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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Ninety-ninth Meeting
Montreal, 7–11 December 2026
Item 9(d) of the provisional agenda[1]

PROJECT PROPOSALS: CHINA

This document consists of the comments and recommendation of the Secretariat on the following project proposals:

Phase-out

HCFC phase-out management plan (stage II):	Individual consideration
• Extruded polystyrene foam sector plan – ninth tranche	UNIDO and Germany
• Polyurethane foam sector plan – seventh tranche	World Bank
• Industrial and commercial refrigeration and air-conditioning sector plan – seventh tranche	UNDP
• Room air-conditioning manufacturing and heat pump water heaters sector plan – sixth tranche	UNIDO, Austria and Italy
• Solvent sector plan – progress report	UNDP
• Refrigeration and air-conditioning servicing sector plan and the national enabling programme – ninth tranche	UNEP, Germany and Japan

[1] UNEP/OzL.Pro/ExCom/99/1

Pre-session documents of the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol are without prejudice to any decision that the Executive Committee might take following issuance of the document.

Overarching strategy for stage II of the HCFC phase-out management plan for China

Note by the Secretariat

Background

1. At its 76th and 77th meetings, the Executive Committee approved stage II of the HCFC phase-out management plan (HPMP) for China with associated sectors plans, and at the 79th meeting, the Agreement with the Government of China for the implementation of stage II of the HPMP was approved.

2. The HCFC consumption limits and targeted phase-out amounts associated with the six sector plans for the period 2016-2026, as per the Agreement for stage II of the HPMP approved at the 79th meeting, are shown in table 1.

Table 1. HCFC consumption limits and targeted phase-out by sector for stage II of the HPMP for China as per the Agreement approved at the 79th meeting (ODP tonnes)

Maximum allowable consumption							
Sector	**2016-2017**	**2018-2019**	**2020-2021**	**2022**	**2023-2024**	**2025**	**2026**
National	16,978.9	15,048.1	**11,772.0	n/a	n/a	n/a	n/a
XPS foam*	2,286.0	2,032.0	1,397.0	1,397.0	762.0	165.0	0.0
PU foam*	4,449.6	3,774.5	2,965.7	2,965.7	1,078.4	330.0	0.0
ICR*	2,162.5	2,042.4	**1,609.9	n/a	n/a	n/a	n/a
RAC*	3,697.7	2,876.0	**2,259.7	n/a	n/a	n/a	n/a
Solvent	455.2	395.4	321.2	321.2	148.3	55.0	0.0
Servicing*	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Targeted phase-out							
Sector	**2018**	**2020**	**2023**	**2025**	**2026**	**Total**	**Reduction from baseline (%)**
XPS foam*	254.0	635.0	635.0	597.0	165.0	2,286	100 in 2026
PU foam*	675.1	808.8	1,887.3	748.4	330.0	4,449.6	100 in 2026
ICR*	120.1	432.5	n/a	n/a	n/a	552.6	33 in 2020
RAC*	821.7	616.3	n/a	n/a	n/a	1,438	45 in 2020
Solvent	59.8	74.2	172.9	93.3	55.0	455.2	100 in 2026
Servicing*	n/a	734.0	n/a	n/a	n/a	734.0	n/a
Total	**1,930.7**	**3,300.8**	**2,695.2**	**1,438.7**	**550.0**	**9,915.4**	

* XPS = extruded polystyrene; PU = polyurethane; ICR = industrial and commercial refrigeration and air-conditioning; RAC = room air-conditioning manufacturing and heat pump water heaters; servicing = refrigeration and air-conditioning servicing and the national enabling programme

** National maximum allowable consumption for 2020 only; for the 2021–2026 period, it was expected to be determined at the time of submission of stage III of the HPMP.

3. All second tranche requests except that for the polyurethane (PU) foam sector plan were approved at the 80th and 81st meetings. At the 82nd and 83rd meetings, consideration of all subsequent tranche requests was deferred to the 84th meeting. Details on the consideration of these funding tranches and decisions taken by the Executive Committee are included in annex I to the present document.

4. At the 84th meeting, upon consideration of all stage II funding tranche requests for sector plans submitted by the relevant bilateral and implementing agencies on behalf of the Government of China, the Executive Committee decided *inter alia* (decision 84/69(a)):

(i) To request the relevant bilateral and implementing agencies, on behalf of the Government of China, to submit, at the 85th meeting, the 2020 funding tranche

requests for the PU foam, extruded polystyrene (XPS) foam, industrial and commercial refrigeration and air-conditioning (ICR) and solvent sector plans of stage II of the HPMP;

(ii) To approve the revised Appendix 2-A, "The Targets and Funding," of the Agreement between the Government of China and the Executive Committee for stage II of the HPMP approved at the 79th meeting, as contained in Annex XXII to the report of the 84th meeting (document UNEP/OzL.Pro/ExCom/84/75), to reflect the revised maximum allowable total consumption of HCFCs in row 1.2 and the revised total funding in rows 3.1, 3.2 and 3.3 and the sector funding and support costs;

(iii) To request the Government of China, through the relevant bilateral and implementing agencies, to submit, no later than eight weeks prior to the 86th meeting, a revised plan of action that included related activities and information on the technology selected, and associated funding tranches to extend through 2026 stage II of the room air-conditioning manufacturing and heat pump water heaters (RAC), ICR, and refrigeration servicing sectors and enabling programme and, for the RAC and ICR sector plans, the maximum allowable sectoral consumption levels of HCFC as described in rows 1.3.1 and 1.3.4;

(iv) Also to request the Government of China, through the relevant bilateral and implementing agencies, to submit, at the 86th meeting, figures for potential revisions to Appendix 2-A for:

a) Row 1.2 specifying the maximum allowable total consumption of HCFCs in 2021-2026 to reflect the information under subparagraph (a)(iii) above;

b) The XPS foam, PU foam and solvent sector funding tranches for 2021-2026 in rows 2.2.1 to 2.2.4, 2.3.1 to 2.3.2 and 2.6.1 to 2.6.2, respectively;

c) Tonnages associated with lines 4.1.1 to 4.6.3 to reflect the information in subparagraph (a)(iii) above;

(v) Further to request the Government of China to update the information on necessary revisions to reflect the present decision for the approved XPS foam, PU foam and solvent sector plans;

(vi) To approve US $1,000,000, plus agency support costs of US $120,000, for UNEP, for the refrigeration and air-conditioning servicing sector and enabling programme, consistent with the revised Appendix 2-A referred to in subparagraph (a)(ii) above; and

(vii) To request UNDP as the lead implementing agency of the overall stage II of the HPMP, on behalf of the Government of China, to submit, at the 86th meeting, a draft revised Agreement between the Government of China and the Executive Committee reflecting only the relevant outcomes approved at the 84th meeting or those relevant to subparagraphs (a)(iii) and (a)(iv) above, and the revised plan of action for the RAC, ICR and refrigeration and air-conditioning servicing sectors and enabling programme also due for submission at the 86th meeting.

5. At the 85th meeting, the Executive Committee approved the third tranches of the XPS foam, ICR, and solvent sector plans, as well as the second tranche of the PU foam sector plan that had been submitted prior to adoption of decision 84/69 but had been deferred.

6. At the 86th meeting, the implementing agencies submitted the revised plans of action for all sectors under stage II, addressing all elements of decision 84/69, including HCFC phase-out targets from 2021 to 2026, related activities, information on selected technologies, associated funding tranches, and a draft revised Agreement. The Executive Committee noted the revised sector plans and approved the revised Agreement for stage II of the HPMP (decision 86/34).

7. The revised HCFC consumption limits and targeted phase-out amounts associated with the six sector plans of stage II for the period 2016-2026 are shown in table 2.

Table 2. Consumption limits and targeted phase-out by sector for stage II of the HPMP for China as per the Agreement approved at the 86th meeting (ODP tonnes)

Maximum allowable consumption							
Sector	**2016-2017**	**2018-2019**	**2020-2021**	**2022**	**2023–2024**	**2025**	**2026**
National	16,978.9	15,048.1	11,772.0	11,772.0	8,618.0	5,063.5	4,513.5
XPS foam	2,286.0	2,032.0	1,397.0	1,397.0	762.0	165.0	0.0
PU foam	4,449.6	3,774.5	2,965.7	2,965.7	1,078.4	330.0	0.0
ICR	2,162.5	2,042.4	1,609.9	1,609.9	1,369.6	780.9	780.9
RAC	3,697.7	2,876.0	2,259.7	2,259.7	1,614.1	1,232.6	1,232.6
Solvent	455.2	395.4	321.2	321.2	148.3	55.0	0.0
Servicing	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Targeted phase-out							
Sector	**2018**	**2020**	**2023**	**2025**	**2026**	**Total**	**Reduction by 2025/2026 (%)**
XPS foam	254.0	635.0	635.0	597.0	165.0	2,286.0	100
PU foam	675.1	808.8	1,887.3	748.4	330.0	4,449.6	100
ICR	120.1	432.5	240.3	588.7	-	1,381.6	67.5
RAC	821.7	616.3	645.6	381.5	-	2,465.1	70
Solvent	59.8	74.2	172.9	93.3	55.0	455.2	100
Servicing	n/a	734.0	n/a	n/a	n/a	734.0	n/a
Total	**1,930.7**	**3,300.8**	**3,581.1**	**2,408.9**	**550.0**	**11,771.5**	**n/a**

8. At the 91st meeting, the Executive Committee approved[2] the requests for the fifth tranches of sector plans for XPS foam, solvent, and refrigeration and air-conditioning servicing and the national enabling programme,[3] and at the 93rd meeting, the Executive Committee approved the requests for the sixth tranches of the XPS foam, solvent and refrigeration servicing sector plans, and for the fourth and fifth tranche, respectively, of the PU foam and ICR sector plans.[4] At the 94th meeting, the Executive Committee approved the request for the fourth tranche of the RAC sector plan, on the understanding that UNIDO and the Government of Austria would not transfer any of the approved funds to the Foreign Environmental Cooperation Centre (FECO) of the Government of China until the Executive Committee had considered the report, to be submitted by UNDP, referred to in decision 94/11(b)(ii); that any unused incremental operating costs from stage II of the HPMP RAC sector plan would be returned to the Multilateral Fund taking into account sales of split R-290-based air-conditioning (AC) units that had taken place before

[2] Decisions 91/50 to 91/52

[3] The full name of the refrigeration and air-conditioning servicing sector and the national enabling programme is abbreviated to "refrigeration servicing sector" in the present document.

[4] Decisions 93/49 to 93/53

31 December 2026; and that UNIDO would submit, to the 97th meeting, an update on consideration by the Government of China of the suggestions to facilitate the manufacturing of R-290 split AC units described in paragraph 32 of document UNEP/OzL.Pro/ExCom/94/29.[5] At the 95th meeting, the Executive Committee approved the request for the seventh tranches of the XPS foam and refrigeration servicing sector plans and the fifth tranche of the PU foam sector plan, and at the 97th meeting, requests were approved for the eighth tranches of the XPS foam and refrigeration servicing sector plans, seventh and final tranche of the solvent sector plan, sixth tranches of the PU foam and ICR sector plans, and fifth tranche of the RAC sector plan.

Submission to the Ninety-ninth meeting

9. Relevant bilateral and implementing agencies submitted requests for the following sector plans: XPS foam and servicing (ninth tranche), PU foam and ICR (seventh tranche), and RAC (sixth tranche). The summary of funding approved so far and requested at the present meeting is shown in table 3.

Table 3. Funding approved and requested for sector plans under stage II of the HPMP (US $)

Sector plan	Lead and cooperating agencies	Funding approved	Funding requested
XPS foam	UNIDO, Germany	41,405,298	3,534,654
PU foam	World Bank	24,112,039	4,200,000
ICR	UNDP	60,023,995	8,134,246
RAC	UNIDO, Austria, Italy	51,780,086	8,613,995
Solvent	UNDP	25,569,340	0
Servicing	UNEP, Germany, Japan	17,529,132	2,517,105
Total		**220,419,890**	**27,000,000**

Status of ratification of the Kigali Amendment

10. On 17 June 2021, the Permanent Mission of the People's Republic of China to the United Nations deposited its letter of acceptance of the Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer (hereinafter referred to as the Kigali Amendment) with the Secretary General of the United Nations. The Amendment entered into force on 15 September 2021. Following its acceptance, the Government of China revised its regulations with the purpose of including HFCs in its jurisdictional scope and further enhancing liability for engaging in illegal activities involving controlled substances. On 29 September 2021, the Ministry of Ecology and the Environment (MEE), the National Development and Reform Commission and the Ministry of Industry and Information Technology jointly issued an updated Catalogue of Controlled Ozone-Depleting Substances (ODSs) in China, including HFCs in its scope. Since 1 November 2021, the import and export license management system has applied to substances listed in the revised Catalogue, including HFCs.

HCFC consumption

11. The Government of China reported HCFC consumption for 2025 under Article 7 of the Montreal Protocol as shown in table 4.

Table 4. HCFC consumption in China from 2021 to 2025 (Article 7 data)

Year	2021	2022	2023	2024	2025	Starting point
Metric tonnes						
HCFC-22	127,809	134,065	110,634	110,311	72,131	209,006
HCFC-123	946	952	788	429	280	507

[5] Decision 94/34

Year	2021	2022	2023	2024	2025	Starting point
HCFC-124	(32)	22	(17)	(3)	0	140
HCFC-133/133a	0	0	0	0	0	0
HCFC-141b	25,276	27,796	9,773	10,579	3,270	53,502
HCFC-142b	4,617	1,949	2,853	3,551	926	22,624
HCFC-225ca/cb	0	0	0	0	0	17
Total	**158,617**	**164,784**	**124,030**	**124,866**	**76,607**	**285,796**
ODP tonnes						
HCFC-22	7,029.52	7,373.58	6,084.88	6,067.10	3,967.18	11,495
HCFC-123	18.93	19.03	15.76	8.57	5.60	10
HCFC-124	(0.70)	0.48	(0.38)	(0.07)	0	3
HCFC-133/133a	0	0	0	0	0	0
HCFC-141b	2,780.30	3,057.54	1,075.03	1,163.69	359.68	5,885
HCFC-142b	300.13	126.71	185.41	230.79	60.19	1,471
HCFC-225ca/cb	0	0	0	0	0	1
Total	**10,128.19**	**10,577.33**	**7,360.70**	**7,470.07**	**4,392.65**	**18,865**

12. HCFC consumption in China continues to be dominated by three substances: HCFC-22, HCFC-141b and HCFC-142b, which collectively account for 99.8 per cent of the country's consumption expressed in ODP tonnes. The overall HCFC consumption in ODP tonnes in 2025 decreased substantially to comply with the Montreal Protocol reduction target of 32.5 per cent of the baseline for the same year. HCFC consumption in 2025 was below the Montreal Protocol target and the maximum allowable consumption stated in the Agreement with the Executive Committee for that year. Sectoral reductions in HCFC consumption are discussed in detail in the progress reports on the implementation of respective sector plans contained in the present document.

13. The Government has reported the country programme (CP) data for 2025. Table 5 presents the country's HCFC consumption per sector, confirming compliance with consumption limits for the manufacturing sector set out in rows 1.3.1, 1.3.2, 1.3.3, 1.3.4 and 1.3.5 of Appendix 2-A of the Agreement for stage II of the HPMP.

Table 5. HCFC consumption per sector in China in 2025 (CP data) (ODP tonnes)

Substance	XPS foam	PU foam	ICR*	RAC*	Solvent	Servicing
HCFC-22	137.50		715.00	742.50		2,372.18
HCFC-141b		314.69			44.99	
HCFC-142b	9.75		1.50			48.95
HCFC-123			4.55			1.05
Total	**147.25**	**314.69**	**721.05**	**742.50**	**44.99**	**2,422.18**
Maximum allowable consumption	165.0	330.0	780.9	1,232.6	55.0	n/a

***** Consumption breakdown between the ICR and RAC sectors is submitted by the implementing agencies

14. The Government of China continues to monitor HCFC consumption in each sector. Every year, FECO collects data from multiple sources, including beneficiary enterprises, verification reports of the production sector, the licensing system, and the industrial associations. The data is cross-verified with actual consumption by enterprises only for some sectors (such as RAC, with limited enterprises) and substances (HCFC-22). In sectors with many small- and medium-sized enterprises (SMEs) (i.e., XPS foam, PU foam, ICR, and servicing), HCFCs are monitored through the national licensing and quota system for imports, exports, production, and consumption. Domestic production quotas regulate HCFC sales in the local market and subsequent consumption by SMEs. Quotas are also issued to enterprises in each sector with annual consumption of over 100 metric tonnes (mt) of HCFCs.

15. In cooperation with the local ecology and environment bureaus (EEBs), FECO continues to strengthen policies to support reductions in HCFC consumption, and the MEE oversees quota management while strengthening relevant control measures regarding HCFC production and consumption, including three bans on HCFC consumption issued in 2023 for three subsectors: pipelines, solar energy water heaters of the PU foam sector, and medical solvents. The MEE, jointly with the Ministry of Industry and Information Technology, has also issued a catalogue of recommended alternatives to ODSs to promote conversion and transformation in different sectors.

16. A revision of the Regulation on the Administration of ODSs entered into force on 1 March 2024, including further enhancement of the quota and licensing registration system; further strengthening of the legal responsibility (for ODSs as by-products during the production process should be disposed in an environmentally sound manner and not directly discharged); and specified more severe penalties for illegal acts. In February 2024, MEE issued a Notice on the Promotion and Implementation of the Revised Regulation on the Administration of ODSs, requiring local EEBs to attach great importance and take comprehensive measures to fully implement the revised Regulation. In April 2025, the State Council approved the National Implementation Plan for the Montreal Protocol on Substances that Deplete the Ozone Layer (2025–2030), which outlines the roadmap for the complete phase-out of HCFCs by 2030 and sets a target for a 10 per cent reduction of HFCs by 2029.

17. The Government has also implemented a ban on the use of HCFCs in the XPS foam sector from 1 July 2026, a ban on the use of HCFCs in the PU foam sector from 1 January 2026 for all sectors except spray foam, for which it entered into force on 1 July 2026, and a ban on the use of HCFCs in the solvent sector from 1 July 2026.

Verification of consumption of HCFCs in China

18. The World Bank commissioned an independent verification of the 2025 HCFC production and consumption figures in China, which confirmed that the consumption reported for 2025 was within the limits established by the Agreement. At the time of finalization of the present document, the Secretariat had not yet completed the review of the verification report, including whether based on the verification report any revisions might be needed to the data submitted under Article 7 of the Montreal Protocol and the CP data report.

Verification of the manufacturing sector conversions

19. UNDP, UNIDO and the World Bank submitted technical reports to verify conversions completed in the XPS foam, PU foam, RAC, and ICR sectors in 2025/2026, in line with subparagraph 5(c) of the Agreement. An overview of verifications by sector is shown in table 6.

Table 6. Verified phase-out of HCFCs by sector achieved in 2025/2026 through funded conversions

Sector	Number of lines and enterprises	Verified phase-out of HCFCs	
		mt	%
XPS foam	1 line at 1 enterprise	179.00	26
PU foam	3 lines at 2 enterprises	159.77	41
RAC	2 lines at 2 enterprises	961.82	100
ICR	2 lines at 1 enterprise	334.89	100
Solvent	0 lines at 0 enterprises*	0.00	0

* As of the year 2025, all conversion projects relating to solvent sector are fully completed.

Progress overview of the implementation of stage II of the HCFC phase-out management plan

20. The main achievements in the implementation of stage II of the HPMP include:

(a) Establishment and continuous enforcement of the licensing and quota system to control consumption in all manufacturing sectors, including the application of quota permits to enterprises consuming more than 100 mt of HCFCs per year, resulting in compliance with relevant consumption limits throughout the period of implementation;

(b) *XPS foam sector*: The contract between FECO and UNIDO was signed in September 2017. Out of the 21 beneficiary enterprises, 16 have completed conversions to carbon dioxide (CO_2) and other co-blowing agents with low global-warming potential (GWP), phasing out 6,412 mt or 359.01 ODP tonnes of HCFCs; three enterprises (1,017 mt or 55.95 ODP tonnes) completed trial production and installed new equipment; one enterprise has received equipment and one remaining enterprise will do so by the end of 2026, with project acceptance, final payments and closure planned for 2027. All enterprises already stopped using HCFCs. A ban on the use of HCFCs in the sector entered into force 1 July 2026; a standard for XPS foam in floor heating was finalized and submitted for official review and approval; a prototype thermal bonding machine was completed and presented to XPS foam enterprises in July 2026; and research on the optimization of the manufacturing of CO_2-based XPS foam and the use of recycled resin continues. Training materials for the sector have been updated and training covering at least 60 enterprises is ongoing and expected to be completed by the end of 2026;

(c) *PU foam sector*: The contract between FECO and the World Bank was signed in January 2019. Out of the 31 individual enterprises and 15 systems houses included in the project, 23 individual enterprises have completed conversions to HC, HFO or water-based technology, phasing out 2,234 mt (245.72 ODP tonnes) of HCFC-141b, and the remaining eight (389.31 mt or 42.82 ODP tonnes) completed their conversion and are undergoing final verification. The 15 systems houses (5,919 mt or 651.10 ODP tonnes) completed equipment installation and trial runs and are currently providing training and materials to downstream users, with planned completion by mid-2027. All assisted enterprises have ceased the use of HCFC-141b before the end of 2025 or ceased using HCFC stocks for spray foam application by mid-2026. An annual awareness workshop was held for 227 participants from foam enterprises and training sessions were attended by 438 participants. Ninety SMEs received technical support, including on-site assistance for 82 enterprises. The study on alternatives to HCFC-141b used in shoe soles was completed in March 2026, with findings disseminated to 80 per cent of concerned enterprises;

(d) *ICR sector:* A total of 26 enterprises have signed contracts for converting 39 manufacturing lines to phase out 3,974.97 mt of HCFC-22; of those, 20 lines have completed national acceptance and phased out 2,893.62 mt of HCFC-22, eight lines have completed the design and procurement contracts, and 11 lines with signed contracts have started to carry out the project design and procurement contracts. Since the approval of the sixth tranche in 2025, 10 new contracts have been signed to convert 10 manufacturing lines; all 10 enterprises have started project design;

(e) *RAC manufacturing sector:* The conversions of 12 room air-conditioning (RAC) manufacturing and four compressor manufacturing lines participating in the project, with an aggregated consumption of 5,181.29 mt (284.97 ODP tonnes) of HCFC-22, have been completed, enabling manufacturing with R-290. Equipment delivery and installation has been completed for two of the three participating heat pump water heater (HPWH) lines and are in progress for the third, with conversions expected to be completed in 2027. In addition, seven RAC manufacturing lines with a cumulative capacity of 5.2 million units/year and eight HPWH manufacturing lines with a cumulative capacity of 90,000 units/year converted to R-290 with their own funding. For technical assistance activities, 13 out of 16 research and development projects for the introduction of R-290

technology have been completed; several standards on appliances and safety have been revised, including three standards completed under the fifth tranche; and events continued to take place to share lessons learned with other Article 5 countries. Bilateral assistance activities carried out by the Government of Italy, as well as those related to the "Clean Cooling Hub," carried out in cooperation with the Government of Austria, continued to progress. A prohibition on the manufacturing and sales of household refrigerators and freezers using high-GWP HFC refrigerants was put in effect as of 1 January 2026;

(f) *Solvent sector*: The third batch of enterprises has completed conversions, phasing out 141.91 mt (15.6 ODP tonnes) of HCFC-141b, and final verifications have been accepted. Regulations to prohibit the use of HCFCs in the solvent sector came into force on 1 July 2026 and monitoring will be through local EEBs. Capacity-building activities continue to be implemented, the development of sector standards for alternative technologies is underway, and guidelines on phasing out HCFCs in solvent conversions under the metal and electronics conversion guidelines were completed; and

(g) *Refrigeration servicing sector:* The eighth tranche agreement between FECO and UNEP was signed in August 2026. A circular entitled Further Strengthening the Administration of ODSs and HFCs entered into force on 1 March 2026, establishing finer controls over substance management, while FECO/MEE has continued policy outreach activities, upgrades to the ODS Management Information System, and survey work under the pilot city projects. Progress was made on the development of standards, with a draft refrigerant reclamation traceability standard prepared following consultations and surveys, and a contract signed to lead the study on technical standards for preventing refrigerant leakage during recovery and reuse. Capacity-building and enforcement activities continued through national coordination meetings, workshops on ODS phase-out management and import/export controls, study tours, and support to six selected EEBs. The customs and licensing authorities strengthened cooperation on import and export controls, while the iPIC mechanism helped prevent potentially illegal ODS trade. The third batch of pilot provinces began implementing the approved plans, technician and after-sales servicing training programmes continued through industry associations, and awareness-raising activities proceeded through industry events, the Ozone2Climate initiative, and World Ozone Day celebrations.

21. The Secretariat inquired whether an extension might be required for the completion of the ICR, RAC, and refrigeration servicing sector plans. After extensive discussions, the agencies confirmed the intention of the Government to do its utmost to finalize the sector plans as per paragraph 14 of the Agreement between the country and the Executive Committee. Should there be a need for an extension on any sector, that request would be presented to the Executive Committee for its consideration.

Disbursement of funds

22. As of October 2026, of the US $220,419,890 approved so far for all sector plans of stage II of the HPMP for China, US $191,336,743 (87 per cent) had been disbursed from implementing agencies to FECO, and FECO had disbursed US $173,857,175 (79 per cent) to beneficiaries,[6] as shown in table 7.

[6] The milestones for disbursing funding for the XPS foam, PU foam, ICR, RAC and solvent sector plans include signing the conversion contract (30 per cent payment); completion of design and procurement contract (20 per cent); completion of prototype manufacture, conversion of lines and performance test (30 per cent); and trial production, training, and equipment disposal upon project acceptance (20 per cent).

Table 7. Disbursement by sector under stage II of the HPMP for China (as of October 2026)

Sector / agency		Tranche 1	Tranche 2	Tranche 3	Tranche 4	Tranche 5	Tranche 6	Tranche 7	Tranche 8	Total
XPS foam (UNIDO/Germany)										
Approved (US $)		7,514,867	9,000,000	9,890,431	5,000,000	2,000,000	3,000,000	1,000,000	4,000,000	41,405,298
Disbursed from IAs to FECO	Amount (US $)	7,514,867	9,000,000	9,890,431	4,909,812	1,800,000	2,700,000	900,000	1,975,000	38,690,110
	Ratio (%)	100	100	100	98	90	90	90	49	93
Disbursed by FECO to benefic.	Amount (US $)	7,414,926	9,000,000	9,890,431	3,949,851	1,243,025	2,389,060	900,000	1,741,642	36,528,935
	Ratio (%)	99	100	100	79	62	80	90	44	88
PU foam (World Bank)										
Approved (US $)		7,045,027	2,067,012	4,000,000	5,000,000	1,000,000	5,000,000			24,112,039
Disbursed from IA to FECO	Amount (US $)	7,045,027	2,067,012	4,000,000	5,000,000	500,000	2,500,000			21,112,039
	Ratio (%)	100	100	100	100	50	50			88
Disbursed by FECO to benefic.	Amount (US $)	7,045,027	2,067,012	4,000,000	3,556,359	284,339	1,324,523			18,277,260
	Ratio (%)	100	100	100	71	28	26			76
ICR (UNDP)										
Approved (US $)		13,368,756	20,000,000	2,095,775	9,000,000	8,000,000	7,559,464			60,023,995
Disbursed from IA to FECO [1]	Amount (US $)	13,298,756	19,775,000	2,095,775	8,954,000	7,854,217	1,876,617			53,854,365
	Ratio (%)	99	99	100	99	98	25			90
Disbursed by FECO to benefic.	Amount (US $)	13,368,756	20,000,000	2,095,775	7,322,749	4,362,468	2,015,391			49,165,139
	Ratio (%)	100	100	100	81	55	27			82
RAC (UNIDO/Austria/Italy)										
Approved (US $)		15,562,981	16,000,000	4,500,000	7,000,000	8,717,105				51,780,086
Disbursed from IAs to FECO	Amount (US $)	14,898,862	14,373,101	3,675,210	3,304,736	2,104,276				38,356,185
	Ratio (%)	96	90	82	47	24				74
Disbursed by FECO to benefic.	Amount (US $)	13,627,725	10,940,410	3,829,938	2,048,832	1,767,592				32,214,497
	Ratio (%)	88	68	85	29	20				62
Solvent (UNDP)										
Approved (US $)		2,821,937	3,777,190	12,946,782	2,500,000	1,000,000	2,000,000	523,431		25,569,340
Disbursed from IA to FECO	Amount (US $)	2,796,937	3,742,190	12,946,782	2,466,000	979,000	1,959,613	428,553		25,319,075
	Ratio (%)	99	99	100	99	98	98	82		99
Disbursed by FECO to benefic.	Amount (US $)	2,796,937	[2]3,742,190	12,946,782	2,466,000	979,000	1,759,513	241,008		24,931,430
	Ratio (%)	99	99	100	99	98	88	46		98
Servicing (UNEP/Germany/Japan) [3]										
Approved (US $)		3,679,132	2,650,000	1,000,000	2,000,000	2,000,000	2,000,000	3,000,000	1,200,000	17,529,132
Disbursed from IAs to FECO [4]	Amount (US $)	3,678,438	2,650,000	990,790	2,000,000	1,794,801	1,105,940	1,435,000	350,000	14,004,969
	Ratio (%)	100	100	99	100	90	55	48	29	80

Sector / agency		Tranche 1	Tranche 2	Tranche 3	Tranche 4	Tranche 5	Tranche 6	Tranche 7	Tranche 8	Total
Disbursed by FECO to benefic.	Amount (US $)	3,678,438	[5]2,650,000	[5]990,790	2,000,000	1,476,821	688,846	972,019	283,000	12,739,914
	Ratio (%)	100	100	99	100	74	34	32	24	73
TOTAL funding for all sectors										
Approved by ExCom (US $)		49,992,700	53,494,202	34,432,988	30,500,000	22,717,105	19,559,464	4,523,431	5,200,000	220,419,890
Disbursed from IAs to FECO	Amount (US $)	49,232,887	51,607,303	33,598,988	26,634,548	15,032,294	10,142,170	2,763,553	2,325,000	191,336,743
	Ratio (%)	98	96	98	87	66	52	61	45	87
Disbursed by FECO to benefic.	Amount (US $)	47,931,809	48,399,612	33,753,716	21,343,791	10,113,245	8,177,333	2,113,027	2,024,642	173,857,175
	Ratio (%)	96	90	98	70	45	42	47	39	79

[1] Interest accrued from the funds held by FECO of US $103,708, US $97,468, US $99,480, US $159,433, US $22,240 and US $18,751 for the period 2015-2024 was deducted from the approved funds before transfer.

[2] Consisting of US $3,741,089 plus US $1,101 of interest accrued up to December 2016 and offset from the transfer for the second tranche, according to decision 80/17(b).

[3] An additional US $1,000,000 was approved at the 84th meeting.

[4] Reference for disbursement in the refrigeration servicing sector.

[5] The disbursement from FECO to beneficiaries for the second and third tranches of the servicing sector plan includes direct disbursement from UNEP to beneficiaries.

23. At the time of submission of tranche requests (12 weeks prior to the 99th meeting), the rate of fund disbursement from FECO to beneficiaries in all sectors was at or above 20 per cent.

Financial report of the project management unit

24. In line with decision 81/46(b), UNDP submitted the project management unit (PMU) expenditures for stage II of the HPMP as of December 2025, as presented in annex II to the present document.[7]

Report on the overarching principles for managing funds transferred from implementing agencies to FECO for stage II of the solvent, extruded polystyrene foam, room air-conditioning manufacturing and heat-pump water heater, and the refrigeration and air-conditioning servicing sectors of the HPMP (decision 94/11(b))

25. At the 94th meeting, the Executive Committee considered the report and the overarching principles for managing funds transferred from implementing agencies to FECO for stage II of the HPMP, and requested UNDP to apply to stage II of the ICR sector plan for China, on a trial basis, the overarching principles described in annex VI to the final report to the 94th meeting; and as the lead implementing agency for stage II of the HPMP for China, to coordinate with other implementing agencies and submit a report to the 95th meeting on how to implement the overarching principles in the solvent, XPS foam, RAC manufacturing and refrigeration servicing sector plans.

26. Accordingly, at the 95th meeting, the Executive Committee noted the report submitted by UNDP[8] and requested UNDP, UNIDO and UNEP, as lead agencies of the relevant sector plans, to apply, on a trial basis, those overarching principles to the ICR, solvent, XPS foam, RAC manufacturing and refrigeration servicing sector plans under stage II of the HPMP (decision 95/43). Accordingly, at the 97th meeting, UNDP, UNIDO and UNEP confirmed that they were applying the overarching principles for managing funds transferred from implementing agencies to FECO for stage II of the relevant sector plans.

27. In advance of the 99th meeting, UNDP, UNIDO and UNEP confirmed that they continued to apply the overarching principles for managing funds transferred from implementing agencies to FECO for stage II

[7] No PMU expenditures for stage I of the HPMP have been included as stage I had been completed in 2023.

[8] Annex III of document UNEP/OzL.Pro/ExCom/95/47

of the relevant sector plans, as presented in the stand-alone progress reports by sector contained in the present document (paragraphs 41, 100, 136 and 177).

Disbursement of funds and interest accrued under stage II [9]

28. In line with decision 77/49(b)(iii), information on interest accrued at the end of 2025 from funds previously transferred for the implementation of sector plans was provided through an audit report of disbursements made in all sectors,[10] as shown in table 8. The report indicates that "the financial statements of project grant and disbursement of the HPMP (stage II) comply with the rules of the Montreal Protocol on ODSs and the Government Accounting Standards. The financial statements of project grant and disbursement have been fairly and justly presented in all material respects from 1 January to 31 December 2025 by FECO."

Table 8. Interest accrued under stage II of the HPMP in China as of 31 December 2025 (US $)

Sector plan and implementing agencies	Interest accrued in stage II (US $)
XPS foam (UNIDO/Germany)	145
PU foam (World Bank)	271
ICR (UNDP)	2,476
RAC (UNIDO/Austria/Italy)	3,996
Solvent (UNDP)	2,599
Servicing (UNEP/Germany/Japan)	747
Total for all sector plans	**10,234**

29. UNDP, in consultation with FECO/MEE, explained that the level of interests accrued in 2025 is lower than the levels accrued from previous years due to reduction of the interest rates in China over the years, decreasing from 4.1 per cent in 2020 to 3 per cent in 2025, faster turnaround of funds received by FECO from agencies towards disbursements to enterprises, end-users and project suppliers; and most recently, from 2024 and 2025, the direct impact of decision 95/43(b) that limited that cash-transfer from agencies to FECO bank account to not more than 25 per cent - per transaction - of the tranche total value.

Tranche progress reports and funding requests

30. Detailed stand-alone progress reports on the implementation of sector plans and associated requests for funding are included below the Note by the Secretariat. Each provides a report on the implementation of the ongoing tranche and a level of fund disbursement, an implementation plan for the next tranche, comments by the Fund Secretariat, and a recommendation.

31. The Secretariat notes that the Government of China has been in compliance with the HCFC consumption targets established for each sector, that substantive progress and fund disbursement have been achieved in all sectors, and that all technical and cost issues have been resolved.

Secretariat's recommendation

32. The Executive Committee may wish, with regard to the interest accrued by the Government of China up to 31 December 2025 on funds previously transferred for the implementation of sector plans under stage II of the HCFC phase-out management plan (HPMP), as per decision 77/49(b)(iii), to request the Treasurer:

[9] The financial audit report only includes stage II as stage I is already completed.
[10] Submitted by UNDP on 29 September 2026.

(a) To offset future transfers to UNIDO by US $145, representing interest accrued from funds previously transferred for the implementation of the extruded polystyrene foam sector plan under stage II of the HPMP;

(b) To offset future transfers to World Bank by US $271, representing interest accrued from funds previously transferred for the implementation of the polyurethane foam sector plan under stage II of the HPMP;

(c) To offset future transfers to UNDP by US $2,476, representing interest accrued from funds previously transferred for the implementation of the industrial and commercial refrigeration sector plan under stage II of the HPMP;

(d) To offset future transfers to UNIDO by US $3,996, representing interest accrued from funds previously transferred for the implementation of the room air-conditioning manufacturing and heat-pump water heater sector plan under stage II of the HPMP;

(e) To offset future transfers to UNDP by US $2,599, representing interest accrued from funds previously transferred for the implementation of the solvent sector plan under stage II of the HPMP; and

(f) To offset future transfers to UNEP by US $747, representing interest accrued from funds previously transferred for the implementation of the refrigeration and air-conditioning servicing sector plan and the national enabling programme under stage II of the HPMP.

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS

China

PROJECT TITLE	AGENCY	MEETING APPROVED	CONTROL MEASURE
HCFC phase-out plan (stage II) XPS foam sector	UNIDO (lead) and Germany	Approved: 77th; Revised: 86th	100% phase-out by 2026

ARTICLE 7 DATA (Annex C, Group l)	Year: 2025	4,392.65 ODP tonnes

COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)						Year: 2025
Chemical	Aerosol	Foam	Refrigeration		Solvent	Total sector consumption
			Manufacturing	Servicing		
HCFC-22		137.50	1,457.50	2,372.18		3,967.18
HCFC-123			4.55	1.05		5.60
HCFC-141b		314.69			44.99	359.68
HCFC-142b		9.75	1.50	48.95		60.19

CONSUMPTION DATA (ODP tonnes)			
2009–2010 baseline	19,269.00	Starting point for sustained aggregate reductions	18,865.44
CONSUMPTION ELIGIBLE FOR FUNDING			
Already approved	12,161.02	Remaining	6,704.42

ENDORSED BUSINESS PLAN		2026	2027	2028	Total
UNIDO	ODS phase-out (ODP tonnes)	179.80	0.0	0.0	179.80
	Funding (US $)	3,782,080	0	0	3,782,080

PROJECT DATA			2016	2017	2018-2019	2020*	2021	2022	2023	2024	2025	2026	Total
Montreal Protocol consumption limits (ODP tonnes)			17,342.1	17,342.1	17,342.1	12,524.9	12,524.9	12,524.9	12,524.9	12,524.9	6,262.4	6,262.4	n/a
Maximum allowable consumption (ODP tonnes)			2,286.0	2,286.0	2,032.0	1,397.0	1,397.0	1,397.0	762.0	762.0	165.0	0.0	n/a
Amounts approved in principle (US $)**	UNIDO	Project costs	7,514,867	8,732,614	0	9,890,431	4,400,000	2,000,000	3,000,000	1,000,000	4,000,000	3,534,654	44,072,566
		Support costs	526,041	611,283	0	692,330	308,000	140,000	210,000	70,000	280,000	247,426	3,085,080
	Germany	Project costs	0	267,386	0	0	600,000	0	0	0	0	0	867,386
		Support costs	0	31,877	0	0	73,535	0	0	0	0	0	105,412
Funds approved by ExCom (US $)		Project costs	7,514,867	9,000,000	0	9,890,431	5,000,000	2,000,000	3,000,000	1,000,000	4,000,000		41,405,298
		Support costs	526,041	643,160	0	692,330	381,535	140,000	210,000	70,000	280,000		2,943,066
Total funds recommended for approval at this meeting (US $)		Project costs										3,534,654	3,534,654
		Support costs										247,426	247,426

* The third (2018) tranche was submitted to the 82nd, 83rd, and 84th meetings and deferred for consideration at the 85th meeting (decisions 82/71(b), 83/55 and 84/69(a)).
** Total adjusted value of stage II of the HPMP for the XPS foam sector plan and the funding level of tranches between 2020 and 2026 as approved at the 86th meeting in line with decision 86/34.

Secretariat's recommendation:	Individual consideration

PROJECT DESCRIPTION

33. On behalf of the Government of China, UNIDO as the lead implementing agency has submitted a request for funding for the ninth and final tranche of the extruded polystyrene (XPS) foam sector plan of stage II of the HCFC phase-out management plan (HPMP), in the amount of US $3,534,654, plus agency support costs of US $247,426, for UNIDO only.[1] The submission includes a progress report on the implementation of the eighth tranche of the XPS foam sector plan, the tranche implementation plan for 2027 and a verification report, in line with subparagraph 5(c) of the Agreement between the Government of China and the Executive Committee.

34. This submission is based on the revised plan of action for the XPS foam sector for the period 2021–2026 in the total amount of US $18,534,654, plus agency support costs, approved by the Executive Committee at the 86th meeting. The value of the adjusted total funding approved in principle for stage II of the XPS foam sector plan is US $44,939,952, plus agency support costs (decisions 86/34 and 86/38).

35. Stage II of the XPS foam sector plan comprises four groups of activities: policy and regulatory interventions, an investment component to assist enterprises with conversions, technical assistance to strengthen the technical capacity of the sector and to promote the adoption of alternatives with low global-warming potential (GWP), and project management. The original plan proposed to assist 124 enterprises in phasing out 1,265 ODP tonnes of HCFCs, while the remaining consumption of 1,021 ODP tonnes was to be phased out by non-assisted enterprises. The revised plan approved in 2020 set out to directly assist 21 enterprises in phasing out 466.32 ODP tonnes of HCFCs, with the remaining consumption of 930.68 ODP tonnes (based on the 2020 target of 1,397 ODP tonnes) to be phased out by non-assisted enterprises.

Progress in the implementation of the eighth tranche of stage II of extruded polystyrene foam sector plan

Investment activities

36. The contract between the Foreign Environmental Cooperation Centre (FECO) and UNIDO for the implementation of stage II of the XPS foam sector plan was signed in September 2017. As shown in table 1, 16 enterprises have completed conversions to carbon dioxide (CO_2) with other low-GWP co-blowing agents,[2] phasing out 6,412 metric tonnes (mt) or 359.01 ODP tonnes of HCFCs, and three enterprises with a consumption of 1,017 mt (55.95 ODP tonnes) of HCFCs have completed trial production and had new equipment installed. As for the remaining two enterprises with ongoing conversions, one has already received the equipment, and one will do so by the end of 2026, with project acceptance, final payments and closure planned for 2027. All participating enterprises have stopped using HCFCs.

Table 1. Status of progress at XPS foam enterprises selected for conversions

Status of implementation	Number of enterprises	HCFC consumption in 2016*		Value of contracts (US $)
		mt	ODP tonnes**	
Project completed (passed project acceptance)	16	6,411.88	359.01	32,842,760
Completed trials	3	1,017.30	55.95	4,242,107
Received equipment	1	492.85	28.51	1,735,700
Equipment procurement completed	1	410.26	22.84	1,570,520
Total	**21**	**8,332.29**	**466.31**	**40,391,087**

* 2016 is the year used as reference for HCFC consumption for stage II of the HPMP.
** ODP tonnes are calculated by the actual amount of HCFC-22 and HCFC-142b used by each enterprise.

[1] As per the letter of 29 September 2026 from the Ministry of Ecology and the Environment of China to UNIDO.
[2] Alcohol for XPS board thickness below 60 mm; alcohol and small amounts of HFC-152a (GWP of 124) for XPS board thickness above 60 mm.

Verification of converted manufacturing lines

37. In 2026, in accordance with subparagraph 5(c)[3] of the Agreement, UNIDO commissioned the verification of one XPS foam enterprise that had completed conversion to CO_2 and ethanol[4] in October 2025, phasing out 179 mt (9.9 ODP tonnes) of HCFCs, which represents over 10 per cent of the phase-out achieved by assisted enterprises in the sector in 2025, and over 5 per cent of the manufacturing lines converted in 2025. The verification report confirmed that the enterprise had permanently ceased using HCFCs in XPS foam manufacturing and started using CO_2 and ethanol in line with the relevant national product standards. The verification also confirmed that the allocation of funds was transparent and within the cost-effectiveness thresholds, and that the replaced baseline equipment was destroyed, in line with the Multilateral Fund requirements.

Legal framework

38. A ban on the use of HCFCs in the XPS foam sector entered into force 1 July 2026; and the standard for XPS foam used in floor heating, prepared during previous tranches, has been finalized and submitted to relevant authorities for official review and approval.

Technical assistance activities

39. Activities implemented over 2025–2026 included technical support provided by the implementation support agency (ISA) to FECO and to five enterprises with ongoing projects in their day-to-day operations, conversion processes, on-site baseline verifications and promotion of alternative technologies. The prototype thermal bonding machine developed in previous tranches was inspected, validated, and presented at a training workshop for XPS foam enterprises in July 2026, receiving positive feedback from potential end users and relevant recommendations from experts. Research on the optimization of the manufacturing process for CO_2-based XPS foam and partial use of recycled resin to reduce manufacturing costs continues. Training materials have been updated to reflect the latest policies and regulations, interpretation of applicable standards, phase-out requirements and related restrictions, future industry trends, sector transition, the newly developed thermal bonding machine prototype, enhanced safety management, new applications and technical considerations. Training activities in southern China were completed by July 2026, while training in northern provinces will be completed by the end of 2026, covering at least 60 enterprises altogether.

Level of fund disbursement

40. As of September 2026, of the US $41,405,298 approved so far, US $36,528,935 (88 per cent) had been disbursed by FECO to beneficiaries, as shown in table 2. The balance of US $4,876,363 will be disbursed in 2026–2027.

[3] The country has to submit a verification report of a random sample of at least 5 per cent of the manufacturing lines which had completed their conversion in the year to be verified, on the understanding that the total aggregated HCFC consumption of the random sample of the manufacturing lines represents at least 10 per cent of the sector consumption phased out in that year.

[4] An additional co-blowing agent (HFC-134a or HFC-152a) is rarely used for XPS board orders with specifically required properties.

Table 2. Status of disbursements for stage II of the XPS foam sector plan (US $)

Description		Tranche								Total
		First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	
Funds approved	UNIDO	7,514,867	8,732,614	9,890,431	4,400,000	2,000,000	3,000,000	1,000,000	4,000,000	40,537,912
	Germany	0	267,386	0	600,000	0	0	0	0	867,386
	Total	**7,514,867**	**9,000,000**	**9,890,431**	**5,000,000**	**2,000,000**	**3,000,000**	**1,000,000**	**4,000,000**	**41,405,298**
Disb. from IAs to FECO	UNIDO	7,514,867	8,732,614	9,890,431	4,400,000	1,800,000	2,700,000	900,000	1,975,000	37,912,912
	Germany*	0	267,386	0	509,812	0	0	0	0	777,198
	Total	**7,514,867**	**9,000,000**	**9,890,431**	**4,909,812**	**1,800,000**	**2,700,000**	**900,000**	**1,975,000**	**38,690,110**
	Rate (%)	100	100	100	98	90	90	90	49	93
Disb. from FECO to beneficiaries	**Total**	**7,414,926**	**9,000,000**	**9,890,431**	**3,949,851**	**1,243,025**	**2,389,060**	**900,000**	**1,741,642**	**36,528,935**
	Rate (%)	99	100	100	79	62	80	90	44	88
Fund balance		99,941	0	0	1,050,149	756,975	610,940	100,000	2,258,358	4,876,363

* In line with implementation requirements, funding is directly disbursed from the Government of Germany to beneficiaries and goods/service providers.

41. In line with decision 95/43(b), UNIDO confirmed that it had applied the overarching principles for managing funds transferred from implementing agencies to FECO for stage II of the XPS foam sector plan. As shown in table 2 above, the current balance of funds kept by FECO is US $1,383,977, which represents 3.65 per cent of total funding transferred to FECO by UNIDO. UNIDO will continue to closely monitor disbursements by FECO to beneficiary enterprises before releasing additional funds.

Implementation plan for the ninth tranche of stage II of the extruded polystyrene foam sector plan

42. During the ninth tranche, FECO will continue supervising the completion of ongoing conversions to CO_2-based technology at five enterprises and providing them with technical and safety assistance. ISA will support enterprises through day-to-day operational management, supervision, training, guidance in the implementation of remaining activities, facilitating safe conversions, and carrying out verifications.

43. FECO will also assist the Ministry of Ecology and the Environment (MEE) and continue to enforce the established policies and regulations on ODS management, including the ban on the use of HCFCs in XPS foam. Planned technical assistance activities include the continuation of training on HCFC-related policies, XPS foam technology and safety to local environment and ecology bureaus (EEBs) to strengthen their supervisory capacity; and monitoring and supervision exercised by FECO and EEBs to prevent the resurgence of HCFC use in XPS foam manufacturing. Table 3 presents the budget for activities to be carried out under the ninth tranche.

Table 3. Budget for the ninth tranche of stage II of the XPS foam sector plan in China (UNIDO)

Item	Budget (US $)	
Conversion of XPS foam enterprises to CO_2-based technology		3,076,231
Technical assistance including ISA's support, supervision, verifications and capacity building for EEBs		264,017
Project monitoring, including:		
- Project and support staff	114,894	
- Domestic and international travel (respectively US $8,748 and US $1,361)	10,109	
- Domestic meetings	7,776	
- Consulting services	6,999	
- Operating costs: office operation, facilities and equipment, computer, phone, other	54,628	
Project monitoring subtotal		194,406
Total		**3,534,654**

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

Report on HCFC consumption

44. The consumption of HCFCs in the XPS foam manufacturing sector in 2025 amounted to 2,650 mt (147.25 ODP tonnes), which is below the 165 ODP tonnes target of allowable consumption set out in the Agreement between the Government of China and the Executive Committee, as shown in table 4.

Table 4. Consumption of HCFCs in the XPS foam sector

Description		2021	2022	2023	2024	2025
Consumption*	mt	23,500	24,500	12,500	12,500	2,650
	ODP tonnes	1,318	1,357	702	702	147.25
Maximum allowable consumption**	mt	24,296	24,296	13,252	13,252	3,000
	ODP tonnes	1,397	1,397	762	762	165
Phase-out targets	mt	n/a	n/a	11,044	n/a	10,252
	ODP tonnes	n/a	n/a	635	n/a	597

* As per the country programme implementation report.
** As per stage II Agreement (2016–2024) approved at the 86th meeting.

45. Since the submission of the last progress report, two additional enterprises consuming 37.42 ODP tonnes of HCFCs completed conversion projects, and all enterprises participating in the sector plan, including those still finalizing conversion projects, have stopped using HCFCs. Additional reductions required to meet the 2025 target were achieved through completed conversions and the application of supporting policy measures and regulations in the XPS foam sector, including the implementation of the quota management system to ensure control over domestic HCFC production, import and export, including quotas required for manufacturing enterprises consuming over 100 mt of HCFCs. The registration of enterprises remains mandatory and EEBs continue exercising their supervisory and monitoring mandate. The 2026 total phase-out target is expected to be achieved through the implementation of the ban on the use of HCFCs in the XPS foam sector. Technical assistance activities continue to be implemented to strengthen the industry's technical capacity to adopt CO_2-based technology and sustain the HCFC phase-out.

Status of progress

Legal and regulatory framework

46. Noting that the MEE issued a ban on the use of HCFCs in the XPS foam sector in December 2025 (in force since 1 July 2026), upon request UNIDO elaborated on measures implemented to monitor and ensure the sustainability of the ban, indicating that local EEBs would supervise and urge enterprises in their administrative regions to follow the policy; enhance, promote and implement national regulations governing production and construction projects involving controlled substances, sector bans, import and export controls and emission limits; conduct regulatory inspections and law enforcement, routine compliance inspections and random spot-checks; and carry out follow-up and oversight of completed and audited conversion projects to prevent the reintroduction of controlled substances. Any violation against the ban will be penalized according to the provisions of the Regulation on the Management of ODSs. UNIDO also confirmed that, in the period of January to June 2026, before the ban entered into force, only a very small number of enterprises had used HCFC stocks carried over from previous years.

Technical assistance

47. The Secretariat noted that ongoing technical assistance activities continued to progress. In providing more detail about the thermal bonding machine developed for the manufacturing of foam panels

thicker than 60 mm,[5] UNIDO reported that, in June 2026, the prototype was presented to experts for inspection, validation and recommendations for further improvements and optimization, and was successfully showcased and promoted at a training workshop for XPS foam enterprises the following month. Participant feedback suggests that small and medium-sized enterprises (SMEs) could acquire and use the machine, subject to specific production requirements and continued technical improvements.

48. UNIDO also reported further progress on the ongoing research on optimizing extrusion temperature, pressure, and foaming and cooling conditions to improve CO_2-based XPS foam stability and manufacturing efficiency and reduce energy use and manufacturing costs while maintaining the required foam thermal insulation and mechanical properties. Preliminary results indicate that some recycled resin can be incorporated in the manufacturing process without compromising basic foam performance, provided that appropriate quality controls and processing adjustments are applied. Further research and pilot-scale verification are underway to determine suitable recycled resin content and process parameters, effects on product quality, production stability and costs. The findings are expected to support the sustained application and cost reduction of CO_2-based XPS technology.

Plan of action

49. The Secretariat discussed with UNIDO the goals of capacity-building support for EEBs under the ninth tranche, which continues the work started under the eighth tranche. UNIDO explained that the planned activities aimed to strengthen the enforcement of revised regulations, including the ban on HCFC use in XPS foam; assist in developing local supporting policies, improving inspections and routine ODS monitoring; address illegal activities; and establish lasting compliance systems. They will also support the Multilateral Fund projects and promote environmentally sound alternatives through outreach and training on reducing the use of controlled substances. Activities in the sector will mostly take place in the Hebei province.

Project implementation and monitoring

50. As the lead implementing agency for the HPMP in China, UNDP provided a cumulative report on the project management unit (PMU) expenditures, in line with decision 81/46(b). The PMU expenditures related to stage II of the XPS foam sector plan are summarized in table 5.

Table 5. PMU cumulative expenditures for stage II of the XPS foam sector plan (2017–2025)

Item	Description	Cost (US $)
Sector-specific costs	Project staff	1,907,642
	Domestic travel	163,510
	International travel	13,747
	Domestic meetings	123,690
	International meetings	0
	Consulting services	125,245
Subtotal for sector-specific costs		**2,333,834**
Operational costs	Shared costs (support staff, computers, internet, printing, office operation and maintenance)	1,839,810
Total disbursement		***4,173,644**

* Including US $1,890,621 funded by stage II of the HPMP and US $2,283,023 co-financed by the Government of China.

[5] Using thermal bonding technology, XPS foam enterprises can continuously produce boards of fixed thickness and bond two or three boards to meet order requirements, eliminating the need for frequent process adjustments and avoiding the use of HFC-152a in panels ticker than 60 mm.

Gender policy implementation

51. In line with decisions 84/92 and 90/48(c), the Government of China continues to promote women's participation in the plan through ongoing support for their involvement in training, technical assistance, and expert recruitment. The training workshop for enterprises in the XPS sector held in Jiangsu Province in July 2026 for 70 participants included 20 women (29 per cent), and four out of the six (67 per cent) experts of the team working on the technical assistance activity to optimize the manufacturing of XPS foam are women.

Completion of stage II of the XPS foam sector plan

52. UNIDO has confirmed that stage II of the XPS foam sector plan for China will be completed on 31 December 2027, as established in paragraph 14 of the Agreement.

Sustainability of the HCFC phase-out and assessment of risks

53. The Secretariat discussed with UNIDO the risk of HCFC use returning to the XPS foam sector after the phase-out. UNIDO assessed the risk as low, given the legally binding ban on HCFCs and HCFC-containing blowing agents in XPS manufacturing, in force since 1 July 2026. Furthermore, CO_2-based combined blowing technologies are becoming increasingly mature, and their performance, production stability and adaptability to existing manufacturing processes continue to improve; while CO_2 remains readily available and affordable, the price of HCFC is rising under tighter controls. To assure phase-out sustainability, monitoring and enforcement will be strengthened during the initial ban period, particularly for SMEs and enterprises with limited technical capacity, alongside policy awareness, training, and technical support. UNIDO also considered the risk of a shift to HFC-based technologies low and manageable through regulations, industry monitoring, technical guidance and promotion of low-GWP alternatives.

Conclusion

54. The Government of China remains in compliance with the Montreal Protocol and its Agreement with the Executive Committee with regard to the XPS foam sector plan, including the consumption target agreed for 2025. Two additional plant conversions were completed since the last report, for a total of 16 enterprises converted to CO_2-based technology under the plan, with an associated phase-out of 6,412 mt (359.01 ODP tonnes) of HCFCs. The verification of one conversion confirmed that the enterprise had permanently ceased using HCFCs in XPS foam manufacturing and started manufacturing using CO_2 and ethanol, in line with the relevant national product standards. A ban on the use of HCFCs in the XPS foam sector entered into force on 1 July 2026. A total of 44 per cent of funds approved for the eighth tranche has been disbursed to beneficiary enterprises. Funds from the ninth tranche will be used to complete the ongoing conversions to low-GWP alternatives in the remaining five enterprises and to continue the implementation of technical assistance and policies, including *inter alia* the ban on the use of HCFCs in the XPS foam sector; consideration of further measures to ensure sustainable HCFC phase-out; to continue the ongoing research to further optimize CO_2-based XPS foam manufacturing; and to provide technical assistance and training on HCFC-related policies and XPS foam technology and safety aspects to EEBs to strengthen their supervisory capacity.

RECOMMENDATION

55. The Executive Committee may wish to consider:

(a) Noting the progress report on the implementation of the eighth tranche of the extruded polystyrene (XPS) foam sector plan of stage II of the HCFC phase-out management plan (HPMP) for China;

(b) Requesting the Government of China, UNIDO and the Government of Germany to submit a final progress report on the implementation of the work programme associated with the ninth and final tranche to the 102nd meeting of the Executive Committee; and

(c) Approving the ninth and final tranche of the XPS foam sector plan of stage II of the HPMP for China, and the corresponding 2027 tranche implementation plan, in the amount of US $3,534,654, plus agency support costs of US $247,426, for UNIDO.

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS

China

PROJECT TITLE	AGENCY	MEETING APPROVED	CONTROL MEASURE
HCFC phase-out plan (stage II) PU foam sector	World Bank	Approved: 77th Revised: 86th	100% phase-out by 2026

ARTICLE 7 DATA (Annex C Group I)	Year: 2025	4,392.65 ODP tonnes

COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)						Year: 2025
Chemical	Aerosol	Foam	Refrigeration		Solvent	Total sector consumption
			Manufacturing	Servicing		
HCFC-22		137.50	1,457.50	2,372.18		3,967.18
HCFC-123			4.55	1.05		5.60
HCFC-141b		314.69			44.99	359.68
HCFC-142b		9.75	1.50	48.95		60.19

CONSUMPTION DATA (ODP tonnes)			
2009–2010 baseline	19,269.00	Starting point for sustained aggregate reductions	18,865.44
CONSUMPTION ELIGIBLE FOR FUNDING			
Already approved	12,161.02	Remaining	6,704.42

ENDORSED BUSINESS PLAN		2026	2027	2028	Total
World Bank	ODS phase-out (ODP tonnes)	660.08	0.0	0.0	660.08
	Funding (US $)	4,494,000	0	0	4,494,000

PROJECT DATA			2016	2017	2018-2019	2020*	2021	2022	2023	2024	2025	2026	Total
Montreal Protocol consumption limits (ODP tonnes)			17,342.1	17,342.1	17,342.1	12,524.9	12,524.9	12,524.9	12,524.9	12,524.9	6,262.4	6,262.4	n/a
Maximum allowable consumption (ODP tonnes)			4,449.6	4,449.6	3,774.5	2,965.7	2,965.7	2,965.7	1,078.4	1,078.4	330.0	0.0	n/a
Amounts approved in principle (US $)**	World Bank	Project costs	7,045,027	0	0	2,067,012	4,000,000	0	5,000,000	1,000,000	5,000,000	4,200,000	28,312,039
		Support costs	493,152	0	0	144,691	280,000	0	350,000	70,000	350,000	294,000	1,981,843
Funds approved by ExCom (US $)		Project costs	7,045,027	0	0	2,067,012	4,000,000	0	5,000,000	1,000,000	5,000,000		24,112,039
		Support costs	493,152	0	0	144,691	280,000	0	350,000	70,000	350,000		1,687,843
Total funds recommended for approval at this meeting (US $)		Project costs										4,200,000	4,200,000
		Support costs										294,000	294,000

* The second (2017) tranche was submitted to the 84th meeting and deferred for consideration at the 85th meeting (decision 84/69(a)).

** Total adjusted value of stage II of the HPMP for the PU foam sector plan and the funding level of tranches between 2020 and 2026 were approved at the 86th meeting (decision 86/34).

Secretariat's recommendation:	Individual consideration

PROJECT DESCRIPTION

56. On behalf of the Government of China, the World Bank as the designated implementing agency has submitted a request for funding for the seventh and final tranche of the polyurethane (PU) rigid foam sector plan of stage II of the HCFC phase-out management plan (HPMP), at a total cost of US $4,200,000, plus agency support costs of US $294,000.[1] The submission includes a progress report on the implementation of the sixth tranche, the tranche implementation plan for 2027, and verification reports in line with subparagraph 5(c) of the Agreement between the Government of China and the Executive Committee.[2]

57. This submission is based on the revised plan of action for the PU foam sector for the period 2021–2026 in the total amount of US $19,200,000, plus agency support costs, approved by the Executive Committee at the 86th meeting. The value of the adjusted total funding approved in principle for stage II of the PU foam sector plan is US $28,312,039 plus agency support costs (decisions 86/34 and 86/39).

58. Stage II of the PU foam sector plan comprises four groups of activities: policy and regulatory interventions, an investment component to assist enterprises with conversions, technical assistance to support the sector's conversion to alternatives with low global-warming potential (GWP), and project management. The investment component proposes to phase out 939.64 ODP tonnes or 8,542.21 metric tonnes (mt) of HCFC-141b through conversions of 31 individual enterprises, and to channel technical assistance activities, including the development of foam-blowing formulations, through 15 systems houses to an estimated 190 downstream users, many of them small- and medium-sized enterprises (SMEs).

Progress report on the implementation of the sixth tranche of stage II of the polyurethane foam plan

Legal and regulatory framework

59. The ban on the use of HCFCs in the PU foam sector was issued on 18 November 2025 and entered into force on 1 January 2026 for all sectors except spray foam, for which it entered into force on 1 July 2026. The Foreign Environmental Cooperation Centre (FECO) continues to assist the Ministry of Ecology and the Environment (MEE) in enforcing the established policies and regulations on the management of ozone-depleting substances (ODSs), and to enhance the ODS monitoring and management capacity of local ecology and environment bureaus (EEBs).

Investment activities

60. The contract between FECO and the World Bank for the implementation of stage II of the PU rigid foam sector plan was signed on 8 January 2019. All 46 beneficiary individual enterprises (31) and systems houses (15) have signed conversion contracts with FECO; of these, 23 individual enterprises have completed their projects and the remaining eight have completed conversions and are awaiting final verification to complete the projects by the end of 2026. The 15 systems houses have completed equipment installation and trial runs and are currently providing training and materials to downstream users to adopt low-GWP technologies. The systems house project is expected to be completed by mid-2027.

61. All assisted enterprises have ceased the use of HCFC-141b before the end of 2025 or ceased using HCFC stocks by mid-2026 for spray foam application. The status of progress of all conversions is presented in table 1.

[1] As per the letter of 29 September 2026 from the Ministry of Ecology and Environment of China to the World Bank.
[2] The country has to submit a verification report of a random sample of at least 5 per cent of the manufacturing lines which had completed their conversion in the year to be verified, on the understanding that the total aggregated HCFC consumption of the random sample of the manufacturing lines represents at least 10 per cent of the sector consumption phased out in that year.

Table 1. Conversion progress at PU foam enterprises assisted under the six tranches of stage II

Status of implementation		Number of enterprises	HCFC consumption in 2016* (mt)	Value of contract (US $)
Individual enterprises with completed conversions				
Water-based		11	1,172.24	5,169,237
HC		7	727.46	5,271,049
HFO		5	334.12	2,331,093
Subtotal for completed enterprise conversions		**23**	**2,233.82**	**12,771,379**
Individual enterprises with completed conversions undergoing final verification				
Water-based		3	87.81	351,224
HC		2	114.12	684,696
HFO		3	187.39	749,548
Subtotal for ongoing enterprise conversions		**8**	**389.31**	**1,785,468**
Systems houses with ongoing conversions				
Water-based	Completed the equipment installation and trial runs; ongoing training and material provision to downstream users	1	83.50	270,000
Water and HFO		11	5,080.07	4,620,000
HFO		3	755.52	900,000
Subtotal for ongoing systems house conversions		**15**	**5,919.09**	**5,790,000**
Total		**46**	**8,542.21**	**20,346,847**

* 2016 is the reference year for HCFC consumption for stage II of the HPMP.

Verification of converted manufacturing lines

62. The World Bank submitted verification reports for two PU foam enterprises that converted to hydrocarbon (HC) and hydrofluoroolefin (HFO)/water co-blowing technology in 2026, with associated phase-out of 159.77 mt (17.57 ODP tonnes) of HCFCs. This represents more than 5 per cent of the lines that completed conversions in 2026 and 41 per cent of HCFC phase-out for the same period. The verification reports confirmed, *inter alia*, that the enterprises had permanently ceased using HCFCs in PU foam production and started manufacturing with selected alternative technologies, that no stocks of HCFC-141b nor HCFC-based polyols remained at the enterprises, and that, where relevant, the replaced baseline equipment was destroyed[3] and necessary permits and approvals had been obtained from local authorities. The level of funds provided was consistent with the signed contracts and the enterprises co-financed the capital and operational costs.

Technical assistance activities

63. The implementation support agency (ISA) continued to provide technical assistance to FECO regarding project implementation, financial appraisal and performance verifications at enterprises finalizing conversions, as well as project acceptance workshops for completed conversions. FECO organized an annual workshop for 227 participants from foam enterprises to raise awareness on the ongoing domestic and global HCFC-141b phase-out and relevant bans, provide guidance on the adoption of suitable alternatives in various subsectors, and exchange experiences gained from conversions to low-GWP alternatives.

64. In August 2025, FECO contracted the Training Center of the China Polyurethane Industry Association to provide independent technical support and training for adopting low-GWP alternatives to HCFCs. By July 2026, four training sessions had been held in key PU foam manufacturing cities, reaching 438 participants, primarily from SMEs. In addition, 90 SMEs received technical support, including on-site assistance for 82 enterprises. The activity was completed in July 2026 and contributed to sustaining HCFC phase-out in the sector.

[3] Adoption of HFO-based technology in one spray foam enterprise verified did not require replacement or modification of the existing foaming units.

65. The research study on suitable alternatives to HCFC-141b used in the production of medium- and low-density PU foam shoe soles that began in 2025 was completed in March 2026 and its findings were disseminated during workshops organized for the representatives of 80 per cent of the shoe-sole subsector enterprises. The findings are discussed in the Secretariat's comments.

Monitoring by the local ecology and environment bureaus

66. In line with decision 84/39(c)(iii),[4] the Government of China reported through the World Bank that the local EEBs continued to enforce the established policies and regulations on ODS management and the registration of HCFC consumers, and to routinely monitor and manage enterprises dealing with ODSs in the regions. Since the submission of the last progress report, no illegal production or consumption of CFC-11 has been found.

Level of fund disbursement

67. As of July 2026, of the US $24,112,039 approved for the sector so far, US $21,112,039 had been disbursed by the World Bank to FECO, and US $18,277,260 (76 per cent of total funding approved) had been disbursed by FECO to beneficiary enterprises, as shown in table 2. The balance of US $5,834,779 will be disbursed in 2027.

Table 2. Status of disbursements for stage II of the PU foam sector plan (US $)

Funding tranche	Funds approved	Disbursement from the World Bank to FECO		Disbursement from FECO to beneficiaries		Fund balance
		Amount	Rate (%)	Amount	Rate (%)	
First	7,045,027	7,045,027	100	7,045,027	100	0
Second	2,067,012	2,067,012	100	2,067,012	100	0
Third	4,000,000	4,000,000	100	4,000,000	100	0
Fourth	5,000,000	5,000,000	100	3,556,359	71	1,443,641
Fifth	1,000,000	500,000	50	284,339	28	715,661
Sixth	5,000,000	2,500,000	50	1,324,523	26	3,675,477
Total	**24,112,039**	**21,112,039**	**88**	**18,277,260**	**76**	**5,834,779**

Implementation plan for the seventh tranche of stage II of the polyurethane foam sector plan

68. During the seventh tranche, the 15 assisted systems houses will continue assisting the estimated 190 downstream SME users in adopting alternative foaming agents by providing technical and safety training, on-site technical support, and subsidized materials for HFO and water technologies, including pre-blended polyols. An additional 100 to 130 spray-foam SMEs will receive assistance to replace HCFC-based equipment, including training and technical assistance for configuring a new type of three-component spray-foam machine with non-ODS, low-GWP blowing agents. This activity will be carried out with the involvement of systems houses and manufacturers or suppliers and is expected to be completed by the end of 2027.

69. FECO will also continue supporting the MEE in enforcing relevant policies and regulations on ODS management, particularly the bans on the use of HCFC-141b, as well as enhancing the local EEBs' monitoring and management capacity to ensure sustained HCFC-141b phase-out. Between three and five

[4] The Executive Committee requested the Government of China through the relevant implementing agency to report on the results of the monitoring efforts of local EEBs, including cases where CFC-11 had been detected, in future financial audit reports and, once all the remaining balances under the projects included in the financial audit had been disbursed and those projects had been completed, to continue such reporting under the annual progress reports of stage II of the PU foam sector plan of the HPMP.

portable gas chromatography-mass spectrometry (GC-MS) analyzers will be provided to EEBs in the three regions[5] with the highest concentration of systems houses and PU foam enterprises to replace portable ODS "instant" detectors (GC detectors) reaching end of life. The units will be managed on a provincial level and made available to urban areas and municipalities as needed.

70. FECO will also continue to work with research institutes on studying and optimizing foaming systems with alternative technologies for SMEs, as well as revising the existing standards or formulating new ones for foam products in different applications, for example in electric water heaters or in spray foam, where a zero-ODP standard would regulate the manufacturing processes, facilitate technological innovation, standardize market orders, and guide the development of the industry.

71. Table 3 presents the budget for activities included in the implementation plan of the seventh tranche.

Table 3. Budget for the seventh tranche of stage II of PU foam sector plan in China (World Bank)

Activity	Cost (US $)
Completion of conversion of 190 SMEs to water and HFO through 15 participating systems houses, and assistance to an additional 100 to 130 spray-foam SMEs to replace HCFC-based equipment with low-GWP technology	2,120,000
Distribution of three to five portable GC-MS analyzers to EEBs to monitor and enforce the bans on the use of HCFC-141b; capacity building for EEBs with focus on the Liaoning and Hebei provinces, public awareness and outreach, and formulation and revision of sector standards; and technical assistance including enterprise performance verification, research on alternatives in specific applications, technical support, and training for SMEs	*1,849,000
Project monitoring, including:	
- Project staff – programme management, support, financial procurement, legal support	91,419
- Domestic travel	7,939
- Domestic meetings	6,130
- Consulting services	6,784
- Operating costs – daily operating expenses, support staff, office facilities and equipment	118,728
Subtotal for project monitoring	231,000
Total	**4,200,000**

*Includes US $478,167 reallocated from remaining funds from conversions to be used for the procurement of GC-MS analyzers to monitor and enforce the bans on the use of HCFC-141b.

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

Report on HCFC consumption

72. The consumption of HCFC-141b in the PU foam manufacturing sector in 2025 amounted to 314.69 ODP tonnes, remaining below the 330 ODP tonnes of allowable consumption set out in the Agreement between the Government of China and the Executive Committee, as shown in table 4.

Table 4. HCFC-141b consumption and phase-out targets for the PU foam sector in 2021–2025

PU foam sector		2021	2022	2023	2024	2025
Consumption*	mt	22,776	25,296	8,673	9,479	2,861
	ODP tonnes	2,505.3	2,782.5	954.03	1,042.69	314.69
Maximum allowable consumption**	mt	26,961	26,961	9,804	9,804	3,000
	ODP tonnes	2,965.7	2,965.7	1,078.4	1,078.4	330.0
Phase-out targets	mt	n/a	n/a	17,157	n/a	6,804
	ODP tonnes	n/a	n/a	1,887.3	n/a	748.4

* As per the country programme implementation report.
** As per the Agreement for stage II (2016—2024) approved at the 86th meeting.

[5] Hebei, Henan and Shandong provinces, assessed to be at the highest risk of reverting to the use of banned ODSs.

73. HCFC-141b consumption in the PU foam sector decreased substantially in 2025 in compliance with the maximum allowable limit for the year and prior to the total phase-out in 2026. In addition to the completion of conversions in the sector, the HCFC-141b production quotas were strictly enforced to remaining producers before final closure; enforcement training sessions were given to provincial and local EEBs on supervision and monitoring practices; the registration system for ODS and HFC producers and users within the MEE's management and information system was expanded, ensuring that these entities are included in annual monitoring plans; and targeted industry outreach and public awareness campaigns were implemented.

Status of progress

Investment activities

74. In providing more detail about the completion of individual conversion projects expected in December 2026 and completion of the systems house project in July 2027, the World Bank explained that all individual enterprises had already completed their conversions but additional time was needed to verify financial completion of the last projects by an external accounting firm and to obtain the "acceptance" status from the MEE. All systems houses have received all items needed to produce the alternative formulations[6] and are currently delivering formulated polyols to SMEs and conducting on-site training on their use. The systems houses are actively engaged in completing this final step to receive final disbursements. At least 750 SMEs are receiving direct assistance from the project through the systems house project, technical assistance and training, and the new spray foam group project.

75. The World Bank informed the Secretariat that, following the 2026 ban on HCFC-141b, the preferred blowing agents used by SMEs was water (especially where thermal insulation requirements were less demanding) and HFC-245fa, noting that the Multilateral Fund resources had not been used to support the HFC technology. Systems houses have confirmed that water- or HFO-based pre-blended polyols were starting to be sold to SMEs not included in the project. FECO and the foam association are looking at ways to have suppliers offer equipment with more flexibility, and to have systems houses develop more customized polyol formulations to address challenges with water and HFO-1233zd(E), the cheapest and most readily available HFO. By the end of 2026, one systems house is expected to introduce a new reduced HFO formulation that will be stable and easier to use.

Technical assistance

76. On the results of the study on cost-effective water-based alternatives to HCFC-141b for medium- and low-density PU foam shoe soles, the World Bank informed the Secretariat that a formulation was developed with a molding density of 0.25–0.26 g/cm³ of the shoe sole, with mechanical properties comparable to those of the HCFC-141b systems. Issues related to shrinkage, paint adhesion and finish were reduced through changes to raw materials and formulation process, while still achieving the strength and flexibility comparable to HCFC-141b-based soles at lower raw material costs. The technology is suitable for large-scale production, with one enterprise reporting sales of over 20,000 tonnes of materials for lightweight, water-blown shoe soles.

Plan of action

77. The Secretariat noted with appreciation the plan to assist an additional 100 to 130 spray foam SMEs in replacing HCFC-based equipment, adopting low-GWP alternatives and providing technical support through a group-based implementation model involving systems houses and equipment suppliers. The World Bank explained that the third component of the three-component spray-foam machines would make

[6] Including, *inter alia*, pre-blended polyol low-speed mixing kettles, foaming-agent storage tanks, metering systems, packing facilities, research and testing equipment for foam stability and adhesion, and, in a few cases, spray foaming machines for formulation testing and training SMEs.

it possible to meter HFO, enabling its addition during the foaming process and thus avoiding the decomposition of HFO within the pre-blended polyols and reducing the required dosage of costly additives to extend storage life. The third component can also meter liquid carbon dioxide, thereby reducing the required amount of HFO-based foaming agents and optimizing foam performance and production costs.

78. As for the planned distribution of portable GC-MS analyzers, the World Bank explained that because HCFC could no longer be used, they would be critical to ensure effective monitoring and enforcement of the ban on HCFC-141b in the sector. The analyzers are largely superior to the GC detectors currently used in China,[7] which are reaching end of life and require samples to be sent to labs, leading to backlogs in obtaining test results, which in turn impedes law enforcement (for example, by inadvertently giving a suspected enterprise extra time to destroy evidence). The portable GC-MS analyzers allow for on-site analysis of complex chemical mixtures; offer higher precision and detection capability; provide specific measurements in one test; and enable greater enforcement efficiency due to results being legally admissible as evidence in enforcement actions.

79. The cost of equipment is estimated at US $1,300,000, of which US $478,167 was reallocated from the funding initially estimated for enterprise conversions. The Secretariat notes that no further conversions are envisaged and that the proposed reallocation amounts to only 2 per cent of the funding initially estimated for enterprise conversions[8] and less than 20 per cent of the value of the previous tranche. Accordingly, the reallocation is considered a minor change in accordance with paragraph 7 of the Agreement between the Government and the Executive Committee. The Secretariat considers that these analyzers, in combination with capacity-building provided to the EEBs, will assist China in ensuring and monitoring the sustainability of the total phase-out of HCFC-141b in the foam sector. The operating cost of the use of analyzers will be covered by the Government.

Project implementation and monitoring

80. As the lead implementing agency for the HPMP for China, UNDP provided a cumulative report on the project management unit (PMU) expenditures, in line with decision 81/46(b). The PMU expenditures related to stage II of the PU foam sector are summarized in table 5.

Table 5. PMU cumulative expenditures for stage II of the PU foam sector plan (2017–2025)

Item	Description	Cost (US $)
Sector-specific costs	Project staff	1,993,991
	Domestic travel	111,163
	International travel	7,205
	Domestic meetings	87,088
	International meetings	0
	Consulting services	87,796
Subtotal for sector-specific costs		**2,287,243**
Operational costs	Shared costs (support staff, computers, internet, printing, office operation and maintenance)	1,327,178
Total disbursement		***3,614,421**

* Including US $1,155,158 funded by stage II of the HPMP and US $2,459,263 co-financed by the Government of China.

[7] In 2019, 61 portable GC detectors based on photoionization gas chromatography were distributed to EEBs in key cities and counties of 30 autonomous regions and municipalities to help conduct on-site inspections.

[8] Based on the revised plan of action submitted at the 86th meeting, US $22,945,014 was allocated for enterprise conversions, including US $8,181,014 used under the first two tranches and an estimated US $14,764,000 for the 2021–2026 plan.

Gender policy implementation

81. In line with the Fund's policy (decisions 84/92 and 90/48(c)), FECO continues to encourage women's participation in all activities. Women accounted for about 15 per cent of participants in all training activities, including FECO's annual workshop on HCFC-141b phase-out implementation progress. Almost half of all consultants hired for technical assistance projects were female, and several beneficiary enterprises have deployed women in their production lines. Data collection on the ratio of women in training and workshops related to implementation activities will continue under the final tranche, and women will continue to be encouraged to participate in events and activities organized under stage II of the HPMP.

Completion of stage II of the PU foam sector plan

82. The World Bank has confirmed that stage II of the PU foam sector plan for China will be completed on 31 December 2027, as established in paragraph 14 of the Agreement.

Sustainability of the HCFC phase-out and assessment of risks

83. Effective monitoring and enforcement of the newly imposed bans on HCFC-141b use in all PU foam applications, including spray foam, will contribute significantly to sustaining the sector's phase-out. To this end, the plan of action for this tranche includes equipment and capacity-building support for EEBs in three regions assessed as having the highest potential risk of reverting to banned ODS use.

84. The World Bank outlined additional measures undertaken by China to sustain the bans on the use of HCFCs in the sector. Since 2021, the MEE has been monitoring selected atmospheric ODSs, including HCFC-141b, in the provinces of Fujian, Shandong and Hainan, with additional stations planned in central and western China during the 15th Five-Year Plan. The revised Regulation on the Administration of ODSs, effective since 1 March 2024, has strengthened the monitoring and reporting requirements, demanding that large producers, users and enterprises generating significant ODS by-products install automatic monitoring equipment and report to relevant authorities. Building on the existing technical standards,[9] the MEE's 2026 Notice on Further Strengthening the Management of ODSs and HFCs reinforced full-chain supervision and data reporting and called for stronger provincial atmospheric online monitoring, industrial-park monitoring and laboratory testing to improve early warning and source tracing. Alongside the routine local and provincial EEB monitoring, FECO and the ISA have also conducted compliance spot checks of registered foam manufacturers and systems houses since January 2026.

85. The World Bank further confirmed that there had been no reports of non-conformity so far, noting some challenges regarding the cost and performance of alternative substances in the spray foam subsector, where total phase-out was achieved only as of 1 July 2026. Amounts of HCFC-141b used by systems houses and spray foam enterprises between January and June 2026 corresponded to remaining stocks. China continues to strictly enforce controls on illegal uses of Montreal Protocol controlled substances through financial penalties, dismantling of illegal facilities and equipment, and, in serious cases, criminal liability.

86. To support the long-term adoption of low-GWP technologies, a number of activities will continue to be implemented, including training sessions, materials, workshops and stakeholder meetings, with the goal of strengthening enterprise capabilities, enhancing the understanding of relevant policies and promoting knowledge-sharing and the dissemination of lessons learned. FECO and the ISA will be spot-checking SMEs to verify that the converted enterprises follow the regulations.

[9] Including HJ 1058-2019 (Determination of ODSs including CFC-12, HCFC-22, CFC-11 and HCFC-141b in rigid PU foam and pre-blended polyether polyols – Portable headspace/gas chromatography-mass spectrometry) and HJ 1197-2021 (Technical specification for monitoring ODSs in chemical products for industrial use).

Conclusion

87. The Government of China remains in compliance with the Montreal Protocol and its Agreement with the Executive Committee with regard to the PU foam sector plan. The ban on the use of HCFCs in the PU foam sector entered into force on 1 January 2026 for all sectors except spray foam, for which it entered into force on 1 July 2026. Out of the 46 beneficiaries (31 individual enterprises and 15 systems houses) that have signed contracts with FECO, 23 individual enterprises have completed their projects, eight enterprises have completed conversions to low-GWP alternatives and are awaiting final verification, and all 15 systems houses have completed conversions and are currently assisting an estimated 190 SMEs to complete their conversions. Technical assistance activities implemented to support conversions to low-GWP alternatives included the completion of research on alternatives for shoe-sole application and assistance to enhance the EEBs' monitoring and enforcement capacity. The disbursement of funds approved for the sixth tranche is at 26 per cent, and at 76 per cent for all funds approved under the stage. Funding for the seventh tranche is required to complete the ongoing conversion to low-GWP alternatives of the 190 SMEs through systems houses, to assist additional SMEs, especially in spray foam application, with equipment and technical assistance to facilitate adoption of low-GWP alternatives, and to strengthen the EEBs with equipment and technical training to monitor and enforce the promulgated bans and to ensure the sustainability of the total HCFC phase-out in the sector.

RECOMMENDATION

88. The Executive Committee may wish to consider:

(a) Noting the progress report on the implementation of the sixth tranche of the polyurethane (PU) foam sector plan of stage II of the HCFC phase-out management plan (HPMP) for China;

(b) Requesting the Government of China and the World Bank to submit a final progress report on the implementation of the work programme associated with the seventh and final tranche to the 102nd meeting of the Executive Committee; and

(c) Approving the seventh and final tranche of the PU foam sector plan of stage II of the HPMP for China, and the corresponding 2027 tranche implementation plan, in the amount of US $4,200,000, plus agency support costs of US $294,000, for the World Bank.

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS

China

PROJECT TITLE	AGENCY	MEETING APPROVED	CONTROL MEASURE
HCFC phase-out plan (stage II) ICR sector	UNDP	Approved: 77th Revised: 86th	67.5% phase-out by 2025

ARTICLE 7 DATA (Annex C Group l)	Year: 2025	4,392.65 ODP tonnes

COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)						Year: 2025
Chemical	Aerosol	Foam	Refrigeration		Solvent	Total sector consumption
			Manufacturing	Servicing		
HCFC-22		137.50	1,457.50	2,372.18		3,967.18
HCFC-123			4.55	1.05		5.60
HCFC-141b					44.99	359.68
HCFC-142b		314.69	1.50	48.95		60.19

CONSUMPTION DATA (ODP tonnes)			
2009–2010 baseline:	19,269.00	Starting point for sustained aggregate reductions:	18,865.44
CONSUMPTION ELIGIBLE FOR FUNDING (ODP tonnes)			
Already approved:	12,161.02	Remaining:	6,704.42

ENDORSED BUSINESS PLAN		2026	2027	2028	Total
UNDP	ODS phase-out (ODP tonnes)	164.89	0.00	0.00	164.89
	Funding (US $)	8,703,643	0	0	8,703,643

PROJECT DATA			2016	2017	2018-2019	2020	2021	2022	2023	2024	2025	2026	Total
Montreal Protocol consumption limits (ODP tonnes)			17,342.1	17,342.1	17,342.1	12,524.9	12,524.9	12,524.9	12,524.9	12,524.9	6,262.4	6,262.4	n/a
Maximum allowable consumption (ODP tonnes)			2,162.5	2,162.5	2,042.4	1,609.9	1,609.9	1,609.9	1,369.6	1,369.6	780.9	780.9	n/a
Amounts approved in principle (US $)*	UNDP	Project costs	13,368,756	20,000,000	0	2,095,775	9,000,000	0	8,000,000	0	7,559,464	8,134,246	68,158,241
		Support costs	935,813	1,400,000	0	146,704	630,000	0	560,000	0	529,162	569,397	4,771,076
Funds approved by ExCom (US $)		Project costs	13,368,756	20,000,000	0	2,095,775	9,000,000	0	8,000,000	0	7,559,464		60,023,995
		Support costs	935,813	1,400,000	0	146,704	630,000	0	560,000	0	529,162		4,201,679
Total funds recommended for approval at this meeting (US $)		Project costs										8,134,246	8,134,246
		Support costs										569,397	569,397

* The total adjusted value of stage II of the HPMP for the ICR sector plan and the funding level of tranches between 2020 and 2026 were approved at the 86th meeting (decision 86/34).

Secretariat's recommendation:	Individual consideration

PROJECT DESCRIPTION

89. On behalf of the Government of China, UNDP as the designated implementing agency has submitted a request for funding for the seventh and final tranche of the industrial and commercial refrigeration and air-conditioning (ICR) sector plan of stage II of the HCFC phase-out management plan (HPMP), in the amount of US $8,134,246, plus agency support costs of US $569,397.[1] The submission includes the progress report on the implementation of the sixth tranche, the tranche implementation plan for 2027, and verification reports submitted in line with subparagraph 5(c) of the Agreement between the Government of China and the Executive Committee.

90. This submission is based on the revised extended plan of action for the ICR sector for the 2021-2026 period, at a total amount of US $32,693,710, plus agency support costs, approved by the Executive Committee at its 86th meeting. The adjusted total funding approved in principle for the entire stage II of the ICR sector plan is US $68,158,241, plus agency support costs (decisions 86/34 and 86/35).

91. The stage II extension (2021–2026) will reduce 15,225.28 metric tonnes (mt) (828.99 ODP tonnes) of HCFC consumption in order to achieve a 67.5 per cent reduction of the ICR sector baseline by 2025. Of the 15,225.28 mt, 1,980.00 mt will be phased out through the conversion of manufacturing lines to technologies with low global-warming potential (GWP), and 13,245.28 mt will be phased out through the conversion of compressors, policy and regulatory measures, technical assistance activities, and a reduction in consumption by foreign-owned enterprises.

Progress report on the implementation of the sixth tranche of stage II of the industrial and commercial refrigeration and air-conditioning sector plan

Enterprise-level activities

92. As of 31 August 2026, contracts were signed with 26 enterprises for the conversion of 39 manufacturing lines to phase out 3,974.97 mt of HCFC-22 after verification of the baseline consumption and capacity of these lines. The implementation of the conversion of the manufacturing lines is progressing and is being closely monitored according to the defined milestones.[2] For the overall progress with the conversion projects under the approved six tranches, 20 lines have completed national acceptance and phased out 2,893.62 mt of HCFC-22, eight lines have completed the design and procurement contracts, and 11 lines have contracts signed and started to carry out the project design and procurement contracts. After the approval of the sixth tranche at the 97th meeting in 2025, the conversions of two lines have passed national acceptance; seven equipment manufacturing lines and one compressor manufacturing line have completed the design and procurement contracts; and 10 new contracts have been signed to convert 10 manufacturing lines, and these enterprises have started project design. Table 1 shows the progress in the conversion of manufacturing lines achieved to date.

Table 1. Progress in the conversions of manufacturing lines under the first six tranches of stage II

No.	Enterprise	Phase-out (mt)	No. of lines	Type of products	Alternative technology	Funding (US $)	Milestones achieved
First tranche							
1-1	Yantai Moon	590.23	1	Water chiller (heat pump)	R-290	9,319,613	Operationally and financially complete
1-2	Dunham-Bush	20.42	1	Heat pump water heater	HFC-32	282,762	

[1] As per the letter of 29 September 2026 from the Ministry of Ecology and Environment of China to UNDP.

[2] The milestones include: signing the conversion contract (30 per cent payment); completion of design and procurement contract (20 per cent payment); completion of prototype manufacture, conversion of lines and performance test (30 per cent payment); and trial production, training, and equipment disposal upon project acceptance (20 per cent payment).

No.	Enterprise	Phase-out (mt)	No. of lines	Type of products	Alternative technology	Funding (US $)	Milestones achieved
1-3	Nanjing TICA	91.58	1	Freezers, refrigeration and condensing units	NH_3/CO_2	968,400	
1-4	Nanjing TICA	32.52	1	Heat pump water heater	CO_2	547,038	
1-5	TCL Zhong Shan	115.31	1	Unitary AC	HFC-32	1,020,456	
1-6	Guangdong Jirong	21.13	1		HFC-32	292,769	Completed national project acceptance, pending IOC disbursement
Subtotal first tranche		***871.19***	***6***	**-**	**-**	***12,431,038***	**-**
Second tranche							
2-1,2	Yantai Aowei	183.35	2	Freezers, refrigeration and condensing units	NH_3/CO_2	2,730,088	Operationally and financially complete
2-3	Zhejiang Guoxiang	42.18	1	Unitary AC	HFC-32	504,288	
2-4,5	Haixin Shandong	190.57	2		HFC-32	1,772,583	
2-6	Qingdao Haier	493.31	1		HFC-32	3,265,986	
2-7	Dunham-Bush	112.20	1	Water chiller (heat pump)	R-513A	1,610,512	
2-8	Dunan Environment	147.34	1		R-513A	2,030,774	
2-9	Zhejiang Guoxiang	95.22	1		R-513A	1,407,457	Operationally complete, pending IOC disbursement
2-10	Bingshan Refrigeration*	237.04	1		R-290	3,373,561	Operationally and financially complete
2-11	Shandong Shenzhou	114.09	1	Freezers, refrigeration and condensing units	NH_3/CO_2	1,633,116	
Subtotal second tranche		***1,615.30***	***11***	**-**	**-**	***18,328,365***	**-**
Third tranche							
3-1	Bingshan Refrigeration*	72.24	1	Water chiller (heat pump)	R-290	1,231,414	Operationally and financially complete
Subtotal third tranche		***72.24***	***1***	**-**	**-**	***1,231,414***	**-**
Fourth tranche							
4-1,2	Jinan Oufeite	334.89	2	Freezers, refrigeration and condensing units	NH_3/CO_2	3,858,356	Operationally complete, pending IOC disbursement
4-3,4	Jinan Dasen	213.67	2		NH_3/CO_2	2,667,108	Completion of design and procurement contracts
4-5	Hartford**	0.00	1	Screw compressor	R-513A	1,200,000	
Subtotal fourth tranche		***548.56***	***5***	**-**	**-**	***7,725,464***	**-**
Fifth tranche							
5-1	Qingdao Haier	140.27	1	Unitary AC	HFC-32	1,121,697	Completion of design and procurement contracts
5-2	Nanjing TICA	62.36	1	Water chiller (heat pump)	R-513A	941,356	
5-3	Zhejiang Zhongguang	55.03	1	Heat pump water heater	HFC-32	584,695	Signed contract and started to carry out the project
5-4	Nanjing Jiuding	54.90	1	Water chiller (heat pump)	R-513A	871,232	Completion of design and procurement contracts
5-5	Guangdong Ruixing	42.84	1	Heat pump water heater	HFC-32	487,878	
5-6	Zhejiang Kaidi	121.44	1	Freezers, refrigeration and condensing units	NH_3/CO_2	1,496,755	

No.	Enterprise	Phase-out (mt)	No. of lines	Type of products	Alternative technology	Funding (US $)	Milestones achieved
5-7	Shanghai Hanzhong	0.00	1	Compressor	R-513A	1,200,000	Signed contract and started to carry out the project
Subtotal fifth tranche		***476.84***	***7***	***-***	***-***	***6,703,612***	***-***
Sixth tranche							
6-1	Fujian Xueren	78.97	1	Water chiller (heat pump)	R-290	1,400,956	Signed contract and started to carry out the project
6-2	Jinan Baifute	48.82	1	Freezers, refrigeration and condensing units	HFC-134a/ CO_2	688,762	
6-3	Nanjing Jiuding	48.73	1			687,730	
6-4	Kunling	21.90	1	Water chiller (heat pump)	R-513A	443,629	
6-5	Anhui Meileke	36.68	1	Freezers, refrigeration and condensing units	HFC-32/CO_2	548,363	
6-6	Anhui Meileke	6.44	1	Water chiller (heat pump)	R-513A	134,542	
6-7	Jiangsu Zhaosheng	52.43	1	Unitary air-conditioning	HFC-32	568,292	
6-8	Jiangsu Zhaosheng	48.08	1	Freezers, refrigeration and condensing units	HFC-134a/ CO_2	680,147	
6-9	Zhejiang Diya	48.80	1			688,551	
Subtotal sixth tranche		***390.84***	***9***	***-***	***-***	***5,840,973***	***-***
Total		**3,974.97**	**39**	**-**	**-**	**52,260,866**	**-**

* Dalian Refrigeration was renamed Bingshan Refrigeration & Heat Transfer Technologies Corp. Ltd. in 2020.
** Dunham-Bush was renamed Hartford in 2022.

Verification of the converted lines

93. The conversion of two manufacturing lines in 2026 resulted in the phase-out of 334.89 mt of HCFC consumption. In accordance with subparagraph 5(c) of the Agreement, verification of the converted lines was conducted at Shandong Our Future Energy Technology Co., Ltd. (Jinan Oufeite), covering two manufacturing lines and 334.89 mt of HCFC-22 consumption. The verification covered 100 per cent of the total phase-out and 100 per cent of the total number of lines converted in 2026. The verification confirmed that the production lines using HCFC-22 had been converted to NH_3/CO_2 technology, that the old HCFC-22-based equipment had been destroyed, and that the enterprise had committed not to use HCFC-22 in the converted lines. The enterprise has manufactured prototypes using cascade NH_3/CO_2 technology and continues to market products using the alternative technology; however, it has not produced and sold a sufficient number of units to apply for payment of incremental operating costs (IOCs).

Technical assistance activities

94. Several technical assistance activities have been undertaken to facilitate the smooth conversion of manufacturing lines at the enterprises. The progress is summarized as follows:

(a) Regional technical support centres: Contracts were signed with Tianjin University of Commerce, Hefei General Machinery Research Institute Co. Ltd., and Shunde Polytechnic University to establish three regional technical support centres aimed at addressing barriers to adopting low-GWP alternatives, including weak technical capacity, limited research and development resources, and high conversion costs. These centres will survey and identify eligible enterprises, provide technical consultation and alternative technology pathway planning, help small- and medium-sized enterprises (SMEs) develop HCFC phase-out roadmaps and retrofit plans, offer compliance guidance aligned with national and international regulations, deliver technical training on alternative technologies and safety

practices, monitor voluntary phase-out progress and collect data, and share industry and policy information while maintaining documentation;

(b) Several demonstration projects were planned to showcase the use of low-GWP alternative technologies at each stage of the cold chain, with the aim of supporting the HCFC phase-out and promoting a sustainable, energy-efficient cold chain in the ICR sector. The Foreign Environmental Cooperation Centre (FECO) is initiating a public consultation procedure while collecting expressions of interest from potential users. The official project solicitation document is expected to be issued by December 2026;

(c) Development of a technical guide for adoption of alternative technologies to HCFCs in SMEs was planned to support the HCFC phase-out at SMEs in the ICR sector. A contract had been signed with Tianjin University in May 2023; by the end of 2025, the university had drafted the alternative technology guidelines for SMEs, provided targeted technical guidance to 40 individual SMEs in their alternative technology transformation, and provided technical support to the implementation of the ICR sector plan, with a total of 120 enterprises having benefited from the technical assistance. The technical assistance has been operationally and financially completed;

(d) The assessment of environmental benefits of low-GWP alternative refrigeration technologies in the ICR sector was planned under the fourth tranche. The technical assistance aimed to assess the costs, performance, and energy efficiency of the alternative technologies adopted in the ICR sector from 2010 to 2020 to further promote these technologies. A contract had been signed with Hefei General Machinery Research Institute Co. Ltd. in May 2023, and the contractor developed a methodology for assessing the environmental benefits and costs of alternative refrigerants across different applications in the ICR sector. The contractor has since analyzed data on cases of ozone- and climate-friendly technology applications in the ICR sector to promote their adoption, and the project has been completed;

(e) Regulations and standards impose refrigerant charge limits on HFC-32-based equipment due to its flammability. A study aimed at reducing the HFC-32 refrigerant charge was planned to lower costs while ensuring safety, thereby supporting the market adoption of HFC-32-based units. The technical assistance focuses on methods to minimize the flammable refrigerant charge in the cooling circuit, as well as on safety measures and best practices. A contract had been signed with the University of Shanghai for Science and Technology and Zhuhai Gree Electric Appliances Co. Ltd.; the contractors have completed a survey on HFC-32 application in small and medium-sized commercial and industrial water chillers (heat pumps) and unitary air conditioners and are currently researching HFC-32 charge reduction technologies. The project is expected to be completed by the end of 2026;

(f) The ICR sector mainly consists of SMEs producing mostly non-standard and customized products. These SMEs often have limited technical capacity and experience and face significant challenges in adopting low-GWP alternative technologies. Technical assistance was planned to research the use of HFC/HFO refrigerants with CO_2, applied either as a cascade system or as a secondary refrigerant system, and to assess the applicability of these technologies for wider use. A contract had been signed with a group of contractors; the contractors completed a survey on the manufacturing and application of small- and medium-sized refrigeration and freezing equipment, along with theoretical analysis and system testing of HFCs/HFOs and CO_2 cascade/secondary refrigerant systems. They are now studying the applicability of these systems in this sector and drafting design and

development guidelines for their application. The project is expected to be completed by the end of June 2027; and

(g) Removing barriers to flammable refrigerant application through building code and fire protection standard revision: Class A2L flammable alternative refrigerants to HCFCs (e.g., HFC-32 and HFO-1234yf) in the ICR sector must comply with national building fire protection regulations and standards, yet existing requirements hinder the installation of Class A2L flammable refrigerants in buildings. This technical assistance project will review relevant building code and fire protection regulations, standards, and technical specifications applicable to A2L refrigerants in China and recommend revisions to promote their wider use. In June 2026, a contract was signed with a team led by Beijing University of Civil Engineering and Architecture. The contractor is currently carrying out literature review and relevant studies on regulations and standards in accordance with the terms of reference.

95. Other technical assistance activities included verification of manufacturing line conversions (baseline, milestones, and completion) by an accounting firm; awareness-raising activities; and coordination and support for the China Refrigeration and Air-Conditioning Industry Association (CRAA) to assist in implementation.

Activities executed by UNDP

96. At the request of the Government of China, UNDP directly executed the following activities:

(a) An expert conducted an assessment on women's participation and delivered training for enterprises on integrating equality between women and men; two experts organized a side event to disseminate HCFC alternative technologies at the 48th meeting of the Open-ended Working Group of the Parties to the Montreal Protocol;

(b) One study tour to New York was organized on policy and technical issues related to the implementation of the Montreal Protocol. Officials from the Ministry of Ecology and Environment (MEE), together with staff from FECO and UNDP, met with representatives from the Air-Conditioning, Heating, and Refrigeration Institute and leading industry enterprises to learn about the regulatory framework and market transition policies for controlled substances such as HCFCs and HFCs, and to understand the industry's low-GWP transition pathways through meetings and field visits;

(c) Public awareness-raising and knowledge-sharing activities were realized through the following: the ICR industry research and application of green refrigerants in 2025; the gender mainstreaming training for enterprises implementing projects in 2025; the 2025 ICR college student competition held in six regions; and the 2026 ICR college student competition held across four regions; and

(d) UNDP activities related to risk management: Following UNDP Enterprise Risk Management (ERM) rules, projects involving pay-for-results arrangements, such as the conversion projects in the ICR sector, require independent audit of the results and the statement of expenses to ensure the statements are accurate. Accordingly, UNDP recruited an independent audit firm to identify any issues and assess risks of material misstatement, in line with International Standards on Auditing.

97. Meetings, conferences, seminars, exhibitions and workshops were held to raise public awareness on the HCFC phase-out, low-GWP alternatives, and energy conservation and provide training on project implementation, as summarized below:

(a) The Ozone2Climate Technology Road Shows and Industry Roundtable Series activities were organized during the 2026 China Refrigeration Expo to raise awareness, exchange information and promote low-GWP technologies. The road show included thematic sessions on policy and challenges, refrigerant alternative technologies, and good practices in servicing and maintenance, and was attended in person by 240 people (including 50 women). The meeting was also live-streamed in both Chinese and English, attracting over 29,000 online viewers. Experts from the Climate and Clean Air Coalition and the Energy Foundation, alongside representatives from industry associations, research institutions, and enterprises in the United States of America, Europe, and China, shared insights on global refrigerant replacement policies, regulations, standards, technologies, and refrigerant recovery and recycling, offering an international perspective and practical reference for phasing out controlled substances in the industry. Enterprises showcased low-GWP alternative technologies, products and components covering a full spectrum of ICR applications; and

(b) The third Global Liquid Cooling Technology Research and Application Conference was held alongside the 2026 annual meeting of the Green Refrigerant Research and Application Branch of the CRAA in June 2026. The conference brought together experts, scholars, and industry representatives to discuss advances in liquid cooling for high-power-density applications and the transition to low-GWP refrigerants, covering system safety, energy efficiency, policy frameworks, and full lifecycle management. Serving as a platform for international collaboration, it promoted technological innovation, supported China's commitments under the Montreal Protocol, and facilitated knowledge sharing among academia, industry, and international organizations. Approximately 600 participants (including 200 women) attended the conference, and representatives from FECO and UNDP also attended.

Project implementation and monitoring unit

98. The project management unit (PMU) continues to monitor progress, coordinate implementation, and prepare relevant progress reports with the assistance of UNDP. Of the budget of US $415,770 allocated to the PMU under the sixth tranche of the ICR sector plan, US $415,770 was disbursed for project staff (US $148,572), domestic travel (US $17,750), meetings (US $14,324), consultancy (US $13,932), and office expenses (US $221,192). The cumulative disbursement of the PMU in the ICR sector is presented in table 4 below.

Level of fund disbursement

99. As of October 2026, of the US $60,023,995 approved so far, US $53,854,365 (90 per cent) had been transferred from UNDP to FECO, and US $49,165,139 had been disbursed to final beneficiaries (enterprises and contractors for technical assistance activities) by FECO and directly by UNDP, accounting for 82 per cent of the total funding approved, as shown in table 2.

Table 2. Status of disbursement of stage II of the ICR sector plan as of October 2026

Funding tranche	Funds approved	Disbursement from UNDP to FECO*		Disbursement to final beneficiaries**		Fund balance
	Amount (US $)	Amount (US $)	Rate (%)	Amount (US $)	Rate (%)	Amount (US $)
First	13,368,756	13,298,756	99	13,368,756	100	0
Second	20,000,000	19,775,000	99	20,000,000	100	0
Third	2,095,775	2,095,775	100	2,095,775	100	0
Fourth	9,000,000	8,954,000	99	7,322,749	81	1,677,251
Fifth	8,000,000	7,854,217	98	4,362,468	55	3,637,532

Funding tranche	Funds approved	Disbursement from UNDP to FECO*		Disbursement to final beneficiaries**		Fund balance
	Amount (US $)	Amount (US $)	Rate (%)	Amount (US $)	Rate (%)	Amount (US $)
Sixth	7,559,464	1,876,617	25	2,015,391	27	5,544,073
Total	**60,023,995**	**53,854,365**	**90**	**49,165,139**	**82**	**10,858,856**

* The interest accrued from the funds held by FECO of US $103,708, US $97,468, US $99,480, US $159,433, US $22,240, and US $18,751 for the period of 2015 to 2024 was deducted from the approved funds before transfer; the amounts shown as disbursed from UNDP to FECO include this interest. Therefore, the actual amount transferred equals the disbursement from UNDP to FECO, net of the interests accrued.

** Includes disbursements directly from UNDP to final beneficiaries of US $533,783 under the first (US $70,000), second (US $225,000), fourth (US $46,000), fifth (US $145,783), and sixth (US $47,000) tranches.

100. In line with decision 95/43(b), UNDP confirmed that it had applied the overarching principles for managing funds transferred from implementing agencies to FECO for stage II of the ICR sector plan. UNDP has closely monitored the level of funds disbursed to FECO and from FECO to beneficiaries. The balance of funds held by FECO, as of October 2026, is US $1,677,251, against the fourth tranche, approved at the 88th meeting in November 2021, US $3,637,532 against the fifth tranche, approved at the 93rd meeting in December 2023, and minus US $91,774 against the sixth tranche approved at the 97th meeting in December 2025. These balances represent 19 per cent of the funding approved for the fourth tranche (transferred by UNDP to FECO between 2022 and 2025); 45 per cent of the funding approved for the fifth tranche (transferred between 2024 and 2025), and minus 1 per cent of the funding approved for the sixth tranche (transferred in 2026). UNDP will continue monitoring closely the disbursements by FECO to beneficiary enterprises before releasing additional funds.

Implementation plan for the seventh and final tranche of stage II of the industrial and commercial refrigeration and air-conditioning sector plan

101. The seventh tranche of the ICR sector plan in China, with a total budget of US $8,134,246, will be implemented in 2027 and include the following activities:

(a) Investment activities: Conversion of 12 manufacturing lines, prioritizing support for SMEs transitioning to low-GWP technologies; a feasibility study on a green finance mechanism in collaboration with financial institutions; and completion of the conversion projects signed under the fifth and sixth tranches (US $6,889,506);

Technical assistance activities

(b) Establishment of technical standards: Technical standards in the ICR industry are categorized as fundamental and safety standards, and product standards. In stage I, the national safety standard was revised, which enabled the use of flammable refrigerants. In stage II, product standards will be revised to facilitate the transition to alternative technologies and priorities will be set based on resource availability, industry demand and overall programme implementation progress. Standards such as those on the use of HFC-32 in heat pumps and CO_2 in heat pump water heaters, among others, will be revised under the seventh tranche (US $50,000);

(c) Capacity-building for stakeholders in the ICR sector to ensure long-term compliance and sustainable phase-out: This activity targets regulators (local ecological and environmental bureaus, enforcement officers), industry associations, manufacturing enterprises, end users, and servicing companies to build their capacity and lay the institutional and capacity foundation for meeting compliance targets and transitioning to low-GWP alternative technologies. The plan is to organize five training workshops for eight different stakeholder groups, covering policy and regulations, standards, technology transition, compliance

verification and monitoring, and law enforcement. Other considerations, such as building regular multi-stakeholder coordination mechanisms and developing tools to facilitate knowledge sharing, will also be explored (US $200,000);

(d) Research on alternative technologies used for high-temperature heat pumps: Industrial high-temperature heat pumps and waste-heat recovery heat pumps are being increasingly used. Research will be conducted on alternative refrigerants used in high-temperature heat pumps, including performance testing and system optimization of heat pumps using transcritical CO_2 and other low-GWP refrigerants[3] under high-temperature conditions, coupling schemes between high-temperature heat pumps and industrial process waste-heat recovery, and assessment of the combined benefits of HCFC phase-out and reduced fossil fuel consumption (US $100,000);

(e) Study on retrofit options for HCFC-based equipment: With the 2030 HCFC production phase-out approaching, a large stock of HCFC-22-based equipment will remain in operation for another 10-15 years, posing challenges in meeting servicing demand due to limited refrigerant supply, which may lead to illegal trade risks and higher retrofit costs. A nationwide survey of in-use HCFC-22-based ICR equipment will be conducted, collecting data on equipment age and regional distribution, and estimating HCFC demand for 2030-2040. The study will also examine HCFC quota allocation, pricing, and monitoring mechanisms in the near term, and evaluate potential economic incentive policies and retrofit options. It will propose a staged roadmap for retiring legacy HCFC-22 systems and produce a report on HCFC-based equipment management and retrofit to support decision-making for a smooth post-2030 transition in the ICR sector (US $150,000);

(f) Study on HFC-32 application in the cold chain sector: The cold chain sector relies heavily on HCFC-22, R-507A, and R-404A, and China will be implementing a ban on the manufacturing, installation, and capacity expansion of equipment using refrigerants with a GWP above 2,500 starting from 1 January 2029 (except for equipment with evaporation temperatures below -50 °C). Although HFC-32 has been widely adopted in the air-conditioning sector, its application in the cold chain sector faces several challenges, including a large condensing-evaporating temperature difference, high discharge temperatures, harsh operating conditions (wide ambient fluctuations, continuous duty cycles, and frost/defrost operation), and leakage and the associated risks arising from its flammability. This activity will conduct research to optimize the HFC-32 technology in cold chain equipment, covering performance testing under refrigeration conditions, discharge temperature reduction measures, leakage and safety risk assessment, and component compatibility. A relevant standard, an assessment report, and technical guidelines will also be developed to provide a solid technical basis for decision-making (US $100,000);

(g) Evaluation of the ICR sector plan implementation effectiveness: A systematic evaluation on the conversions that have already taken place will be conducted which will summarize achievements, identify gaps, and inform follow-up activities. The following will be assessed: (i) HCFC consumption reduction against agreed targets; (ii) manufacturing line conversion projects in terms of technology selection, implementation quality, and sustainability; (iii) the effectiveness of policy measures, technical assistance, and capacity building; (iv) remaining challenges and risks for the 2030 phase-out target; and (v) lessons learned and recommendations for future phase-out management. The evaluation will

[3] Possible candidates include ammonia (R-717), selected HFOs (e.g., R-1234ze(Z)), and hydrocarbon mixtures.

involve data collection, enterprise surveys, expert reviews, and field visits, and will produce an evaluation report to inform the ICR sector's compliance strategy (US $100,000);

(h) Consultant services for external technical support and consultation during the implementation of various activities under the ICR sector plan (US $50,000);

(i) Public awareness-raising activities to promote the HCFC phase-out, adoption of low-GWP alternatives, and safety standards and regulations, including digital and media outreaches (e.g., creating promotional videos related to technology transition, demonstrating the safety and environmental benefits of low-GWP technologies); knowledge management products (producing promotional materials, technical brochures and technical pocket books); public engagement actions (supporting ICR sector public events, creating modular roll-up banners and physical display boards for exhibitions) (US $47,356); and

(j) PMU (US $447,384): Monitoring and management of project activities in the ICR sector, including staff (US $159,870), consultants (US $14,991), domestic travel (US $19,100), meetings (US $15,413), and office expenses (US $238,010).

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

Report on HCFC consumption

102. The consumption of HCFCs in the ICR sector in 2025 was 13,251 mt (721.05 ODP tonnes), which is below the allowable level of consumption in the Agreement between the Government of China and the Executive Committee, as shown in table 3.

Table 3. Reduction in HCFC consumption in the ICR sector

Particulars	2021	2022	2023	2024	2025
Metric tonnes					
Maximum allowable consumption	29,603	29,603	25,191	25,191	14,377
Actual consumption in the ICR sector*	27,605	29,105	24,535	24,406	13,251
Reduction targets set in the HPMP	0	0	4,411	0	10,814
ODP tonnes					
Maximum allowable consumption	1,609.90	1,609.90	1,369.62	1,369.62	780.90
Actual consumption in the ICR sector*	1,500.03	1,582.53	1,333.63	1,330.59	721.05
Reduction targets set in the HPMP	0.00	0.00	240.28	0.00	588.71

* Based on estimated amounts, as actual amounts cannot be accurately verified.

103. HCFC consumption in the ICR sector decreased significantly between 2024 and 2025, mainly as a result of the targeted phase-out of 10,814 mt (588.71 ODP tonnes) of HCFCs under stage II of the ICR sector plan, achieved through enforcement of the quota system and the conversion of manufacturing lines. Consumption is expected to continue declining as implementation of the sector plan continues and alternatives are introduced, with the reduction sustained through continued regulatory monitoring.

Technical issues

104. Implementation of the ICR sector plan is progressing. As of December 2025, the 20 manufacturing lines converted to alternative technologies (R-290, NH_3, CO_2, R-513A, HFC-32) had produced and sold 871,117 units of ICR equipment, and alternative technologies are gradually gaining market share. The main challenge is that most of the promising alternatives are flammable, toxic, operate at high pressure, or a

combination of these, and these risks apply throughout the equipment life cycle: manufacturing, storage, transport, installation, servicing, operation, and disposal. In addition, some synthetic alternatives are costly because they are patented overseas. To address these challenges, the Government plans to support research and development on alternative technologies and their applications; develop and revise regulations and standards; provide training and capacity-building to the industry; demonstrate alternative technologies at end-user sites; and strengthen technical support to SMEs.

105. The Secretariat enquired about the impact of the research, demonstration and technical assistance provided to SMEs to date. UNDP reported that technical guidelines on the selection and application of HCFC alternatives for SMEs had been developed, retrofitting advice had been provided to 40 SMEs, and six training sessions on retrofitting with alternative technologies had been delivered. To provide a sustainable source of technical assistance, the regional technical centres are expected to support SMEs that are not funded under the HPMP but are willing to convert voluntarily to low-GWP technologies. This support will include guidance on alternative technologies, product design, research and development, prototype development, production line commissioning, safe operation, and market promotion, as well as hands-on support to achieve phase-out.

106. The Secretariat noted that the balance held by FECO against the fifth tranche was US $3,637,532, or 45 per cent of the tranche. UNDP confirmed that each transfer to FECO had been less than 25 per cent of the tranche, in line with decision 95/43(b), but that payments to three large final beneficiaries had been delayed by verification acceptance and by bank processing procedures. FECO will accelerate these payments, and UNDP will not transfer further funds to FECO until the balance is exhausted or falls below 25 per cent of the tranche.

107. The Secretariat enquired about the green finance mechanism to be developed with financial institutions. UNDP explained that the activity was a feasibility study on how a funding mechanism could be designed within the national financial system to support the transition of SMEs in the cooling sector, given the limited funding available under the HPMP and the large number of SMEs that have not yet been funded. The study's main purpose is to assess baseline conditions and help FECO prepare a roadmap for mobilizing other sources of funding for SMEs in the ICR sector. Among other things, the study will map existing public and private financing sources, including funds, credit lines, subsidies, guarantees and incentive programmes; identify financing barriers and market failures; estimate investment needs, gaps and upfront costs; and design a roadmap to advise the Government on interest rates, loan terms, collateral requirements and borrower eligibility criteria. The budget for the study is US $100,000.

108. The study on retrofit options for HCFC-based equipment was discussed, as it addresses HCFCs used to recharge installed ICR equipment and therefore appears to be a servicing sector activity. UNDP explained that the study was intended to address the stock of ICR equipment that woud still be operating after 2030, and the effect of its servicing needs on consumption under the servicing tail from 2030 to 2040. The Government is concerned that end users and servicing technicians may retrofit ICR equipment with flammable or toxic alternatives for which it was not designed, and that manufacturers could be held responsible for the resulting safety risks. The study will include a nationwide survey of HCFC-22-based ICR equipment by subsector, equipment age and region; an estimate of replacement demand for 2030–2040; and an assessment of national capacity to replace this equipment. It will propose a phased roadmap to help the Government and manufacturers gradually replace HCFC-based ICR equipment with low-GWP alternatives, sustaining the phase-out and reducing consumption under the servicing tail allowance. The Secretariat noted UNDP's explanation and considered the activity eligible under the ICR sector plan given its focus on equipment replacement rather than servicing.

109. The Secretariat asked UNDP whether the risk management activities had also been conducted for projects in other countries. UNDP explained that their ERM policies included provisions under the Harmonized Approach to Cash Transfers (HACT) assurance framework. Partners expected to receive cash

transfers and incur disbursements above the applicable threshold must undergo a HACT assessment and the corresponding assurance activities. All projects implemented by UNDP, regardless of funding source or budget, are subject to internal audit. UNDP's Office of Audit and Investigations decides independently which projects and country offices to audit, based on factors such as project value, complexity, and risk profile.

Project implementation and monitoring unit

110. UNDP, as the lead agency for stage II of the HPMP, provided a cumulative report on PMU expenditures in line with decision 81/46(b). Based on that report, the expenditures related to the PMU for stage II of the ICR sector plan implemented by UNDP are summarized in table 4.

Table 4. PMU cumulative expenditures for stage II of the ICR sector plan from 2017 to 2025

Item	Description	Cost (US $)
Sector-specific costs	Project staff	2,581,270
	Domestic travel	201,197
	International travel	17,724
	Domestic meetings	155,647
	International meetings	0
	Consulting service	156,751
Subtotal for sector-specific costs		**3,112,589**
Operational costs		2,298,008
Total disbursement*		**5,410,597**

* Additional expenditure from the Government of China (e.g., operational costs as well as in-kind) are not included in the table.

Gender policy implementation

111. In line with decisions 84/92(d) and 90/48(c), UNDP's gender mainstreaming policies, and related MEE guidance, the Government of China, during implementation of stage II of the HPMP, has, to the extent possible, encouraged the full participation of women in planning, policy and decision-making, brainstorming and advisory processes, and monitoring and evaluation. Women have been encouraged to participate in events and activities organized under stage II, including meetings, trainings, workshops, capacity-building, and outreach activities. During the sixth tranche, an expert hired under the UNDP-executed component conducted a gender assessment and delivered training for the ICR sector, and disaggregated data were collected. FECO and MEE will continue to collect disaggregated data on the activities implemented, report on achievements under stage II, highlight relevant issues, and promote gender equality in outreach and training materials, when applicable.

Completion of stage II of the ICR sector plan

112. UNDP has confirmed that stage II of the ICR sector plan for China will be completed on 31 December 2027 as established in paragraph 14 of the Agreement.

Sustainability of the HCFC phase-out and assessment of risks

113. The Government of China has established a licensing and quota system for managing HCFC consumption in the ICR sector to ensure that consumption in the sector does not exceed the targets set in the Agreement with the Executive Committee. The main risks and challenges facing the smooth implementation of the ICR sector plan and the sustainability of its results include the market adoption of products manufactured by the converted lines and motivating SMEs to convert to low-GWP technologies. With support from UNDP, the Government of China has undertaken several technical assistance and awareness-raising activities to promote the market adoption of products using low-GWP technologies, including research and studies to remove technical barriers, end-user demonstrations to promote low-GWP

technologies, a regional technical centre to support SMEs not funded, and yearly Ozone2Climate technology road shows to disseminate information. The plan for the seventh tranche includes capacity-building for stakeholders to ensure long-term compliance and sustainable phase-out; a study on nation-wide stocks of HCFC-22-based equipment in the ICR sector, assessing the potential performance and safety impacts of retrofit options available in the market for HCFC-based equipment (aimed at understanding the supply chain's capacity to replace legacy equipment as a means of avoiding risky retrofit practices independently carried out by the market, thereby mitigating safety risks); and an evaluation of the effectiveness of the ICR sector plan implementation to draw lessons learned. These efforts will mitigate implementation risks and ensure the sustainability of the HCFC phase-out in the ICR sector.

Conclusion

114. The implementation of the sixth tranche of the ICR sector plan is progressing well. Contracts have been signed for the conversion of 39 manufacturing lines to alternative technologies: 2,070.02 mt (52 per cent) to low/zero-GWP, 1,173.49 mt (30 per cent) to HFC-32, 500.36 mt (13 per cent) to R-513A, 36.68 mt (1 per cent) to CO_2/HFC-32, and 194.43 mt (5 per cent) to CO_2/HFC-134a. The conversion of 20 manufacturing lines has been completed, phasing out 2,893.62 mt of HCFC-22, and the remaining conversions are underway. Contracts were signed with three regional technical centres to help non-funded SMEs convert to low-GWP alternatives. Technical assistance activities supporting the conversions include research to remove barriers to conversion and promote market adoption of alternatives; the development and updating of technical guidelines and standards; demonstration projects of products manufactured by the converted lines to promote adoption of these technologies by end users; and training and awareness-raising for the industry. SMEs still face difficulties in adopting low-GWP technologies in a highly competitive market due to their limited technical and financial capacity, and the seventh tranche will continue to prioritize them through direct funding and through technical assistance from the regional technical centres to non-funded enterprises. The seventh tranche includes the conversion of 12 manufacturing lines, research to remove technical barriers, development of standards to facilitate technology adoption, and capacity-building for stakeholders to sustain the results achieved and compliance in the ICR sector. In view of the progress made and the overall funding disbursement of 82 per cent, the Secretariat recommends approval of the seventh tranche.

RECOMMENDATION

115. The Executive Committee may wish to consider:

(a) Noting the progress report on the implementation of the sixth tranche of the industrial and commercial refrigeration and air-conditioning (ICR) sector plan of stage II of the HCFC phase-out management plan (HPMP) for China;

(b) Requesting the Government of China and UNDP to submit a final progress report on the implementation of the work programmes associated with the seventh and final tranche to the 102nd meeting of the Executive Committee; and

(c) Approving the seventh and final tranche of the ICR sector plan of stage II of the HPMP for China, and the corresponding 2027 tranche implementation plan, in the amount of US $8,134,246, plus agency support costs of US $569,397, for UNDP.

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS

CHINA

PROJECT TITLE	AGENCY	MEETING APPROVED	CONTROL MEASURE
HCFC phase-out plan (stage II) RAC sector	UNIDO (lead), Italy, Austria	Approved: 77th Revised: 86th	70% phase-out by 2025

ARTICLE 7 DATA (Annex C, Group l)	Year: 2025	4,392.65 ODP tonnes

COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)						Year: 2025
Chemical	Aerosol	Foam	Refrigeration		Solvent	Total sector consumption
			Manufacturing	Servicing		
HCFC-22		137.50	1,457.50	2,372.18		3,967.18
HCFC-123			4.55	1.05		5.60
HCFC-141b		314.69			44.99	359.68
HCFC-142b		9.75	1.50	48.95		60.19

CONSUMPTION DATA (ODP tonnes)			
2009–2010 baseline:	19,269.00	Starting point for sustained aggregate reductions:	18,865.44
CONSUMPTION ELIGIBLE FOR FUNDING (ODP tonnes)			
Already approved:	12,161.02	Remaining:	6,704.42

ENDORSED BUSINESS PLAN		2026	2027	2028	Total
UNIDO	ODS phase-out (ODP tonnes)	351.60	0.00	0.00	351.60
	Funding (US $)	9,216,975	0	0	9,216,975
Austria	ODS phase-out (ODP tonnes)	0.00	0.00	0.00	0.00
	Funding (US $)	0	0	0	0
Italy	ODS phase-out (ODP tonnes)	0.00	0.00	0.00	0.00
	Funding (US $)	0	0	0	0

PROJECT DATA			2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Montreal Protocol consumption limits (ODP tonnes)			17,342.1	17,342.1	17,342.1	17,342.1	12,524.9	12,524.9	12,524.9	12,524.9	12,524.9	6,262.4	6,262.4	n/a
Maximum allowable consumption (ODP tonnes)			3,697.7	3,697.7	2,876.0	2,876.0	2,259.7	2,259.7	2,259.7	1,614.1	1,614.1	1,232.6	1,232.6	n/a
Amounts approved in principle (US $)*	UNIDO	Project costs	14,671,089	16,000,000	0	0	0	4,150,000	0	6,300,000	0	8,717,105	8,613,995	58,452,189
		Support costs	1,026,976	1,120,000	0	0	0	290,500	0	441,000	0	610,197	602,980	4,091,653
	Italy	Project costs	891,892	0	0	0	0	0	0	0	0	0	0	891,892
		Support costs	108,108	0	0	0	0	0	0	0	0	0	0	108,108
	Austria	Project costs	0	0	0	0	0	350,000	0	700,000	0	0	0	1,050,000
		Support costs	0	0	0	0	0	41,833	0	83,667	0	0	0	125,500
Funds approved by ExCom (US $)		Project costs	15,562,981		16,000,000			4,500,000			7,000,000	8,717,105		51,780,086
		Support costs	1,135,084		1,120,000			332,333			524,667	610,197		3,722,281
Total funds recommended for approval at this meeting (US $)		Project costs											8,613,995	8,613,995
		Support costs											602,980	602,980

* Total adjusted value of stage II of the HPMP for the RAC sector plan and the funding level of tranches between 2018 and 2026 were approved at the 86th meeting (decision 86/34).

Secretariat's recommendation:	Individual consideration

PROJECT DESCRIPTION

116. On behalf of the Government of China, UNIDO as the lead implementing agency has submitted a request for funding for the sixth and final tranche of stage II of the room air-conditioning (RAC) manufacturing and heat pump water heaters (HPWHs) sector plan (RAC sector plan) of the HCFC phase-out management plan (HPMP) for China, in the amount of US $8,613,995, plus agency support costs of US $602,980, for UNIDO only.[1] The submission includes a progress report on the implementation of the fifth tranche of the RAC sector plan, the tranche implementation plan for 2026 to 2027, and verification reports in line with subparagraph 5(c) of the Agreement between the Government of China and the Executive Committee.

Overview of stage II of the RAC sector plan

117. Stage II of the RAC sector plan comprises an investment component to convert at least 12 RAC manufacturing lines, four compressor manufacturing lines, and three HPWH manufacturing lines to R-290, regulatory actions and technical assistance to facilitate the market uptake of R-290 RAC technology, and project management. The conversion of the manufacturing lines, as originally planned, would result in the phase out of 237 ODP tonnes of HCFC-22; an additional 2,228 ODP tonnes of HCFC-22 would be phased out by non-assisted enterprises.

Progress report on the implementation of the fifth tranche of stage II of the RAC sector plan

Legal framework

118. China's import and export licensing system was updated to include HFCs following the ratification of the Kigali Amendment in 2021. The revised regulation on ODS management came into force in March 2025, which added HFCs to the list of controlled substances and included requirements for distributors of controlled substances to register with the ODS management system and to report data; for enterprises to properly dispose of controlled substances; and for large producers and consumers of controlled substances to install monitoring equipment. In April 2025, the State Council approved the National Implementation Plan for the Montreal Protocol on Substances that Deplete the Ozone Layer (2025-2030), which includes specific goals to reduce the consumption and production of substances to meet the complete phase-out of HCFCs by 2030 and the 10 per cent reduction target of the HFC baseline by 2029, and includes a prohibition on the manufacture and sale of R-410A-based (and other HFCs with a GWP above 750) RAC equipment for domestic sales, except for household multi-split air-conditioning (AC) (heat pump) units, and encourages the use of R-290. The ban on the manufacture and sale of R-410A-based RAC units, except for household multi-split AC (heat pump) units, for the domestic market will be in effect 1 January 2029, and a freeze on quotas for manufacturers using refrigerants with a GWP higher than 750 by 2028.

Enterprise-level activities

119. The 12 RAC manufacturing lines and four compressor manufacturing lines participating in the project have completed their conversion and all incremental capital costs (ICCs) have been paid. For the three HPWH lines, for two (TCL Heating and Ventilation and Zhejiang AMA) the equipment has been delivered and installed, while for the third (Guangdong Tongyi) equipment delivery and installation are in progress. The three HPWH lines are expected to complete their conversion, with all outstanding ICCs paid, in 2027. Table 1 summarizes the conversion of the manufacturing lines participating in the project. In addition to those lines, an additional seven RAC manufacturing lines with a cumulative capacity of 5.2 million units/year and eight HPWH manufacturing lines with a cumulative capacity of 90,000 units/year converted to R-290 with their own funding.

[1] As per the letter of 29 September 2026 from the Ministry of Ecology and Environment of China to UNIDO.

Table 1. RAC, compressor, and HPWH manufacturing enterprises for conversion

Enterprise name	Manufacturing (units)	Consumption (mt)	ICC (US $)	Disbursement (US $)
RAC enterprises				
Changhong Zhongshan	82,536	83.36	1,352,355	1,352,355
Hisense Jiangmen	143,213	110.19	1,147,920	1,147,920
TCL Wuhan	849,042	829.59	1,352,355	1,352,355
TCL Zhongshan	925,867	875.87	1,352,355	1,352,355
Yangzi Chuzhou	294,454	322.11	1,340,805	1,340,805
Guangdong Midea*	153,093	106.63	741,370	741,370
Wuhu Midea – line 1	427,363	951.20	1,015,576	1,015,576
Wuhu Midea – line 2	242,700	781.98	1,015,576	1,015,576
Hefei/Chongqing Haier**	32,792	56.38	1,000,000	1,000,000
Guangzhou Hualing*	45,953	26.57	761,682	761,682
Midea Wuhan*	1,375,523	935.26	741,371	741,371
AUX	53,395	102.15	0	0
Total	**4,625,931**	**5,181.29**	**11,821,365**	**11,821,365**
Compressor enterprises				
GMCC*	1,384,268	-	861,490	835,645***
Shanghai Highly	891,288	-	924,479	924,479
Shenyang Sanyo*	1,465,635	-	969,136	969,136
Xi'an Qing'an	1,682,250	-	1,744,895	1,744,895
Total	**5,423,441**	-	**4,500,000**	**4,474,155**
HPWH enterprises				
TCL Heating and Ventilation	1,203	7.89	302,000	271,800
Zhejiang AMA	22,005	21.63	302,000	271,800
Guangdong Tongyi	24,474	85.75	302,571	90,771
Total	**47,682**	**115.27**	**906,571**	**634,371**

* Includes non-Article 5 ownership, which is reflected in the ICCs.

** The converted line was relocated to Chongqing Haier.

*** Approximately 3 per cent of the contract amount was deducted because one procurement item could not be verified during the national acceptance audit.

120. A total of US $26,674,200 was allocated to incremental operating costs (IOCs) for RAC under stage II; a total of RMB 79,851,752 (ca. US $11.2 million) have been disbursed so far.

Sales of R-290 split air-conditioning units

121. As of September 2026, a total of 929,499 R-290 split AC units had been manufactured and sold, including 20,000 that were exported to Article 5 countries; in addition, 59,215 R-290 HPWH and approximately 11 million factory-sealed R-290 units (i.e., dehumidifiers, portable AC) have been sold.[2] In line with decision 84/68(d)(ii), UNIDO provided information on the effect of the incremental IOC incentive scheme on the market uptake of R-290 split AC units: 909,499 R-290 split units were sold locally and 20,000 units of varying energy-efficiency levels were exported; 88 per cent of the sales were for inverter units, and 66 per cent of the sales (including inverter and fixed-speed units) were for the most energy-efficient units, as shown in table 2. Further to this, all 59,215 R-290 HPWH were exported, mostly to non-Article 5 countries.

[2] IOCs will only be provided based on the sale of split R-290 AC units to China and other Article 5 countries. IOCs will not be paid based on sale of factory-sealed units, such as portable AC, window-type AC, and dehumidifiers, which are already established in the marketplace.

Table 2. Percentage of R-290 RAC split units by energy class sold by September 2026

Split units	Inverter (%)	Fixed-speed (%)
Local sales		
Grade 1 energy efficiency	61	5
Grade 2 energy efficiency	27	4
Grade 3 energy efficiency	0	0
Export to Article 5 countries	2	

Verification of converted manufacturing lines

122. The verification report confirmed that RAC manufacturing enterprises Guangzhou Hualing and Midea Wuhan completed manufacturing line conversions from HCFC-22 to R-290 technology and concluded that the new equipment installations and manufacturing processes met the relevant national product and safety standards, that the new lines were capable of running at or above the original manufacturing capacity, and that the baseline equipment was destroyed. Funding allocation for the project was found to be transparent, with funds disbursed cost-effectively and in line with the allocation guidelines of the Foreign Environmental Cooperation Centre (FECO).

Technical assistance activities

123. Of the 16 research and development projects for the introduction of R-290 technology, with an associated budget of US $4,265,748, 13 have been completed, two are in progress (noise reduction in R-290 AC units and heat pumps and development of test and evaluation systems), and the bidding is in preparation for the final project (noise reduction in R-290 rotary compressors). The China Household Electric Appliances Association (CHEAA) and FECO organized a workshop in November 2025 on the market uptake of R-290 and energy efficiency technologies in the sector, domestic policies related to the implementation of the Kigali Amendment, and design optimization of RAC compressors to adapt to R-290 applications and energy efficiency improvements. A further workshop is planned to take place by the end of the year on energy efficiency standards and research and development on noise reduction and test and evaluation of R-290 RAC units.

124. CHEAA completed the revision of three standards, which entered into force on 1 September 2026: safety requirements for manufacturing room air conditioners using flammable refrigerants (QB/T 4975-2026), requirements for installation, servicing and transportation of RAC using flammable refrigerants (QB/T 4835-2026), and special requirements for transportation of RAC using flammable refrigerants (QB/T 4976-2026).

125. During the Appliance and Electronics World Expo in Shanghai, UNIDO, FECO, CHEAA, a leading e-commerce platform enterprise[3] and industry partners launched a joint campaign to promote R-290 RAC, including by highlighting policy developments, technical and economic characteristics of R-290 RAC equipment, product commercialization and market promotion, and by presenting commercially available R-290 RAC units. The event concluded with the launch of an e-commerce Comfortable-Airflow Air Conditioner Festival and a joint fluorine-free air-conditioner promotion campaign, bringing together a major online retailer and leading manufacturers to extend R-290 promotion to a consumer-facing retail channel.

126. UNIDO, FECO, CHEAA, and industry partners organized two public awareness campaigns in Wuhan and Chongqing, which combined expert presentations, an R-290 product demonstration, environmental knowledge quizzes, educational display panels, family-oriented workshops, livestreaming and social-media outreach. More than 1,000 on-site visitors participated in events, 450 interactive task cards

[3] https://global.jd.com/

were distributed, 230 participants completed hands-on activities, and mainstream and social-media communication generated an estimated online audience of 629,000 views.

127. China continued to share lessons learned on R-290 RAC technology with other Article 5 countries, including by organizing an international exchange programme on low-GWP in the RAC and mobile AC sectors. The five-day technical programme was held in Guangzhou, Foshan and Wuhan, with participants including Government officials, national ozone officers, technical experts, researchers, and industry representatives from China, Bangladesh, Egypt, Iraq, Malaysia, Pakistan, the Philippines, Thailand, Türkiye, and Viet Nam. Participants exchanged experience on policy and regulatory frameworks, safety standards, low-GWP refrigerants, energy-efficient cooling technologies, and servicing practices. The programme combined technical presentations, practical training on the safe installation and servicing of R-290 RAC, country dialogues, and visits to manufacturing facilities and laboratories, including Midea's R-290 manufacturing facilities.

128. UNIDO and FECO had consultations with the Ministry of Finance of China to discuss the inclusion of R-290 room air conditioners in national and provincial green public procurement programmes; the adoption of R-290-specific procurement provisions remains subject to further review and consideration by the relevant authorities.

129. Capacity-building for local environmental bureaus, relevant Government departments, and servicing enterprises on the safe and effective management of flammable refrigerants to ensure sustainability of the uptake of R-290 technology has not yet begun and is planned to be implemented in 2027, with training curricula updated based on practical experiences, technological developments, and recently revised national industry standards.

130. The tendering process has begun for the activity to conduct data surveys on small and medium-sized enterprises (SMEs) that install R-290 RAC to understand their technical capacity to safely install R-290-based RAC units, analyze the feasibility of a complete phase-out of HCFC-22 in the industry in 2030, and develop future strategies for HFC phase-down. The report and final deliverables are expected to be submitted in April 2027. UNIDO was still exploring possible collaboration with the International Copper Association to enhance the visibility of R-290 products.

131. The progress of activities under bilateral assistance from the Government of Italy is as follows:

(a) A coordination meeting was held in Italy and included the participation of 17 experts, including from MEE, FECO, the Italian national focal point, UNIDO, RAC experts, an Italian Government agency, Italian RAC manufacturers, CHEAA, the Italian RAC association, and an Italian RAC training centre;

(b) An academic and technical exchange event took place in Italy with the Chinese delegation comprising four refrigeration-sector experts and two representatives from Midea and Moon-Tech to discuss applications and challenges of low-GWP refrigerants in RAC, with a focus on R-290 and R-744;

(c) Italy participated in the Sustainable Cooling Forum in Vienna as part of a side event organized by China and UNIDO, in which representatives from Austria, research institutions, and industry also participated, to highlight China's experience promoting R-290 and other low-GWP refrigerants and to strengthen international awareness and cooperation;

(d) Research on R-290 heat pump technologies is progressing, with a final paper expected by December 2026; and

(e) Training on R-290 AC and heat pump promotion and market acceptance for national ozone units (NOUs) and master trainers from African countries, as well as the training for R-290 and heat pump application and energy efficiency improvement for Association of Southeast Asian Nations NOUs and trainers, with Italian experts' participation, were postponed to 2027.

132. Activities related to the "Clean Cooling Hub," implemented in cooperation with the Government of Austria, progressed as follows:

(a) Specialized training modules on the safe installation, servicing, and maintenance of R-290 RAC have been procured and the development of modular training content initiated, with completion of that development expected by March 2027;

(b) For the demonstration of European best practices in training delivery, curricula, and equipment handling for R-290 technologies, tailored to the China context, training equipment and tools have been procured and assembled to be delivered to the training academy, with training planned for 2027;

(c) For the joint development of training materials and toolkits to support NOUs and manufacturers in building technician readiness across the supply chain, the initial training materials have been prepared and toolkits procured, with the materials to be updated and disseminated once the training modules are finalized;

(d) A five-day knowledge exchange workshop and technical site visit for Chinese stakeholders (e.g. FECO, manufacturers, training centres) to observe R-290 uptake in the Austrian and European context is planned to take place by March 2027;

(e) The adaptation and dissemination of the modular training content within China's vocational training ecosystem will take place in 2027 following completion of the training content; and

(f) Innovative approaches for the market uptake of R-290 RAC are being explored including through a case study on the potential application of virtual reality in training to improve safety awareness, enhance practical learning, and complement conventional hands-on learning.

133. The pilot installation of 10,000 R-290 RAC units and activities to promote the 2017 ecolabel for R-290 RAC units have not yet started.

Project implementation and monitoring unit

134. Against the US $2,756,497 allocated to the project implementation and monitoring unit (PMU) under the first five tranches, US $4,297,310 was disbursed for staff (US $2,443,403), domestic travel (US $122,838), international travel (US $12,454), domestic meetings (US $105,398), consulting services (US $103,426), and shared costs (US $1,509,791) across the six other sectors in the HPMP and the production sector, as reported to the present meeting.[4] The cumulative disbursement is higher than the funding allocated under the project; this difference was covered by FECO's own budget.

Level of fund disbursement

135. As of October 2026, of the total US $51,780,086 approved so far (US $49,838,194 for UNIDO, US $891,892 for the Government of Italy, and US $1,050,000 for the Government of Austria),

[4] Annex II to the present document.

US $38,356,185 (74 per cent) had been transferred to FECO, and US $32,214,497 (62 per cent) disbursed to final beneficiaries, as shown in table 3.

Table 3. Status of disbursements for stage II of the RAC sector plan as of 20 October 2026 (US $)

Particular	Tranche					Total	Disb. rate (%)
	First	Second	Third	Fourth	Fifth		
UNIDO							
Funds approved	14,671,089	16,000,000	4,150,000	6,300,000	8,717,105	49,838,194	77
Disbursed by agency	14,670,671	14,373,101	3,675,210	3,304,736	2,104,276	38,127,994	
Disbursed by FECO*	13,399,534	10,940,410	3,829,938	2,048,832	1,767,592	31,986,306	64
Italy							
Funds approved	891,892	0	0	0	0	891,892	26
Disbursed by agency	228,191	0	0	0	0	228,191	
Austria							
Funds approved	0	0	350,000	700,000	0	1,050,000	0
Disbursed by agency	0	0	0	0	0	0	
Total							
Funds approved	15,562,981	16,000,000	4,500,000	7,000,000	8,717,105	51,780,086	74
Disbursed by agencies	14,898,862	14,373,101	3,675,210	3,304,736	2,104,276	38,356,185	
Disbursed to final beneficiaries	13,627,725	10,940,410	3,829,938	2,048,832	1,767,592	32,214,497	62

* Disbursement from FECO to final beneficiaries includes disbursement related to the PMU.

136. In line with decision 95/43(b), UNIDO confirmed that it had applied the overarching principles for managing funds transferred from implementing agencies to FECO for stage II of the RAC sector plan. UNIDO has closely monitored the level of funds disbursed to FECO and from FECO to beneficiaries. In view of commitments already made, FECO expects to disburse an additional US $4,583,433 within the next year.

Implementation plan for the sixth and final tranche of stage II of the RAC sector plan

137. The following activities will be implemented under the sixth tranche for UNIDO:

(a) Support to enterprises that had converted to manufacturing R-290-based RAC units by providing IOCs (US $5,105,000);

(b) Technical assistance (US $2,889,225):

(i) Verifications of completed manufacturing conversions (i.e., review and verify conversion activities, use of funds, and number of R-290 units manufactured and sold) (US $110,000);

(ii) Completion of the three remaining research and development projects on R-290 technology (US $430,020);

(iii) Organize study tours to Article 5 countries to explore cooperation opportunities to promote R-290 technology in RAC and facilitate the HFC phase-down (US $60,000);

(iv) Further capacity-building of local environmental bureaus, relevant Government departments, and servicing enterprises on the safe and effective management of flammable refrigerants to ensure sustainability of the uptake of R-290 technology through expanded geographical coverage, an increased number of beneficiaries, and additional hands-on technical training to support the wider adoption of R-290 technology (US $300,000);

(v) Advancing market uptake of R-290 products through policy support and new initiatives; activities would complement the feasibility studies and pilot initiatives from the previous tranche to encourage wider industry participation by assessing barriers faced by manufacturers and developing targeted policy and market support measures, and may include joint promotional initiatives with manufacturers and consumer outreach through streaming media and other channels (US $1,989,205);

(c) Continued support from CHEAA to assist UNIDO and FECO in the day-to-day operational management of the HPMP (US $146,000); and

(d) Project implementation and monitoring (US $473,770): Project staff (US $427,572); domestic travel (US $20,456); domestic meetings (US $16,906); consulting services (US $6,401); and operating costs, including daily operating expenses, support staff, office facilities and equipment (US $2,435).

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

Report on HCFC consumption

138. China reported RAC manufacturing consumption in 2025 of 742.5 ODP tonnes, below the target of 1,232.6 ODP tonnes for that year. The substantial decrease in HCFC-22 consumption in the sector was driven primarily by higher energy efficiency requirements for RAC in China and reduced demand from export markets.

Progress report on the implementation of the fifth tranche of stage II of the RAC sector plan

Legal framework

139. FECO will continue enforcing the quota permits to RAC enterprises consuming more than 100 mt of HCFCs per year.

140. The Secretariat noted with appreciation that on 4 January 2026, the Ministry of Commerce and eight other Government departments jointly issued the Notice on Implementing the Green Consumption Promotion Action, setting out 20 measures in seven areas to promote green consumption. The Notice encourages consumers to purchase certified green and smart appliances, including fluorine-free air conditioners. In parallel, the MEE's prohibition, effective from 1 January 2026, on the manufacturing of household refrigerators and freezers using HFC refrigerants supports the transition towards refrigerators and freezers using non-HFC alternatives. Taken together, these measures send a policy signal that the Government is encouraging the manufacturing, marketing and consumption of fluorine-free refrigerators, freezers and air conditioners, while linking the refrigerant transition with energy efficiency, green product certification, consumer incentives and broader market transformation.

141. The Government has adopted a ban on the manufacture and sale of R-410A-based RAC units, except for household multi-split AC (heat pump) units, for the domestic market that will be in effect 1 January 2029 and will implement a freeze on quotas for manufacturers using refrigerants with a GWP higher than 750 by 2028. At the 97th meeting, UNIDO noted that export restrictions for R-410A-based RAC had not been considered for a variety of reasons, including that the formulation of export-related policies required coordination with the Ministry of Commerce, and such inter-ministerial discussions had not yet been initiated. UNIDO reported that since then, a survey had been conducted to support the development of the new policy limiting RAC equipment using high-GWP refrigerants, including HCFC-22; the survey provides technical and industry-related inputs for assessing the feasibility and potential implications of

further policy measures, including possible export restrictions. As export-related policies require coordination among relevant Government authorities, particularly the Ministry of Commerce, further inter-ministerial consultations would be necessary before export restrictions could be introduced.

Revision to the incremental operating cost incentive scheme

142. Since the 97th meeting, the IOC incentive scheme has decreased further to RMB 27.5 per unit for the most energy-efficient unit, in line with decision 94/34(b)(i). In line with that decision, the IOC incentive level for 2027 would be RMB 13.75 per unit (for the most energy-efficient units), or about US $2 per unit. The Secretariat considers it unlikely that this level of incentive would influence a consumer's decision whether to purchase a split AC unit based on R-290 and, therefore, recommends maintaining the IOC incentive scheme for the RAC sector plan at the 2026 levels agreed under decision 94/34(b)(i) for the remainder of the RAC sector plan.

Gender policy implementation

143. The Government of China continues to promote workplace women's empowerment in the RAC sector. Relevant information is being collected and analysed and will continue throughout the implementation of stage II, and awareness of women's empowerment is included in training and outreach activities. UNIDO and FECO encourage women's participation in these activities and promote equal opportunities within participating enterprises. In addition, women's representation is required in technical assessments and workshops to support more equal participation in technical discussions and project activities. RAC manufacturers in China similarly promote women's empowerment, and CHEAA has incorporated awareness-raising on the issue into their training programme and included a special training specifically for women. Relevant good practices and lessons learned will be documented and shared during project implementation. Disaggregated data will be consolidated with FECO and included in subsequent progress reports, together with relevant measures to further strengthen women's empowerment and support equality in the RAC sector.

Completion of stage II of the RAC sector plan

144. UNIDO has confirmed that stage II of the RAC sector plan for China will be completed on 31 December 2027 as established in paragraph 14 of the Agreement.

Sustainability of the HCFC phase-out and assessment of risks

145. The Secretariat considers the risk to the sustainability of the HCFC phase-out in the RAC manufacturing sector to be negligible, including due to the strict controls implemented by the Government, China's energy efficiency standards for RAC, and decreased demand from export markets for HCFC-22 RAC. The most significant risk to the project remains the limited market uptake of R-290-based split RAC units, which in turn limits the utilization of the converted capacity and hinders the ability of manufacturers to take advantage of benefits of economies-of-scale. While annual manufacturing of R-290 split RAC remains substantially below the converted capacity, part of that capacity is being used to manufacture factory-sealed R-290 AC units, which will build confidence in the technology and help build up the supply chain for R-290 products. Similarly, the conversion of HPWH manufacturing lines to R-290, and the sale of such equipment, while mostly for export, will help build confidence in the technology.

146. While the upcoming prohibition on manufacturing for the domestic market of RAC based on R-410A and other HFCs with a GWP greater than 750, and restriction on manufacturing with those substances through the implementation of quota system, are both a testament to the Government's commitment to the implementation of the Kigali Amendment and could help enable the market uptake of R-290 RAC, the challenges associated with the broad market acceptance of HFC-32-based RAC remain. Given that broad market acceptance, HFC-32-based RAC command a lower price than R-290 RAC

including due to the considerable benefits accrued from economies-of-scale manufacturing. The cost differential between R-290 and HFC-32 air conditioners has been progressively reduced through technological improvements and optimization of compressors, controllers and heat exchangers, with further reductions to approximately RMB 50 per unit expected in 2027. UNIDO and FECO will continue supporting technological optimization, industry cooperation and market promotion. In particular, the possible inclusion of R-290 RAC in national and provincial green procurement programmes, together with China's HFC phase-down policies and increasing promotion of low-GWP refrigerants, could help stimulate demand and facilitate wider market adoption of R-290 technology. Similarly, the provision of IOCs under the project will support the manufacturing and market introduction of R-290-based RAC units, enabling the continued utilization of the converted manufacturing lines. The disbursement of IOCs will be linked to verified manufacturing and sales of eligible R-290-based RAC units, in accordance with the approved project arrangements.

147. The Secretariat considers the partnering with online platforms to be an innovative approach to further enabling the market uptake of R-290 RAC. While sales data and projections for R-290 RAC on the designated e-commerce platform company are not yet available, UNIDO and FECO will follow up with the company and participating manufacturers to assess sales performance and obtain estimates of future market demand. The information collected will help evaluate the effectiveness of the campaign and inform further market promotion activities to accelerate the commercialization and uptake of R-290 RAC in China.

148. The Secretariat considers the activities undertaken by China to strengthen south-south cooperation and providing NOUs and experts from Article 5 countries with practical knowledge to support the adoption of R-290 RAC to be important and strategic activities that can help facilitate the market uptake of R-290 RAC technology in those Article 5 countries.

Conclusion

149. Implementation of the first five tranches of stage II of the RAC sector plan is progressing, with the conversion of 12 RAC manufacturing lines and four compressor manufacturing lines completed, and three HPWH manufacturing lines in advanced implementation. A broad range of technical assistance activities have either been completed or are in an advanced stage of implementation. The decision of enterprises to convert seven RAC and eight HPWH manufacturing lines to R-290 with their own resources is an important signal by industry of confidence that the market is increasingly ready to accept R-290 technology. The level of disbursement of the funds approved in the fifth tranche to final beneficiaries has achieved 20 per cent.

150. Notwithstanding continued efforts by the Government of China, CHEAA, industry and UNIDO, manufacturing of R-290 RAC split units on the converted lines continues to be low, reflecting limited local and global market penetration; in contrast, R-290 is well-established for factory-sealed equipment. The decision by the Government of China to use the IOC incentive scheme on R-290 split units reflects the Government's commitment to ensure the successful uptake of the technology. The continued implementation of activities, including partnering with online platforms and the provision of IOCs to help facilitate the sale of energy efficient, R-290 split AC units; research and development activities to help lower the cost of R-290 technology; and development of policies and regulations to promote the market uptake of R-290 split RAC units in China, including those planned under stage II, will help enable the market uptake of R-290 RAC. The sustained manufacturing of R-290 split AC equipment in China will also be furthered by the acceptance of the technology in other markets. The prohibition on the manufacture and sale of R-410A-based (and other HFCs with a GWP above 750) RAC for domestic sales is a testament to China's commitment to implementing the Kigali Amendment.

RECOMMENDATION

151. The Executive Committee may wish to consider:

(a) Noting the progress report on the implementation of the fifth tranche of the room air-conditioning manufacturing and heat pump water heaters sector plan (RAC sector plan) of stage II of the HCFC phase-out management plan (HPMP) for China;

(b) Agreeing to maintain the incremental operating cost incentive scheme for the RAC sector plan at the 2026 levels agreed under decision 94/34(b)(i) for the remainder of the RAC sector plan;

(c) Requesting the Government of China, UNIDO, and the Governments of Austria and Italy to submit a final progress report on the implementation of the work programmes associated with the sixth and final tranche to the 102nd meeting of the Executive Committee; and

(d) Approving the sixth and final tranche of the RAC sector plan of stage II of the HPMP for China, and the corresponding 2026–2027 tranche implementation plan, in the amount of US $8,613,995, plus agency support costs of US $602,980, for UNIDO.

Progress report on the implementation of the seventh and final tranche of the solvent sector plan of stage II of the HCFC phase-out management plan for China

Background

152. The solvent sector plan of stage II of the HCFC phase-out management plan (HPMP) for China was approved in principle at the 76th meeting and a revised plan of action was approved at the 86th meeting, for the period 2021–2026, at the total amount of US $6,023,431, plus agency support costs. The value of the adjusted total funding approved in principle for stage II of the solvent sector plan is US $25,569,340, plus agency support costs (decisions 86/34 and 86/40) to phase out 455.2 ODP tonnes of HCFCs to achieve complete phase-out in solvent sector.

153. In approving the seventh and final tranche at the 97th meeting, the Executive Committee requested that the Government of China and UNDP submit, on a yearly basis, progress reports on the implementation of the work programme associated with the final tranche through completion of the project, enterprise verification reports, and the project completion report to the first meeting of 2028 (decision 97/49).

Progress report

154. On behalf of the Government of China, UNDP, as the designated implementing agency, has submitted a progress report on the implementation of activities under the seventh and final tranche of the solvent sector plan under stage II of the HPMP. The work plan of the solvent sector activities covering 2026–2027 (for the seventh tranche) was signed in 2026 between the Foreign Environmental Cooperation Centre (FECO) and UNDP.

Regulatory activities

155. Beginning in January 2025, the Beijing University of Chemical Technology (BUCT) and FECO conducted research through data collection and 40 on-site visits, which was presented in a report submitted to the Ministry of Ecology and Environment (MEE). On 1 December 2025, MEE issued a ban on the use of HCFCs in the solvent sector from 1 July 2026. The local Ecology and Environment Bureaus (EEBs) carry out enforcement of the ban and encourage enterprises in their administrative regions to follow the policy. In 2026, FECO initiated related capacity-building activities for EEBs in eight provinces, including the Guangdong Province, which had a high volume of HCFC consumption in the solvent industry.

156. FECO has drafted the terms of reference (TOR) for the evaluation of HPMP implementation effectiveness in the solvent sector. This will be used for publicising the project's achievements and its impact under the HPMP and to support a comprehensive assessment of barriers overcome and lessons learned for the project completion report. The procurement and bidding process for this evaluation is planned to be launched in the fourth quarter of 2026.

Investment activities

157. On the implementation progress for the 53 solvent enterprises that initially signed contracts with FECO for conversions carried out in three batches, the first and second batches were completed as reported at the 97th meeting, with 47 completed conversion activities, which passed national acceptance and verified the phase-out.[1] The third batch of four enterprises was finalized during the reporting period and three

[1] In the first batch, one beneficiary (Dechang Beihai) withdrew its participation due to closure, and the contract value for this enterprise was reallocated to the third batch of enterprises. FECO also terminated the contract with one beneficiary (Jiangsu Yile) due to a temporary shutdown of the factory. The enterprise was not required to return funds

enterprises converted to water-based technology and one to HC-HFE based technology. All four enterprises passed national acceptance and verified the phase-out of 141.91 mt (15.6 ODP tonnes). A summary of the solvent sector plan investment activities and phase-out is presented in table 1.

Table 1. Summary of enterprise conversions and phase-out in the solvent sector

Status of implementation	# of enterprises	# of manufacturing lines	HCFC-141b consumption*		Contract value (US $)
			mt	ODP tonnes	
First batch of enterprises	22	514	1,176.2	129.4	17,657,765
Second batch of enterprises	25	347	372.2	40.9	2,000,907
Third batch of enterprises	4	30	141.91	15.6	2,240,804
Total	**51**	**891**	**1,690.31**	**185.9**	**21,899,476**

* Data for 2016 which is the year used as reference for HCFC consumption for stage II of the HPMP.

Technical assistance activities

158. Two training activities were conducted in a capacity-building series led by the China Cleaning Industry Association (CCIA), which aims to improve knowledge on alternative technologies in relevant subsectors and provide practical skill-building to reduce the environmental and safety risks. The first was for the disposable medical device subsector and had 259 participants (60 per cent women) and the second targeted the metal, electronics and solvent formulation subsectors and had 68 participants (50 per cent women).

159. In 2026, FECO and UNDP collaborated to produce outreach materials introducing the implementation achievements of the HPMP in the solvent sector, the overall HCFCs phase-out, and the ban on the use of HCFCs in the solvent sector enforced in 2026, aiming to enhance public and industry awareness of ozone layer protection and the solvent sector's compliance requirements.

Level of fund disbursement

160. As of September 2026, of the US $25,569,340 approved for the solvent sector plan, US $25,319,075 had been disbursed by UNDP to FECO, and US $24,931,430 (98 per cent) by FECO to beneficiaries, as shown in table 2. The balance of US $637,910 will be disbursed in 2027.

Table 2. Financial report for stage II of the solvent sector plan as of September 2026 (US $)

Description		First tranche	Second tranche	Third tranche	Fourth tranche	Fifth tranche	Sixth tranche	Seventh tranche	Total
Funds approved for UNDP		2,821,937	3,777,190	12,946,782	2,500,000	1,000,000	2,000,000	523,431	25,569,340
Disb. from UNDP to FECO	**Total**	**2,796,937**	**3,742,190**	**12,946,782**	**2,466,000**	**979,000**	**1,959,613**	**428,553**	**25,319,075**
	Ratio (%)	99	99	100	99	98	98	82	99
Disb. from FECO to benef.	**Total**	**2,796,937**	**3,742,190**	**12,946,782**	**2,466,000**	**979,000**	**1,759,513**	**241,008**	**24,931,430**
	Ratio (%)	99	99	100	99	98	88	46	98
Fund balance		25,000	35,000	0	34,000	21,000	240,487	282,423	637,910

Implementation plan for 2027

161. The following activities will be implemented by UNDP until December 2027:

(a) Policy actions: The contractor will be selected and the evaluation of HPMP implementation effectiveness in the solvent sector will be carried out, covering the assessment of phase-out

already disbursed for converting the manufacturing line and meeting the first milestone; however, the remaining balance was reallocated to the third batch of enterprises.

progress, policy compliance, alternative technology adoption, and overall environmental impacts. The capacity-building project in the local EEBs will continue, particularly in the Guangdong Province.

(b) Technical assistance activities: Standards for the adoption of alternative technologies in the solvent sector will be developed, and public awareness activities to promote HCFC-alternatives and the sustainable compliance targets will continue; and

(c) Project management activities: Activities will continue to ensure the effective implementation of the remaining activities.

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

Report on HCFC consumption

162. The consumption of HCFCs in the solvent sector in 2025 was reported at 408.97 mt (44.99 ODP tonnes), which is below the maximum allowable consumption established in the Agreement between the Government of China and the Executive Committee, as shown in table 3.

Table 3. Consumption of HCFCs in the solvent sector

Description		2021	2022	2023	2024	2025
Consumption *	mt	2,500.00	2,500.00	1,100.00	1,100.00	408.97
	ODP tonnes	275.00	275.00	121.00	121.00	44.99
Maximum allowable consumption **	mt	2,944.91	2,944.91	1,359.19	1,359.19	500
	ODP tonnes	321.2	321.2	148.3	148.3	55.0
Phase-out targets	mt	n/a	n/a	1,585.72	n/a	859.19
	ODP tonnes	n/a	n/a	172.97	n/a	93.3

* As per the country programme implementation report.
** As per the Agreement revised at the 86th meeting for stage II from 2016-2026.

163. Reductions in consumption since 2018 have been achieved through the conversion of solvent enterprises, which has now been completed in line with the Agreement; continued strict implementation of production, domestic sales, and consumption quotas required for manufacturing enterprises consuming over 100 mt of HCFCs; mandatory registration of enterprises; and the involvement of EEBs in supervision and monitoring in the subsector. Through the technical assistance component, the Government continues to strengthen the industry's technical capacity to adopt low-global-warming-potential alternatives to ensure that further reductions are achieved and sustained. The Government has implemented the ban on the use of HCFCs in the solvent sector from 1 July 2026. UNDP confirmed that there had been no HCFC consumption of newly produced HCFCs in the solvent sector in 2026.

Verification of enterprise conversions

164. UNDP and FECO/MEE reported that all enterprises assisted under stage II of the HPMP had undergone a national acceptance process by independent entities to verify completion of conversion activities and the phase-out of HCFC use. UNDP explained that the final tranche of the solvent sector plan did not involve the conversion of new enterprises but only funded the completion of activities for a previously approved enterprise. As of the year 2025, all conversion projects relating to solvent sector are fully completed.

Status of implementation of activities

165. On the enforcement of the ban on the use of HCFCs in solvents, UNDP explained that after the ban had been issued, the Atmospheric Environment Department of the MEE became responsible for overall coordination and enforcement of the prohibition while local EEBs carried out field-level supervision, and that enforcement inspections were fully integrated into their routine work. On development of sector standards for alternative technologies, UNDP explained that the activity was in progress and the final consultations were underway. UNDP also explained that the technical guidelines for HCFC conversions in the metal and electronics subsectors were completed.

Level of fund disbursement

166. UNDP confirmed that all assisted enterprises in this sector had received all payments. Of the remaining funds in the amount of US $637,910, UNDP clarified that US $387,545 would be disbursed for remaining activities relating to the evaluation of solvent sector plan effectiveness, local EEB and Guangdong Province capacity-building activities, standards research relating to use of alternatives in the solvent sector and public awareness and outreach on HCFC solvent sector phase-out and adoption of alternatives to HCFCs. The remaining US $250,365 relates to financial commitments pending disbursement for awareness-raising activities (including events, educational videos and media promotion) and stakeholder meetings.

Project implementation and monitoring

167. As the lead implementing agency for the HPMP in China, UNDP provided a cumulative report on the project management unit (PMU) expenditures, in line with decision 81/46(b). The PMU expenditures related to stage II of the solvent sector plan are summarized in table 4.

Table 4. PMU cumulative expenditures for stage II of the solvent sector plan in China (2017-2025)

Item	Description	Cost (US $)
Sector-specific costs	Project staff	870,128
	Domestic travel	87,677
	International travel	6,756
	Domestic meetings	68,768
	International meetings	0
	Consulting service	68,923
Subtotal for sector-specific costs		**1,102,252**
Operational costs	Support staff, computers, internet, printing, office operation and maintenance (shared costs)	993,577
Total disbursement		**2,095,829**

Gender mainstreaming

168. In line with decisions 84/92(d) and 90/48(c) of the Multilateral Fund, the implementation of stage II of the solvent sector plan will continue to take into account women's participation. The Government of China will continue to engage women in all project activities, and disaggregated data will be collected. Capacity-building activities will take into consideration the participation of women during the technical assistance activities, including in outreach and training materials, promoting equity when applicable, and issues related to women's participation will be discussed during workshops to share experiences on lessons learned.

Completion of stage II of the solvent sector plan

169. UNDP has confirmed that the remaining project activities relating to capacity-building and technical assistance will be implemented until the end of December 2027 and that the solvent sector plan

under stage II of the HPMP will be completed by December 2027, as established in paragraph 14 of the Agreement.

Sustainability of the solvent sector plan under stage II of the HPMP and assessment of risks

170. The sustainability of the HCFC phase-out in the solvent sector has been considered throughout the implementation of the project. The Government provided support to the industries using HCFCs in different solvent applications in the form of project funding support, as well as the dissemination of technical information through outreach, which will help in the safe adoption of different alternatives to HCFCs. Specific characteristics of industries such as disposable medical devices, electronics, and metal degreasing were taken into consideration, and technical support was provided accordingly. Small- and-medium-sized enterprises, which have limited technical and financial capacity, were supported and this reduced the risks of their transition to safe and sustainable alternatives. The risk of non-compliance with regulations was mitigated through training and capacity-building of local EEBs and targeted public awareness-raising and technical outreach programmes for the adoption of alternatives. The above activities support the ongoing implementation of the July 2026 ban on the use of HCFCs in the solvent sector, and the Government will build capacity of relevant stakeholders to ensure enforcement of the ban and facilitate the adoption of alternatives; cessation of production of HCFC-141b would also facilitate the ban.

Conclusion

171. The Government of China remains in compliance with the Montreal Protocol and its Agreement with the Executive Committee with regard to the solvent sector plan, including with the consumption targets agreed for 2025. The project has achieved full conversion of 51 enterprises with an associated phase-out of 1,690.31 mt (185.9 ODP tonnes) of HCFC-141b. During the last year of implementation, the remaining project activities would be fully implemented and 46 per cent of the funds approved for the last tranche have already been disbursed to the beneficiary enterprises and the Government expects to complete implementation of activities under the last tranche by end of December 2027.

RECOMMENDATION

172. The Executive Committee may wish to note the progress report on the implementation of the work programme associated with the seventh and final tranche of the solvent sector plan of stage II of the HCFC phase-out management plan for China.

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS

China

PROJECT TITLE	AGENCY	MEETING APPROVED	CONTROL MEASURE
HCFC phase-out plan (stage II) servicing sector	UNEP (lead), Germany and Japan	Approved: 76th Revised: 86th	n/a

ARTICLE 7 DATA (Annex C, Group I)	Year: 2025	4,392.65 ODP tonnes

COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)						Year: 2025
Chemical	Aerosol	Foam	Refrigeration		Solvent	Total sector consumption
			Manufacturing	Servicing		
HCFC-22		137.50	1,457.50	2,372.18		3,967.18
HCFC-123			4.55	1.05		5.60
HCFC-124						
HCFC-141b		314.69			44.99	359.68
HCFC-142b		9.75	1.50	48.95		60.19

CONSUMPTION DATA (ODP tonnes)			
2009–2010 baseline:	19,269.00	Starting point for sustained aggregate reductions:	18,865.44
CONSUMPTION ELIGIBLE FOR FUNDING			
Already approved:	12,161.02	Remaining:	6,704.42

ENDORSED BUSINESS PLAN		2026	2027	2028	Total
UNEP	ODS phase-out (ODP tonnes)	65.16	0.0	0.0	65.16
	Funding (US $)	2,793,316	0	0	2,793,316
Germany	ODS phase-out (ODP tonnes)	0.0	0.0	0.0	0.0
	Funding (US $)	0	0	0	0
Japan	ODS phase-out (ODP tonnes)	0.0	0.0	0.0	0.0
	Funding (US $)	0	0	0	0

PROJECT DATA			2016	2017	2018	2019*	2020	2021	2022	2023	2024	2025	2026	Total
Montreal Protocol consumption limits (ODP tonnes)			17,342.1	17,342.1	17,342.1	17,342.1	12,524.9	12,524.9	12,524.9	12,524.9	12,524.9	6,262.4	6,262.4	n/a
Maximum allowable consumption (ODP tonnes)**			16,978.9	16,978.9	15,048.1	15,048.1	11,772.0	11,772.0	11,772.0	8,618.0	8,618.0	5,063.5	5,063.5	n/a
Amounts approved in principle (US $)	UNEP	Project costs	3,299,132	2,570,000	0	1,000,000	0	1,160,000	1,780,000	2,000,000	3,000,000	1,200,000	2,517,105	18,526,237
		Support costs	364,651	284,061	0	120,000	0	127,291	195,325	219,467	329,200	131,680	276,211	2,047,886
	Germany	Project costs	300,000	0	0	0	0	600,000	220,000	0	0	0	0	1,120,000
		Support costs	36,000	0	0	0	0	71,122	26,078	0	0	0	0	133,200
	Japan	Project costs	80,000	80,000	0	0	0	240,000	0	0	0	0	0	400,000
		Support costs	10,400	10,400	0	0	0	31,200	0	0	0	0	0	52,000
Funds approved by ExCom (US $)		Project costs	3,679,132	0	2,650,000	1,000,000	0	2,000,000	2,000,000	2,000,000	3,000,000	1,200,000		17,529,132
		Support costs	411,051	0	294,461	120,000	0	229,613	221,403	219,467	329,200	131,680		1,956,875
Total funds recommended for approval at this meeting (US $)		Project costs											2,517,105	2,517,105
		Support costs											276,211	276,211

* The third (2018) tranche was submitted at the 82nd meeting at a value of US $3,850,000, plus agency support costs of US $431,831, and deferred for consideration at the 84th meeting (decisions 82/71(b) and 83/55).

** The total maximum allowable consumption of Annex C, Group I substances for the 2021 to 2026 period, the total adjusted value of stage II of the HPMP for the sector, and the funding level of tranches between 2020 and 2026 were approved at the 86th meeting (decision 86/34).

Secretariat's recommendation:	Individual consideration

PROJECT DESCRIPTION

173. On behalf of the Government of China, UNEP as the lead implementing agency has submitted a request for funding for the ninth and final tranche of the refrigeration and air-conditioning servicing sector plan and the national enabling programme[1] of stage II of the HCFC phase-out management plan (HPMP), in the amount of US $2,517,105, plus agency support costs of US $276,211, for UNEP only.[2] The submission includes a progress report on the implementation of the eighth tranche, and the tranche implementation plan for 2027.

174. This submission is based on the revised plan of action for the refrigeration servicing sector for the period 2021-2026 in the total amount of US $12,717,105, plus agency support costs, as approved by the Executive Committee at the 86th meeting.[3] Stage II of the refrigeration servicing sector plan comprises a component related to phase-out activities in the servicing sector and an enabling component to build capacity at the national and local levels, strengthen the communication and coordination mechanisms among relevant departments associated with the HPMP implementation, ensure continuous implementation of policies and regulations on controlled substances, and improve the monitoring and reporting of imports and exports of controlled substances in order to reduce the risks of illegal trade in ozone-depleting substances (ODSs).[4]

Progress report on the implementation of the eighth tranche of stage II of refrigeration servicing sector plan

175. As of September 2026, the following activities were implemented:

(a) The project cooperation agreement (PCA) for the eighth tranche was signed in August 2026 between UNEP and the Foreign Environmental Cooperation Centre (FECO);

(b) A circular on Further Strengthening the Administration of Ozone-Depleting Substances (ODSs) and Hydrofluorocarbons (HFCs) entered into force on 1 March 2026, establishing standardized permitting and filing rules on the production, sales, use, data record-keeping, enforcement, end-of-life treatment, recovery, reclamation and destruction of HFCs; FECO/Ministry of Ecology and Environment (MEE) produced a series of policy outreach materials to support the implementation of this circular and initiated further upgrading of the ODS Management Information System (MIS) to streamline its registration and data filing functions; terms of reference (TOR) were finalized for a research project to develop an ODS emission detection methodology using portable testing instruments; and further survey activities were initiated as part of the pilot city projects based on findings from the survey of the cold chain subsector;

(c) The standard for refrigerant reclamation traceability has been drafted after two expert seminars, a technical seminar, field survey and expert consultation; three additional surveys and expert seminars are planned before December 2026 for refinement of the standard based on feedback from both enterprises and experts; a contract was signed with the Chinese Association of Refrigeration (CAR) in July 2026 to lead the study on technical

[1] The full name of the refrigeration and air-conditioning servicing sector and the national enabling programme is abbreviated to "refrigeration servicing sector" throughout the present document.
[2] As per the letter of 29 September 2026 from the Ministry of Ecology and Environment of China to UNEP.
[3] The value of the adjusted total funding approved in principle for stage II of the refrigeration servicing sector is US $20,046,237, plus agency support costs (decisions 86/34 and 86/37).
[4] Through activities such as policy studies, revision of standards and codes, technician training and certification, and awareness and outreach activities, which in the refrigeration servicing sector plan, also support the phase-out in the room air-conditioning and heat pump water heaters (RAC) and the industrial and commercial refrigeration and air-conditioning (ICR) manufacturing sectors.

standards for the prevention of refrigerant leakage in the process of recovery and reuse; and two expert meetings are planned before the end of December 2026;

(d) A coordination meeting for HPMP implementation was held in September 2026; four national workshops on ODS phase-out management were held with 517 participants from local Ecology and Environment Bureaus (EEBs) and/or law enforcement officers (including 175 women) from 31 provinces, focusing on regulatory updates, compliance trends, enforcement practices and the information management system; technical and policy assistance for daily ODS phase-out management continued; two study tours were organized, one to the Republic of Korea and Japan and another to the United States, for representatives from MEE and FECO on compliance policies, supervision and enforcement, alternative technologies, and standards; and the capacity-building programme in six selected EEBs continued, with the EEBs developing and issuing policy documents, strengthening coordination, registering over 10,000 enterprises since the programme began, delivering capacity-building programmes for regulators, conducting inspections, outreach, monitoring, and reporting;

(e) A coordination meeting between the General Administration of Customs (GAC), Ministry of Commerce (MOC), and MEE was held to enhance the licensing and quota system; four workshops on ODS import and export (I/E) control were held for a total of 362 representatives from I/E enterprises, commerce departments and customs authorities (including 92 women); and the finalization of the revised training manual for customs and law enforcement officials continued and is expected to be completed by year-end;

(f) I/E officers participated in two customs border dialogues; between January 2025 and July 2026, 3,689 export permits were issued, 35 export batches of ODSs were rejected via the iPIC mechanism,[5] preventing 733 mt of potentially illegal trade, and one ODS import permit was issued for returned goods; and the Ningbo Customs Anti-smuggling Bureau was contracted to carry out a study to strengthen the capacity for investigating and processing illegal ODS trade cases; the study is underway and expected to be completed by the end of 2027;

(g) The six provinces (Hubei, Guangxi, Hainan, Guizhou, Yunnan, and Shaanxi) selected for the third batch of pilot cities have begun the implementation of their approved plans; during the reporting period, 4,104 servicing enterprises have been registered in the MIS, and 1,936 of these have filed data; 742 training sessions have been organized for ozone officers and law enforcement officers; and 210 training sessions for servicing enterprises have been organized across the six provinces;

(h) A training for technician trainers was held for 22 participants to ensure ongoing dissemination of ODS-related policies and knowledge; technician training organized by CAR exceeded the training target for the fifth tranche, with 416 technicians trained (including 55 women) with three of these sessions during the reporting period for a total of 108 trainees (including eight women); the planned training under the seventh and eighth tranches began with 157 technicians trained (including 18 women); the training included one for international participants from the Asia Pacific region and were held in provinces previously lacking training centres, in collaboration with local vocational schools;

(i) Through the manufacturers' ICR after-sales programme organized by the China Refrigeration and Air-Conditioning Industry Association (CRAA), 461 technicians from

[5] Informal Prior Informed Consent

248 small-and-medium-sized enterprises in nine provinces were trained from July 2025 to November 2025 and 404 (including 22 women) passed the examination. A new contract was signed to continue training delivery in 2026 to 2027; training through the manufacturers' after-sales programme for R-290 refrigeration and air-conditioning servicing, was carried out by the China Household Electrical Appliances Association (CHEAA) and the 2025-2026 training targets under the fourth and fifth tranches were met, having trained more than 1,000 technicians by 2026 (including 32 women); R-290 refrigeration and air-conditioning training materials have been developed by CHEAA based on practical experience in the installation and servicing of R-290-based systems; a contract was signed with CHEAA to conduct outreach activities including through social and other media platforms; and workshops and awareness-raising activities in the refrigeration and air-conditioning sector;

(j) Building on the May 2025 guidelines, Refrigerant Management in Retail Refrigeration Equipment and Systems, the China Chain Store and Franchise Association (CCFA) developed a comprehensive training programme covering relevant policies and regulations, technical and theoretical knowledge, practical experience and good practices; a total of 190 participants (including 66 women) were trained;

(k) Promotional activities included updates on association websites, translated publications on ozone protection, promotional videos, media and social media coverage, industry news articles, posters on ozone policies, and updates on the OzonAction in China website; the annual Ozone2Climate industry roundtable and the Ozone2Climate roadshow were held and an Ozone2Climate website was launched; the World Ozone Day was celebrated in 2026 with a commemorative event that received local media coverage and attracted over 200 attendees; and

(l) Of the US $102,000 approved for project management and monitoring US $25,501 was disbursed for staff (US $20,307), travel (US $2,302), and meetings and consultations (US $2,892).

Level of fund disbursement

176. As of October 2026, of the US $17,529,132 approved so far, US $12,739,914 (72.68 per cent) had been disbursed directly or through FECO to beneficiaries, as shown in table 1. The balance of US $4,789,218, including US $917,000 from the eighth tranche, will be disbursed in conjunction with the ninth tranche implementation.

Table 1. Status of disbursement for stage II of the refrigeration servicing sector plan (US $)

Description		Tranche								Total
		First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	
Funds approved	UNEP	3,299,132	2,570,000	1,000,000	1,160,000	1,780,000	2,000,000	3,000,000	1,200,000	16,009,132
	Japan	80,000	80,000	0	240,000	0	0	0	0	400,000
	Germany	300,000	0	0	600,000	220,000	0	0	0	1,120,000
	Total	**3,679,132**	**2,650,000**	**1,000,000**	**2,000,000**	**2,000,000**	**2,000,000**	**3,000,000**	**1,200,000**	**17,529,132**
Disbursed from IAs to FECO and direct disbursements	UNEP	3,378,438	2,650,000	990,790	1,400,000	1,725,301	1,105,940	1,435,000	350,000	13,035,469
	Japan									
	Germany	300,000	0	0	600,000	69,500	0	0	0	969,500
	Total	**3,678,438**	**2,650,000**	**990,790**	**2,000,000**	**1,794,801**	**1,105,940**	**1,435,000**	**350,000**	**14,004,969**
	Ratio (%)	100	100	99	100	90	55	48	29	80

Description		Tranche								Total
		First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	
Disbursed from FECO to beneficiaries*	**Total**	3,678,438	2,650,000	990,790	2,000,000	1,476,821	688,846	972,019	283,000	12,739,914
	Ratio (%)	100	100	99	100	74	34	32	24	73
Fund balance		**694**	**0**	**9,210**	**0**	**523,179**	**1,311,154**	**2,027,981**	**917,000**	**4,789,218**

* Disbursement both from FECO to beneficiaries and from UNEP for direct implementation.

177. In line with decision 95/43(b), UNEP applied the overarching principles for managing funds transferred from implementing agencies to FECO for stage II of the servicing sector plan. The balance of US $9,210 under the third tranche, approved in 2019, has been committed by UNEP for a procurement of two refrigerant identifiers for which delivery formalities are being processed. The tranche will be financially closed once the outstanding payment is completed. The balance of US $150,500 under the component of the Government of Germany for the fifth tranche relates to remaining activities under implementation as described in subparagraph 178(j) below and the corresponding payments will be made upon completion of the agreed activities.

Implementation plan for the ninth tranche of stage II of the servicing sector plan

178. For the activities to be implemented in the ninth and final tranche FECO/MEE has proposed a reallocation of funds that were unutilized or not obligated from various activities from the approved fifth, sixth, seventh, and eighth tranches, and that the reallocated funds would be used for the activities described in subparagraphs (e) and (f) below. The following activities, as submitted, will be implemented between January 2027 and December 2027 by UNEP, with the exception of subparagraph (j):

(a) Organize annual coordination meetings on the implementation of the HPMP with relevant stakeholders to enhance coordination; continue to conduct policy and regulatory reviews to support overall policy and law enforcement for the HCFC phase-out; one study tour for FECO/MEE personnel and their participation in relevant international meetings (US $142,000 plus remaining funds from previous tranches after US $50,000 is adjusted toward new activities);

(b) Carry out a study on compliance measures required for effective implementation of the servicing tail of HCFC consumption, including engaging industry associations, research institutions, and local environmental authorities to improve servicing sector data collection; building on preliminary research on a recovery traceability mechanism, conduct broader enterprise surveys and data collection to inform the design of a comprehensive digital traceability platform for the life cycle of refrigerant recovery, reclamation, and reuse; finalization of the standard for refrigerant reclamation traceability and the study on technical standards for leakage prevention of refrigerants in the process of recovery and reuse (UNEP) (US $950,000 plus remaining funds from previous tranches after US $625,000 is adjusted toward new activities);

(c) Undertake the comprehensive study on laws to punish illegal trade cases including studying disputes, law enforcement practices and enforcement needs for handling cases of illegal ODS import and export trade (remaining funds from previous tranches after US $90,000 is adjusted toward new activities);

(d) Four training workshops or network meetings for ODS management for a total of 400 law enforcement officers and staff from local EEBs (20 per cent women) (US $60,000 plus remaining funds from previous tranches after US $100,000 is adjusted toward new activities); continue to support the implementation of the third batch of pilot cities, including through technical assistance to organize targeted training activities, and support

the design of additional activities related to refrigerant recovery, reclamation, and reuse (US $22,105 plus remaining funds from previous tranches);

(e) In addition to continuing support for the capacity building of local EEBs from the selected six provinces/cities, a third phase is proposed that would launch an additional batch of activities in another six key provinces/cities, including guidance on scaling up information system deployment and MIS data collection and analysis; technical support for effective supervision over the quota system; promotion of the enterprise registration and filing requirements; and collaboration to verify and cross-validate self-reported consumption data; assistance in consolidating consumption-related data and submitting progress and analytical reports to MEE; as well as supporting law enforcement capacity building workplans (US $200,000 and US $1,050,000 from the adjustments of funds from other activities);

(f) Projects to strengthen the law enforcement capacity of customs to combat ODS illegal trade were completed, as reported at the 97th meeting;[6] however, the full phase-out scheduled for 2030 and the high market prices of certain substitutes are likely to stimulate illegal ODS demand, increasing the risk of illicit trade; therefore, strengthening the supervision of controlled substances and effectively combating illegal trade will remain a long-term and demanding priority; the project is to be carried out in collaboration with the GAC which will select 8 to 10 local customs offices and anti-smuggling bureaus for focused activities to further enhance customs' professional capacity and reinforce national measures to prevent illegal ODS trade; a TOR has been developed by FECO/MEE and shared with UNEP to this end (US $900,000 from the adjustments of funds from other activities);

(g) Organize six training workshops for customs supervision and anti-smuggling departments for a total of 300 participants (20 per cent women) and two workshops for enterprises with a target of 200 participants (20 per cent women) (US $150,000 plus remaining funds from previous tranches after US $320,000 is adjusted toward new activities); the remaining funds of US $320,000 from previous tranches for overseas training/study tour and participation in regional/international cooperation are to be reallocated toward new activities;

(h) Continue support for daily management of I/E office in implementation of the licensing and quota system through law enforcement support and targeted capacity-building to strengthen governance and regulatory oversight, including enhanced data quality assurance, cross-border trade trend analysis, optimization of information management, and preparation for emerging regulatory requirements (US $384,000 plus remaining funds from previous tranches after US $50,000 is adjusted toward new activities); ongoing operation and maintenance management of the Certification Authority (CA) service on the ODS paperless approval system and signing of new service contract (US $50,000 plus remaining funds from previous tranches after US $120,000 is adjusted toward new activities);

(i) Continue to conduct good servicing practices training for a total of 300 technicians including at least one workshop for international/regional technicians to promote south-south cooperation; three international study tours to exchange experiences on servicing tail management and ODS reclamation and reuse (US $120,000 plus remaining funds from previous tranches after US $55,000 from previous tranches is adjusted toward new activities);

[6] UNEP/OzL.Pro/ExCom/97/44

(j) Continuation of training through the after-sale system for ICR manufacture's programme (UNEP); continuation of manufacturers' after-sales programme for R-290 refrigeration and air-conditioning servicing (Government of Germany); outreach in the servicing sector to introduce the alternative technologies for HCFC-22 to the servicing enterprises, technicians, and consumers (Government of Germany); continued implementation of the training and outreach in supermarket sector based on fully developed training materials (Government of Germany) (remaining funds from previous tranches);

(k) Organize annual Ozone2Climate roadshow and roundtable events, including an online exhibition and promotion (US $150,000 plus remaining funds from previous tranches after US $110,000 is adjusted toward new activities); organize annual celebration of World Ozone Day; continue to develop, produce, and disseminate outreach materials, including print and video products and to maintain and update the national ozone website (US $75,000 plus funds from previous tranches after US $110,000 is adjusted toward new activities); and

(l) Project management and monitoring for UNEP (US $214,000), comprising the cost of staff (US $169,374), travel (US $18,123), and meetings (US $13,215) and consultations (US $13,288).

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

Report on HCFC consumption

179. In 2025, consumption of HCFCs in the servicing sector was 43,936.07 mt, or 2,422.18 ODP tonnes, as shown in table 2.[7]

Table 2. HCFC consumption in the refrigeration servicing sector (2021-2025 country programme data)

HCFC	2021	2022	2023	2024	2025	Average*
Mt						
HCFC-22	51,720.55	53,065.05	50,637.00	50,310.83	43,130.54	64,466.58
HCFC-123	406.30	411.69	318.03	77.83	52.53	113.75
HCFC-124	(31.65)	21.73	(17.49)	(3.38)		139.56
HCFC-142b	2,011.60	884.31	1,287.51	1,995.54	753.00	5,338.58
Total (mt)	**54,106.80**	**54,382.78**	**52,225.05**	**52,380.82**	**43,936.07**	**70,058.47**
ODP tonnes						
HCFC-22	2,844.63	2,918.58	2,785.04	2,767.10	2,372.18	3,545.68
HCFC-123	8.13	8.23	6.36	1.56	1.05	2.30
HCFC-124	(0.70)	0.48	(0.38)	(0.07)	0.00	3.05
HCFC-142b	130.75	57.48	83.69	129.71	48.95	347.03
Total (ODP tonnes)	**2,982.81**	**2,984.77**	**2,874.70**	**2,898.29**	**2,422.18**	**3,898.06**

* Average consumption in 2009 and 2010.

180. Recalling the discussion at the 97th meeting on the increase in HCFC-142b consumption in the servicing sector,[8] the Secretariat sought clarification on the measures that resulted in the substantial reduction in 2025, and on whether the quantities reported in previous years had been used to build up stocks for the consuming sectors. UNEP explained that the reductions in consumption of both HCFC-142b and

[7] No maximum allowable consumption of HCFCs has been specified for the refrigeration servicing sector in the Agreement between the Government of China and the Executive Committee.
[8] UNEP/OzL.Pro/ExCom/97/44, paragraphs 176 and 177.

HCFC-123 reflected the progressive implementation of HCFC phase-out policies and the declining servicing demand due to older equipment reaching the end of its service life and the adoption of alternative technologies, aided by new technology development and awareness-raising. HCFC-142b is mainly used for servicing existing equipment, including bridge crane air conditioners operating at high ambient temperatures. Some users may have accumulated stocks in earlier years to meet future servicing needs, which may have contributed to the higher consumption reported in those years; however, specific inventory data are not available to quantify that contribution.

181. The remaining servicing demand for HCFC-123 is mainly associated with the maintenance and refrigerant needs of existing low-pressure centrifugal chillers used in large central air-conditioning systems, which typically have a long operational life; nonetheless, the gradual retirement and replacement of these chillers has contributed to the continuing decline in demand. FECO/MEE will continue working with relevant industry associations and equipment manufacturers to better understand the remaining demand for both substances and strengthen servicing sector data collection, which will be supported by mandatory registration and ODS data reporting in MIS for servicing enterprises under the new Circular[9] and the studies on the servicing consumption tail proposed under the ninth tranche.

Progress report on the implementation of the eighth tranche of stage II of the servicing sector plan and activities proposed for the ninth tranche

182. Noting the detailed progress report and the plan of action for the ninth and final tranche, the Secretariat sought clarification on the status of several activities, and on the need for and composition of some of the activities proposed under the ninth tranche, as summarized below.

183. Regarding the status of the standards development, the three codes and standards reported as ongoing at the 97th meeting, UNEP clarified that five technical specification codes were initially envisaged under the fifth tranche, but following consultations with industry, experts and MEE, the work programme was reprioritized in May 2025 to align with the National Implementation Plan (2025–2030) and available resources. Of the US $150,000 budget, US $120,000 was redirected to the development of technical standards on traceability management for refrigerant reclamation and a study on technical standards for leakage prevention during recovery and reuse, with the remainder supporting consultations, meetings and expert inputs. Of the original five codes, two (water chillers and multi-split air conditioners) would be developed by industry associations without HPMP funding, as reported at the 97th meeting. However, the remaining three were also discontinued owing to limited funding and the reprioritization. The first draft of the traceability standards has been finalized following expert seminars and a field survey will be refined through additional surveys and consultations until December 2026 before submission for approval. A contract was signed in July 2026 for the leakage prevention study with a consortium led by the CAR and is expected to be completed by the end of 2027. Both standards are priority actions under the National Implementation Plan and will be promoted by associations and local authorities through updated training materials.

184. Regarding the study on certification methods for specific servicing subsectors reported at the 97th meeting,[10] UNEP clarified that this research was a proposed area of work under the eighth tranche and had not yet been initiated. Given the substantial regional differences in the structure of the servicing industry, technician qualification practices and training capacity, FECO/MEE considers it more practical to begin with an assessment, in one or two selected provinces or cities, of existing qualification and competency assessment practices, training needs and implementation challenges in selected servicing subsectors, and to identify opportunities to better incorporate good servicing practices and the safe handling

[9] Circular on Further Strengthening the Administration of Ozone-Depleting Substances and Hydrofluorocarbons, issued by MEE in February 2026 and in force since 1 March 2026.
[10] UNEP/OzL.Pro/ExCom/97/44, paragraph 180.

of alternative refrigerants. Subject to approval of the proposed reallocation of funds from the eighth tranche to local capacity building, this assessment will be included in the TOR of the relevant EEB capacity-building projects. The contract for the applicability study of the laws to punish illegal trade cases was signed with the Nanjing Customs Anti-Smuggling Bureau in March 2026 and the inception meeting was held in April 2026. The study is expected to be completed by the end of 2027, and the timeline in the tranche implementation plan has been corrected accordingly.

185. The Secretariat enquired about the study tours to the Republic of Korea, Japan and the United States, which were implemented during the reporting period under the sixth tranche plan, as well as the overseas missions proposed under the ninth tranche, noting its understanding that overseas activities had been cancelled due to China's international trip management policy. UNEP explained that the two types of tours were subject to different administrative and funding arrangements. Administrative requirements governing the use of project funds for overseas training of officials from other government departments made FECO-funded participation by customs officers difficult, whereas exchanges involving FECO staff and MEE officials were subject to separate funding and approval procedures. Accordingly, US $300,000 of the US $320,000 approved for the overseas training and study tours for customs is proposed for reallocation to the proposed third phase of EEB support in six selected provinces/cities, for domestic customs enforcement capacity-building activities. The remaining US $20,000 is for continuing to support the I/E Office and customs/enforcement officers' participation in regional and international meetings. The missions proposed in the ninth tranche implementation plan are intended for FECO and MEE staff, covering study tours and international meetings on servicing tail management, refrigerant recovery, reclamation and reuse, and compliance management. Destinations are not yet finalized and will depend on learning objectives, the relevance of the host country's experience and travel approval requirements, with mission reports and recommendations as the expected outputs.

186. The Secretariat noted that the US $384,000 requested in the ninth tranche for daily management of the I/E of ODS was substantially higher than the allocations to this activity under the previous tranches, while the US $50,000 approved for the same activity under the sixth tranche was proposed for reallocation. UNEP explained that the balance under the sixth tranche was not fully utilized under the implementation arrangements in place at the time and that the requested funding would be revised to US $380,000. This would finance additional technical personnel to manage the increasing volume of I/E applications and information exchange through the iPIC[11] mechanism. As noted in subparagraph 175(f) above, from January 2025 to July 2026, the I/E Office issued 3,689 batches of ODS export permits covering 154,154.8 mt, while 35 batches were rejected through the iPIC mechanism, preventing potential illegal trade of about 733 mt of ODSs.

187. The Secretariat further inquired on the number of personnel to be engaged, the duration and nature of their functions, and whether these costs would overlap with the project management unit (PMU) component. UNEP explained that the requested funding comprised additional fixed-term personnel and technical support for: the review, verification and follow-up of I/E applications (US $140,000); I/E information exchange, including iPIC-related work (US $180,000); and the compilation and analysis of application and trade data (US $60,000). The budget assumes technical support from an estimated three to four personnel. UNEP indicated that those costs were incremental as they related to time-limited technical support, did not finance established posts or regular office operating costs, and were separate from the functions of the project management unit (PMU) and from training costs budgeted under the I/E component. On the question of how the day-to-day import and export management functions would be sustained after completion of the HPMP, UNEP explained that the additional support would help to identify bottlenecks, streamline checks, standardize follow-up and make better use of existing data, while maintaining the necessary verification and approval controls. These improvements would be incorporated into the Office's standard procedures to sustain efficient processing once the HPMP ends.

[11] Informal Prior Informed Consent.

Proposed reallocation of funds from approved tranches

188. The submission includes a proposal to fund two new activities, from unused funds approved under previous tranches, in response to the operational demands arising from the updated regulatory framework, in particular the new Circular, which requires all enterprises engaged in the use, sale or servicing of controlled substances to register in the MIS and report relevant data (approximately 65,000 enterprises had registered by June 2026), and to the need to sustain vigilance against illegal trade as the complete phase-out of HCFCs in 2030 approaches. The two activities are:

(a) A second batch of capacity-building projects for six local EEB, with Beijing, Tianjin, Gansu, Liaoning, Shanxi and Hunan under consideration, subject to endorsement by MEE, at a total cost of US $1,250,000, originally comprising US $1,050,000 from reallocations within approved tranches and US $200,000 requested under the ninth tranche; and

(b) Phase III of strengthening the law enforcement capacity of customs to combat illegal ODS trade to be implemented through eight to ten local customs offices and anti-smuggling bureaus to be selected with the GAC, at a total cost of US $900,000 from reallocations within approved tranches.

189. The Secretariat requested further justification for the reallocations. Following discussions, it was agreed that the funding for these activities would be drawn at a higher proportion from the requested amounts for the ninth tranche and that the amounts to be reallocated from previously approved tranches would therefore be US $1,215,000 instead of US $1,950,000, representing about 15 per cent of the US $8,200,000 approved for the fifth to eighth tranches, with the amount drawn from each tranche not exceeding 20 per cent of the respective tranche, as shown in tables 3 and 4. The overall cost for the capacity-building projects for six local EEB was also revised to US $1,235,000. The activities use reallocated funding already approved and do not change the total funding approved for stage II of the servicing sector plan. The TORs for both activities were developed in June 2026 and shared with UNEP.

Table 3. Sources of funds proposed for reallocation to the two new activities (US $)

Source budget line	Fifth tranche	Sixth tranche	Seventh tranche	Eighth tranche	Total reallocation per activity
Activity – Second batch of capacity-building projects for six local EEBs (total cost US $1,235,000)					
Policy studies development and implementation	0	0	350,000	100,000	450,000
International and domestic training and communication	0	0	15,000	20,000	35,000
Capacity building of national and local authorities[12]	0	50,000	100,000	0	150,000
Subtotal of reallocated fund	**0**	**50,000**	**465,000**	**120,000**	**635,000**
Activity – Phase III of strengthening law enforcement capacity of customs (total cost US $900,000)					
National training workshops on ODS import/export control and outreach materials	20,000	0	0	120,000	140,000
Overseas training/study tour and participation in regional/international cooperation	0	300,000	0	0	300,000
Daily management of the import and export of ODSs and I/E office	0	50,000	0	0	50,000

[12] Comprising four activities: national training workshops/seminars; coordination meetings, overseas study tour/international meetings and study on policies and regulations.

Source budget line	Fifth tranche	Sixth tranche	Seventh tranche	Eighth tranche	Total reallocation per activity
Applicability study of the laws to punish illegal trade cases	0	0	90,000	0	90,000
Subtotal of reallocated fund	**20,000**	**350,000**	**90,000**	**120,000**	**580,000**
Total proposed for reallocation	**20,000**	**400,000**	**555,000**	**240,000**	**1,215,000**
Funds approved for the tranche	2,000,000	2,000,000	3,000,000	1,200,000	8,200,000
Reallocation as a share of the tranche (%)	1.0	20.0	18.5	20.0	14.8

Table 4. Funds originally requested for the ninth tranche implementation per activity and revised

Activities to be implemented	Original request (US $)	Revised request (US $)
(a) Annual coordination meetings; policy and regulatory reviews; one study tour for FECO/MEE personnel.	142,000	142,000
(b) Study on compliance measures required for effective implementation of the servicing tail of HCFC consumption; enterprise surveys and data collection to inform the design of a comprehensive digital traceability platform for the life cycle of refrigerant recovery, reclamation, and reuse; finalization of the standard for refrigerant reclamation traceability and study on technical standards for leakage prevention of refrigerants in the process of recovery and reuse.	950,000	640,000
(c) Comprehensive study on laws to punish illegal trade cases including studying disputes, law enforcement practices and enforcement needs for handling cases of illegal ODS import and export trade.	Remaining funds from previous tranches	Remaining funds from previous tranches
(d) Four training workshops or network meetings for ODS management for law enforcement officers and staff from local EEBs (US $60,000); support the implementation of the third batch of pilot cities (US $22,105).	82,105	81,105
(e) Ongoing support for the capacity building of local EEBs from the selected six provinces/cities; launch of a third phase in another six key provinces/cities.	200,000	600,000
(f) Strengthening the supervision of controlled substances and effectively combating illegal trade in 8 to 10 local customs offices and anti-smuggling bureaus.	0	320,000
(g) Six training workshops for customs supervision and anti-smuggling departments and two workshops for enterprises.	150,000	0
(h) Daily management of I/E office (US $384,000); ongoing operation and maintenance management of the CA service on the ODS paperless approval system and signing of new service contract (US $50,000).	434,000	380,000
(i) Good servicing practices training including at least one workshop for international/regional technicians; three international study tours to exchange experiences on servicing tail management and ODS reclamation and reuse (US $120,000).	120,000	120,000
(j) Training through the after-sale system for ICR manufacture's programme; manufacturers' after-sales programme for R-290 refrigeration and air conditioning servicing; outreach in the servicing sector to introduce the alternative technologies for HCFC-22 to the servicing enterprises, technicians, and consumers; continued implementation of the training and outreach in supermarket sector.	Remaining funds from previous tranches	Remaining funds from previous tranches
(k) Ozone2Climate roadshow and roundtable events, (US $150,000); celebration of World Ozone Day; continue to develop, produce, and	225,000	20,000

Activities to be implemented	Original request (US $)	Revised request (US $)
disseminate outreach materials, (US $75,000).		
(l) Project management and monitoring:	214,000	214,000
Total for requested tranche (US $)	**2,517,105**	**2,517,105**

190. Noting that the ODS regulatory framework cited as the main driver of the emerging needs was adopted in April 2025, the Secretariat enquired why these needs had not been identified when the eighth tranche was submitted to the 97th meeting. UNEP explained that, while the overarching framework was adopted in April 2025, the detailed operational requirements and implementation arrangements were developed subsequently, including through the Circular issued in February 2026,[13] and feedback from enterprises and local authorities had further clarified the practical needs for system simplification, reporting support, data verification and coordination across administrative levels. The submission to the 97th meeting had already recognized the need for more detailed registration and filing requirements for servicing enterprises. At that time, these needs were expected to be addressed through existing activities, and the scale of additional support required became clearer during the implementation.

191. On how the activities from which funds are proposed for reallocation would be completed as planned, UNEP explained that the amounts arose from activities completed at lower cost, changes in implementation arrangements and a cancelled programme, and therefore did not represent uniform cuts to the budgets needed to complete the original activities. In particular, the policy research budget was estimated on the assumption that domestic partners would be contracted, but FECO undertook much of the research, drafting and consultation directly and the relevant policies were issued without fully using the budget envisaged; domestic expenditure limits for training and meetings resulted in lower actual costs while the target numbers of trainees were achieved; the revised TOR for the study on illegal trade allowed it to be undertaken with a lower budget; and the overseas customs programme was cancelled. Activities that remain necessary will be completed under their revised scope and budget. UNEP provided detailed accounts on the savings that would be reallocated from unutilized or not obligated funds from each component.

192. The Secretariat considers that the two new activities are consistent with the priorities of the National Implementation Plan (2025–2030), address the increased registration, data verification and enforcement workload at the local level and the risk of illegal trade during the final phase of the HCFC phase-out, and that the revised level of reallocation is supported by the explanations provided on the source of each amount. Accordingly, a recommendation is made for the Executive Committee to approve the reallocation and to request UNEP to report on the implementation of the two activities in the subsequent annual and final reports.

Level of fund disbursement

193. As shown in table 1 above, the disbursement of the eighth tranche reached 24 per cent. Noting that the disbursement of the sixth and seventh tranches has increased by only 7 and 12 percentage points, respectively, since the 97th meeting, the Secretariat sought clarification on the low disbursement of the tranches approved in 2023 and 2024. UNEP explained that the disbursement rates partly reflected FECO's contractual payment requirements, under which payments to implementing partners were linked to the submission and acceptance of key deliverables rather than disbursed evenly throughout implementation. Several major activities under these tranches are still under implementation, and disbursement is expected to increase substantially as partners complete the key deliverables and meet the contractual payment conditions towards the end of their contracts.

[13] Mentioned is subparagraph 3(b) above as having entered into force in March 2026.

Project implementation and monitoring

194. The PMU allocation of US $214,000 requested under the ninth tranche represents 8.5 per cent of the tranche, the same percentage applied for the eighth tranche (US $102,000); the higher nominal amount reflects the larger size of the final tranche. Of the US $102,000 approved under the eighth tranche, US $25,500 had been spent as of the reporting cut-off date. The remaining US $76,500 will support project management during the continued implementation of the eighth tranche. The cumulative PMU allocation and expenditure are summarized in table 5.

Table 5. PMU allocation and expenditure for stage II of the refrigeration servicing sector plan

Item	Description	Cost (US $)
Sector-specific costs	Project staff	802,257
	Domestic travel	79,992
	International travel	5,852
	Domestic meeting	62,591
	International meetings	0
	Consulting service	62,942
Subtotal for sector-specific costs		**1,013,634**
Operations costs	Shared costs (support staff, computers, Internet, printing, office operations and maintenance)	922,234
Total disbursements (2017-2025)		**1,935,868**

195. UNEP confirmed that PMU expenditure was recorded progressively as eligible management costs were incurred and that it would remain within the approved allocations and agreed cumulative ceiling.

Gender policy implementation

196. In line with the Multilateral Fund's policy (decisions 84/92 and 90/48(c)), disaggregated training data was collected in 2025–2026. Training activities actively encourage women technicians to participate. In the servicing sector, training school data shows that about 7 per cent of the trainees are women. To address the low participation of women in technician training, four thematic good servicing practice training sessions specifically for women technicians, managers and trainers are planned by CRAA and CAR in 2026–2027, and participation is being broadened to non-technical roles in servicing enterprises. The training of local enforcement and customs officers and of enterprises in 2027 targets at least 20 per cent women participants. FECO/MEE will continue to encourage women to serve as instructors and trainers, collect disaggregated data for all activities, and develop outreach and training materials that promote equity.

Completion of stage II of the servicing sector plan

197. UNEP has confirmed that the servicing sector plan of stage II of the HPMP for China will be completed on 31 December 2027 as established in paragraph 14 of the Agreement.

Sustainability of the HCFC phase-out and assessment of risks

198. The National Implementation Plan (2025–2030) sets the course for the complete phase-out of HCFCs by 2030 as well as a 10 per cent reduction in HFCs by 2029. The new Circular establishes life cycle management of controlled substances, including mandatory filing for maintenance, end-of-life, recovery, reclamation and destruction operators and annual reporting through the MIS, closing a long-standing regulatory gap in the downstream handling of refrigerants. Local implementation is being supported through the second batch of capacity-building projects in six EEBs (Guangdong, Anhui, Sichuan, Henan, Chongqing and Shanghai), where over 10,000 enterprises have registered or filed in the MIS, and through the third batch of pilot projects in six provinces (Hubei, Guangxi, Hainan, Guizhou, Yunnan and Shaanxi),

where 4,104 servicing enterprises have registered in the MIS. The two standards on refrigerant reclamation traceability and leakage prevention, together with the proposed digital traceability platform for refrigerant recovery, reclamation and reuse, are expected to support a regulated market for reclaimed refrigerants and reduce reliance on virgin refrigerants for servicing.

199. Upon the Secretariat's request for an assessment of the risks to the implementation of the final tranche and related mitigation measures, UNEP indicated that the implementation challenges highlighted in the progress report would be addressed through the activities and arrangements already included in the workplan, as summarized in table 6.

Table 6. Risks and mitigation measures for the final tranche

Risk identified	Mitigation measures proposed
Illegal trade in HCFCs driven by the high market price of some alternatives as the 2030 complete phase-out approaches	Customs training and information exchange through iPIC; additional expert and technical support for the review and verification of import/export applications; expanded customs enforcement capacity building under phase III.
Shortfall in technician training targets owing to low participation during peak work seasons	Scheduling of courses taking seasonal workloads into account; mobilization of participants through established training networks of the associations; support to local EEBs to organize additional sessions using shared training resources.
Low participation of women in technician training (about 7 per cent of trainees).	Women-focused training sessions; broadening participation to non-technical roles in servicing companies; modules tailored to different job functions.
Incomplete MIS registration and reporting owing to the filing burden on micro-enterprises and local authorities.	MIS upgrades simplifying registration and data submission functions, including a streamlined module for micro-enterprises (eighth tranche); local capacity building through the first and second batches of EEB projects and nationwide support to all 31 provinces.

200. Given that the ninth tranche is the final tranche of stage II, the Secretariat considers that the completeness of MIS registration and reporting by servicing enterprises, the achievement of the training targets and the results of the two new activities should be closely monitored and reported in the subsequent progress reports, to ensure that the regulatory, enforcement and data systems put in place sustain the phase-out in the servicing sector beyond stage II.

Conclusion

201. The Government of China remains in compliance with the Montreal Protocol and its Agreement with the Executive Committee with regard to the refrigeration servicing sector. Consumption of 2,422.18 ODP tonnes of HCFCs in the refrigeration servicing sector in 2025 represents a reduction of 16 per cent from 2024. Progress has been made in the activities for the sector and its enabling component, in particular in the adoption and implementation of the updated regulatory framework, and the overall disbursement rate is 73 per cent (24 per cent for the eighth tranche). The proposed reallocation of a portion of the remaining uncommitted funding from the fifth to eighth tranches, together with the amounts requested in the ninth and final tranche, will be used to strengthen local enforcement capacity to control trade in controlled substances and the data systems needed to sustain the reductions achieved. This will be further supported by the enforcement of the quota management system and the training programmes and technical assistance activities under implementation.

RECOMMENDATION

202. The Executive Committee may wish to consider:

(a) Noting the progress report on the implementation of the eighth tranche of the refrigeration and air-conditioning servicing sector plan and the national enabling programme (servicing sector plan) of stage II of the HCFC phase-out management plan (HPMP) for China;

(b) Noting the reallocation of US $1,215,000 of the funds approved under the fifth to eighth tranches of the servicing sector plan of stage II of the HPMP for China for the second batch of capacity-building projects for six local ecology and environment bureaus (US $635,000) and to phase III of strengthening the law enforcement capacity of customs to combat illegal trade in ozone-depleting substances (US $580,000), on the understanding that the reallocation would not change the total funding approved for the sector plan;

(c) Requesting UNEP, the Governments of Germany and Japan to submit a final progress report on the implementation of the work programmes associated with the ninth and final tranche to the 102nd meeting of the Executive Committee; and

(d) Approving the ninth and final tranche of the servicing sector plan of stage II of the HPMP for China, and the corresponding 2027 tranche implementation plan, in the amount of US $2,517,105, plus agency support costs of US $276,211, for UNEP.

Annex I

BACKGROUND OF STAGE II OF THE HCFC PHASE-OUT MANAGEMENT PLAN FOR CHINA (76th to 83rd MEETINGS)

76th meeting

1. At its 76th meeting, the Executive Committee approved in principle:

   (a) The solvent sector plan for the period 2016 to 2026, for the complete phase-out of all HCFCs in that sector, in the amount of US $44.8 million, plus agency support costs; and

   (b) The refrigeration servicing sector and enabling programme component for the period 2016 to 2020, to reduce HCFC consumption by 734.0 ODP tonnes in that sector, in the amount of US $20.29 million, plus agency support costs.

77th meeting

2. At its 77th meeting, the Executive Committee approved in principle stage II of the HCFC phase-out management plan (HPMP) for China for the period 2016 to 2026 in the amount of US $500,100,000, plus agency support costs, to reduce HCFC consumption by 37.6 per cent of the baseline by 2020. Stage II included the following sector plans:

   (a) The industrial and commercial refrigeration and air-conditioning (ICR) sector plan to reduce HCFC consumption in the sector by 33 per cent by 2020;

   (b) The room air-conditioning manufacturing and heat pump water heaters (RAC) sector plan to reduce HCFC consumption in the sector by 45 per cent by 2020;

   (c) The polyurethane (PU) rigid foam sector and the extruded polystyrene (XPS) foam sector plans to achieve the total phase-out of HCFCs in these sectors by 2026; and

   (d) The refrigeration and air-conditioning servicing sector and the national enabling programme and the solvent sector plans, approved at the 76th meeting, were components of stage II of the HPMP.

79th meeting

3. At its 79th meeting, the Executive Committee approved the Agreement between the Government of China and the Executive Committee for the implementation of stage II of the HPMP, and set the agency support costs for UNDP, UNIDO, and the World Bank at 6.5 per cent, on the understanding that the agency support costs could be reconsidered at the 81st meeting, and maintained the level of agency support costs for the bilateral agencies and UNEP in place under the current administrative cost regime.

80th and 81st meetings

4. At the 80th and 81st meetings, the Executive Committee approved the second tranches for all except the PU foam sector plans.

82nd meeting

5. At the 82nd meeting, on behalf of the Government of China, UNDP, UNEP, UNIDO, the World Bank, and the Governments of Germany and Japan submitted requests amounting to US $39,999,492 for the second tranche of the PU foam sector plan (US $10,600,000), and the third tranches of the XPS foam

(US $8,000,000), ICR (US $12,000,000), solvent (US $5,549,492), and refrigeration servicing (US $3,850,000) sector plans of stage II of the HPMP.[1] The submission included an independent verification of HCFC production and consumption in 2017 (submitted by the World Bank); annual implementation reports covering the activities undertaken so far, and annual implementation plans for the activities to be implemented in 2018-2019.

6. After reviewing the documents associated with the third tranche requests for the XPS foam, ICR, solvent and refrigeration servicing sector plans, the Secretariat concluded that all of them had merits to warrant their submission for consideration at the 82nd meeting. However, this was not the case for the second tranche of the PU foam sector plan, as no disbursements from the first tranche had taken place at the time of submission.

7. In discussing the tranche requests, several Committee members expressed serious concern at approving additional funding at that meeting given the unexplained emissions of trichlorofluoromethane (CFC-11) that were reported in East Asia. Pursuant to decision XXX/3 regarding these unexpected emissions, more information had been requested on their cause, and it was suggested that the funding request be deferred until a subsequent meeting when more information was available. At the time, the Foreign Environmental Cooperation Centre (FECO) still held over US $100 million that had not yet been disbursed to beneficiary enterprises; thus, it was considered that deferring the funding requests should have no significant effect. It was important to demonstrate to the international community that the Multilateral Fund took the issue of the illegal emission of CFC-11 seriously, but any decision to defer the funding should be without prejudice to any further actions to be taken by the Government of China.

8. Other members said that care needed to be taken, and that any decision to defer the funding requested should not put into jeopardy the 2020 reduction target for China. It was asked whether all funds had already been transferred to FECO or whether some of them remained with the implementing agencies, and what the effect on them might be if the present request for funding was deferred. The ongoing investigations into the cause of the emissions of CFC-11 meant that the Executive Committee needed to be cautious when reaching conclusions. It could take several years for all the relevant information to be assembled, and it was important to have clarity on what information was required and a timeline for assembling it.

9. Subsequent to deliberations on the issue in the contact group, the Committee decided (decision 82/71):

(a) To request the Government of China, through the relevant implementing agency, to submit at the 83rd meeting:

(i) A review of the current monitoring, reporting, verification and enforcement systems in line with its Agreements with the Executive Committee on the country's HPMP and HCFC production phase-out management plan, including information on the organizational structure and capacity at the national and local levels that demonstrated how the long-term sustainability of the phase-out of HCFCs in the consumption and production sectors was being ensured and on the efforts to address any illegal trade in those substances; and

(ii) A progress report regarding actions taken with a view to strengthening of legislation on ozone-depleting substances (ODSs) and implementation thereof in China; and

[1] The request for the third tranche of the RAC sector plan (US $18,000,000) was not submitted because the level of disbursement of funds approved for the second tranche had not reached 20 per cent.

(b) To consider the requests for funding for the subsequent tranches of stage II at the 83rd meeting.

83rd meeting

10. In response to decision 82/71, UNDP submitted, on behalf of the Government of China, the report on the current monitoring, reporting, verification and enforcement systems and the progress report regarding actions taken with a view to strengthening of legislation on ODSs.[2] In addition, UNDP, UNEP, UNIDO, the World Bank and the Governments of Germany and Japan re-submitted requests for third tranches of the XPS foam, ICR, solvent and refrigeration servicing sector plans and for second tranche of the PU foam sector plan associated with stage II of the HPMP for China.

11. After reviewing the re-submission of the sector plans and associated documents, the Secretariat concluded that all of them merited consideration at the 83rd meeting, except the request for the second tranche of the PU foam sector plan, which did not meet the disbursement requirements; accordingly, this tranche request was not submitted.

12. In discussing the tranche requests, one Executive Committee member said that in light of the matter of the substantial increase in CFC-11 emissions from China, her delegation had concerns about the sustainability of reductions in ODS achieved using funding from the Fund, and was unable, at the present time, to support project funding for China; she further noted that there may need to be restitution for the environmental harm caused by the unexpected emissions. Another representative supported that stance, stating that until the matter had been clarified, his country was unable to approve new tranches for the HPMP, as that would undermine the credibility of the Montreal Protocol.

13. Following the discussion, the Executive Committee deferred, to the 84th meeting, consideration of the revision of the Agreement for stage II of the HPMP for China and the requests for the third tranches of the XPS foam, ICR, refrigeration servicing, and solvent sector plans under stage II of the HPMP (decision 83/55).

[2] UNEP/OzL.Pro/ExCom/83/11/Add.1

Annex II

FINANCIAL REPORT OF THE PROJECT MANAGEMENT UNIT ASSOCIATED WITH THE SECTOR PLANS OF STAGE II OF THE HCFC PHASE-OUT MANAGEMENT PLAN AND HCFC PRODUCTION PHASE-OUT MANAGEMENT PLAN FOR CHINA

Stage II: Cumulative PMU expenditure as of 31 December 2025 (US $)

Item	Sectors *						
	Production	**RAC**	**PU foam**	**XPS foam**	**ICR**	**Solvent**	**Servicing**
Sector costs							**16,354,124**
Project staff	3,169,953	2,443,403	1,993,991	1,907,642	2,581,270	870,128	802,257
Domestic travel	200,120	122,838	111,163	163,510	201,197	87,677	79,992
International travel	29,412	12,454	7,205	13,747	17,724	6,756	5,852
Domestic meeting **	158,081	105,398	87,088	123,690	155,647	68,768	62,591
International meetings	0	0	0	0	0	0	0
Consulting service ***	159,487	103,426	87,796	125,245	156,751	68,923	62,942
Subtotal sector costs	3,717,053	2,787,519	2,287,243	2,333,834	3,112,589	1,102,252	1,013,634
Share costs							**11,234,065**
Supporting staff ****							7,417,493
Computer, Internet, phone, printing, etc.							1,191,430
Office operation and maintenance, utilities							2,625,142
Total	**6,060,520**	**4,297,310**	**3,614,421**	**4,173,644**	**5,410,597**	**2,095,829**	**1,935,868**

Note: Total cumulative expenditure of PMU from 2017 to 2025 for the implementation of HPMP/HPPMP stage II is US $27,588,189. From the total expenditure of US $27,588,189, US $14,113,799 came from the received PMU of the sector plans of stage II of the HPMP/HPPMP, while the expenditure of remaining US $13,474,390 was temporarily covered by FECO's own budget and expected to be partially reimbursed from PMU of future tranches to be received from implementing agencies. The expenditure supported by the IS and co-finance of the Government of China are not included.

* PU = polyurethane; XPS = extruded polystyrene; RAC = room air-conditioning manufacturing and heat pump water heaters; ICR = industrial and commercial refrigeration and air-conditioning.

** Costs for venue, equipment rental and others.

*** Consulting institutions and experts hired for project evaluation, financial and technical verifications, technical review, bidding evaluations, technical support, etc.; contractual staff hired to help with high workload or special events, such as meetings, exhibitions and workshops, as well as translation-related costs.

**** Costs associated with the apportioned supporting staff in the financial division, contract management, general affairs, and other relevant divisions.