranium Enrichment Facilities — IAEA Safety Standards Series
- Safety of Uranium and Plutonium Mixed Oxide Fuel Fabrication Facilities — IAEA Safety Standards Series
- Safety of Uranium Fuel Fabrication Facilities — IAEA Safety Standards Series
- Status of Knowledge for the Qualification and Licensing of Advanced Nuclear Fuels for Water Cooled Reactors — IAEA TECDOC

- The Operating Organization and the Recruitment, Training and Qualification of Personnel for Research Reactors — IAEA Safety Standards Series
- Use of a Graded Approach in the Application of the Safety Requirements for Research Reactors — IAEA Safety Standards Series
- Use of Periodic Safety Review for Long Term Operation of Nuclear Power Plants — Safety Reports Series
- Volcanic Hazards in Site Evaluation for Nuclear Installations — IAEA Safety Standards Series (Chinese, Russian)

Radiation and Transport Safety

- A Decade of Progress After the Fukushima Daiichi NPP Accident — Proceedings Series - International Atomic Energy Agency
- A Methodology for Establishing a National Strategy for Education and Training in Radiation, Transport and Waste Safety — Safety Reports Series (Spanish)
- Attribution of Radiation Health Effects and Inference of Radiation Risks: Considerations for Application of the IAEA Safety Standards — Safety Reports Series
- Compliance Assurance for the Safe Transport of Radioactive Material — IAEA Safety Standards Series
- Exposure due to Radionuclides in Food Other than During a Nuclear or Radiological Emergency. Part 1: Technical Material — Safety Reports Series
- IAEA Safety Glossary: 2018 Edition — Non-serial Publication (Russian)
- Neutron Monitoring for Radiation Protection — Safety Reports Series
- Patient Radiation Exposure Monitoring in Medical Imaging — Safety Reports Series
- Protection of the Public Against Exposure Indoors due to Radon and Other Natural Sources of Radiation — IAEA Safety Standards Series (Chinese, French)
- Radiation Protection and Safety in Medical Uses of Ionizing Radiation — IAEA Safety Standards Series (Chinese, Russian)
- Radiation Protection Programmes for the Transport of Radioactive Material — IAEA Safety Standards Series
- Radiation Safety for Consumer Products — IAEA Safety Standards Series (Chinese)
- Radiation Safety in Well Logging — IAEA Safety Standards Series (French)
- Regulatory Control of Exposure Due to Radionuclides in Building Materials and Construction Materials — Safety Reports Series
- Safety Assessment for the Decommissioning of Facilities Using Radioactive Material — IAEA Safety Standards Series (Chinese)

Management of Radioactive Waste

- Application of the Concept of Clearance — IAEA Safety Standards Series
- Application of the Concept of Exemption — IAEA Safety Standards Series
- Classification of Radioactive Waste — IAEA Safety Standards Series (French)
- Decommissioning of Nuclear Power Plants, Research Reactors and Other Nuclear Fuel Cycle Facilities — IAEA Safety Standards Series (Chinese, Russian)
- Geological Disposal Facilities for Radioactive Waste — IAEA Safety Standards Series (Russian)
- Management of Depleted Uranium Used as Shielding in Disused Radiation Devices — IAEA Nuclear Energy Series
- Policies and Strategies for Radioactive Waste Management — IAEA Nuclear Energy Series (French)
- Predisposal Management of Radioactive Waste from Nuclear Power Plants and Research Reactors — IAEA Safety Standards Series (Chinese, Russian)
- Radioactive Waste Management — Proceedings Series - International Atomic Energy Agency
- The Safety Case and Safety Assessment for the Disposal of Radioactive Waste — IAEA Safety Standards Series (Chinese)

Nuclear Security

- A Systems View of Nuclear Security and Nuclear Safety: Identifying Interfaces and Building Synergies — AdSec/INSAG series
- Building Capacity for Nuclear Security — IAEA Nuclear Security Series (Chinese, Russian)
- Computer Security for Nuclear Security — IAEA Nuclear Security Series (Chinese, Spanish)
- Computer Security of Instrumentation and Control Systems at Nuclear Facilities — IAEA Nuclear Security Series (French)
- Detection at State Borders of Nuclear and Other Radioactive Material out of Regulatory Control — IAEA Nuclear Security Series
- Developing a National Framework for Managing the Response to Nuclear Security Events — IAEA Nuclear Security Series (Chinese, Russian)
- Developing a Nuclear Security Contingency Plan for Nuclear Facilities — IAEA Nuclear Security Series (French)
- Developing Regulations and Associated Administrative Measures for Nuclear Security — IAEA Nuclear Security Series (Chinese, Russian)
- Establishing a Nuclear Forensic Capability: Application of Analytical Techniques — IAEA TECDOC
- Establishing a System for Control of Nuclear Material for Nuclear Security Purposes at a Facility During Use, Storage and Movement — IAEA Nuclear Security Series (Spanish, Russian)
- Establishing the Nuclear Security Infrastructure for a Nuclear Power Programme — IAEA Nuclear Security Series (Chinese)
- Guidelines for the ITDB States' Points of Contact — IAEA Services Series
- International Conference on Nuclear Security: Sustaining and Strengthening Efforts — Proceedings Series - International Atomic Energy Agency
- National Nuclear Security Threat Assessment, Design Basis Threats and Representative Threat Statements — IAEA Nuclear Security Series (Chinese)
- Nuclear Security Systems and Measures for Major Public Events — IAEA Nuclear Security Series (Chinese)
- Nuclear Security Systems and Measures for the Detection of Nuclear and Other Radioactive Material out of Regulatory Control — IAEA Nuclear Security Series (Chinese)
- Physical Protection of Nuclear Material and Nuclear Facilities (Implementation of INFCIRC/225/Revision 5) — IAEA Nuclear Security Series (Chinese)
- Preventive and Protective Measures Against Insider Threats — IAEA Nuclear Security Series (Russian)
- Security During the Lifetime of a Nuclear Facility — IAEA Nuclear Security Series (Chinese)
- Security Management of Radioactive Material in Use and Storage and of Associated Facilities — IAEA Nuclear Security Series (French)
- Security of Nuclear Information — IAEA Nuclear Security Series (Chinese, Russian)
- Security of Nuclear Material in Transport — IAEA Nuclear Security Series (Chinese)
- Security of Radioactive Material in Transport — IAEA Nuclear Security Series (Russian)
- Security of Radioactive Material in Use and Storage and of Associated Facilities — IAEA Nuclear Security Series (Chinese)
- Self-assessment of Nuclear Security Culture in Facilities and Activities — IAEA Nuclear Security Series (Russian)
- Sustaining a Nuclear Security Regime — IAEA Nuclear Security Series (Chinese, Russian)
- Use of Nuclear Material Accounting and Control for Nuclear Security Purposes at Facilities — IAEA Nuclear Security Series (Russian)
- Enhancing National Safeguards Infrastructure to Support the Introduction of Nuclear Power — IAEA Nuclear Energy Series

Nuclear Verification

- IAEA Safeguards Glossary — International Nuclear Verification Series (Arabic, Chinese, French, Russian, Spanish)

Table A38. Technical cooperation training courses held in 2023

Energy

- Regional (AFRA) Teachers' Training Course on Energy Supply Analysis and Use of the IAEA's Tool MESSAGE
Austria
- Training Course on Fundamentals of Safe, Secure and Sustainable Nuclear Power Generation through the Intercontinental Nuclear Institute (INI)
Czech Republic and United States of America
- Virtual Training Course on Fundamentals of Safe, Secure and Sustainable Nuclear Power Generation through the Intercontinental Nuclear Institute (INI)
Czech Republic and United States of America
- Regional (AFRA) Training Course on Energy Supply Analysis – Modelling and Development of Power System Sub-regional Case Studies
Ghana
- Regional Training Course on Developing a Reconnaissance Uranium Mineral Exploration Programme: An Introduction to Data Compilation, Initial Desktop Studies, Through Field Surveys, Sampling, and Logistics
Kenya
- Regional Training Course on Energy Supply Assessments for Energy & Climate Strategies
Montenegro
- Regional (AFRA) Training Course on Energy Demand Analysis (Application of the IAEA's Tool MAED)
Senegal
- Interregional Training Course on Design and Implementation of Decommissioning and Environmental Remediation
United States of America

Food and Agriculture

- Regional Training Course (2) on Verification and Calibration of Biosafety Cabinets in Diagnostic Laboratories
Austria
- Regional Training Course on an Operational Programme Applying State of the Art Dosimetry and Quality Control Tests
Austria
- Regional Training Course on Diagnostic Test Validation and Results Interpretation
Austria
- Regional Training Course on SIT components: "Dosimetry and Irradiation procedures applied in SIT projects for control Aedes mosquitoes"
Austria
- Regional Training Course on Verification and Calibration of Biosafety Cabinets in Diagnostic Laboratories
Austria
- TC Training Course on Dosimetry and Irradiation Procedures applied in SIT Projects for Control Aedes Mosquitoes
Austria
- TC Training on "Genome-wide typing and sequencing for assessment of genetic disease resistance in aquaculture"
Austria
- Virtual Event - Regional Training Course on Field Experimental Design and Data Analysis for the Advancement of Mutant Populations
Austria

- Regional Training Course on Next Generation Sequencing (NGS) using Illumina Platform
Bangladesh
- Regional Training Course on Collection of Entomological Baseline Data, and Data Management Tools to Support SIT Projects for Mosquito Control
Brazil
- Regional Training Course on the Early Detection of African Swine Fever Virus
Brazil
- Regional Training Course on Master on Advanced Radiotherapy
Chile
- Regional Training Course on Sampling Protocol for Contaminated Soils with Heavy Metals - Sample Preparation and Data Processing
Chile
- Regional Training Course on Advanced Data Analysis of Isotopic Approaches to Assessment and Tracing of Agro-Contaminants in Catchments
China
- Regional Training Course on Culture and Characterization of the Genus Brucella Species
Costa Rica
- Regional (AFRA) Training Course on Digital Platform for Agriculture Water Management through the Combination of Advanced Nuclear Techniques and Remote Sensing Technology
Egypt
- Regional Training Course on Methodologies for Improving Crop Resilience to Abiotic Stress through Nuclear Techniques and Seed Systems
Egypt
- Regional Training Course on Mutation by Speed Breeding (MbyS) for Abiotic Stress Tolerance
Indonesia
- TC Regional Training Course on Detection and Characterization of Brucellosis in Animals
Indonesia
- Advanced Regional Training Course on Neutron Activation Analysis Methods for Heavy Metal Determination in Soils
Jamaica
- Regional Training Course on Monitoring Veterinary Drug Residues in Food
Jordan
- Regional (AFRA) Training Course on Population Genetic Studies to Support Field Projects
Kenya
- Regional Training Course on Detection and Characterization of Capripox Viruses (Lumpy Skin Disease Virus, Sheep Pox and Goat Pox Viruses)
Kuwait
- TC Regional Training Course on Surveillance, Handling and Release of Aedes Mosquitoes
Malaysia
- Regional (AFRA) Training Course on Serology
Mauritania
- Regional Training Course on Analysis of Heavy Metals using X-Ray Fluorescence
Mexico
- Regional Training Course On Toxic Metals And Pesticide Residues In Aquaculture Products, Feed And Water Associated With Aquaculture Production
Mexico
- Virtual TC Training On Toxic Metals And Pesticide Residues In Aquaculture Products, Feed And Water Associated With Aquaculture Production
Mexico
- Regional Training (AFRA) Course on Scaling up Advanced Climate Smart Agricultural Practices to Increase Cassava Production in Africa
Nigeria

- Regional Training Course on Climate Smart Agriculture to Improve Soil Fertility, Combat Salinity, Enhance Nutrients and Water Use Efficiencies and Increase Productivity of Major Crops in ASIA
Pakistan
- Regional Training Course on Climate Smart Agriculture to Improve Soil Fertility, Combat Salinity, Enhance Nutrients and Water Use Efficiencies and Increase Productivity of Major Crops in ASIA –
Group A
Pakistan
- Regional Training Course on Climate Smart Agriculture to Improve Soil Fertility, Combat Salinity, Enhance Nutrients and Water Use Efficiencies and Increase Productivity of Major Crops in ASIA –
Group B
Pakistan
- Regional Training Course on Risk-Based Drug Residue Monitoring in Food
Philippines
- Regional Training Course on Molecular Markers and Tilling Applications for Crops Improvement
Poland
- Regional Training Course on the Use of iVetNet to Support the Implementation and Maintenance of ISO17025 Standard in Veterinary Laboratories
Qatar
- Regional Training Course on Verification of SOPs for New Serological and Molecular Techniques
Republic of Korea
- Regional (AFRA) Training Course on Socio-economic Assessment of Tsetse Eradication
Senegal
- Regional Training Course on Capturing Wildlife Animals and Collecting Samples
Serbia
- Regional (AFRA) Training Course on Molecular Diagnostic
Sierra Leone
- Regional Training Course on Mosquito Sterile Insect Technique (SIT) Package in a Large-Scale Mass Rearing Facility
Singapore
- Advanced Regional Training Course on Food Safety and Laboratory Quality Management
Thailand
- TC Training on Regional Training Course on Sterile Insect Technique and Male Annihilation Technique
Thailand
- Regional Training Course on Mutation Breeding and Combined Biotechnologies
Tunisia
- Regional Training Course on Accelerated Breeding Techniques for the Development of Crop Tolerance to Abiotic Stress
Türkiye
- Regional Training Course on Integrated Isotopic Approaches to Monitor Sources of Agro Contaminants in the Environment
Viet Nam

Health and Nutrition

- Regional (AFRA) Training Course on Nuclear Cardiology
Algeria
- Regional (AFRA) Training on How to Audit and Optimise Clinical Protocols on Common Cancers (French)
Algeria
- Regional Training Course on Internal Dosimetry
Algeria
- Regional Training Course on 3D Cell Culture with Irradiated Tissue and Biomaterial
Argentina

- Regional Training Course on Integral Approach of Microvascular Disease in Women
Argentina
- Regional Training Course on Optimization of Medical Imaging and Diagnostic Reference Levels Implementation in Nuclear Medicine
Argentina
- Regional Training Course on Production and Preclinical Evaluation of Emerging Cyclotron-based Radiopharmaceuticals
Australia
- Regional Training Course on Quality Assurance (QA), Quality Control (QC), Radiation Protection and Positioning in Diagnostic Radiology
Australia
- Interregional Training Course on Quality Assurance Teams for Radiation Oncology
Austria
- Virtual Regional Training Course on Advanced treatment planning workflow: from contouring to plan evaluation. Prostate & Lymph nodes
Austria
- Virtual Regional Training Course on Production and Quality Control of Commercial Cyclotron-based Radiopharmaceuticals
Austria
- Virtual Training Course on RASIMS TSA2/TSA3
Austria
- Regional Training Course on Advanced Medical Preparedness and Response in Case of Radiation Emergencies
Brazil
- Regional Training Course on Calibration of Radiation Protection Equipment Using Neutron Sources in Secondary Standard Dosimetry Laboratory (SSDL)
Brazil
- Regional Training Course on Quality Assurance and Dosimetry in Mammography (conventional and digital) and tomosynthesis (BRA)
Brazil
- Regional Training Course- Master on Advanced Radiotherapy
Chile
- Regional Training Course on Medical Physics Support in the Event of Nuclear or Radiological Emergencies
Chile
- Regional Training Course (Pilot) on Radiopharmaceuticals
Colombia
- Regional Training Course on Production and Quality Control of FDG and NaF
Colombia
- Regional Training Course on Quality Assurance and Dosimetry in Dual Energy and Multi-Detector Computed Tomography
Colombia
- Regional Training Course on Performance Assessment of Digital Detectors and Image Quality Characterization in Digital X-Ray Imaging
Croatia
- Regional Training Course on Quality Control and Quality Assurance (QC/QA) in PET-CT procedures
Dominican Republic
- Regional (AFRA) Training Course on Quality Management of SPECT Radiopharmaceuticals
Egypt
- Regional (AFRA) Training Course for English-speaking Countries on Breast Cancer Imaging
Ethiopia

- Regional (AFRA) Summer School on Radiopharmaceutical Applications
France
- Regional Basic Training Course on Hybrid Imaging (PET/CT)
Jordan
- Regional Training Course on Quality Assurance and Dosimetry for Junior Medical Physicists
Jordan
- Regional (AFRA) Training on How to Audit and Optimise Clinical Protocols on Common Cancers (English)
Kenya
- Regional Training Course on the Production and Quality Control of ^{18}F radiopharmaceuticals (Part 2.)
Kuwait
- Regional Training Course on Theranostics for Non-Communicable Disease Management
Kuwait
- Regional Training Course on Mild to Moderate Hypofractionated Radiotherapy (HFRT): Basics to Clinical Application for Curative Treatment of Malignancies
Pakistan
- Regional Training Course on Palliative Radiotherapy for Brain Metastases and other Clinical Scenarios
Pakistan
- Regional Training Course on Operation and Maintenance of Ion Beam Applications (IBA) Cyclotrons
Portugal
- Virtual Event - Regional Training Course on Clinical Dosimetry in Modern Radiotherapy
Russian Federation
- Virtual Event - Regional Training Course on Physics for Conformal Radiotherapy: Advanced Technologies
Russian Federation
- Virtual Event - Regional Training Course on Radiation Protection and Safety and Accident Prevention in Radiotherapy
Russian Federation
- Virtual Event - Regional Training Course on Radiobiology for Radiation Oncologists and Medical Physicists
Russian Federation
- TC Regional Training Course on Image Guided Radiotherapy for Cervical Cancer: A Focus on Brachytherapy
Serbia
- Regional (AFRA) Training Course on Image Quality and Radiation Dose Management in Radiology.
South Africa
- Regional Training Course on Application of Stable Isotope Techniques to Assess protein Quality of Sustainable Food Sources for Improving Maternal and Child Nutrition in Asia
Thailand
- RTC on quality management and quality assurance A in medical imaging for medical physicists
Thailand
- RTC on Roles Responsibility, Education & Training of Medical Physicist and Certification for Clinically Qualified Medical Physicist
Thailand
- Regional (AFRA) Training Course in Cardiac Imaging
United Republic of Tanzania
- Regional (AFRA) Training Course on Paediatric Nuclear Medicine (for English-speaking Countries)
United Republic of Tanzania
- Interregional Training Course on Theranostics including Quality of Practice
United States of America
- Regional Training Course on the Production and Quality Control of PET based radiopharmaceuticals
Uruguay

Industrial Applications/Radiation Technology

- Regional (AFRA) Training Course on Neutron Activation Analysis Techniques
Algeria
- Regional Training Course on Modification of Synthetic Polymers Waste
Argentina
- Regional Training and Certification Course in Residence Time Distribution and Column Scanning Techniques
Austria
- Regional Training Course on Radiation Technology for Polymer Industry
Brazil
- Regional Training Course on Gamma Radiation Processing Dosimetry
Hungary
- Regional Training Course on Cultural Heritage “From Excavation Site to Museum Display”
Jordan
- Regional Training Course on the Application of Nuclear Techniques for Characterisation and Preservation of Artefacts Obtained from Shipwreck
Malaysia
- Train the Trainers Course on Radiographic Testing – Digital (RT-D) Level 2
Malaysia
- Regional Training Course on the Use of Low-to-Medium Energy E-beam for Polymer Modification Purposes
Philippines
- Regional Training Course on Phased Ultrasonic Testing (PAUT) with ISO 9712 Level 2 Certification
Republic of Korea
- Regional Training Course on the Safe Operation of Irradiation Facilities
Serbia
- Regional Training Course on Ageing Management of Research Reactors
South Africa
- RTC on Significance and Importance of Dosimetry System and Associated Uncertainty for Radiation Processing Facilities
Thailand

Nuclear knowledge development and management

- Regional (AFRA) Training Course (PGEC) on Radiation, Transport and Waste Safety for French-speaking Countries
Algeria
- Regional Training Course on Verification of SOPs for New Serological and Molecular Techniques
Argentina
- Interregional Training Course on Training the Trainers for Nuclear Law
Austria
- Interregional Training Course on Verification and Calibration of Biosafety Cabinets in Diagnostic Laboratories
Austria
- Nuclear Law Institute
Austria
- Regional Training Course on Mutation Breeding and Efficiency Enhancing Techniques for Resistance to Banana Fusarium Wilt Race TR4 in Latin America
Austria
- Study Tour on Nuclear Science and Technology (NST) and their Contribution to United Nations Sustainable Development Goals (SDGs)
Austria

- TC Training on Nuclear Law
Austria
- W4NSEC Face to Face Training Course for 2020 & 2021 Participants
Austria
- Regional Training course on Banana Breeding for Resistance to Fusarium Wilt (Foc TR4) Using Tissue Culture and Nuclear Techniques
Brazil
- Regional Training Course on Verification of Standard Operation Procedures (SOPs) for New Serological and Molecular Techniques
Bulgaria
- Regional training course on monitoring of microplastics in marine ecosystems using nuclear analytical techniques
Colombia
- Postgraduate Educational Course (PGEC) on Radiation, Transport and Waste Safety in English
Ghana
- Regional Training Workshop on Sustainable Energy Supply Assessment Applying IAEA's MESSAGE Tool
Indonesia
- Regional (AFRA) Training Course (PGEC) on Radiation, Transport and Waste Safety in English
Kenya
- Regional (AFRA) Training Course for Radiation Protection Officers (French-speaking Countries)
Mauritania
- Postgraduate Educational Course (PGEC) on Radiation, Transport and Waste Safety for (French-speaking Countries)
Morocco
- Regional Training on Nuclear Energy Management School
South Africa
- IAEA-Argonne - Regional (AFRA) Training Course on Nuclear Sciences in Secondary Schools through Innovative Approaches
United States of America
- Regional Training Course on Nuclear Science And Technology (NST) Secondary Education for Teachers and Mentors
United States of America

Safety and Security

- Basic Professional Training Course on Nuclear Safety (BPTC) 2023
Argentina
- Basic Training on Radiation Protection (CBPR) - 2023 part I, virtual
Argentina
- Basic Training on Radiation Protection (CBPR) - 2023 part II, in person
Argentina
- Postgraduate Educational Course on Radiation Protection and Safety of Radiation Sources (PGEC) 2023
Argentina
- Regional Training Course on First Responders to a Radiological Emergency
Argentina
- Cours Régional de Formation (AFRA) sur les Inspections par l'Autorité Compétente du Transport de Matières Radioactives
Austria
- Regional Training Course on Hazard Assessment, Basis for Developing EPR Arrangements for a Nuclear or Radiological Emergency on a Graded Approach
Austria

- TC Training on School of Drafting Regulations – Combined Programme on Radiation Safety and Security of Radioactive Sources
Austria
- Train-the-Trainers Regional Training Course for Radiation Protection Officers at Medical and Industrial Facilities
Austria
- Virtual Regional Training Course on Implementation of Workplace Monitoring
Austria
- Interregional Training Course on Nuclear Power Plant Contract Specifications and Reactor Technology Assessment
Brazil
- Regional (AFRA) Training on Conditioning and Storage of Neutron and Low Activity Radioactive Sources
Cameroon
- Interregional Training Course - School on Drafting Regulations for Countries Embarking on Nuclear Power Programme
China
- Interregional Training Course on Environmental Remediation Design and Implementation
China
- Interregional Training Course on Siting for Nuclear Power Plants
China
- Regional Training Course on Emergency Preparedness and Response for the Transport of Radioactive Material
Costa Rica
- Regional Training Course on Justification and Optimization in Computed Tomography
Croatia
- Regional Training Course on Modelling Severe Accidents in Probabilistic Safety Assessment (PSA)
Croatia
- Train-the-Trainers Regional Training Course for Radiation Protection Officers
Cyprus
- Interregional Training Course on the IAEA Reactor Technology Assessment for Small Modular Reactors (SMRs)
Denmark
- Interregional Training Course on the Implementation of National Requirements for Nuclear Power Programmes
Finland
- Interregional Training Course on Funding, Financing and other Economic Aspects in Nuclear Infrastructure Development
France
- Interregional Training Course on Strategies Related to the Nuclear Fuel Cycle and Radioactive Waste Management
France
- Regional Training Course on The Establishment and Implementation of a Quality Management System
Ghana
- Postgraduate Educational Course on Radiation Protection and the Safety of Radiation Sources
Greece
- Postgraduate Educational Course in Radiation Protection and the Safety of Radiation Sources (in English)
Indonesia
- Regional Training Course on Customs Operations with Radioactive Materials
Jamaica
- Interregional Training Course on Implementing a Systematic Approach to Training in New Nuclear Power Programmes
Japan

- Interregional Training Course on Industry Involvement in a Nuclear Power Programme
Japan
- Postgraduate Educational Course in Radiation Protection and the Safety of Radiation Sources in Arabic
Jordan
- Interregional Training Course on Nuclear Power Infrastructure Development
Kenya
- Regional Training Course on the Conditioning of Disused Sealed Radioactive Sources
Morocco
- Interregional Training Course on Hands-on Training for Category 3 to 5 Radioactive Sources
Morocco
- Regional Training Course on the Conditioning of Disused Sealed Radioactive Sources (DSRS)
Morocco
- Interregional Training Course on Licensing and Construction Preparation and Oversight of Nuclear
Power Plants
Republic of Korea
- Regional Training Course on Authorization and Inspection of Linear Accelerator (LINAC) Facilities
Used in Radiotherapy
Republic of Korea
- Interregional Training Course on Effective Stakeholder Engagement for New Nuclear Power Programmes
Russian Federation
- Interregional Training Course on Application of INPRO Nuclear Energy System(s) Assessment
Methodology for Sustainability Assessment of Small Modular Reactors (SMRs) and Microreactors (MRs)
Russian Federation
- Interregional Training Course on Energy Planning and Use of the Agency Tools to Model Electricity
Systems for Small Modular Reactors (SMRs)
Russian Federation
- Interregional Training Course on Establishing Arrangements and Capabilities for Emergency
Preparedness and Response
Russian Federation
- Interregional Training Course on Leadership and Management for Safety
Russian Federation
- Interregional Training Course on Safety of Small Modular Reactors (SMRs)
Russian Federation
- Interregional Training Course on Specific Design Considerations of Nuclear Cogeneration Projects Using
Small Modular Reactors (SMRs) and Microreactors (MRs)
Russian Federation
- Interregional Training Course on the Preparedness of the Owner/Operator Organization for Construction
and for Operation
Russian Federation
- TC Regional Training Course on Establishing and Implementing a Source Register and Maintaining
Regulatory Information Using RAIS+
Rwanda
- TC Regional Training Course on Radiation Protection at Diagnostic and Interventional Radiology
Facilities
Saint Vincent and the Grenadines
- TC Regional Training Course on Regulatory Control of Radiation Exposure from Consumer Products –
Drafting Regulations
Tajikistan
- Regional Training Course on International Radiological Information Exchange (IRIX) Format, IRMIS,
and Monitoring Data Sharing
Thailand

- Interregional Training Course on Advanced Approaches in Financing Nuclear Power Plant (NPP) Projects
United States of America
- Interregional Training Course on Environmental Protection Considerations for Embarking Countries
United States of America
- Interregional Training Course on Radiation Protection Considerations for Embarking Countries
United States of America
- School of Radiation Emergency Management for the Caribbean Community (CARICOM)
United States of America

Water and the Environment

- Regional Training Course on The Interpretation of Isotopic Data for Environmental Management Including The Application of Mixing Models
Austria
- Regional Training Course on Monitoring of Microplastics in Marine Ecosystems Using Nuclear Analytical Techniques
Brazil
- Virtual Training Course on Sampling and Monitoring Design of Isotopes in Freshwater to Determine Sources of Excess Nutrients
El Salvador
- Regional Training Course on Gamma-Ray Spectrometry, including Sampling Preparation and Quality Assurance and Quality Control
Greece
- Regional Training Course on Mixing Models of Tracers and Complementary Approaches to Apportion Sources of Contaminants in Ground Water
Indonesia
- Regional Training Course on alpha spectrometry
Jordan
- Regional Training Course on Identification of Cyanobacteria Species by Microscopy and Basic Molecular Biology
Mexico
- Regional Workshop on Dating of Sediment Cores Using the ^{210}Pb Method
Mexico
- Regional Training Course on Industrial Radiation Technology Applications
Morocco
- Regional Training Course on Enhancing Water Resources Management Through Isotopic Techniques
Pakistan
- Regional (AFRA) Training Course on C Sequestration in Marine Ecosystems
Tunisia
- Regional Training Course on Liquid Scintillation System (ARASIA)
United Arab Emirates

Table A39. Agency corporate social media accounts

Facebook

Arabic

www.facebook.com/IAEAarabic

English

www.facebook.com/iaeaorg

French

www.facebook.com/aieaorg

Russian

www.facebook.com/magateorg

Spanish

www.facebook.com/oieaorg

Instagram

www.instagram.com/iaeaorg

LinkedIn

www.linkedin.com/company/iaea

X

<https://twitter.com/iaeaorg>

Weibo

Chinese

<http://weibo.com/iaeaorg>

YouTube

<https://www.youtube.com/user/IAEAvideo>

Flickr

https://www.flickr.com/photos/iaea_imagebank

Table A40(a). Number and types of facilities under Agency safeguards by State during 2023

State ^a	Power reactors	Research reactors and critical assemblies	Conversion plants	Fuel fabrication plants	Reprocessing plants	Enrichment plants	Separate storage facilities	Other facilities	Total
Algeria		2	1	1					4
Argentina	4	6	4	3		4	6	7	34
Armenia	2						1		3
Australia		2					2	2	6
Austria		1							1
Bangladesh	2	1					1		4
Belarus	2	1					2		5
Belgium	6	4		0	1		7	5	23
Brazil	3	6	1	1		5	2	5	23
Bulgaria	3	1					2		6
Canada	7	7	2	5			12		33
Chile		2	1	1					4
China	1					1			2
Colombia		1							1
Czech Republic	3	3					4	2	12
Democratic Republic of the Congo		1							1
Denmark		1					2	1	4
Egypt	1	2	1	2				3	9
Estonia		1							1
Finland	5	1					2	1	9
France				1	1	1			3
Georgia		1						1	2
Germany	21	12		1	1	1	23	6	65
Ghana		1							1
Greece		1							1
Hungary	3	2					2		7
India	11			3			2		16
Indonesia		3		2			1	1	7
Iran, Islamic Republic of	4	6	2	2		3	1	3	21
Iraq							1		1
Israel		1							1
Italy	5	6			2		6	1	20
Jamaica		1							1
Japan	64	19	2	8	6	3	8	16	126
Jordan		1							1
Kazakhstan	1	4		2			6		13
Korea, Republic of	32	3		1			3	7	46
Latvia		1							1

Libya		1						1
Lithuania	1					3		4
Malaysia		1						1
Mexico	2	1		1		1		5
Morocco		1						1
Netherlands, Kingdom of the	2	3			1	2	1	9
Nigeria		1						1
Norway		2					1	3
Pakistan	7	2						9
Peru		2						2
Philippines	1	1						2
Poland		2				1		3
Portugal		1				1		2
Romania	4	2	1	1		1		9
Russian Federation						1		1
Serbia		1						1
Slovakia	5					3		8
Slovenia	1	1				1		3
South Africa	2	1	2	2		8	3	18
Spain	8			1		7	1	17
Sweden	12	1		1		2		16
Switzerland	5	2				2	3	12
Syrian Arab Republic		1						1
Tajikistan		1						1
Thailand		3						3
Türkiye	4	2		1		2		9
Ukraine	19	2				8	6	35
United Arab Emirates	4							4
United Kingdom					1	2		3
United States of America						1		1
Uzbekistan	2	1				1		4
Venezuela, Bolivarian Republic of		1						1
Viet Nam		1						1

^a An entry in this column does not imply the expression of any opinion whatsoever on the part of the Agency concerning the legal status of any country or territory or of its authorities, or concerning the delimitation of its frontiers.

Note: 1. The numbers indicated here include projected and operational facilities, and facilities at the decommissioning stage.
2. The Agency was also applying safeguards at 15 facilities in Taiwan, China.

Table A40(b). Facilities under Agency safeguards or containing safeguarded nuclear material during 2023

State ^a	Name of facility	Location
Power reactors		
Argentina	Atucha I Nuclear Power Plant	Lima
	Atucha II Nuclear Power Plant	Lima
	Carem	Lima
	Embalse Nuclear Power Plant	Embalse
Armenia	Armenian NPP	Metsamor
	Armenian NPP 3	Metsamor
Bangladesh	Rooppur NPP 1	Ishwardi, Pabna District
	Rooppur NPP 2	Ishwardi, Pabna District
Belarus, Republic of	Belarus 1	Ostrovets
	Belarus 2	Ostrovets
Belgium	Doel 1 & 2 NPP	Doel
	Doel 3 NPP	Doel
	Doel 4 NPP	Doel
	Tihange 1 NPP	Tihange
	Tihange 2 NPP	Tihange
	Tihange 3 NPP	Tihange
Brazil	Angra 1	Angra dos Reis
	Angra 2	Angra dos Reis
	Angra 3	Angra dos Reis
Bulgaria	NPP Kozloduy 1 & 2	Kozloduy
	NPP Kozloduy 3 & 4	Kozloduy
	NPP Kozloduy 5 & 6	Kozloduy
Canada	Bruce 'A' N.G.S.	Tiverton, Ontario
	Bruce 'B' N.G.S.	Tiverton, Ontario
	DNNP	Bowmanville, Ontario
	Darlington NGS	Bowmanville, Ontario
	Gentilly II	Gentilly, Quebec
	Pickering N.G.S.	Pickering, Ontario
	Point Lepreau	Pt. Lepreau, New Brunswick
China	HTR-PM	Rongcheng, Shandong Province
Czech Republic	NPP Dukovany (Edu-1)	Dukovany
	NPP Dukovany (Edu-2)	Dukovany

State ^a	Name of facility	Location
	NPP Temelin	Temelin
Egypt	El Dabaa NPP	El Dabaa
Finland	Hanhikivi-I	Pyhaejoki
	Loviisa NPP	Loviisa
	TVO I	Olkiluoto
	TVO II	Olkiluoto
	TVO III	Olkiluoto
Germany	HKG-THTR 300	Hamm
	KKW Brokdorf	Brokdorf
	KKW Brunsbuettel	Brunsbuettel
	KKW Emsland	Lingen (Ems)
	KKW Grafenrheinfeld	Grafenrheinfeld
	KKW Grohnde	Emmerthal
	KKW Gundremmingen, Block B	Gundremmingen
	KKW Gundremmingen, Block C	Gundremmingen
	KKW Isar 1	Essenbach
	KKW Isar 2	Essenbach
	KKW Kruemmel	Geesthacht
	KKW Neckarwestheim 1	Neckarwestheim
	KKW Neckarwestheim 2	Neckarwestheim
	KKW Obrigheim	Obrigheim
	KKW Philippsburg 1	Philippsburg
	KKW Philippsburg 2	Philippsburg
	KKW Unterweser	Unterweser
	KW Biblis A	Biblis
	KW Biblis B	Biblis
	KWL Lingen	Lingen
	KWW Muelheim-Kaerlich	Muelheim-Kaerlich
Hungary	MVM Paks NPP Ltd. I	Paks
	MVM Paks NPP Ltd. II	Paks
	Paks II Nuclear Power Plant	Paks
India	KAPS 1 & 2	Surat, Gujrat
	KAPS 3 & 4	Surat, Gujrat
	KKNPP 1 & 2	Kudankulam, Tamil Nadu
	KKNPP 3 & 4	Kudankulam, Tamil Nadu

State ^a	Name of facility	Location
	KKNPP 5 & 6	Kudankulam, Tamil Nadu
	NAPS 1 & 2	Bulandshahar, Uttar Pradesh
	RAPS 1 & 2	Rawatbhata, Rajasthan
	RAPS 3 & 4	Rawatbhata, Rajasthan
	RAPS 5 & 6	Rawatbhata, Rajasthan
	RAPS 7 & 8	Rawatbhata, Rajasthan
	TAPS	Tarapur, Maharashtra
Iran, Islamic Republic of	BNPP-1	Bushehr
	BNPP-2	Bushehr
	BNPP-3	Bushehr
	IR360 NPP	Darkhovein
Italy	Area Disattivazione Caorso	Caorso
	Centrale Latina	Borgo Sabotino
	Centrale Nucleare di Trino	Trino Vercellese
	Cirene (On Load)	Borgo Sabotino
	So.G.I.N. CN del Garigliano	Sessa Aurunca (CE)
Japan	Fugen	Tsuruga-Shi, Fukui-Ken
	Fuku-I-1	Futaba-Gun, Fukushima-Ken
	Fuku-I-2	Futaba-Gun, Fukushima-Ken
	Fuku-I-3	Futaba-Gun, Fukushima-Ken
	Fuku-I-4	Futaba-Gun, Fukushima-Ken
	Fuku-I-5	Futaba-Gun, Fukushima-Ken
	Fuku-I-6	Futaba-Gun, Fukushima-Ken
	Fuku-N-1	Futaba-Gun, Fukushima-Ken
	Fuku-N-2	Futaba-Gun, Fukushima-Ken
	Fuku-N-3	Futaba-Gun, Fukushima-Ken
	Fuku-N-4	Futaba-Gun, Fukushima-Ken
	Genkai-1	Higashimatsuura-Gun, Saga-Ken
	Genkai-2	Higashimatsuura-Gun, Saga-Ken
	Genkai-3	Higashimatsuura-Gun, Saga-Ken
	Genkai-4	Higashimatsuura-Gun, Saga-Ken
	Hamaoka-1	Ogasa-Gun, Shizuoka-Ken
	Hamaoka-2	Ogasa-Gun, Shizuoka-Ken
	Hamaoka-3	Ogasa-Gun, Shizuoka-Ken
	Hamaoka-4	Ogasa-Gun, Shizuoka-Ken

State ^a	Name of facility	Location
	Hamaoka-5	Ogasa-Gun, Shizuoka-Ken
	Higashidoori-1	Shimokita-Gun, Aomori-Ken
	Higashidoori-1	Shimokita-Gun, Aomori-Ken
	Ikata-1	Nishiuwa-Gun, Ehime-Ken
	Ikata-2	Nishiuwa-Gun, Ehime-Ken
	Ikata-3	Nishiuwa-Gun, Ehime-Ken
	Joyo	Higashi, Ibaraki-Ken
	Kaminoseki-1	Kumage-Gun, Yamaguchi-Ken
	Kashiwazaki-1	Kashiwazaki-Shi, Niigata-Ken
	Kashiwazaki-2	Kashiwazaki-Shi, Niigata-Ken
	Kashiwazaki-3	Kashiwazaki-Shi, Niigata-Ken
	Kashiwazaki-4	Kashiwazaki-Shi, Niigata-Ken
	Kashiwazaki-5	Kashiwazaki-Shi, Niigata-Ken
	Kashiwazaki-6	Kashiwazaki-Shi, Niigata-Ken
	Kashiwazaki-7	Kashiwazaki-Shi, Niigata-Ken
	Mihama-1	Mikata-Gun, Fukui-Ken
	Mihama-2	Mikata-Gun, Fukui-Ken
	Mihama-3	Mikata-Gun, Fukui-Ken
	Monju	Tsuruga-Shi, Fukui-Ken
	Ohi 1 & 2	Ohi-Gun, Fukui-Ken
	Ohi 3	Ohi-Gun, Fukui-Ken
	Ohi 4	Ohi-Gun, Fukui-Ken
	Ohma	Shimokita-Gun, Aomori-Ken
	Onagawa-1	Oshika-Gun, Miyagi-Ken
	Onagawa-2	Oshika-Gun, Miyagi-Ken
	Onagawa-3	Oshika-Gun, Miyagi-Ken
	Sendai-1	Satsumasendai-Shi, Kagoshima-Ken
	Sendai-2	Satsumasendai-Shi, Kagoshima-Ken
	Sendai-3	Satsumasendai-Shi, Kagoshima-Ken
	Shika-1	Hakui-Gun, Ishikawa-Ken
	Shika-2	Hakui-Gun, Ishikawa-Ken
	Shimane-1	Yatsuka-Gun, Shimane-Ken
	Shimane-2	Yatsuka-Gun, Shimane-Ken
	Shimane-3	Yatsuka-Gun, Shimane-Ken
	Takahama-1	Ohi-Gun, Fukui-Ken

State ^a	Name of facility	Location
	Takahama-2	Ohi-Gun, Fukui-Ken
	Takahama-3	Ohi-Gun, Fukui-Ken
	Takahama-4	Ohi-Gun, Fukui-Ken
	Tokai	Tokai-Mura, Ibaraki-Ken
	Tokai-2	Tokai-Mura, Ibaraki-Ken
	Tomari-1	Fururu-Gun, Hokkaido
	Tomari-2	Fururu-Gun, Hokkaido
	Tomari-3	Fururu-Gun, Hokkaido
	Tsuruga-1	Tsuruga-Shi, Fukui-Ken
	Tsuruga-2	Tsuruga-Shi, Fukui-Ken
Kazakhstan	BN-350	Aktau
Korea, Republic of	Hanbit-1	Yeonggwang
	Hanbit-2	Yeonggwang
	Hanbit-3	Yeonggwang
	Hanbit-4	Yeonggwang
	Hanbit-5	Yeonggwang
	Hanbit-6	Yeonggwang
	Hanul-1	Ulchin
	Hanul-2	Ulchin
	Hanul-3	Ulchin
	Hanul-4	Ulchin
	Hanul-5	Ulchin
	Hanul-6	Ulchin
	Kori-1	Pusan
	Kori-2	Pusan
	Kori-3	Pusan
	Kori-4	Pusan
	Shin Hanul-1	Ulchin
	Shin Hanul-2	Ulchin
	Shin Hanul-3	Ulchin
	Shin Hanul-4	Ulchin
	Shin Kori-1	Pusan
	Shin Kori-2	Pusan
	Saeul 1	Pusan
	Saeul 2	Pusan

State ^a	Name of facility	Location
	Saeul 3	Pusan
	Saeul 4	Pusan
	Shin Wolsong-1	Kyongju
	Shin Wolsong-2	Kyongju
	Wolsong-1	Kyongju
	Wolsong-2	Kyongju
	Wolsong-3	Kyongju
	Wolsong-4	Kyongju
Lithuania	Ignalina NPP	Visaginas
Mexico	Central Laguna Verde Unit I	Muni. Al. Luc. Veracruz
	Central Laguna Verde Unit II	Muni. Al. Luc. Veracruz
Netherlands, Kingdom of the	Epz. Borssele	Borssele
	N. V. GKN-Dodewaard	Dodewaard
Pakistan	Chasnupp-1	Kundian, District Mianwali
	Chasnupp-2	Kundian, District Mianwali
	Chasnupp-3	Kundian, District Mianwali
	Chasnupp-4	Kundian, District Mianwali
	Kanupp	Karachi
	Kanupp-2	Karachi
	Kanupp-3	Karachi
Philippines	BNPP	Morong, Bataan
Romania	Cernavoda 3	Cernavoda
	Cernavoda 4	Cernavoda
	CNE Cernavoda 1	Cernavoda
	CNE Cernavoda 2	Cernavoda
Slovakia	JAVYS NPP A-1	Jaslovske Bohunice
	JAVYS NPP V-1	Jaslovske Bohunice
	NPP Mochovce Units 1 & 2	Mochovce
	NPP Mochovce Units 3 & 4	Mochovce
	V-2 NPP	Jaslovske Bohunice
Slovenia	Krško (NEK)	Krško
South Africa	Koeberg Unit I	Cape Town
	Koeberg Unit II	Cape Town
Spain	Asco 1	Asco
	Asco 2	Asco

State ^a	Name of facility	Location
	C.N. Almaraz 1	Almaraz
	C.N. Almaraz 2	Almaraz
	C.N. Cofrentes	Cofrentes
	C.N. de Sta. Maria de Garona	Santa Maria de Garona
	CN Trillo-1	Trillo
	CN Vandellos-2	Vandellos
Sweden	Barsebaeck Unit 1	Loeddekoepinge
	Barsebaeck Unit 2	Loeddekoepinge
	Forsmark Unit 1	Oesthammar
	Forsmark Unit 2	Oesthammar
	Forsmark Unit 3	Oesthammar
	Oskarshamn Unit 1	Oskarshamn
	Oskarshamn Unit 2	Oskarshamn
	Oskershamn Unit 3	Oskarshamn
	Ringhals 1	Ringhals
	Ringhals 2	Ringhals
	Ringhals 3	Ringhals
	Ringhals 4	Ringhals
Switzerland	KKB Beznau-I	Beznau Doettingen
	KKB Beznau-II	Beznau Doettingen
	KKG Goesgen	Goesgen Daeniken
	KKL Leibstadt	Leibstadt
	KKM Muehleberg	Muehleberg
Türkiye	Akkuyu Unit 1	Büyükeceli
	Akkuyu Unit 2	Büyükeceli
	Akkuyu Unit 3	Büyükeceli
	Akkuyu Unit 4	Büyükeceli
Ukraine	Chernobyl NPP, Unit 1	Chornobyl
	Chernobyl NPP, Unit 2	Chornobyl
	Chernobyl NPP, Unit 3	Chornobyl
	Khmelnitski 1	Netishyn
	Khmelnitski 2	Netishyn
	Khmelnitski 3	Netishyn
	Khmelnitski 4	Netishyn
	Rovno 1 & 2	Varash

State ^a	Name of facility	Location
	Rovno 3	Varash
	Rovno 4	Varash
	South Ukraine 1	Yuzhnoukrayinsk
	South Ukraine 2	Yuzhnoukrayinsk
	South Ukraine 3	Yuzhnoukrayinsk
	Zaporozhe 1	Enerhodar
	Zaporozhe 2	Enerhodar
	Zaporozhe 3	Enerhodar
	Zaporozhe 4	Enerhodar
	Zaporozhe 5	Enerhodar
	Zaporozhe 6	Enerhodar
United Arab Emirates	BNPP-1	Barakah
	BNPP-2	Barakah
	BNPP-3	Barakah
	BNPP-4	Barakah
Uzbekistan	Unit 1	tbd
	Unit 2	tbd
Research reactors and critical assemblies		
Algeria	Es Salam Reactor	Ain Oussera
	Nur Reactor	Draria-Bp29 Wilaya de Tipaza
Argentina	Argentine Reactor 0 (RA-0)	Cordoba
	Argentine Reactor 1 (RA-1)	Buenos Aires
	Argentine Reactor 3 (RA-3)	Centro Atomico Ezeiza
	Argentine Reactor 4 (RA-4)	Rosario
	Argentine Reactor 6 (RA-6)	Centro Atomico Bariloche
	Argentine Reactor 10 (RA-10)	Centro Atomico Ezeiza
Australia	HIFAR	Lucas Heights, New South Wales
	OPAL	Lucas Heights, New South Wales
Austria	TRIGA Mark II Reactor	Vienna
Bangladesh	Atomic Energ. Res. Estab.	Dhaka
Belarus	Sosny	Minsk
Belgium	BR1-CEN	Mol
	BR2-CEN	Mol
	Venus-CEN	Mol
	MYRRHA	Mol

State ^a	Name of facility	Location
Brazil	Brazilian Multipurpose Reactor	Iperó, São Paulo
	CDTN/IRP-R1 Reactor	Belo Horizonte
	IEN/Argonauta Reactor	Rio de Janeiro
	IPEN/IEA-R1	São Paulo
	IPEN/MB01 Critical Assembly	São Paulo
	LABGENE	Iperó
Bulgaria	IRT-2000	Sofia
Canada	Biology, Chemistry, Physics	Chalk River, Ontario
	DIF	Chalk River, Ontario
	Ecole Polytechnique	Montreal, Quebec
	McMaster Nuclear Reactor	Hamilton, Ontario
	NRU Reactor	Chalk River, Ontario
	NRX Reactor	Chalk River, Ontario
	Slowpoke Kingston	Kingston, Ontario
Chile	RECH-1	Santiago
	RECH-2	Santiago
Colombia	Ian-R1 R. Reactor	Bogotá
Czech Republic	LR-0	Řež
	LVR-15	Řež
	VR-1	Prague
Democratic Republic of the Congo	TRIGA II Reactor	Kinshasa
Denmark	Danish Decommissioning-DR3	Roskilde
Egypt	ET RR-1	Inshas
	ET RR-2	Inshas
Estonia	A.L.A.R.A.	Paldiski
Finland	FiR 1	Espoo
Georgia	Decom. IRT-M	Tbilisi
Germany	AKR-2	Dresden
	BER-II	Berlin
	FH-Furtwangen	Furtwangen
	FRM	Garching
	FRM II	Garching
	Helmholtz-Zentrum Geesthacht	Geesthacht
	KFA-FRJ2	Juelich
	Labor-ST	Zittau

State ^a	Name of facility	Location
	SUR-100 FHU	Ulm
	SUR-100 Stuttgart	Stuttgart
	SUR100-RWTH	Aachen
	TRIGA Mainz	Mainz
Ghana	GHARR-1 Ghana Research React. 1	Legon-Accra
Greece	GRR-1	Attikis
Hungary	Budapest Research Reactor	Budapest
	Training Reactor	Budapest
Indonesia	ChTkn <i>CANST</i>	Bandung
	PPNY <i>PSTA</i>	Yogyakarta
	RSG-GAS	Serpong
Iran, Islamic Republic of	Esfahan MNSR	Esfahan
	FARS Research Reactor FRR	Shiraz
	HWZPR	Esfahan
	KHRR	Arak
	LWCR	Tehran
	Tehran Research Reactor (TRR)	Tehran
Israel	Israel Res. Reactor (IRR1)	Soreq
Italy	AGN-201	Palermo
	CEC-Complexe-Essor	Ispra
	So.G.I.N. Azioni	Ispra
	Lena	Pavia
	TAPIRO- Casaccia	Santa Maria di Galeria
	TRIGA RC1 Mark II	Santa Maria di Galeria
Jamaica	CNS	Kingston
Japan	DCA	Oarai-Machi, Ibaraki-Ken
	FCA	Tokai-Mura, Ibaraki-Ken
	HTR	Kawasaki-Shi, Kanagawa-Ken
	HTTR	Higashi, Ibaraki-Ken
	JMTR	Higashi, Ibaraki-Ken
	JMTRC	Higashi-Gun, Ibaraki-Ken
	JRR-2	Tokai-Mura, Ibaraki-Ken
	JRR-3	Tokai-Mura, Ibaraki-Ken
	JRR-4	Tokai-Mura, Ibaraki-Ken
	KINKI	Higashiosaka-Shi, Osaka-Fu

State ^a	Name of facility	Location
	KUCA	Osaka
	KUR	Sennan-Gun, Osaka
	Musashi Reactor	Kawasaki-Shi, Kanagawa-Ken
	NCA	Kawasaki-Shi, Kanagawa-Ken
	NSRR	Tokai-Mura, Ibaraki-Ken
	Rikkyo	Nagasaka, Kanagawa-Ken
	TCA	Tokai-Mura, Ibaraki-Ken
	TODAI	Tokai-Mura, Ibaraki-Ken
	TTR	Kawasaki-Shi, Kanagawa-Ken
Jordan	JRTR	Jordan Univ. Science & Tech.
Kazakhstan	IGR Reactor	Kurchatov
	IVG.1M Reactor	Kurchatov
	RA Reactor	Kurchatov
	WWR-K	Almaty
Korea, Republic of	Gijang Research Reactor <i>KJRR</i>	Gijang, Busan Metropol. City
	Hanaro	Taejeon
	Kyung Hee	Suwoon
Latvia	IRT	Salaspils
Libya	IRT-Tajura	Tajura
Malaysia	Puspati	Bangi, Selangor
Mexico	TRIGA Mark III	Ocoyoacac
Morocco	MA-R1	Rabat, Agdal
Netherlands, Kingdom of the	HFR-Petten	Petten
	IRI HOR	Delft
	PALLAS-Reactor	Petten
Nigeria	NIRR-1	Ahmadu Bello University, Zaria
Norway	HBWR	Halden
	JEEP-II	Kjeller
Pakistan	PARR-1	Rawalpindi
	PARR-2	Rawalpindi
Peru	CNIP RP-10 R. Reactor	Lima
	RP-0 R. Reactor	Lima
Philippines	PRR-1	Quezon City, Diliman
Poland	Anna & Agata	Otwock-Świerk
	Maria	Otwock-Świerk

State ^a	Name of facility	Location
Portugal	IST (CTN) RPI	Sacavem
Romania	IFIN-HH	Magurele
	TRIGA Research & MTR	Pitești-Mioveni
Serbia	RA-RB	Vinča
Slovenia	TRIGA II	Ljubljana
South Africa	Safari-I Research Reactor	Pelindaba
Sweden	Studsvik AB and AB Svafo	Studsvik
Switzerland	Crocus	Lausanne
	Proteus	Villigen
Syrian Arab Republic	MNSR	Damascus
Tajikistan	Argus Research Reactor	Dushanbe
Thailand	MNSR	Nakhon Ratchasima Province
	ONRC <i>SUT-RR</i>	Ongkharak
	TRR-1	Bangkok
Türkiye	Çekmece Nuc. Res. & Tr. Centre	Istanbul
	ITU-TRR- TRIGA Mark II	Istanbul
Ukraine	IR-100 Research Reactor	Sevastopol
	WWR-M Research Reactor	Kyiv
Uzbekistan	WWR-SM Reactor	Ulugbek
Venezuela, Bolivarian Republic of	RV-1 Ivic R. Reactor	Altos de Pipe
Viet Nam	Da Lat Research Reactor	Da Lat, Lam Dong
Conversion plants		
Algeria	Pilot Uranium Conversion Plant	Draria Nuclear Research Center
Argentina	Experimental Dry Conversion	Pilcaniyeu
	UF ₆ Conversion Plant	Pilcaniyeu
	UO ₂ Conversion Plant	Cordoba
	Uranium Powder Production Fac.	Polo Cientifico, Tecnologico y Inn.
Brazil	USEXA	Iperó, São Paulo
Canada	Blind River	Blind River, Ontario
	Port Hope	Port Hope, Ontario
Chile	Lab. Experiment de Conversion	Santiago
Egypt	Uranium Products Semi-pilot Plant	Inshas
Iran, Islamic Republic of	EUPP	Esfahan
	UCF	Esfahan

State ^a	Name of facility	Location
Japan	JCO	Tokai-Mura, Ibaraki-Ken
	PCDF	Tokai-Mura, Ibaraki-Ken
Romania	National Uranium Company	Feldioara
South Africa	Conversion Plant (U Plant)	Pelindaba
	HEU/LEU Conversion Plant	Pelindaba
Fuel fabrication plants		
Algeria	UDEEC	Draria Nuclear Research Center
Argentina	ECRI	Buenos Aires
	FECN	Ezeiza
	R. Reactor Fuel Fab. Plant	Ezeiza
Brazil	Fuel Fabrication Plant	Resende
Canada	Cameco, Port Hope	Port Hope, Ontario
	Fuel Eng. Met. Che. Op.	Chalk River, Ontario
	Fuel Fabrication Facility	Chalk River, Ontario
	BWXT, Peterborough	Peterborough, Ontario
	BWXT, Toronto	Toronto, Ontario
Chile	United de Metalur, Fisica (UMF)	Santiago, Chile
Egypt	FMPP (Fuel Manuf. Pilot Plant)	Inshas
	R&D-NFL	Inshas
France	Melox de Marcoule	Chusclan
Germany	Advanced Nuclear Fuels	Lingen
India	NFC	Hyderabad
	NFC-NU	Hyderabad
	PFFF	Kota, Rjasthan
Indonesia	IEBE	Serpong
	IPEBRR	Serpong
Iran, Islamic Republic of	FMP	Esfahan
	FPPF	Esfahan
Japan	GNF-J	Yokosuka-Shi, Kanagawa-Ken
	J-MOX	Oaza Obuchi, Rokkasho-Mura
	MNF	Tokai-Mura, Ibaraki-Ken
	NFI Kumatori-1	Sennan-Gun, Osaka
	NFI Tokai-1	Tokai-Mura, Ibaraki-Ken
	NFI Tokai-2	Tokai-Mura, Ibaraki-Ken
	PFPF	Tokai-Mura, Ibaraki-Ken

State ^a	Name of facility	Location
	PPFF	Tokai-Mura, Ibaraki-Ken
Kazakhstan	Fuel Assembly Fabrication Plant	Ust-Kamenogorsk
	UMP	Ust-Kamenogorsk
Korea, Republic of	KNFFP	Taejeon
Mexico	Fuel Fabrication Pilot Plant	Salazar
Romania	SN NFP Subsidiary	Mioveni
South Africa	MTR Fuel Fabrication Plant	Pelindaba
	LEU Fuel Fabrication Plant	Pelindaba
Spain	ENUSA Fab. Juzbado	Juzbado
Sweden	Westinghouse Electric	Vaesteras/Finnslaetten
Türkiye	Nuclear Fuel Pilot Plant	Istanbul
Reprocessing plants		
Belgium	RECUMO	Mol
France	AREVA NC-UP2 & UP3	La Hague
Germany	KTE GmbH	Eggenstein-Leopoldshafen
Italy	So. G.I.N. SpA-Impianto EUREX	Saluggia
	So. G.I.N. SpA-Trisaia	Rotondella
Japan	CPF	Tokai-Mura, Ibaraki-Ken
	RETF	Tokai-Mura, Ibaraki-Ken
	RRF	Ibaraki-Ken
	RRP	Kamikita-Gun, Aomori-Ken
	SCF	Tokai-Mura, Ibaraki-Ken
	TRP	Tokai-Mura, Ibaraki-Ken
Enrichment plants		
Argentina	Lasie	Bariloche
	LESI	San Martin
	Pilcaniyeu Mock-up Laboratory	Pilcaniyeu
	Uranium Enrichment Pilot Plant	Pilcaniyeu
Brazil	CTMSP/Ladesi-Copesp	São Paulo
	CTMSP/LEI	Iperó
	CTMSP/USIDE	Iperó
	FCN-Enrichment Plant	Resende
	IAEV/AR/LAS	São Jose dos Campos
China	Shaanxi	Han Zhang, Shaanxi Province
France	Georges Besse II	Bollene

State ^a	Name of facility	Location
Germany	UTA 1 and UTA 2	Gronau
Iran, Islamic Republic of	FEP	Natanz
	FFEP	20 km North-East of Qom City
	PFEP	Natanz
Japan	CTF	Kitakami-Gun, Aomori-Ken
	NEP	Tomata-Gun, Okayama-Ken
	REP	Kamikita-Gun, Aomori-Ken
Netherlands, Kingdom of the	Urenco Nederland	Almelo
United Kingdom	Urenco Capenhurst E22, E23, A3	Capenhurst
Separate storage facilities		
Argentina	Cent. St. Irr. Sp. Fiss. M. (DCMFEI)	Centro Atomico Ezeiza
	Centr. Store Sp. Fiss. Mat. (DCMFE)	Buenos Aires
	DUE	Centro Atomico Ezeiza
	FACIRI	Ezeiza
	Nuclear Material Storage	Buenos Aires
	Storage Bunker	Centro Atomico Ezeiza
Armenia	SSFS	Metsamor
Australia	Bulk Storage Facility	Lucas Heights, Sutherland
	Osborne Nuclear Fuel Storage	Osborne, South Australia
Bangladesh	Rooppur NPP FFS	Ishwardi, Pabna District
Belarus	Belarus NPP FF storage	Ostrovets
	Sosny 2	Minsk
Belgium	Belgoprocess	Dessel
	Belgoprocess Dry Storage	Dessel
	Belgoprocess UF ₆	Dessel
	Doel Spent Fuel Storage Facility	Doel
	Elbel Doel Dry Storage	Beveren
	Tihange Dry Storage	Tihange
	Tihange Wet Storage	Tihange
Brazil	Angra Dry Storage	Angra dos Reis
	Planned Fuel Storage Facility	Ilha Da Madeira, Itaguaí
Bulgaria	DSFSF KNPP 2	Kozloduy
	SFSF Kozloduy 1	Kozloduy
Canada	ACEL Research <i>whiteshell labs</i>	Pinawa, Manitoba

State ^a	Name of facility	Location
	CRL Waste Storage Facility	Chalk River, Ontario
	DP Dry Storage	Tiverton, Ontario
	DWMF	Darlington, Ontario
	FPSF	Chalk River, Ontario
	Gentilly I	Gentilly, Quebec
	LTWMF	Port Hope, Ontario
	NMSF	Chalk River, Ontario
	PWMF	Pickering, Ontario
	Spent Fuel Canister Storage	Chalk River, Ontario
	Waste Storage Facility	Chalk River, Ontario
	WUFDSF	Tiverton, Ontario
Czech Republic	ISFS Dukovany	Dukovany
	ISFS Temelin	Temelin
	Radioactive Waste Rep. Richard	Litoměřice
	Vao, HLWS	Řež
Denmark	DD Storage	Roskilde
	DD Waste	Roskilde
Finland	Geological Repository	Olkiluoto
	TVO-KPA-Store	Olkiluoto
Germany	AVR-BL	Juelich
	BZA Ahaus	Ahaus
	Daher Nuclear Technologies GmbH	Hanau
	EWN Zwischenlager Nord GmbH	Lubmin
	HDB	Eggenstein - Leopoldshafen
	Kernmateriallager 87	Rosendorf
	KFK-FR-2	Eggenstein-Leopoldshafen
	PTB-Spaltstofflager	Lubmin
	SZK Krümmel	Geesthacht
	SZL Biblis	Biblis
	SZL Brokdorf	Brokdorf
	SZL Brunsbüttel	Brunsbüttel
	SZL Emsland	Lingen (Ems)
	SZL Grafenrheinfeld	Grafenrheinfeld
	SZL Grohnde	Emmerthal
	SZL Gundremmingen	Gundremmingen

State ^a	Name of facility	Location
	SZL Isar	Essenbach
	SZL Neckarwestheim	Neckarwestheim
	SZL Philippsburg	Philippsburg
	SZL Unterweser	Stadland
	TBH (B) 87.2	Rosendorf
	TBL-G	Gorleben
	Uranoxid-Lager UAG	Gronau
Hungary	Central Isotope Storage	Budapest
	MVDS	Paks
India	PREFRE	Tarapur
	TAPS AFR	Tarapur
Indonesia	Ria-Nd ISFSF	Serpong
Iran, Islamic Republic of	KWS	Karaj
Iraq	Former Location C	Tuwaitha
Italy	Centro Comune di Ricerca	Ispra
	CISAM-RTS-1	San Piero a Grado
	Dep. Avogadro Elementi Irragg	Torino
	Essor Storage	Ispra
	Lab. Misure Nucleari Perla	Ispra
	Nucleco S.p.A.	Rome
Japan	Fuku-I-CSFS	Futaba-Gun, Fukushima-Ken
	Hamaoka (Storage-UC)	Omaezaki-Shi, Shizuoka-Ken
	JAERI Mutsu	Mutsu-Shi, Aomori-Ken
	KUFFS	Sennan-Gun, Osaka
	NFI Kumatori-2	Sennan-Gun, Osaka
	Ningyo R&D	Tomata-Gun, Okayama-Ken
	RFSC	Mutsu-Shi, Aomori-Ken
	VHTRC	Tokai-Mura, Ibaraki-Ken
Kazakhstan	Baikal-1 DSFS	Kurchatov
	BN-350 Temporary Storage	Aktau
	DU & PU Source Storage	Kurchatov
	IAEA LEU Storage Facility	Ust-Kamenogorsk
	Thorium Storage Facility	Kurchatov
	Ulba Thorium Storage	Ust-Kamenogorsk
Korea, Republic of	NMSF	Kaeri-Taejeon

State ^a	Name of facility	Location
	Uranium Residue Storage Fac.	Kaeri-Taejeon
	WLDC	Kyongju
Lithuania	IFFSF	Visaginas
	SNFS-1	Visaginas
	SNFS-2	Visaginas
Mexico	ISFSI	Estado de Veracruz
Netherlands, Kingdom of the	COVRA	Vlissingen
	HABOG	Vlissingen
Poland	ZUOP	Otwock-Świerk
Portugal	IST (CTN) Instalacao Piloto	Sacavem
Romania	CNE Cernavoda IDSFS	Cernavoda
Russian Federation	IUEC Storage Facility	Angarsk
Slovakia	JAVYS Nuclear Store	Jaslovske Bohunice
	JAVYS ISFS	Jaslovske Bohunice
	Bohunice Dry SNF Storage	Jaslovske Bohunice
Slovenia	Spent Fuel Dry Storage	Krško
South Africa	E-Building Storage Facility	Pelindaba
	HEU Storage Vault	Pelindaba
	Koeberg Castor Storage Fac.	Cape Town
	Thabana Pipe Store	Pelindaba
	Vaalputs	Springbok
	Waste Storage Facility	Pelindaba
	Y-Plant Storage Facility	Pelindaba
	Z-Plant Storage Facility	Pelindaba
Spain	Almaraz Dry Storage	Almaraz
	Asco Dry Storage	Asco
	ATC Centralized Storage	Madrid
	Cofrentes Dry Storage	Cofrentes
	Nuclenor, S.A. Storage	Santa Maria de Garona
	Trillo Dry Storage	Trillo
	Zorita Dry Storage	Almonacid de Zorita
Sweden	SFK	Oesthammar
	SKB Clab Store	Oskarshamn
Switzerland	Zwibez Kernkraftwerk Beznau	Doettingen
	Zwilag	Wuerenlingen Aargau

State ^a	Name of facility	Location
Türkiye	Akkuyu Fresh Fuel Storage	Büyükeceli
	Akkuyu Spent Fuel Storage	Büyükeceli
Ukraine	Chernobyl NPP-SFS	Chornobyl
	Chernobyl SNFSF-2	Chornobyl
	Khmelnitski FF Storage	Netishyn
	Rovno FF Storage	Varash
	South Ukraine FF Storage	Yuzhnoukrayinsk
	Ukraine Centralized Dry Store	Chornobyl
	Zaporozhe FF Storage	Enerhodar
	Zaporozhe SFS	Enerhodar
United Kingdom	SNM Store 9	Sellafield
	Thorp Product Store	Sellafield
United States of America	KAMS Storage	Savannah River Site
Uzbekistan	Fresh Fuel Storage	tbd
Other facilities		
Argentina	Alpha Laboratory	Buenos Aires
	PPRF	Centro Atomico Ezeiza
	Lapep	Centro Atomico Ezeiza
	Tripple Altura Laboratory (LTA)	Centro Atomico Ezeiza
	Enriched Uranium Recovery Lab (LUE)	Centro Atomico Ezeiza
	Uranium Power Fab. Plant (PFPU)	Buenos Aires
	PPCA	Buenos Aires
	Australia	R&D Labs
SYNROC		Lucas Heights, Sutherland
Belgium	Belgoprocess Waste Treatment	Mol
	I.R.E.	Fleurus
	IRMM. Geel	Geel
	SCK•CEN Lab.	Mol
	SCK•CEN Pu Laboratories	Mol
Brazil	Aramar Store	Iperó
	CTMSP/Labmat	Iperó
	IPEN-Nuclear Fuel Centre	São Paulo
	IPEN-Reprocessing Project	São Paulo
	LADICON	São Paulo

State ^a	Name of facility	Location
Czech Republic	Lab. & Stores, Centr. Anal. Lab.	Řež
	UJP	Prague
Denmark	Danish Decommiss. - Hotcell	Roskilde
Egypt	Hydrometallurgy Unit	Inshas
	Molybdenum Production Unit	Inshas
	NCB	Inshas
Finland	Encapsulation Plant	Olkiluoto
Georgia	Sukhumi Institute	Sukhumi
Germany	Inst. Kernchemie	Mainz
	JRC-ITU	Eggenstein-Leopoldshafen
	Betriebsstätten der JEN	Juelich
	Lab. Juelich	Juelich
	PKA Gorleben	Gorleben
	WAK-Heisse Zellen der HVT	Eggenstein-Leopoldshafen
Indonesia	RMI	Serpong
Iran, Islamic Republic of	JHL	Tehran
	LWSCR	Esfahan
	MIX Separation Facility	Tehran
Italy	Impianto Plutonio	Santa Maria di Galeria
Japan	JNC Tokai R&D	Tokai-Mura, Ibaraki-Ken
	FMF	Higashi, Ibaraki-Ken
	IRAF	Higashi-Gun, Ibaraki-Ken
	JAERI Oarai R&D	Higashi, Ibaraki-Ken
	JAERI Tokai	Tokai-Mura, Ibaraki-Ken
	JNC Oarai R&D	Higashi, Ibaraki-Ken
	Kumatori	Sennan-Gun, Osaka
	Mitsui Iwakuni-Ohtake	Kuga-Gun, Yamaguchi-Ken
	Mitsui Osaka	Takai-Shi, Osaka-Fu
	NDC Fuel Hot Lab	Tokai-Mura, Ibaraki-Ken
	NERL	Tokai-Mura, Ibaraki-Ken
	NFD	Higashi, Ibaraki-Ken
	Okuma Lab-2	Futaba-Gun, Fukushima-Ken
Showa	Kawasaki-Shi, Kanagawa-Ken	
Sumitomo-Chiba	Sodegaura-Shi, Chiba-Ken	
UML	Higashi, Ibaraki-Ken	

State ^a	Name of facility	Location
Korea, Republic of	ACPF	Taejeon
	DFDF	Taejeon
	HFFL	Taejeon
	IMEF	Taejeon
	KAERI R&D Facility	Taejeon
	PIEF	Taejeon
	PRIDE	Kaeri Site, Taejeon
Netherlands, Kingdom of the	GCO/ECN Lab.	Petten
Norway	Research Laboratories	Kjeller
South Africa	Decontam. and Waste Recovery Pl.	Pelindaba
	Hot Cell Complex	Pelindaba
	Nu and Du Metals Plant	Pelindaba
Spain	C.A. El Cabril	El Cabril
Switzerland	AERA	Villigen
	CERN	Meyrin-Geneva
	Hot Labor	Villigen
Ukraine	Chernobyl Conditioning	Chornobyl
	Chernobyl Unit 4 Shelter	Chornobyl
	Izotop Enterprise	Kyiv
	KHFTI	Kharkiv
	KHFTI	Kharkiv
	Sevastopol Subcritical Assembly	Sevastopol

^a An entry in this column does not imply the expression of any opinion whatsoever on the part of the Agency concerning the legal status of any country or territory or of its authorities, or concerning the delimitation of its frontiers.

- Note:**
1. The Agency was also applying safeguards at 15 facilities in Taiwan, China.
 2. Additionally under Agency safeguards there were 643 material balance areas outside facilities in 161 States and in Taiwan, China. These include 81 material balance areas established for States with a small quantities protocol based on the revised standard text.
 3. The list includes projected and operational facilities and facilities at the decommissioning stage.