

**Montreal Protocol
on Substances that
Deplete the Ozone Layer**

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**Open-ended Working Group of the Parties
to the Montreal Protocol on Substances
that Deplete the Ozone Layer**
Forty-fifth meeting
Bangkok, 3–7 July 2023
Item 10 (a) of the provisional agenda*

**Potential impacts of the coronavirus disease
(COVID-19) pandemic on hydrofluorocarbon
consumption for Group 1 parties operating under
paragraph 1 of Article 5: hydrofluorocarbons
consumption data reported by relevant Group 1
parties operating under paragraph 1 of Article 5
(decision XXXIV/13, paras. 1 and 2)**

**Potential impacts of the coronavirus disease (COVID-19)
pandemic on hydrofluorocarbon consumption for Group 1
parties operating under paragraph 1 of Article 5:
hydrofluorocarbons consumption data reported by relevant
Group 1 parties operating under paragraph 1 of Article 5
(decision XXXIV/13, paras. 1 and 2)**

Report by the Secretariat

I. Introduction

1. The present report has been prepared in response to decision XXXIV/13 on collecting data to understand potential impacts of the coronavirus disease (COVID-19) pandemic on hydrofluorocarbon (HFC) consumption for Group 1 parties operating under paragraph 1 of Article 5 (Article 5 Group 1 parties), adopted by the Thirty-Fourth Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, held in Montreal, Canada, from 31 October to 4 November 2022. In paragraph 2 of that decision, the Secretariat was requested to prepare for consideration at the forty-fifth meeting of the Open-ended Working Group:

(a) Information on the HFC consumption for the years 2020, 2021 and 2022 and the calculated baselines of Article 5 Group 1 parties that have reported relevant data;

(b) Information on HFC consumption for the years 2018 and 2019 of Article 5 Group 1 parties, where such information is available.

2. In paragraph 1 of the decision, parties operating under paragraph 1 of Article 5 (Article 5 parties) that believe that their reduced consumption of HFCs during the baseline years of 2020–2022, stemming from the effects of the COVID-19 pandemic, could hinder their ability to comply with the freeze in the consumption of HFCs in 2024 under the Kigali Amendment, were encouraged to submit

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to the Ozone Secretariat, as soon as possible and no later than 1 May 2023, their HFC consumption data for 2022, in time for consideration at the forty-fifth meeting of the Open-ended Working Group of the Parties to the Montreal Protocol.

3. In paragraph 3 of the decision, the parties requested the Executive Committee, at its ninety-first meeting, to consider requesting the secretariat of the Multilateral Fund for the Implementation of the Montreal Protocol to provide to the Ozone Secretariat any HFC consumption data it had available that could assist the Ozone Secretariat in preparing the information requested under paragraph 2 of the decision.

II. Secretariat follow-up

4. The Secretariat initially sent out two communications, one dated 8 December 2022 and another dated 30 December 2022. The communication dated 8 December 2022 was focused specifically on decision XXXIV/13 and was sent to the 137 Article 5 Group 1 parties, inviting them to submit at their earliest convenience, and no later than 1 May 2023, HFC consumption data for 2022 in time for consideration by the Open-ended Working Group at its forty-fifth meeting. The communication dated 30 December 2022 dealt with several decisions that had been adopted by the Thirty-Fourth Meeting of the Parties, including decision XXXIV/13.

5. On 11 April 2023, the Secretariat sent a further communication on decision XXXIV/13, recalling its two previous communications on the issue and inviting the remaining 134 Article 5 Group 1 parties that had not yet reported HFC consumption data for 2018, 2019, 2020, 2021 and 2022 to submit information for the missing years, if available, for inclusion in the Secretariat report, pursuant to subparagraphs 2 (a) and (b) of the decision.

6. In response to the communication of 11 April 2023, many parties indicated that they would submit HFC consumption data before the deadline, with a few stating that they were waiting for internal surveys to be undertaken or completed. A total of 82 parties submitted HFC data in 2023 for one or more years between 2018 and 2022, for a total of 142 new submissions, with 72 of those parties submitting HFC data for 2022. Some parties indicated that they were not submitting HFC consumption data because they had not yet ratified the Kigali Amendment. Six parties, including four that had not submitted HFC consumption data for 2022, clarified that they were concerned about the impact of COVID-19 on their HFC consumption for the baseline years. A few parties stated that data for 2018 and/or 2019 were not available. Three parties that had not ratified the Kigali Amendment sought clarification as to why the Secretariat was requesting HFC consumption data from parties that did not have any obligation to report the data. The Secretariat clarified that it had invited the parties to submit the information, if available, with a view to providing parties with as much information as possible for their discussion on potential impacts of the COVID-19 pandemic on HFC consumption for Article 5 Group 1 parties at the meeting of the Open-ended Working Group to be held in July 2023.

7. On 11 May 2023, the Secretariat wrote to those Article 5 Group 1 parties that had reported HFC consumption data for 2022 to clarify whether they had reported the 2022 data owing to the concern that their consumption of HFCs had been reduced during the baseline years of 2020–2022 as a result of the effects of the COVID-19 pandemic, which could hinder their ability to comply with the freeze in the consumption of HFCs in 2024 under the Kigali Amendment. Another 15 parties expressed concern regarding the impact of COVID-19, while 12 parties indicated that they did not have concerns about meeting the consumption freeze in 2024.

8. The Ozone Secretariat received the relevant HFC consumption data from the secretariat of the Multilateral Fund on 22 December 2022, after the Fund secretariat, in decision 91/7 of the Executive Committee of the Multilateral Fund, was requested to provide the Ozone Secretariat with any HFC consumption data it had that could assist the Ozone Secretariat in preparing the information pursuant to paragraph 2 of decision XXXIV/13. The Ozone Secretariat requested an update on 5 May 2023 on any additional HFC consumption data that the Fund secretariat had available. The information from the Fund secretariat was checked against the information received through reporting under Article 7 of the Protocol and decision XXXIV/13, and it was determined that all parties that had reported to the Fund secretariat had also reported under Article 7 and decision XXXIV/13. A comparison of the data reported to the two secretariats showed that 89 per cent of that data contained differences of less than 10 per cent and the remaining 11 per cent of data contained reported data that differed by 11 to 232 per cent, except for two parties where the variations were 354 and 900 per cent.

III. Reported hydrofluorocarbon consumption data

9. Table 1 (on p. 4) contains the HFC consumption for the years 2018, 2019, 2020, 2021 and 2022 and the calculated baselines of Article 5 Group 1 parties for those that reported 2022 data. The table includes the date of data submission for parties that submitted their HFC data for 2022 after 1 May 2023.

10. Table 2 (on p. 7) contains HFC consumption data for those Article 5 Group 1 parties that did not report HFC consumption data for 2022, where data were available for the other years, namely 2018 to 2021.

Table 1
HFC consumption of Article 5 Group 1 parties that submitted data for 2022 as requested in paragraph 1 of decision XXXIV/13^a

Party	HFC consumption in tons of carbon dioxide equivalent					HFC baseline ^b	Reporting date for those that submitted HFC data for 2022 after 1 May 2023	Parties that clarified that they are concerned about a low baseline ^c	65 per cent of the HCFC baseline in tons of carbon dioxide equivalent
	2018	2019	2020	2021	2022				
Armenia		137 680	195 790	317 041	465 778	475 254		Yes	149 051
Barbados		158 343	341 967	180 981	125 801	295 426		Yes	79 176
Belize	192 304	208 849	73 601	1 137 920	121 648	502 268			57 879
Benin		1 507 956	1 253 696	1 279 095	1 230 484	1 763 273	5 May 2023	No	508 848
Bosnia and Herzegovina				599 128	1 340 919		4 May 2023		73 599
Botswana		574 066	173 589	173 589	116 757	389 992	10 May 2023	Yes	235 347
Brazil	36 799 453	65 627 001	39 896 041	50 519 115	89 756 651	79 503 644	8 May 2023	No	19 446 375
Burkina Faso		622 456	509 029	384 485	401 625	1 049 523			617 810
Burundi	59 204	46 214	51 774	56 843	57 963	207 530		Yes	152 004
Cameroon		3 770 996	3 355 712	3 153 776	3 203 591	4 760 203			1 522 510
Chad	1 959 969	2 311 108	2 838 600	3 217 693	5 374 554	4 154 644		No	344 362
Chile	5 049 369	4 763 686	4 465 255	4 957 950	7 089 325	6 698 099	10 May 2023	Yes	1 193 922
Colombia	5 048 700	5 270 350	5 064 307	5 086 999	9 158 361	8 624 850		Yes	2 188 294
Comoros		34 149	35 941	40 697	19 482	34 958			2 918
Cook Islands	2 004	3 757	1 521	6 647	8 065	6 461			1 050
Costa Rica		1 098 992	1 100 536	955 205	1 578 209	1 451 498		Yes	240 182
Côte d'Ivoire		26 752 460	25 276 054	25 276 054	9 223 500	21 289 132	24 May 2023		1 363 929
Cuba	1 116 422	1 255 737	739 658	519 644	882 672	1 030 662	10 May 2023		316 671
Dominican Republic	2 998 992	2 406 616	2 472 708	2 071 592	3 714 281	3 834 205		Yes	1 081 345
Ecuador		2 370 259	2 211 928	1 928 328	3 937 957	3 178 288			485 551
El Salvador			620 802	985 085	712 414	964 120	19 May 2023		191 353
Equatorial Guinea	82 953	39 686	280 362	73 076	57 178	271 411	5 May 2023	No	134 539
Eswatini	39 492	33 980	32 388	104 320	69 106	105 500			36 895
Gabon	1 272 250	2 353 671	1 805 193	2 063 886	5 834	1 937 478	3 May 2023		645 840
Gambia			173 033	282 417	258 735	271 515	22 May 2023	Yes	33 454
Grenada	37 321	29 276	32 006	43 461	29 700	52 815	3 May 2023		17 759

Party	HFC consumption in tons of carbon dioxide equivalent					HFC baseline ^b	Reporting date for those that submitted HFC data for 2022 after 1 May 2023	Parties that clarified that they are concerned about a low baseline ^c	65 per cent of the HCFC baseline in tons of carbon dioxide equivalent
	2018	2019	2020	2021	2022				
Guatemala	1 323 519	1 169 662	972 320	892 087	1 326 577	1 222 287	8 May 2023		158 626
Guinea	1 024 304	1 032 588	878 385	1 477 938	1 673 662	1 826 976	5 May 2023		483 647
Guinea Bissau		1 524 393	743 866	633 559	609 742	722 391	5 May 2023		60 002
Guyana	37 744	92 782	60 724	112 245	156 067	146 169		Yes	36 490
Haiti	90 494	93 303	75 275	98 829	40 916	149 322	31 May 2023		77 649
Honduras	1 252 443	1 431 079	1 061 901	1 082 441	1 003 409	1 442 560			393 310
Kenya	483 833	588 860	603 944	365 395	315 618	1 543 824	5 May 2023	Yes	1 115 505
Kyrgyzstan	207 899	304 301	291 736	348 551	486 855	450 257	10 May 2023		74 543
Lesotho	36 446	24 165	51 406	26 230	10 797	103 221	31 May 2023		73 744
Liberia	82 997	12 169	73 313	85 249	47 273	180 909		Yes	112 297
Malawi	164 459	188 503	196 209	196 557	199 697	428 435		No	230 947
Malaysia			14 569 917	13 444 256	26 908 990	26 510 076			8 202 355
Maldives	309 623	358 171	289 705	315 640	440 495	434 163			85 550
Mali		108 522	81 129	50 780	106 988	399 935			320 302
Mauritius	475 628	587 594	503 851	336 000	650 471	665 957		Yes	169 183
Mexico		50 263 203	48 211 034	47 994 455	95 644 142	76 982 664		No	13 032 787
Mongolia	73 866	30 176	24 183	31 701	32 305	57 309	11 May 2023	Yes	27 913
Montenegro	289 449	192 898	170 362	108 905	140 724	156 321		No	16 324
Morocco			1 687 148	1 475 421	589 312	2 134 190	19 May 2023	No	883 563
Mozambique			348 600	438 536	621 850	655 255			185 593
Nicaragua		558 528	462 178	498 871	384 411	582 352	10 May 2023		133 865
Niger		1 730 118	985 514	843 475	813 172	1 222 358	30 May 2023		341 638
North Macedonia			360 629	346 785	366 400	396 508	10 May 2023		38 570
Panama	1 763 377	1 565 901	1 457 267	1 946 551	2 673 233	2 515 546		Yes	489 863
Paraguay	1 163 240	934 649	1 467 204	876 188	1 563 023	1 684 479		Yes	382 340
Peru	1 574 916	1 910 807	2 179 188	1 605 215	2 785 607	2 735 721			545 717
Philippines	8 896 333	7 276 387	7 170 780	6 011 399	14 908 531	11 903 024	9 May 2023	Yes	2 539 454
Republic of Moldova	703 414	446 684	379 136	340 079	333 986	371 068	10 May 2023	Yes	20 001

Party	HFC consumption in tons of carbon dioxide equivalent					HFC baseline ^b	Reporting date for those that submitted HFC data for 2022 after 1 May 2023	Parties that clarified that they are concerned about a low baseline ^c	65 per cent of the HCFC baseline in tons of carbon dioxide equivalent
	2018	2019	2020	2021	2022				
Rwanda		700 970	268 616	266 728	221 209	336 373	22 May 2023	Yes	84 189
Saint Lucia	23 433	54 429	32 643	30 454	167 727	99 954			23 013
Saint Vincent and the Grenadines	25 683	30 664	16 509	25 807	36 101	32 175		No	6 036
Sao Tome and Principe		22 287	17 696	29 038	28 907	71 039			45 825
Senegal		1 541 337	1 829 973	1 912 559	1 912 559	2 658 320	29 May 2023		773 290
Serbia			2 644 622	1 787 306	4 772 298	3 247 603	16 May 2023		179 528
Seychelles	129 094	227 367	140 392	233 760	286 660	249 400		No	29 130
Sierra Leone			250 376	308 252	386 912	350 905	11 May 2023		35 725
South Africa	5 329 096	10 074 432	8 221 905	9 164 240	8 647 454	13 843 139	10 May 2023		5 165 272
South Sudan	85 800	88 660	172 588	166 868	60 060	221 410	29 May 2023		88 238
Togo	853 801	797 321	607 767	635 045	852 133	1 124 896		No	426 581
Trinidad and Tobago		2 755 910	4 425 345	5 201 433	4 593 777	5 680 575	10 May 2023	No	940 390
Tunisia	1 140 030	1 253 622	1 719 614	1 223 752	1 636 473	2 368 901			842 288
Turkmenistan	527 671	551 438	586 253	510 256	256 793	597 121		Yes	146 021
Uganda	12 505	21 480	48 950	46 209	13 710	39 432	29 May 2023		3 143
Venezuela (Bolivarian Republic of)		240 541	753 261	799 335	2 644 609	5 157 399	10 May 2023		3 758 331
Zambia		[208 776]	293 732	672 741	814 585	699 513	10 May 2023		105 827
Zimbabwe		1 024 385	1 009 387	733 188	795 792	1 210 624			364 502
Number of parties	41	63	71	72	72	71	36 – by 1 May 36 – after 1 May	20 = Yes 12 = No	72

^a Data drawn from the data set received from the secretariat of the Multilateral Fund for the Implementation of the Montreal Protocol are included in square brackets. Some of the reported baseline data may change.

^b Calculated as the average of HFC consumption for 2020–2022 plus 65 per cent of the hydrochlorofluorocarbon (HCFC) baseline, namely: $((2020 + 2021 + 2022) \div 3) + 65$ per cent of the HCFC baseline in tons of carbon dioxide equivalent.

^c Georgia also expressed concern regarding the impact of COVID-19 but did not submit HFC data for 2022 as requested in decision XXXIV/13.

Table 2
HFC consumption of Article 5 Group 1 parties that have not submitted to the ozone Secretariat HFC consumption data for 2022^a

<i>Party</i>	<i>HFC consumption in tons of carbon dioxide equivalent</i>					<i>HFC baseline^b</i>	<i>65 per cent of the HCFC baseline in tons of carbon dioxide equivalent</i>
	<i>2018</i>	<i>2019</i>	<i>2020</i>	<i>2021</i>	<i>2022</i>		
Afghanistan		357 500					503 248
Albania	915 386	1 091 972	748 209	155 940	[795 397]	[609 998]	127 303
Angola			3 812 357	757 864			341 185
Argentina			12 190 682	8 933 937	[16 650 052]	[12 635 348]	6 628 416
Bangladesh			4 048 769	4 292 556			1 196 417
Bhutan		11 659	2 876	7 941	[8 667]	[50 230]	6 610
Bolivia (Plurinational State of)		[773 867]	425 800	347 983			113 214
Brunei Darussalam		290 318	305 400	280 755			130 143
Cabo Verde		70 072	22 797	3 171			21 765
Cambodia	990 713	344 326	885 328	955 336	[972 813]	[982 120]	320 249
China			529 799 116	580 648 012			312 831 197
Democratic People's Republic of Korea		430 430	496 210	510 510			1 393 542
Dominica				3 435	[39 556]		8 514
Ethiopia		369 744	281 607	306 842	[99 705]	[273 036]	117 650
Fiji	117 717	280 203	224 248	239 165			122 666
Ghana		496 683	471 391	550 143	[646 823]	[599 798]	1 249 583
Jordan			1 342 570	2 687 243			1 282 449
Kiribati		5 572	7 063	10 471	[3 569]	[50 433]	1 141
Lao People's Democratic Republic		159 041	76 944	70 405	[227 651]	[168 055]	49 325
Lebanon		[30 069]	1 743 012	1 604 665	[1 532 847]	[1 670 707]	929 809
Madagascar		[1 557 968]	1 090 927	1 437 172			356 409
Marshall Islands		7 096	7 067	4 380	[6 945]	[49 001]	4 694
Micronesia (Federated States of)		14 020	8 341	8 582	[14 884]	[53 469]	2 953
Namibia	329 242	729 875	796 190	352 865			174 500
Nauru			0	[39]			212
Nigeria		3 383 063	2 620 048	8 381 305			5 729 101

<i>Party</i>	<i>HFC consumption in tons of carbon dioxide equivalent</i>					<i>HFC baseline^b</i>	<i>65 per cent of the HCFC baseline in tons of carbon dioxide equivalent</i>
	<i>2018</i>	<i>2019</i>	<i>2020</i>	<i>2021</i>	<i>2022</i>		
Niue		0	0	74			177
Palau		6 436	7 676	6 626	[6 318]	[49 849]	3 494
Samoa		25 170	24 593	9 997	[10 845]	[58 327]	5 412
Singapore			5 973 403	6 237 038			3 704 182
Solomon Islands			24 707	30 525	[29 625]	[72 990]	41 231
Somalia			894 881	883 056			567 810
Sri Lanka		331 622	478 419	1 149 247			264 865
Sudan		735 220	1 244 369	1 293 587	[1 397 890]	[1 311 949]	431 192
Suriname		132 696	237 803	118 970	[333 676]	[230 150]	42 410
Syrian Arab Republic	7 587 048		22 940 500	13 883 500			1 741 639
Timor-Leste		13 645					10 680
Tonga		1 802	3 930	6 663	[3 433]	[48 035]	3 000
Türkiye		28 156 692	14 913 758	21 777 055			8 654 283
Tuvalu		1 006	296	343	[178]	[43 271]	1 934
United Republic of Tanzania			252 760	151 133			36 211
Uruguay		448 663	613 574	431 118	[571 556]	[582 104]	473 682
Vanuatu		11 351	11 915	13 781	[10 217]	[55 181]	6 080
Viet Nam		6 019 450	9 414 958	10 470 044	[10 730 306]	[10 248 838]	3 806 696
Number of parties	5	32	41	42	22	22	44

^a Data drawn from the data set received from the secretariat of the Multilateral Fund for the Implementation of the Montreal Protocol are included in square brackets.

^b Calculated as the average of HFC consumption for 2020–2022 plus 65 per cent of the hydrochlorofluorocarbon (HCFC) baseline, namely: $((2020 + 2021 + 2022) \div 3) + 65$ per cent of the HCFC baseline in tons of carbon dioxide equivalent.