UNITED NATIONS

EP

United Nations Environment Programme

Distr.
GENERAL

UNEP/OzL.Pro/ExCom/84/42
27 November 2019

ORIGINAL: ENGLISH

EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Eighty-fourth Meeting
Montreal, 16–20 December 2019

PROJECT PROPOSALS: CHINA

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

Phase-out

• HCFC phase-out management plan (stage I) (annual progress report)	UNDP, UNIDO, and World Bank
• HCFC phase-out management plan (stage II):	UNDP, UNEP, UNIDO, World Bank, Germany and Japan
Extruded polystyrene foam sector plan – third tranche	UNIDO and Germany
Polyurethane rigid foam sector plan – second tranche	World Bank
Industrial and commercial refrigeration and air-conditioning sector plan – third tranche	UNDP
Refrigeration servicing sector plan and national enabling programme – third tranche	UNEP, Germany and Japan
Solvent sector plan - third tranche	UNDP

HCFC PHASE-OUT MANAGEMENT PLAN (STAGE I) (ANNUAL PROGRESS REPORT) (UNDP, UNIDO, and World Bank)

Note by the Secretariat

Background

1. At its 64th meeting, the Executive Committee approved, in principle, stage I of the HPMP for China for the period 2011 to 2015 at the amount of US $265 million (excluding agency support costs), associated with extruded polystyrene (XPS) foam, polyurethane (PU) foam, industrial and commercial refrigeration and air-conditioning (ICR), room air-conditioning manufacturing (RAC) and refrigeration servicing sector plans, the national enabling programme and the national co-ordination plan. The Committee also decided that the solvent sector, at a maximum level of funding of up to US $5,000,000, (excluding support costs), could be considered at the 65th meeting (decision 64/49). With the approval of the solvent sector plan at the 65th meeting (decision 65/36), the overall funding for stage I of the HPMP for China amounted to US $270,000,000.

2. The Agreement between the Government of China and the Executive Committee was updated several times and finalized at the 67th meeting, reflecting the newly established HCFC baseline for compliance in China, the change in responsibility of co-operating agencies, and the established agency support costs (decision 67/20).

3. To ensure compliance with the Montreal Protocol by China, the 2013 and 2015 HCFC consumption control targets in the six sector plans are shown in Table 1.

Table 1. HCFC consumption limits and targeted phase-out amount in consumption sectors for stage I of the HPMP for China

National/Sectoral level	2013 (ODP tonnes)		2015 (ODP tonnes)	
	Max. allowable consumption	Phase-out amount	Max. allowable consumption	Phase-out amount
National	18,865	n/a	16,979	n/a
Sector plans				
XPS	2,540	338	2,286	254
PU	5,392	673	4,450	942
ICR	2,403	224	2,163	240
RAC	4,109	176	3,698	411
Solvent	494	30	455	39
Servicing	n/a	61	n/a	0
Total	**n/a**	**1,502**	**n/a**	**1,886**

4. All tranches associated with the sector plans have been approved as listed in Table 2.

Table 2. Approvals of tranches for each sector plan of the HPMP for China

Sector plan	Meeting of the Executive Committee								
	64th	65th	68th	69th	71st	72nd	73rd	74th	75th
XPS	First			Second	Third		Fourth		Fifth
PU	First		Second		Third*		Fourth		Fifth
ICR	First		Second		Third		Fourth		Fifth
RAC	First		Second		Third		Fourth		Fifth
Solvent		First			Second				Third
Servicing	First		Second			Third		Fourth	Fifth

* Approved on an exceptional basis on the understanding that funding would be disbursed by the Treasurer to the World Bank only after the Secretariat had accepted as sufficient information provided by the World Bank to the effect that disbursement of 20 per cent or more of the second tranche to final beneficiaries had been achieved. Funds were transferred from the Treasurer to the Wold Bank in January 2014.

Submission to the 84th meeting

5. On behalf of the Government of China UNDP, UNIDO, and the World Bank submitted annual progress reports on the implementation of the work programme associated with the final tranche for PU foam, ICR, and RAC sector plans associated with stage I of the HPMP. A progress report on the XPS foam, solvent and servicing sector plans have not been included as stage I for these sectors have already been completed.

HCFC consumption

6. The Government of China has reported HCFC consumption for 2018 under Article 7 of the Montreal Protocol as shown in Table 3.

Table 3. HCFC consumption in China (2014 to 2018) (Article 7)

Year	2014	2015	2016	2017	2018	Starting point
	Metric tonnes					
HCFC-22	190,318	153,971	168,687	172,970	178,658	209,006
HCFC-123	1,006	900	943	990	991	507
HCFC-124	96	(46)	67	(6)	5	140
HCFC-141b	51,848	38,584	39,144	40,039	38,057	53,502
HCFC-142b	9,918	11,616	9,471	10,253	5,367	22,624
HCFC-225ca/cb	33	15	38	38	38	17
Total	**253,219**	**205,040**	**218,350**	**224,284**	**223,105**	**285,796**
	ODP tonnes					
HCFC-22	10,468	8,468	9,278	9,513	9,826	11,495
HCFC-123	20	18	19	20	20	10
HCFC-124	2	(1)	1	(0.13)	0.12	3
HCFC-141b	5,703	4,244	4,306	4,404	4,186	5,885
HCFC-142b	645	755	616	666	349	1,471
HCFC-225ca/cb	1	1	1	1	1	1
Total	**16,839**	**13,485**	**14,221**	**14,604**	**14,382**	**18,865**

7. HCFC consumption in China continues to be dominated by three substances, HCFC-22, HCFC-141b and HCFC-142b, which collectively account for 99.9 per cent of the country's consumption (in ODP tonnes). Overall HCFC consumption in 2018 was 1.5 per cent lower (in ODP tonnes) than in 2017. The main reason for the decrease in HCFC consumption in 2015 was the economic slowdown, particularly in the real estate market, followed by economic recovery in 2016. Despite economic fluctuations, China continues to be in compliance with the Montreal Protocol and with its Agreement with the Executive Committee for stage II of the HPMP (last consumption target in stage I was 2015).

8. The Government of China has reported country programme (CP) data for 2018. Table 4 presents HCFC consumption per sector for 2017 which demonstrates compliance with the manufacturing sector consumption limits 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 between the Government of China and the Executive Committee for stage II of the HPMP.

Table 4. Consumption of HCFC (in ODP tonnes) per sector in China in 2018*

Substance	XPS foam	PU foam	ICR	RAC	Solvent	Servicing
HCFC-22	1,595		1,980	2,860		3,290
HCFC-141b		3,759			374	
HCFC-142b	325		6			18
HCFC-123			11			8.75
HCFC-124						(0.12)
HCFC-225ca/cb					1	
Total	**1,920**	**3,759**	**1,997**	**2,860**	**375**	**3,317**

Substance	XPS foam	PU foam	ICR	RAC	Solvent	Servicing
Maximum allowable consumption	2,032	3,775	2,042	2,876	395	n/a

*Data is from the CP report, the distribution between ICR and RAC sectors are submitted by the implementing agencies; aerosol sector not included as it is not part of stage I of the HPMP.

9. The Government of China continued to monitor the consumption in each of the different sectors. Each year, the Foreign Environmental Cooperation Centre (FECO) collects data from different sources including beneficiary enterprises, verification report of the production sector, the license system and industrial associations. Data is cross-verified with the actual consumption in the enterprises only for some sectors and substances, such as the RAC sector (with limited consuming enterprises) and HCFC-22. For sectors with large number of small and medium-sized enterprises (SMEs) (i.e., XPS foam, PU foam, ICR, and servicing sector) consumption is monitored through the national system of licensing and quotas for HCFC imports, exports, production and consumption. The domestic production quotas control HCFC sold in the local market and subsequent consumption in SMEs. Quotas are also issued to enterprises with an annual consumption of HCFCs over 100 metric tonnes (mt), for each of the different sectors.

10. In addition, FECO is cooperating with the local Ecology and Environment Bureaus (EEBs) to strengthen policies that can support the reduction of HCFC consumption, including a ban for new HCFC-based manufacturing facilities.

Verification of consumption of HCFCs in China

11. The World Bank commissioned an independent verification of 2018 HCFC production and consumption in China. The verification confirmed that the consumption of HCFCs in 2018 was within the limits established by the Agreement for the consumption sector.

Overview of progress

12. An overview of the main achievements in the implementation of stage I of the HPMP include:

(a) Establishment of licensing and quota system to control the overall compliance in each one of the manufacturing sectors including the application of quota permits to enterprises consuming more than 100 mt of HCFC per year, resulting in compliance with all the manufacturing sector consumption limits during the years of implementation;

(b) *XPS foam sector:* Stage I of the XPS foam sector plan was operationally completed since the 82nd meeting and the project completion report (PCR) has been submitted. All tranches were financially completed in June 2019;

(c) *PU foam sector:* Fifty-five PU foam enterprises converted with a phase-out of 12,969 mt of HCFC-141b. Additional 1,716 mt were phased out through the application of regulations;

(d) *ICR sector:* Thirty-four production lines in the ICR sector converted with a phase-out of 8,786.4 mt of HCFC-22 (including the demonstration projects and the phase-out of 445.20 mt by non-Article 5 enterprises as of 2016);

(e) *RAC sector:* Twenty-eight RAC lines converted (R-290, R-410A and compressors) with the total phase-out of 10,466.2 mt of HCFC-22 (of which 10,140.6 mt is associated with Article 5 ownership and the remaining 325.6 mt had been phased out without assistance from the Fund); the remaining line is expected to finish its conversion and national acceptance in 2019, the total phase-out will reach 10,813.7 mt of HCFC-22 (of which 10,488.1 mt is associated with Article-5 ownership). In addition, 240 mt of HCFC 22 were

phased out through the demonstration project at Midea approved at the 61st meeting;

(f) *Solvent sector:* Sector plan operationally completed (December 2017) and the PCR submitted before the 82nd meeting;

(g) *Refrigeration servicing sector:* Sector plan operationally completed (December 2018), PCR has been submitted, balances will be returned to the 85th meeting; and

(h) Through the national coordination component, UNDP (as the lead implementing agency of stage I) assisted FECO in the coordination and monitoring of the implementation of stage I among stakeholders; submission of the progress report of the production and the three consumption sectors to the 84nd meeting and commissioning and submission of the financial audit report including funding disbursement and accrued interest of each sector in 2018.

Status of completion of the PU foam, ICR and RAC sector plans

13. The date of completion of stage I of the HPMP established in the Agreement between the Government and the Executive Committee was December 2016. At the 75th meeting, when the last tranche of stage I was submitted, the dates of completion of each sector plan were extended in order to allow the completion of the planned activities. As specified in decisions 75/29(a), 75/54, 75/55, 75/56 and 75/57, project completion reports (PCRs) for the XPS foam, PU foam, solvents and refrigeration servicing sectors were expected to be submitted six months after the operational completion of the sector plans and no later than the final meeting of the Executive Committee in 2018, and PCRs for the ICR and RAC sectors six months after the operational completion of the sector plans and no later than the final meeting of the Executive Committee in 2019.

14. The PU foam sector plan was operationally completed in June 2019 and the PCR submitted to the 84th meeting, in line with decision 82/67(b) and (d). The servicing sector plan was completed in December 2018 and a final PCR submitted to the 84th meeting in line with decision 82/70(b) and (c). The ICR will be operationally completed in December 2019 and the PCR will be submitted to the first meeting in 2020, in line with decision 82/68(b) and (c). The RAC sector plan was due for completion in 2019, with the PCR to be submitted to the 84th meeting. UNIDO is requesting extension of its completion date to 31 December 2020. Details on the reasons for the request of this extension and the comments and recommendations by the Secretariat are included in the stand-alone progress report on the implementation of the RAC sector plan attached to the Note by the Secretariat.

Disbursement of funds and interest accrued under stage I and stage II

15. Based on decision 69/24, each of the sector plans submitted included information on funds disbursed and interest accrued, as shown in the respective sector plans of this document. The level of funds disbursed is summarized in Table 5 and the interests accrued are summarized in Table 5.

Table 5. Level of disbursement per sector as of October 2019 (US $)

Sector plans	Funds approved (US $)	Disbursements from IA to FECO		Disbursements by FECO*	
		US $	%	US $	%
XPS foam (UNIDO/Germany)	50,000,000	49,999,917**	100	49,999,917	100
PU foam (World Bank)	73,000,000	73,000,000	100	67,634,559	93
ICR (UNDP)	61,000,000	61,000,000	100	56,592,676	93
RAC (UNIDO)	75,000,000	60,727,617	81	48,582,365	65
Solvent (UNDP)	5,000,000	5,000,000	100	5,000,000	100
Servicing (UNEP /Japan)	5,640,000	5,640,000	100	5,497,614	97.4

Sector plans	Funds approved (US $)	Disbursements from IA to FECO		Disbursements by FECO*	
		US $	%	US $	%
National coordination (UNDP)	360,000	360,000	100	360,000	0
Total	**270,000,000**	**255,727,534**	**95**	**233,667,131**	**87**

*Disbursements by FECO are to beneficiary enterprises for investment activities and to service providers, contractors, equipment for technical assistance (TA) activities.

** A balance of US $83 under the first tranche is being returned to the 84th meeting.

16. Ninety-five per cent of the funds approved for the implementation of stage I have been disbursed from the implementing agencies to FECO, and 87 per cent have been disbursed to final beneficiaries.

17. Information on interest accrued as of the end of 2018 was provided through an audit report on the disbursement for stage I and stage II of the HPMP sector plans of 2018 submitted by UNDP on 27 September 2019, as shown in Table 6. The audit report submitted also indicated that "the financial statement of project grant and disbursement of the HPMP (stage I and II) is complied with the rules of the Montreal Protocol on ODS and the Chinese Institution Accounting Standard. The statement of grant and expenditure has been fairly and justly presented in all material respects from January 1 to December 31, 2018 by FECO".

Table 6. Information provided on interest accrued

Sector plan	Interests accrued 2018 (US $)		
	Stage I	Stage II	Total
XPS foam (UNIDO/Germany)	3,130	2,163	5,293
PU foam (World Bank)	8,004	-	8,004
ICR (UNDP)	64,593	34,887	99,480
RAC (UNIDO)	42,617	10,525	53,142
Solvent (UNDP)	0	2,373	2,373
Servicing (UNEP /Japan)	1,818	3,856	5,674
Total all sectors	**120,162**	**53,803**	**173,965**

Secretariat's recommendation

18. The Executive Committee may wish:

(a) To request the Treasurer to offset future transfers to UNIDO by US $5,293, representing interest accrued by the Government of China up to December 2018 from funds previously transferred for the implementation of the XPS foam sector plan for China under stages I and II of the HPMP, as per decisions 69/24 and 77/49(b)(iii);

(b) To request the Treasurer to offset future transfers to the World Bank by US $8,004, representing interest accrued by the Government of China up to 31 December 2018 from funds previously transferred for the implementation of the PU foam sector plan for China under stage I of the HPMP, as decisions 69/24 and 77/49(b)(iii);

(c) To request the Treasurer to offset future transfers to UNDP by US $99,480, representing interest accrued by the Government of China up to 31 December 2018 from funds previously transferred for the implementation of the ICR sector plan for China under stages I and II of the HPMP as per decisions 69/24 and 77/49(b)(iii);

(d) To request the Treasurer to offset future transfers to UNIDO by US $53,142, representing interest accrued by the Government of China up to 31 December 2018 from funds previously transferred for the implementation of the RAC sector plan for China under stages I and II of the HPMP, as per decisions 69/24 and 77/49(b)(iii);

(e) To request the Treasurer to offset future transfers to UNEP by US $5,674, representing interest accrued by the Government of China up to 31 December 2018 from funds previously transferred for the implementation of the refrigeration servicing sector plan and the national enabling programme for China under stages I and II of the HPMP, as per decisions 69/24 and 77/49(b)(iii); and

(f) To request the Treasurer to offset future transfers to UNDP by US $2,373, representing interest accrued by the Government of China up to 31 December 2018 from funds previously transferred for the implementation of the solvent sector plan for China under stage II of the HPMP, as per decisions 69/24 and 77/49(b)(iii).

Progress reports

19. Detailed stand-alone progress reports on the implementation of the PU foam, ICR and RAC sector plans are attached to the Note by the Secretariat. Each report provides a progress report on the implementation of the last tranche; the level of fund disbursement; the status of completion; comments by the Fund Secretariat; and the recommendation.

China: Stage I of the HPMP – PU foam sector (World Bank)

Progress report on implementation

20. Out of the 57 polyurethane (PU) foam enterprises assisted in stage I, 55 completed their conversions to hydrocarbon or water-blown technologies, phasing out 12,913.53 metric tonnes (mt) (1,420.49 ODP tonnes) of HCFC-141b. Project completion has been verified and a certificate of national acceptance was provided to these enterprises in June 2019. Two electrical water heater enterprises consuming 55.57 mt of HCFC-141b permanently stopped manufacturing and using HCFC-141b due to bankruptcy and their projects were canceled. The fund balance associated with these conversions will be returned to the Multilateral Fund. Table 1 shows progress in the implementation of stage I of the PU foam sector plan.

Table 1. Progress in the implementation of the PU foam sector plan in China

Status of implementation	Number of enterprises	HCFC consumption (mt)	Expected date of completion	Share of stage I target (%)
Enterprise conversions				
Project completed including national acceptance	55	12,913	Completed	88
Projects cancelled	2	56	n/a	0
Sub-total	**57**	**12,969**		**88**
Estimated additional reductions through regulations	n/a	1,716		12
HCFC reduction target	n/a	**14,685**		**100**

21. Stage I also included assistance to six systems houses to supply pre-blended cyclopentane-based formulations. Three of the systems houses completed their projects and received project acceptance; however, the three remaining were cancelled as they did not obtain safety approval from the local authorities and did not propose alternative plans. The fund balance associated with these projects will be returned to the Multilateral Fund.

22. In October 2018, the Ministry of Ecology and Environment (MEE) issued a ban on the use of HCFC-141b as blowing agent in the refrigerator and freezer, reefer container, and electric water heater sub-sectors, effective from 1 January 2019. Any violation of the ban will be penalized according to the provisions of the Regulation on Ozone Depleting Substances Management.

23. The following technical assistance (TA) activities that had been reported in previous reports were completed: a survey of technical standards and formulations required in the production and usage of alternative blowing agents; expert visits to review the safety measures put in place by the beneficiary enterprises converting to cyclopentane; a report on the research on optimizing alternative foaming formulations; revision of safety standards for the use of cyclopentane in foam manufacturing; comparative studies on alternative technologies in the spray and panels sub-sectors; establishment of a training centre to assist small and medium-sized enterprises (SMEs) in selecting and accessing alternative technologies; monitoring activities to ensure sustained phase-out of HCFC-141b in the six provinces where PU foam manufacturers are located; and support to the Foreign Environmental Cooperation Centre (FECO) and to beneficiary enterprises by the implementation support agency.

Level of fund disbursement

24. As of 30 September 2019, of the US $73,000,000 approved, 100 per cent had been disbursed from the World Bank to FECO, and US $67,634,559 (92.7 per cent) had been disbursed by FECO to beneficiaries, as shown in Table 2.

Table 2. Status of disbursements for the PU foam sector plan as of September 2019

Component	Funds approved (US $)	Funds disbursed as of September 2019 (US $)	Balance (US $)
Enterprise activities	64,890,448**	61,082,957	3,807,491
TA	4,459,552**	2,901,602	1,557,950
PMU* activities	3,650,000	3,650,000	0
Total	**73,000,000**	**67,634,559**	**5,365,441**

* Project implementation and monitoring unit.
** Including the three new enterprises for US $1,527,021. The funds to convert these enterprises were reallocated from TA.

Secretariat's comments

HCFC consumption

25. Consumption of HCFC-141b in the PU foam manufacturing sector in 2018 was 34,176.74 mt (3,759.44 ODP tonnes), which is lower than the maximum allowable consumption established for the same year in the Agreement between the Government of China and the Executive Committee, as shown in Table 3.

Table 3. HCFC-141b consumption and targets for the PU foam sector

PU foam sector		2014	2015	2016	2017	2018
Consumption*	mt	46,864	34,202	34,821	36,439	34,177
	ODP tonnes	5,155.0	3,762.0	3,830.3	4,008.3	3,759.4
Maximum allowable consumption **	mt	49,018	40,451	40,451	40,451	34,314
	ODP tonnes	5,392.2	4,449.6	4,449.6	4,449.6	3,774.5
Phase-out target	mt	n/a	8,569	n/a	n/a	6,137
	ODP tonnes	n/a	942.6	n/a	n/a	675.1

* As per the country programme implementation report.
** As per the Agreement approved at the 67th meeting for stage I of the HPMP up to 2015 and as per the Agreement approved at the 79th meeting for stage II from 2016 to 2018.

26. The growth in HCFC consumption in 2016 and 2017 was due to economic development and policies enacted in various provinces in China requiring the insulation of buildings. The 2018 reduction target was achieved due in part to additional conversions of PU foam enterprises to low-global-warming-potential (GWP) alternatives (a total of 12,969.10 mt of HCFC-141b were phased out through the conversion of PU foam enterprises). The ban on the use of HCFC-141b as blowing agent in the sub-sectors of reefer containers, refrigerators and freezers, and small household appliances starting 1 January 2019 also ensured that other non-eligible enterprises in the sector stopped the use of HCFC-141b, representing an estimated phase-out of 1,715.90 mt of HCFC-141b to be achieved through policy measures, including the ban and the quota system for PU foam enterprises consuming more than 100 mt of HCFC-141b per year.

Completion of stage I

27. In line with decision 82/67(b) and (d), the Government of China completed stage I of the PU foam sector plan on 30 June 2019, and submitted the project completion report to the 84th meeting.

28. Upon completion of stage I, the World Bank provided the final list of all PU foam enterprises and systems houses that received assistance from the Multilateral Fund, including the name of the enterprise, location, foam application, value of the sub-agreement for conversion, tonnage of HCFC-141b phased out, low-GWP technology introduced and date of completion.

29. With regard to the three systems houses that did not obtain safety approvals by local authorities and could not implement their projects, the World Bank confirmed that they were still using HCFC-141b and might participate in a future sub-project under stage II, subject to resolution of the issues that prevented their participation in stage I.

30. The World Bank also provided information on the findings/lessons learned from the wrap-up meeting with over 200 participants from the PU foam sector in April 2019, where awareness was raised regarding the ban on HCFC-141b use in the three priority sub-sectors, the achievements of stage I were presented, and representatives from completed conversion beneficiaries and systems houses, TA research implementers, and equipment suppliers made presentations to share the outcomes from sub-projects. It was concluded that the combination of policy actions, monitoring, and Multilateral Fund grants were effective elements for sustainable HCFC-141b phase-out. For SMEs under stage II, a new modality should be adopted to encourage these enterprises to participate in the phase-out of HCFC-141b; systems houses and equipment suppliers shall be considered a channel to connect FECO with SMEs.

Level of fund disbursement

31. In relation to the fund balance of US $5,365,441 shown in Table 2, the World Bank explained that US $3,893,965 was committed prior to 30 June 2019 to undertake final payments to enterprises converted and service providers under the TA component. The remaining US $1,471,476 is part of the potential balances to be returned to the Multilateral Fund.

32. In line with decision 82/67(d), the overall potential balances to be returned are estimated around US $2.2 million; part of the balances relate to the two enterprises that were bankrupted and three systems houses that were cancelled, and to savings achieved in some activities mainly due to exchange rate gains. However, the final amount of balances to be returned to the Fund will only be confirmed after financial completion of the overall project and grant agreement between China and the World Bank by 31 October 2019. The return of balances should accordingly take place most likely at the 84th meeting, and definitely no later than the 85th meeting.

Conclusion

33. Stage I of the PU foam sector plan was completed on 30 June 2019, in line with decision 82/67(b), with the conversion of 55 enterprises and TA to three systems houses, achieving the phase-out of 12,969 mt (1,427 ODP tonnes) of HCFC-141b. In addition, the remaining reductions to meet the stage I reduction target of 14,685 mt (1,615.35 ODP tonnes) were achieved through the application of regulations, including the quota system and the ban on the use of HCFC-141b for the manufacturing of refrigerators, freezers, reefers and containers, and small household appliances, starting 1 January 2019. A large number of TA activities were completed to facilitate the conversions and ensure their sustainability. An estimated balance of US $2.2 million will be returned to the Fund. However, the final balance will be confirmed by the World Bank within the next weeks following financial completion of the project by 31 October 2019. The return of balances to the Fund will take place no later than the 85th meeting.

Secretariat's recommendation

34. The Executive Committee may wish:

(a) To note the 2019 progress report on the implementation of the fifth tranche of the polyurethane (PU) rigid foam sector plan under stage I of the HCFC phase-out management plan (HPMP) for China, submitted by the World Bank and contained in document UNEP/OzL.Pro/ExCom/84/42; and

(b) To request the World Bank to return balances, no later than the 85th meeting, for the PU rigid foam sector plan under stage I of the HPMP for China.

HPMP (stage I): ICR sector (UNDP)

Progress report on implementation

35. A total of 30 equipment manufacturing lines and four compressor lines in 18 enterprises have been converted to phase out 8,029.24 metric tonnes (mt) (441.61 ODP tonnes) of HCFC-22 in stage I of the ICR sector plan of the HPMP. Including the demonstration projects and the phase-out of 445.20 mt by non-Article 5 enterprises, the total phase-out in the ICR sector amounts to 8,786.4 mt (483.25 ODP tonnes). The selected alternative technologies included HFC-32, R-410A, CO_2, NH_3, HFC-134a, NH_3/CO_2, CO_2/HFC-134a, and HFO/HFC-134a as presented in paragraph 51 of document UNEP/OzL.Pro/ExCom/80/37.

36. As of September 2019, the conversions of all 34 manufacturing lines had been completed and gone through the national acceptance. Independent verification of a sample of the converted lines were conducted in accordance with paragraph 5(b) of the Agreement between the Government of China and the Executive Committee.

37. A plan for disbursing incremental operating costs (IOCs) has been developed jointly by the Foreign Environmental Cooperation Centre (FECO) and the China Refrigeration and Air-conditioning Industrial Association (CRAA) and IOCs will be disbursed after receiving application from enterprises and verification of production and sales. IOCs have been paid to 16 enterprises based on the products they produced and sold. These include three NH_3/CO_2 lines, four HFC-134a lines, five R-410A lines and four HFC-32 lines as shown in Table 1.

Table 1. Overview of IOC disbursement for conversions in stage I

Enterprise	Phase-out (mt)	Technology/Application	IOC (US $)		
			Total	Disbursed	Outstanding
Zhuhai Gree	828.42	HFC-32: unitary AC*	1,117,247	1,117,247	0
Zhuhai Gree	865.09	HFC-32: unitary AC	1,049,605	1,049,605	0
Zhuhai Gree	208.04	R-410A: multi-connected AC units, unitary AC	122,283	122,283	0
Zhuhai Gree	373.92	HFC-32: industrial and commercial water chiller (heat pump)	496,359	496,359	0
Zhuhai Gree	331.66	HFC-32: small-sized water chiller (heat pump)	406,553	406,553	0
Dunan Environment	57.78	HFC-32: unitary AC	91,285	0	91,285
Dunan Environment	101.87	HFC-32: industrial and commercial water chiller (heat pump)	147,707	0	147,707
Guangdong Midea	606.79	R-410A: multi-connected AC units	698,000	698,000	0
Guangdong Midea	593.55	R-410A: unitary AC	1,023,000	1,023,000	0
Guangdong Midea	670.96	R-410A: unitary AC	1,141,000	1,141,000	0
Guangdong Midea	357.79	HFC-32: industrial and commercial water chiller (heat pump)	436,000	0	436,000
Shandong Geruide	33.57	HFC-134a: industrial and commercial water chiller (heat pump)	67,139	67,139	0
Shandong Geruide	72.84	HFC-32: industrial and commercial water chiller (heat pump)	116,544	0	116,544
Qingdao Haier	395.854	HFC-32: unitary AC	480,000	0	480,000
Nanjing TICA	81.46	R-410A: unitary AC	89,100	89,100	0
Nanjing TICA	90.85	HFC-32: industrial and commercial water chiller (heat pump)	114,000	0	114,000
Wuhan Xinshijie	95.295	R-717: Industrial & commercial water chiller (heat pump)	107,620	0	107,620
Wuhan Xinshijie	31.765	HFC-134a: industrial and commercial water chiller (heat pump)	36,020	0	36,020
Chongqing Midea	233.07	HFC-134a: industrial and commercial water chiller (heat pump)	304,529	304,529	0

Enterprise	Phase-out (mt)	Technology/Application	IOC (US $)		
			Total	Disbursed	Outstanding
Chongqing Midea	47.67	HFC-134a: industrial and commercial water chiller (heat pump)	76,623	76,623	0
Chongqing Midea	223	HFC-32: industrial and commercial water chiller (heat pump)	380,352	0	380,352
Ningbo Aux	370.75	HFC-32: unitary AC	430,082	0	430,082
Ningbo Aux	73.57	HFC-32: unitary AC	107,750	0	107,750
Dunham-Bush	82.53	HFC-134a: industrial and commercial water chiller (heat pump)	127,953	127,953	0
Shandong Shenzhou	77.573	R-717/R-744: freezing and cold storage system	193,962	193,962	0
Haier-Carrier	65.75	HFC-134a/R-744: supermarket cold storage system	112,947	0	112,947
Dalian Refrigeration	75.284	R-717/R-744: freezing and cold storage system and condensing units	170,814	170,814	0
Dalian Refrigeration	231.391	R-717/R-744: freezing and cold storage system and condensing units	615,688	0	615,688
Dalian Refrigeration	370.142	R-717/R-744: freezing and cold storage system and condensing units	1,093,444	0	1,093,444
Yantai Moon	381	R-717/R-744: freezing and cold storage system and condensing units	1,200,000	1,200,000	0
Jiangsu Xuemei		R-744			0
Zhejiang Shangji		HFC-32			0
Shanghai Hanzhong		HFO/HFC-134a screw compressor			0
Guangzhou Rili		HFC-32 scroll compressor			0
Total	**8,029.23**		**12,553,606**	**8,284,167**	**4,269,439**

*AC = Air conditioning

38. A number of technical assistance (TA) activities have been implemented in stage I to remove technical barriers, facilitate the implementation of the conversion projects and assist in a smooth transition to non-ODS technologies, including:

(a) Eight studies on the application of low-global-warming potential (GWP) alternative technologies to assist in their adoption, including HFC-32 water chiller and unitary AC water chillers using HFO/HFO blends, R-290 commercial heat pump, CO_2 heat pump and CO_2 technology in supermarkets;

(b) The revision of 11 technical and product standards; the revision of the National Standard for Safety and Environmental Requirements for Refrigeration Systems and Heat Pumps (GB-9237) to allow for the use of flammable refrigerants has been completed and went into effect on 1 July 2018;

(c) Thirteen demonstration projects for promoting low-GWP technologies, including heat pumps and CO_2 in supermarkets;

(d) Surveys, workshops and consultant services to verify eligibility and performance milestones; and

(e) Support to the industrial and commercial refrigeration and unitary AC association to facilitate smooth implementation.

39. Most TA activities have been completed except for some consultant services for verification of milestones and technical support for stage I conversions, which are planned to be completed by the end of 2019.

Level of fund disbursement

40. As of end of September 2019, of the US $61,000,000 approved so far, all funds had been disbursed from UNDP to FECO, and US $56,592,676 (92.8 per cent) had been disbursed by FECO to beneficiaries. The remaining balance mainly represents IOCs and TAs associated with market promotion, which will be disbursed in 2020 up until completion of the sector plan, according to the procedures for disbursement of IOCs developed by FECO and the CRAA.

Table 2. Status of disbursement of stage I of the ICR sector plan as of end of September 2019 (US $)

Component	Funds approved	Funds disbursed		Planned disbursement
		From UNDP to FECO	From FECO to beneficiaries	October 2018- December 2019
Enterprise activities	61,000,000	61,000,000	47,002,155	4,269,438
TA			5,625,521	137,885
PMU			3,965,000	0
Total	**61,000,000**	**61,000,000**	**56,592,676**	4,407,323

Remaining activities in the ICR sector plan

41. In 2020, the Government will continue to disburse IOCs for the converted lines once production with the selected technology begins. A total IOCs of US $4,269,438 will be disbursed to 14 lines in 10 enterprises.

42. FECO, with the support of CRAA, will organize workshops and campaigns to promote the alternative technologies among manufacturing enterprises, designing firms, engineering enterprises, end-users, and other stakeholders. At the workshops, enterprises that have already sold their products overseas will share their marketing strategy and experiences. Participants will analyse the domestic market to identify barriers, and find solutions for accelerating the market adoption of these alternatives. FECO will also work with enterprises to develop a marketing strategy suitable for their products, develop detailed production and sales plans and facilitate the disbursement of IOCs.

Secretariat's comments

HCFC consumption

43. The consumption of HCFCs in the ICR sector in 2018 was 38,234 mt (2,081.23 ODP tonnes), which is lower than the maximum allowable consumption of 2,162.50 ODP tonnes established in the Agreement with the Executive Committee, as shown in Table 3. The HCFC consumption in the ICR sector increased in 2016 due to the recovery of the ICR industry from the economic downturn in 2015. In 2017, HCFC consumption in the ICR sector remained at a similar level to 2016.

Table 3. Reduction in HCFC consumption in the ICR sector

	2014	2015	2016	2017	2018*
ODP tonnes					
Maximum allowable consumption*	2,402.80	2,162.50	2,162.50	2,162.50	2,042.00
Actual consumption in ICR sector**	2,219.48	1,981.70	2,082.09	2,081.23	1,997.00
Reduction target set in HPMP	0.00	240.30	0.00	0.00	0.00
Metric tonnes					
Maximum allowable consumption*	43,925.00	39,320.00	39,320.00	39,320.00	37,135.00
Actual consumption in ICR sector**	40,749.00	36,385.00	38,254.70	38,234.00	36,643.00
Reduction target set in HPMP	0.00	4,370.00	0.00	0.00	0.00

*As per the stage I Agreement up to 2015 and stage II Agreement from 2016 to 2018.

** The consumption in the ICR sector is based on estimated amounts, as actual amounts cannot be accurately verified.

44. The 2018 HCFC consumption in the ICR sector decreased by 1,591 mt as compared with that in 2017. UNDP and FECO continued to promote the sales and market adoption of the alternative technologies and products manufactured by the converted lines in stage I and to implement the conversion projects in stage II to reduce HCFC consumption. FECO continued to apply the HCFC production quota and the domestic sales quota issued for each producer, as well as the HCFC consumption quotas for manufacturing enterprises using more than 100 mt.

Technical issues

45. Noting that significant progress had been made in IOC disbursement, the Secretariat inquired about the production, sales and marketization of products with alternatives, particularly with low-GWP alternatives. UNDP reported that a total of 1,543,302 units of ICR equipment and 305 compressors had been manufactured and sold, with the following distribution: 953,573 units for HFC-32 (mainly sold to non-Article 5 countries); 587,662 units for R-410A, 1,661 units for HFC-134a and 406 units for R-717 or R-744. That introduction of low-GWP technologies are subject to market conditions and consumer acceptance, which requires a process for gradual acceptance. The Government and the industrial association will continue to promote the alternative technologies to encourage enterprises to explore market-based solutions to generate wide acceptance of the alternative technologies.

Completion of stage I

46. As per decision 82/68, stage I of the ICR sector plan shall be operationally completed by 31 December 2019 and the project completion report shall be submitted to the first meeting of 2020. The Secretariat noted that 34 per cent of the IOCs have not been disbursed; and some TA activities are still ongoing. UNDP confirmed that all activities under stage I will be operationally completed by December 2019, and that the project completion report will be submitted no later than the first meeting of 2020; and funding balance will be returned to the Fund upon financial completion.

Conclusion

47. A licensing and quota system has been implemented to achieve compliance in the ICR sector. The conversion of 34 manufacturing lines had been completed and gone through national acceptance. The national safety standard for flammable refrigerants (GB-9237) went into effect in July 2018. Enterprises with converted lines have gradually started to produce and sell products using the selected alternatives. A total of 1,543,302 units of ICR equipment and 305 compressors had been manufactured and sold. IOCs are being disbursed as an incentive for enterprises after verification of production and sales of units with alternative technologies. TA activities have been implemented to assist the conversion of manufacturing capacity. Awareness-raising and technology-promotion activities will continue to be implemented to promote the market adoption of the converted products with low-GWP in China and the global market. Stage I of the ICR sector plan will be operationally completed by December 2019, and the project completion report will be submitted no later than the first meeting of 2020; and funding balance will be returned to the Fund upon financial completion.

Secretariat's recommendation

48. The Executive Committee may wish to note the 2019 progress report on the implementation of the industrial and commercial refrigeration and air-conditioning sector plan of stage I of the HCFC phase-out management plan in China submitted by UNDP, and contained in document UNEP/OzL.Pro/ExCom/84/42.

HPMP (stage I): RAC sector (UNIDO)

Progress report on the implementation

49. On behalf of the Government of China, UNIDO submitted a revised progress report on implementation of the room air-conditioning **(RAC)** sector plan under stage I of the HPMP, in line with decision 82/69(b). To facilitate the Executive Committee's review, changes to the document presented to the 83rd **and 84th meetings are shown in bold**. **Through decision 83/53, the Executive Committee deferred further consideration of the incremental operating costs (IOCs) incentive scheme of the RAC sector plan to the 84th meeting.**

50. As of **25 September 2019**, contracts for the conversion of 18 R-290 RAC lines, eight R-410A RAC lines and three R-290 compressor lines had been signed. A total of 10,813.7 metric tonnes (mt) of HCFC-22 will be phased once the conversion of those lines have been completed, of which 10,488.1 mt are associated with Article-5 ownership. The phase-out of 325.6 mt of HCFC-22 associated with non-Article 5 ownership was funded from sources outside the Multilateral Fund. Another 240 mt of HCFC-22 were phased out through the demonstration project at Midea approved at the 61st meeting.

51. Of the 18 R-290 RAC lines, **17** have been converted **and** completed national acceptance; **the remaining line (with a consumption of 347 mt) is expected to finish its conversion and national acceptance by the end of 2019**. All eight R-410A RAC and three R-290 compressor lines have been converted and completed national acceptance. The status of conversions as of **25 September 2019** is presented in Table 1.

Table 1. Progress in the implementation of the RAC sector plan in China

Type of lines	Total	Converted	National acceptance	HCFC-22 consumption (mt)
R-290 RAC	18	**17**	**17**	7,827.3
R-410A RAC	8	8	8	2,986.4
R-290 compressor	3	3	3	n/a
Total	**29**	**28**	**28**	**10,813.7**

52. The following technical assistance (TA) activities were implemented:

(a) Completed research on R-290 technology, including experiments and risk assessment on leakage of R-290; performance optimization of R-290 compressor based on reduced lubricant use; and refrigerant charge reduction through the use of microchannel technology;

(b) Completed research on existing efficiency codes and standards[1] on refrigerants uses in 2017;

(c) Public awareness and consultation activities were conducted, including an Ozone-to-Climate (O2C) roundtable to raise awareness of R-290 technology and one event to promote R-290 air conditioners **(ACs)** and to raise awareness of the technology at two residential communities in Beijing; and an international workshop on R-290 technology development in the RAC sector; **and**

[1] An energy efficiency standard for RAC is currently in place in China (GB 4706.32).

(d) An international workshop on R-290 technology development in the RAC sector, which will include information on technical measures to improve performance of R-290-based RAC equipment, safety measures, new developments in compressors, and updates to market penetration and international standards, was held in October 2019.

53. While there was some progress on the manufacture of R-290-based units, the converted lines continue to have limited manufacturing output: 178,163 R-290 split units have been manufactured through August 2019,[2] of which 150,887 have been sold. In addition, 550,000 factory-sealed R-290 units were manufactured. IOCs of renminbi (RMB) 63,618,100 (US $9,054,668) will be disbursed pending verification by a third-party accountant firm, which will collect information on *inter alia* the types of products, capacity, energy efficiency, compressor specification, sales data, number of ACs that have been installed, and the consumption of R-290.

Level of fund disbursement

54. As of **September 2019**, of the US $75,000,000 approved, US $60,727,617 (81 per cent) had been disbursed by UNIDO and US $**48,582,365 (65 per cent)** had been disbursed by FECO to the beneficiaries. Table 2 shows the disbursement by tranche in the RAC sector.

Table 2. Disbursement (US $) by tranche in the RAC sector

	Tranche 1	Tranche 2	Tranche 3	Tranche 4	Tranche 5	Total
MLF Funding*	36,430,000	9,200,000	8,495,000	9,625,000	11,250,000	75,000,000
Disbursed by UNIDO	32,786,917	8,316,800	7,608,900	8,662,500	3,352,500	60,727,617
Committed by FECO	36,430,000	9,200,000	8,434,000	9,625,000	11,175,000	74,864,000
Disbursed by FECO	**24,904,596**	7,329,616	**7,663,288**	**6,762,579**	1,922,286	**48,582,365**

* Excluding agency support costs

New IOC incentive scheme

55. In September 2019, in consultation with China Household Electric Appliances Association (CHEAA) and the manufacturers, FECO modified the IOC incentive scheme as follows: R-290 split AC units manufactured before 31 August 2019 will be paid according to the energy efficiency and type of compressors used (inverter or fixed-speed), in line with the scheme proposed at the 83rd meeting and reproduced in Table 3 of the present document. In line with the suggestion by the Secretariat, the subsidy will decrease with time. Units manufactured between 1 September 2019 and 29 February 2020 would receive a subsidy at 50 per cent; between 1 March and 31 August 2020 at 25 per cent; and after 1 September 2020 at 12.5 per cent. The new IOC incentive scheme will thus use the first-come, first-served principle and will not limit the amount of IOC for any individual manufacturer within the overall available funding.

Table 3. Proposed IOC incentive scheme (RMB)

Split units	Criteria	
	Inverter (RMB)	Fixed-speed (RMB)
Local sales		
Grade 1 energy efficiency	600	500
Grade 2 energy efficiency	360	300
Grade 3 energy efficiency	200	150
Export to Article 5 countries	360	300

[2] The manufacturing capacity of the 17 converted lines is approximately 7 million units/year.

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

Remaining activities in the RAC sector plan

57. The following activities will be implemented in 2019 **and 2020**: continuation of HCFC-22 quota enforcement; **completion of conversion and national acceptance at the remaining R-290 line**; verification of completed conversion projects; and payment of IOCs based on a revised IOC incentive scheme. **UNIDO proposed to extend** the planned completion date of the first through the **fifth** tranche **to** December **2020**.

Secretariat's comments

HCFC consumption

58. The consumption of HCFC-22 in the RAC sector **in 2018** was **52,000 mt (2,860 ODP tonnes),** which is lower than the maximum allowable consumption in the Agreement between the Government of China and the Executive Committee (**Table 4**). The 2019 quota for the sector has been issued at 48,941 mt (2,692 ODP tonnes).

Table 4. HCFC-22 consumption and targets for the RAC sector

RAC sector plan		**2014**	**2015**	**2016**	**2017**	**2018**
Consumption	Mt	62,000	54,000	55,000	55,000	**52,000**
	ODP tonnes	3,410.0	2,970.0	3,025.0	3,025.0	**2,860.0**
Max. allowable consumption*	Mt	74,700	67,231	67,231	67,231	**67,231**
	ODP tonnes	4,108.5	3,697.7	3,697.7	3,697.7	**3,697.7**

*** As per the Agreement approved at the 67th meeting for stage I of the HPMP up to 2015 and as per the Agreement approved at the 79th meeting for stage II from 2016 to 2018.**

Status of implementation

59. Notwithstanding continued efforts by the Government of China, CHEAA, industry and UNIDO, the production of R-290 equipment on the converted lines remains very low. To address the low production, at the 82nd meeting the Government of China proposed changes to the IOC incentive scheme and sought a commitment from manufacturers to produce and sell R-290-based equipment. Accordingly, eight manufacturers committed to selling at least 220,000 R-290-based units for the domestic market and for export to Article 5 countries by mid-2019. **Notwithstanding best efforts, the manufacturers were not able to meet that target by 31 August 2019.**

60. Among the challenges that contribute to the low production, are the longer installation time for an R-290-based unit; domestic and international standards; and the higher cost relative to other products that are already mass-produced and benefit from economies of scale. UNIDO emphasized that the longer installation time than that for HCFC-22- and R-410A-based equipment was due to the need for additional safety precautions. From a technical perspective, it was not clear to the Secretariat why installation of R-290 AC equipment would take longer given that the equipment was shipped with the refrigerant charge wholly contained within the outdoor unit, and the connection of the indoor and outdoor units was accomplished without brazing. Moreover, increasing the installation standards of HCFC-22-and R-410A-based equipment to be more on par with that of R-290-based equipment (e.g., evacuation of the indoor unit) would improve the performance and energy efficiency of that equipment.

Changes to the IOC incentive scheme

61. The Secretariat considers the proposed scheme to be a constructive approach to encouraging sales, in particular focusing the IOCs only on split units rather than also including factory-sealed units, which have already gained market acceptance, and encouraging the market uptake of more energy efficient equipment.

62. **The Secretariat notes the revisions to the IOC incentive scheme, and considers that the proposal to decrease the subsidy with time could lead to a sustainable market uptake of R-290 split ACs. If the sale of R-290 split ACs continues at approximately the same pace, and with approximately the same mix of products, approximately 1 million units would be sold before the funding allocated for IOCs would be exhausted. While this would still only represent approximately 14 per cent of the converted capacity, the Secretariat considers that the proposed scheme would provide an additional incentive to accelerate the market uptake of R-290 split ACs. It would be necessary to ensure, however, that any IOCs to be provided under stage II do not exceed those under stage I.**

Extension of the completion date of the project

63. Decision 75/57(b) calls for the submission of the stage I RAC project completion report six months after the operational completion of the sector plan and no later than the final meeting of the Executive Committee in 2019. Based on the IOC incentive scheme proposed, the Government of China **proposed to extend the date of completion of the project to December 2020. In light of the revised IOC incentive scheme, the Secretariat supports this extension. The Secretariat confirmed that all other sectors under stage I would be completed by 31 December 2019, and that any remaining balances from those sectors would be returned in line with the financial completion of those sectors, irrespective of the extension of stage I of the RAC sector.**

64. Based on the proposed extension of the project, financial completion would be by 31 December 2021. The Secretariat suggests that disbursement of IOCs could include sales of R-290 split ACs that take place in 2021, as long as the associated disbursement takes place by 31 December 2021.

Interest

65. UNIDO reported that in 2018, FECO earned cumulative interest for the RAC sector of US $42,617 under stage I and US $10,525 under stage II of the HPMP.

Conclusion

66. The RAC sector plan continues to progress, with 17 R-290 AC lines, eight R-410A AC lines, and three R-290 compressor lines converted. The total phase-out in the sector of all the lines that have signed contracts is 10,813.8 mt of HCFC-22 (of which 10,466.4 has already been phased out), which is larger than the anticipated phase-out of 10,670 mt from stage I. The demonstration project at Midea phased out an additional 240 mt of HCFC-22. The disbursement from FECO to the final beneficiaries is **65** per cent. Notwithstanding continued and commendable efforts by the Government of China, CHEAA, industry and UNIDO, the production of R-290 equipment on the converted lines remains very low, reflecting the local and global market penetration.

67. The Secretariat recalled that the Government of China, rather than converting to R-410A, had chosen to convert the 18 lines under stage I to R-290, which is a more challenging technology and requires considerable work to achieve market acceptance. The commitment by manufacturers to sell a minimum number of R-290-based units by mid-2019 **was** a meaningful step that will help the market introduction of R-290-based equipment; **however, an increase in the rate of sales would be needed for manufacturers**

to meet their commitment. The Secretariat considers it important that momentum not be slowed, and therefore supports the use of an innovative IOC incentive scheme to encourage sales of more energy efficient equipment. Finally, the Secretariat appreciates that manufacturers would wish to use caution during initial installations; it is expected that as installers become familiar with R-290 equipment, including through the trainings that are conducted under both stage I and stage II, the difference in installation time between R-290-based equipment and HCFC-22- and R-410A-based equipment will decrease. Accordingly, the Secretariat considers it appropriate that IOCs above the level specified in decision 60/44(f)(viii) could be provided for a limited number of sales, with IOCs gradually decreasing with increasing sales so that all IOCs were disbursed once the converted capacity is utilized.

Secretariat's recommendation

68. The Executive Committee may wish to consider:

(a) Noting the **revised** progress report on the implementation of the room air-conditioning (RAC) sector plan of stage I of the HCFC phase-out management plan (HPMP) in China submitted by UNIDO;

(b) Approving the extension of implementation of the RAC sector under the stage I of the HPMP to 31 December 2020, on the understanding that no further extension would be requested; and

(c) Requesting the Government of China and UNIDO to submit progress reports on the implementation of the work programme associated with the final tranche on a yearly basis through the completion of the project, the project completion report by the 87th meeting, and to return balances by the 88th meeting.

HCFC PHASE-OUT MANAGEMENT PLAN (STAGE II, SECOND AND THIRD TRANCHES) (UNDP, UNEP, UNIDO, World Bank, Germany, and Japan)

Overarching strategy of stage II of the HPMP for China

Background

69. Between the 76th and 79th meetings, the Executive Committee approved stage II of the of the HCFC phase-out management plan (HPMP) for China with associated sectors plans as follows:

(a) At the 76th meeting, approved in principle 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;

(b) At the 76th meeting, approved in principle the refrigeration and air-conditioning servicing sector and enabling programme component for the period 2016 to 2020, to reduce HCFC consumption by 734.0 ODP tonnes, in the amount of US $20.29 million, plus agency support costs;

(c) At the 77th meeting, approved in principle stage II of the 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, which included: the ICR sector plan to reduce HCFC consumption in the sector by 33 per cent by 2020; the RAC sector plan to reduce HCFC consumption in the sector by 45 per cent by 2020; and the PU foam sector and the XPS foam sector plan to achieve the total phase-out of HCFCs in these sectors by 2026; and

(d) At the 79th meeting, 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.

70. The HCFC consumption limits and targeted phase-out amounts for the period of 2016 to 2026[3] in the six sectors are shown in Table 1.

Table 1. HCFC consumption limits and phase-out in consumption sectors for stage II of the HPMP for China (ODP tonnes)

Maximum allowable consumption							
	2016-17	**2018-19**	**2020-21**	**2022**	**2023-24**	**2025**	**2026**
National	16,978.9	15,048.1	11,772.0*	n/a	n/a	n/a	n/a
XPS	2,286.0	2,032.0	1,397.0	1,397.0	762.0	165.0	0.0
PU	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

[3] The national HCFC consumption target, as well as the targets for the ICR and RAC sectors for the period 2021 to 2026 would be determined during the submission of stage III of the HPMP.

Maximum allowable consumption							
	2016-17	**2018-19**	**2020-21**	**2022**	**2023-24**	**2025**	**2026**
Servicing and enabling component	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Phase-out by sector							
	2018	**2020**	**2023**	**2025**	**2026**	**Total**	
XPS	254.0	635.0	635.0	597.0	165.0	2,286	
PU	675.1	808.8	1,887.3	748.4	330.0	4,449.6	
ICR	120.1	432.5	n/a	n/a	n/a	552.6	
RAC	821.7	616.3	n/a	n/a	n/a	1,438	
Solvent	59.8	74.2	172.9	93.3	55.0	455.2	
Servicing and enabling component		734.0	n/a	n/a	n/a	734.0	
Total	**1,930.7**	**3,300.8**	**2,695.2**	**1,438.7**	**550.0**	**9,915.4**	

* This is the national maximum allowable consumption for 2020 only; for the period 2021 to 2026 it will be determined during submission of stage III of the HPMP.

Consideration of the request of tranches of stage II of the HPMP at the 82nd and 83rd meetings

82nd meeting

71. On behalf of the Government of China, UNDP, UNEP, UNIDO, the World Bank and the Governments of Germany and Japan submitted to the 82nd meeting requests for the third tranches of the XPS foam, ICR, solvent and servicing sector plans, and for the second tranche of the PU foam sector plan associated with stage II of the HPMP for China at a total value of US $29,199,492,[4] together with an independent verification of HCFC production and consumption in 2017 (World Bank), annual implementation reports covering the activities undertaken so far, and annual implementation plans for the activities to be implemented in 2018-2019.

72. After reviewing the project proposals and 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. The request for the second tranche of the PU foam sector plan, however, was not presented for consideration at the 82nd meeting as no disbursements from the first tranche had taken place at the time of submission.

73. In discussing the tranche requests at the 82nd meeting, several members expressed serious concern at approving additional funding at that meeting given the unexplained emissions of CFC-11 in East Asia. There was also concern expressed about the reliable but incomplete information on possible compliance issues; one member recalled that the Government of China had acknowledged at the Thirtieth Meeting of the Parties that it had identified illegal production of CFC-11. Pursuant to decision XXX/3 more information had been requested on the cause of emissions of CFC-11 and it was suggested that the funding request be deferred until a subsequent meeting of the Executive Committee when more information was available. At the time, China still held over US $100 million that had not yet been disbursed to beneficiary enterprises; deferring the funding requests, which amounted to US $29,199,492, 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 China.

[4] The request for the third tranche of the RAC sector plan (US $18 million) was not submitted to the 82nd meeting because the level of disbursement of funds approved for the second tranche had not reached 20 per cent.

74. 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. Clarification was sought regarding whether any of the US $100 million that remained to be disbursed had already been committed to fund specific activities, and what portion of the undisbursed funds could be used for other activities required for compliance. It was asked whether all of the funds had already been transferred to the Government of China 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.

75. Following the discussion, the Executive Committee agreed to continue deliberations on the issue in the contact group established earlier in the agenda item to discuss stage I of the HPMP for China.

76. Subsequently, the Executive Committee decided, through decision 82/71:

(a) To request the Government of China, through the relevant implementing agency:

(i) To submit, at the 83rd meeting, a review of the current monitoring, reporting, verification and enforcement systems in line with its Agreements with the Executive Committee on the country's HCFC phase-out management plan (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;

(ii) Further to submit, at the 83rd meeting, a progress report regarding actions taken with a view to strengthening of legislation on ODS and implementation thereof in China; and

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

83rd meeting

77. In response to decision 82/71, at the 83rd meeting, on behalf of the Government of China:

(a) UNDP submitted the report requested by decision 82/71(a)(i) and (ii), which was discussed in document UNEP/OzL.Pro/ExCom/83/11/Add.1; and

(b) 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 servicing sector plans and for second tranche of the PU foam sector plan associated with stage II of the HPMP for China. The submission included annual implementation reports covering the activities undertaken so far, and annual implementation plans for the activities to be implemented in 2019-2020.

78. After reviewing the re-submission of the project proposals and documents associated with the third tranche requests for the XPS foam, ICR, solvent and refrigeration servicing sector plans, and the second tranche request for the PU foam sector plan, the Secretariat concluded that all of them had merits to warrant their submission for 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 specified in paragraph 5 of the Agreement, and accordingly, this tranche request was not submitted to the 83rd meeting.

79. In discussing the tranche requests at the 83rd meeting, one representative 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 Multilateral Fund. She also indicated that her country was unable, at the present time, to support project funding for China. In addition, she 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.

80. 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).

Submission to the 84th meeting

81. On behalf of the Government of China, UNDP, UNEP, UNIDO, the World Bank and the Governments of Germany and Japan re submitted requests for the third tranches of the XPS foam, ICR, servicing, and solvent sector plans, and for the second tranche of the PU foam sector plan, associated with stage II of the HPMP for China as shown in Table 2. The submission included an independent verification of HCFC production and consumption in 2018 (World Bank), annual implementation reports covering the activities undertaken so far, and annual implementation plans for the activities to be implemented in 2020.

82. The request for the third tranche of the RAC sector plan (US $18 million) was not submitted to the 84th meeting because the level of disbursement of funds approved for the second tranche had not reached 20 per cent.

Table 2. Tranche requests of sector plans submitted to the 84th meeting (excluding agency support costs)

Sector plan (lead and co-operating agency)	Overall funding approved in principle (US $)	First two tranches approved (US $)	First two tranches approved as share of overall approved in principle (%)	Funding requested at 84th meeting (US $)	Share of funding approved and requested of total approved in principle (%)
XPS (UNIDO, Germany)	112,786,630	16,514,867	14.6	8,000,000	21.7
PU (World Bank)	141,471,210	7,045,027*	5.0	10,600,000	12.5
ICR (UNDP)	89,144,797	33,368,756	37.4	12,000,000	50.9
RAC (UNIDO, Italy)	89,144,797	31,562,981	35.41	0**	35.4
Solvent (UNDP)	47,262,566	6,599,127	14.0	5,549,492	25.7
Servicing and enabling programme (UNEP, Germany, Japan)	20,290,000	6,329,132	31.2	3,850,000***	49.2
Total	**500,100,000**	**101,419,890**	**20.3**	**39,999,492**	**28.3**

* Only one tranche approved in the PU foam sector plan.
** Tranche request not submitted to the 84th meeting.
*** This includes combined funding tranches of 2018 and 2019 as bilateral cooperation by the Government of Germany

Overview of progress

83. An overview of the main achievements in the implementation of stage II of the HPMP include:

(a) Establishment and continuous implementation of the licensing and quota system to control the overall compliance in each one of the manufacturing sectors, including the application of quota permits to enterprises consuming more than 100 mt of HCFCs per year resulting in compliance with all the manufacturing sector consumption limits during the years of implementation;

(b) *XPS foam sector:* The contract between FECO and UNIDO for the implementation of the XPS foam sector plan was signed in September 2017. Eleven XPS foam enterprises (4,522 mt of HCFC-22 and HCFC-142b) were identified and 10 of them (4,297 mt) were verified, signed contracts with FECO for conversion to CO_2-based technology and received first disbursements. Of these enterprises, one (655 mt) has completed the project and passed project acceptance, two (971 mt) have had equipment delivered and installed, three (928 mt) have signed procurement contracts with suppliers and four (1,742 mt) are currently preparing procurement for equipment;

(c) *PU foam sector:* The contract between FECO and the World Bank was signed in January 2019. A total of 43 PU foam enterprises submitted project applications to participate, and upon verification of their baseline information, 11 enterprises consuming 1,189 metric tonnes (mt) of HCFC-141b were selected as beneficiaries and have signed contracts with FECO for conversion to water blown or hydrocarbon (HC) technology, five of them will complete their conversions in 2019. In addition, 32 additional enterprises are being verified for conversion;

(d) *ICR sector:* Contracts were signed with 12 enterprises for the conversion of 18 manufacturing lines to phase out 2,557.42 mt of HCFC-22 after verification of the baseline consumption and capacity of these lines. The implementation of the conversion projects is progressing and is being closely monitored according to the defined milestones.[5] One line has completed national acceptance; three lines have started trial production; twelve lines have been completed the design and procurement contract; one line has completed the design and procurement, but needs to re-locate the workshop and therefore, requested to extend the completion to 2021; and one line has just signed the conversion contract and is in the process of design;

(e) *RAC sector:* Contract between FECO and UNIDO for the implementation of the RAC sector plan was signed in October 2017; FECO signed contracts with the China Household Electric Appliances Association (CHEAA) and the auditing firm that will independently verify the lines to be converted. Contracts for the conversion of four compressor manufacturing lines with a total production capacity of 5,423,441 units/year and with five RAC manufacturing lines with a total consumption of 2,221 mt of HCFC-22 have been signed. Of the US $31,562,981 approved, a total of US $3,454,396 (10 per cent) has been disbursed to the final beneficiaries. No additional activities or disbursements were reported since the 82nd meeting;

[5] The milestones, which are also applied in the XPS foam, PU foam RAC and solvent sector plans 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).

(f) *Solvent sector:* Twenty-four eligible enterprises have signed contracts with FECO; the total phase-out associated with these enterprises is 1,176.19 mt (129.38 ODP tonnes) of HCFC-141b. All enterprises have received their first payments; 18 have reached key milestones of implementation (17 of them have received the second payment and one has received the second and third payments). Among the 18 enterprises, 13 have finished equipment installations and trial production, three have installed and adjusted all the conversion equipment and are ready to proceed to trial production, while the remaining two have installed part of the conversion equipment and waiting for the delivery of the remaining equipment. Of the remaining six enterprises with contracts signed, three have completed equipment procurement (one enterprise has submitted documents for its second payment, and the remaining two are preparing documentation for the second payment); three others are in the process of testing new alternatives, and are expected to request a revision to their previously submitted implementation plan with project completion extended to June 2021. The second batch of 27 enterprises (mostly SMEs) with annual consumption above 5 mt of HCFC-141b) have been identified, 26 of these have completed baseline verifications resulting in a verified HCFC consumption of 372 mt (40.92 ODP tonnes) of HCFC-141b; all have submitted proposals for conversion out of which one was asked to submit additional documents, and another is pending verification of consumption; and

(g) *Refrigeration servicing sector:* The project cooperation agreement (PCA) for the second tranche of the refrigeration servicing sector and enabling components between FECO and UNEP was signed in September 2018, and funds were transferred in October 2018. Agreements with three pilot cities (Guangzhou, Shenzhen and Tianjin) with agreed work plans were finalised; a capacity building workshop on enforcing ODS regulations for local EEBs was conducted; proposals submitted by 15 training centres were reviewed and contracts were signed after the verification of their training delivery capabilities; 497 trainers and technicians have been trained; and the terms of reference for developing the codes for the servicing and maintenance of air-conditioning units and water chillers were finalised and the contracts with the relevant institute for the development of these two codes were signed in mid-2019, the first set of codes would be completed by December 2019, while code for the servicing and maintenance of water chillers (heat pumps) with focus on the refrigerant emissions was postponed for funding under the third tranche. The implementation agreement for the Government of Germany's component of the first tranche was signed, and one beneficiary (Chaoshifa supermarket chain) for the demonstration of a CO_2 transcritical system application was identified; six trainers from vocational training centres and six managers/engineers from the cold chain and supermarket sub-sector participated in a study tour on the application of low-GWP refrigerants in the sub-sector. The survey on HCFC recovery was completed, and the survey report for the analysis of the barriers for the management of HCFC recovery in the refrigeration servicing sector and the market mechanism study on HCFC recovery was reviewed and revised for final publication; and awareness raising activities were continued. Activities to strengthen the management of the import/export of ODS in China through the ODS Import and Export Management Office (I/E Office) were completed, and included: training of 100 representatives from ODS import and export enterprises, 55 customs officers and 70 officers from the Commerce Department on import and export management matters, customs management on ODS import and export, international cooperation on combatting ODS illegal trade, ODS trade in sensitive regions, ODS transit routes, and typical case analysis on current ODS illegal trade. New training materials were also prepared for distribution before the end of 2019.

Disbursement of funds

84. As of October 2019, of the US $101,419,890 approved under the first and second tranches, US $58,411,058 has been disbursed from implementing agencies to FECO, and US $40,161,095 has been disbursed from FECO to beneficiaries, as summarized in Table 3.

Table 3. Level of disbursement per sector (as of October 2019)

		Tranche 1	Tranche 2	Total
XPS foam sector plan (UNIDO/Germany)				
Funds approved		7,514,867	9,000,000	16,514,867
Disbursements from implementing agencies to FECO	Amount (US $)	6,763,380	4,462,776	11,226,156
	Disbursement ratio	90.00%	49.59%	67.98%
Disbursements from FECO to beneficiaries	Amount (US $)	3,968,042	2,843,044	6,811,086
	Disbursement ratio	52.80%	31.59%	41.24%
PU foam sector plan (World Bank)				
Funds approved		7,045,027	-	7,045,027
Disbursement from the World Bank to FECO	Amount (US $)	-	-	-
	Disbursement ratio	0.0%	0.0%	0.0%
Disbursement from FECO to beneficiaries	Amount (US $)	2,691,628	-	2,691,628
	Disbursement ratio	38.21%	0.0%	38.21%
ICR sector plan (UNDP)				
Funds approved		13,368,756	20,000,000	33,368,756
Disbursements from UNDP to FECO	Amount (US $)	13,265,048*	19,902,532*	33,167,580*
	Disbursement ratio	99.22%	99.51%	99.40%
Disbursements from FECO to beneficiaries	Amount (US $)	10,450,337	8,773,988**	19,224,325
	Disbursement ratio	78.17%	43.87	57.61
RAC sector plan (UNIDO)				
Funds approved		15,562,981	16,000,000	31,562,981
Disbursement from UNIDO to FECO	Amount (US $)	4,309,022	-	4,309,022
	Disbursement ratio	27.7%	0.0%	13.7%
Disbursement from FECO to beneficiaries	Amount (US $)	3,454,396	-	3,454,396
	Disbursement ratio	22.2%	0.0%	10.9%
Solvent (UNDP)				
Funds approved		2,821,937	3,777,190	6,599,127
Disbursement from UNDP to FECO	Amount (US $)	2,796,937	3,741,089	6,538,026
	Disbursement ratio	99.11%	99.04%	99.07%
Disbursement from FECO to beneficiaries	Amount (US $)	2,796,937	3,638,223	6,435,160
	Disbursement ratio	99.11%	96.32%	97.52%
Servicing (UNEP/Germany/Japan)				
Funds approved		3,679,132	2,650,000	6,329,132
Disbursement from implementing agencies to FECO	Amount (US $)	1,870,274	1,300,000	3,170,274
	Disbursement ratio***	50.83%	49.06%	50.09%
Disbursement by FECO	Amount (US $)	1,324,500	220,000	1,544,500
	Disbursement ratio	36.00%	8.30%	24.40%
Total all sectors				
Funds approved by the Executive Committee		49,992,700	51,427,190	101,419,890
Disbursements to FECO	Amount (US $)	29,004,661	29,406,397	58,411,058
	Disbursement ratio	58.02%	57.18%	57.59%
Disbursements from FECO to beneficiaries	Amount (US $)	24,685,840	15,475,255	40,161,095
	Disbursement ratio	49.38%	30.09%	39.60%

*After deducting the interest of US $103,708 for 2015 from the first tranche; deducting the interest of US $97,468 for 2016 and US $7,299 for 2017 from the second tranche.

** Includes the funds disbursed to Dalian Refrigeration for the conversion of one manufacturing line to be charged to the third tranche.

***Reference for disbursement in the servicing sector.

85. As at the time of submission of the tranche requests (twelve weeks before the 84th meeting), the rate of disbursement of funding from FECO to beneficiaries was above 20 per cent in the XPS foam, ICR, solvent and servicing sectors. For the servicing sector the disbursement from bilateral and implementing agencies to FECO was above 20 per cent.

86. For the PU foam sector, US $2,691,628 (38.21 per cent) was disbursed by FECO from resources outside of the Multilateral Fund to beneficiary enterprises after the agreement between FECO and the World Bank was signed, and on 31 October 2019, US $3,522,514 was disbursed from the World Bank to FECO. The related discussion is presented in the corresponding stand-alone request for the tranche attached to this Note by the Secretariat.

Revision of the Agreement for stage II

87. The Agreement between the Government of China and the Executive Committee for stage II of the HPMP was agreed at the 79th meeting (decision 79/35). At the 81st meeting the Secretariat noted that the Agreement would need to be revised to include the level of agency support costs that the Executive Committee might decide at the 81st meeting, and to reflect potential changes in the fund distribution in the PU foam sector plan given the delay in the submission of the second tranche, which would also result in changes to the distribution of the overall funding of stage II of the HPMP. Subsequently, the Executive Committee decided to adjust to 7 per cent the agency support costs associated with the second and future tranches of all sector plans of stage II of the HPMP for China for UNDP, UNIDO and the World Bank; and to revise, at the 82nd meeting, the Agreement for stage II of the HPMP (decision 81/45).

88. In preparation for the 84th meeting, the Secretariat and UNDP as lead agency discussed a revised Agreement for stage II of the HPMP submitted for consideration, including the following adjustments in Appendix 2-A:

(a) The Agency support costs for UNDP, UNIDO and the World Bank was adjusted to 7 per cent from the second to the last tranche in line with decision 81/45(a). This adjustment represents an increase of US $2,162,056 in the agency support costs previously calculated at 6.5 per cent in the Agreement approved at the 79th meeting;

(b) The value of the third tranche of the XPS foam sector plan (not approved in 2018) was moved to 2019 and adjustments were made to the 2020 and 2023 tranches;

(c) The values of the third tranches of the ICR and servicing sector plans (not approved in 2018) were moved to 2019, and adjustments were made to the remaining tranches (2019 to 2021), and part of the funds was allocated to a new tranche in 2022;

(d) As the preconditions for the approval of the second tranche of the PU foam sector plan (due at the 80th meeting) had not been fulfilled at the 83rd meeting, there was a two and a half-year delay in the funding to be released for the implementation of this sector plan. The HCFC reduction commitments and duration of the sector plan were not modified, but the value of the 2017 and 2018 tranches (US $10.6 million and US $9.0 million, respectively) was distributed among the 2019 to 2026 tranches and a new tranche was added in 2027;

(e) As the second tranche of the RAC sector plan due in 2017 was only approved at the 81st meeting (2018) and the third tranche due in 2018 was not submitted to the 84th meeting in 2019, there will be a two-year delay. Accordingly, the remaining tranches of the sector (2018 to 2021) were moved one year (2019 to 2022) and a last tranche was added in 2023. Submission of tranche requests will continue to take place at the second meeting of the year, as stipulated in the Agreement; and

(f) The tranche distribution of the solvent sector plan was adjusted increasing amounts in 2019, 2020 and 2023, and decreasing amounts in 2021, 2022, 2024 and 2025 to meet the cash flow needed for signing up new enterprises, to ensure timely upon completion of milestones, and to reflect incremental operating cost payments needed once the first set of enterprises had completed their conversions.

89. Upon discussion of the proposed tranche distribution, a few adjustments were made to ensure that the total annual tranche levels were maintained as close as possible to the originally agreed ones, and that the overall level of funds per tranche was, to the extent possible, balanced over the years. The details are presented in Annex I to the present document.

90. The revised Appendix 2-A of the Agreement is presented in Annex II to the present document. The full updated Agreement will be appended to the final report of the 84th meeting. In addition to the changes above, paragraph 17 was added to show that this updated revised Agreement replaces the one agreed between the Government and the Executive Committee at the 79th meeting.

Tranche progress reports and funding requests

91. Detailed stand-alone progress reports on the implementation of the XPS foam, PU foam, ICR, solvent and refrigeration servicing sector plans and requests for funding for the second or third tranches are attached to the Note by the Secretariat. Each report provides a progress report on the implementation of the second tranche; the level of fund disbursement; an implementation plan for the third tranche; comments by the Fund Secretariat; and the recommendation.

Financial report for PMU expenditures under the HPMP and HPPMP

92. At the 80th meeting, the Executive Committee requested the Secretariat to work with the Government of China through UNDP, as the lead implementing agency of the HPMP, and through the World Bank, as the lead implementing agency of the HPPMP, to develop, by the 81st meeting, a financial reporting format for annual PMU expenditures in relation to the production and consumption sectors (decision 80/80).

93. At the 81st meeting, the Secretariat proposed a draft reporting format for the PMU to be used for both stage I and stage II of the HPMP and HPPMP, where PMU expenditures would be reported separately for each stage, and the format would be filled by the agencies annually as part of the tranche progress reports. Upon consideration of the format the Executive Committee decided (decision 81/46):

(a) To request UNDP, in cooperation with the sector lead implementing agencies, to use the financial reporting format for the PMU expenditures contained in Annex X to the final report of the 81st meeting in their annual tranche progress reports, starting in 2019;

(b) To request the implementing agencies to consider whether there was a need to amend their respective agreements with the Government of China with a view to ensuring that the financial reporting on PMU expenditures was sufficiently detailed to satisfy the requirements of their respective financial reporting to the Executive Committee; and

(c) To review the financial reporting format for the annual PMU expenditures at the first Executive Committee meeting of 2020.

94. In line with decision 81/46, UNDP submitted the PMU expenditures for stage I and stage II. The lead implementing agencies for each sector plan confirmed that there was no need to amend their respective agreements with the Government of China with a view to ensuring that the financial reporting on PMU expenditures was sufficiently detailed to satisfy the requirements of their respective financial reporting to the Executive Committee. The consolidated PMU expenditure is presented in Annex III of the present document.

95. The Secretariat appreciates the considerable effort by the Government of China and the bilateral and implementing agencies to present the PMU expenditure for all sectors using a common methodology based on the agreed format. It was noted that the total cumulative expenditure of PMU from 2011-2018 for

the implementation of stage I of the HPMP was US $21,726,655, including US $18,691,475 from the sector plans and an additional US $3,035,180 from outside the Multilateral Fund. The total cumulative expenditure in PMU from 2017 to 2018 was US $3,295,406, including US $2,651,050 from the stage II sector plans and an additional US $644,356 from other sources outside the Fund. In addition, it is noted that expenditures of the production sector associated with the funding approved at the 81st meeting and the foam sector, were advanced from FECO's own budget on an interim basis, pending the disbursement from the World Bank to FECO.

96. Noting that the Executive Committee decided to review the financial reporting format for the annual PMU expenditures at the first Executive Committee meeting of 2020, the Secretariat will undertake a detailed analysis of these expenditures for the 85th meeting in light of the discussions held with the implementing agencies at the 80th and 81st meeting on the issues identified in the reporting of expenditures incurred in the PMUs (i.e, lack of clarity on the costs per sector and shared costs, need for a financial plan to serve as the basis against which the reported expenditures could be compared, use of a common approach to record and report expenditure, better understanding of the cumulative expenditure overall and by sector).

Recommendation

97. The Executive Committee may wish to consider noting that:

(a) The Secretariat had updated Appendix 2-A of the Agreement between the Government of China and the Executive Committee, based on the changes in the annual tranche distribution in the extruded polystyrene foam, polyurethane foam, industrial and commercial refrigeration, room air-conditioning, refrigeration servicing and solvent sectors, and the adjustment of the agency support cost for UNDP, UNIDO and the World Bank, and that a new paragraph 17 had been added to indicate that the updated Agreement superseded that reached at the 79th meeting, as contained in Annex II to the present document; and

(b) The Secretariat will submit to the 85th meeting, an analysis of the expenditures reported under the project implementation and monitoring unit of stage I and stage II of the HCFC phase-out management plan and the HCFC production phase-out management plan for China, as contained in Annex III to the present document, in light of decision 81/46(c).

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS
China

(I) PROJECT TITLE	AGENCY	MEETING APPROVED	CONTROL MEASURE
HCFC phase-out plan (stage II) XPS foam sector	Germany and UNIDO (lead)	77th	100 % in 2026

(II) LATEST ARTICLE 7 DATA (Annex C Group l)	Year: 2018	14,382.12 (ODP tonnes)

(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)						Year: 2018
Chemical	Aerosol	Foam	Refrigeration		Solvent	Total sector consumption
			Manufacturing	Servicing		
HCFC-22	101.20	1,595.00	4,840.00	3,290.20		9,826.40
HCFC-123			11.06	8.75		19.81
HCFC-124				-0.12		-0.12
HCFC-141b	52.80	3,759.14			374.00	4,186.24
HCFC-142b		325.00	5.85	18.00		348.85
HCFC-225ca					0.43	0.43
HCFC-225cb					0.69	0.69

(IV) 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

(V) BUSINESS PLAN		2019	2020	2021	Total
UNIDO	ODS phase-out (ODP tonnes)	162.15	187.35	194.58	544.08
	Funding (US $)	8,560,000	9,890,530	10,272,000	28,722,530
Germany	ODS phase-out (ODP tonnes)	0.00	7.23	0.00	7.23
	Funding (US $)	0	399,016	0	399,016

(VI) PROJECT DATA			2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Montreal Protocol consumption limits			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)			2,286.0	2,286.0	2,032.0	2,032.0	1,397.0	1,397.0	1,397.0	762.0	762.0	165.0	0.0	n/a
Agreed funding (US $)	UNIDO	Project costs	7,514,867	8,732,614	8,000,000	9,243,486	9,600,000	14,788,765	11,400,000	11,300,000	9,550,000	9,600,000	11,971,763	111,701,495
		Support costs	526,041	611,283	560,000	647,044	672,000	1,035,214	798,000	791,000	668,500	672,000	838,023	7,819,105
	Germany	Project costs	-	267,386	-	365,514	-	211,235	-	-	250,000	-	-	1,085,135
		Support costs	-	31,877	-	42,502	-	25,183	-	-	29,804	-	-	129,365
Funds approved by ExCom (US $)		Project costs	7,514,867	9,000,000	0									16,514,867
		Support costs	526,041	643,160	0									1,125,538
Total funds requested for approval at this meeting (US $)		Project costs				8,000,000*								8,000,000
		Support costs				560,000*								560,000

*The third (2018) tranche was submitted to the 82nd meeting and deferred for consideration at the 84th meeting (decisions 82/71(b) and 83/55).

Secretariat's recommendation:	For individual consideration

PROJECT DESCRIPTION

98. On behalf of the Government of China, UNIDO as the lead implementing agency, has resubmitted[6] a request for funding for the third tranche of the extruded polystyrene (XPS) foam sector plan of stage II of the HCFC phase-out management plan (HPMP), at the amount of US $8,000,000, plus agency support costs of US $560,000 for UNIDO only.[7] The submission includes a progress report on the implementation of the second tranche of the XPS foam sector plan, together with the tranche implementation plan for 2020 to 2022.

Progress report on the implementation of the second tranche of stage II

99. The contract between the Foreign Environmental Cooperation Center (FECO) and UNIDO for the implementation of the XPS foam sector plan (stage II) was signed in September 2017. The first group of 11 XPS foam enterprises has undergone verification of their baseline information (i.e., non-Article-5 ownership, baseline equipment, HCFC consumption and financial data). Ten of these enterprises were selected as beneficiaries and have already signed contracts with FECO for conversion to CO_2 with other low global-warming potential (GWP) co-blowing agents[8] as alternative technology. The status of progress of the 10 ongoing projects is presented in Table 1.

Table 1. Status of progress of XPS foam enterprises selected in the first and second tranches

Status of implementation	Number of enterprises	HCFC consumption in 2016	
		mt	ODP tonnes*
Project completed passed project acceptance	1	655.07	36.03
Equipment delivered and installed	2	971.34	55.85
Procurement contracts with suppliers signed	3	927.85	53.35
Signed contract with FECO (currently preparing procurement of equipment)	4	1,742.54	100.20
Total	**10**	**4,296.80**	**245.43**

* The ratio of HCFC-22 to HCFC-142b is 75 to 25 per cent (measured in metric tonnes (mt)).

100. One project was completed, and the remaining nine will be completed during 2020 and 2021.

Technical assistance (TA) activities

101. TA activities implemented since the second half of 2017 include two workshops on alternative technologies in the XPS foam sector in September 2017 and July 2019; technical support by the implementation support agency (ISA) to FECO and the enterprises with day-to-day operations and on-site baseline and performance verifications; selection of an accounting firm to review financial material submitted by beneficiaries and conduct on-site verifications; public awareness activities to facilitate HCFC phase-out in the XPS foam sector; and a study tour of government departments, XPS foam producers and equipment suppliers in Germany and Switzerland to exchange information on alternative technologies in the European XPS foam market that could contribute to the implementation of stage II of the HPMP.

[6] Initially submitted for consideration at the 82nd meeting, the Executive Committee decided to defer consideration to the 84th meeting (decisions 82/71(b) and 83/55).

[7] As per the letter of 23 September 2019 from the Ministry of Ecology and Environment of China to UNIDO.

[8] Alcohol for XPS board thickness below 60 mm; CO_2 and small amounts of HFC-152a (GWP<200) for XPS board thickness above 60 mm.

Level of fund disbursement

102. As of September 2019, of the US $16,514,867 approved, US $6,811,086 (41.2 per cent) had been disbursed by FECO to beneficiary enterprises. Table 2 presents the overall status of disbursements.

Table 2. Status of disbursements for the XPS foam sector plan (as of September 2019)

XPS foam sector plan (UNIDO/Germany)		Tranche 1	Tranche 2	Total
Funds approved	UNIDO	7,514,867	8,732,614	16,247,481
	Germany*	0	267,386	267,386
	Total (US $)	**7,514,867**	**9,000,000**	**16,514,867**
Disbursements from implementing agencies to FECO	UNIDO	6,763,380	4,366,307	11,129,687
	Germany*	0	96,469	96,469
	Total (US $)	**6,763,380**	**4,462,776**	**11,226,156**
	Disbursement ratio	90.0%	49.6%	67.9%
Disbursements from FECO to beneficiaries	UNIDO	3,968,042	2,746,575	6,714,617
	Germany*	0	96,469	96,469
	Total (US $)	**3,968,042**	**2,843,044**	**6,811,086**
	Disbursement ratio	52.8%	31.6%	41.2%

*According to the implementation requirements, the Government of Germany's disbursements will be issued directly to beneficiaries and goods/service providers

Implementation plan for the third tranche of stage II

103. FECO will continue enforcing the quota permits for XPS foam enterprises consuming more than 100 metric tonnes (mt) of HCFCs per year. FECO will also continue with the conversion of the 10 enterprises, and select between two and six additional enterprises for conversion, resulting in an additional reduction of at least 1,212 mt of HCFCs.

104. The following TA activities will be implemented: two technical workshops on HCFC phase-out strategy, policies, and alternative technologies; baseline consumption and site verifications to additional XPS foam enterprises prior to signature of contracts for conversion; and ongoing public awareness activities to facilitate HCFC phase-out in the XPS foam sector, including regular meetings and information dissemination.

105. Table 3 presents the budget for the activities to be carried out during the implementation of the third tranche.

Table 3. Budget for the third tranche of the XPS foam sector plan in China

Activity	Budget (US $)
Conversion of XPS foam enterprises to CO_2 technology	7,287,752
TA activities	295,416
Project monitoring including: - Project staff – programme management, support, financial, procurement legal support (US $218,027) - Operating costs – daily operating expenses, domestic travel, meetings, office facilities and equipment (US $134,986) - Consulting services – experts for project evaluation, financial and technical verification, technical review, bidding evaluation, contractual staff for special events (US $63,819)	416,832
Total third tranche	**8,000,000**

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

HCFC consumption

106. Consumption of HCFCs in the XPS foam manufacturing sector in 2018 was 34,000 mt (1,920 ODP tonnes), which is lower than the 35,339 mt (2,032 ODP tonnes) allowable consumption 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

XPS foam sector		2014	2015	2016	2017	2018
Consumption*	mt	39,200	30,100	35,500	38,500	34,000
	ODP tonnes	2,249	1,761	2,043	2,213	1,920
Maximum allowable consumption**	mt	43,051	38,746	38,746	38,746	34,441
	ODP tonnes	2,540	2,286	2,286	2,286	2,032
Phase-out target	mt	n/a	4,305	n/a	n/a	4,305
	ODP tonnes	n/a	254	n/a	n/a	254

*As per the country programme implementation report.
**As per the Agreement signed at the 67th meeting for stage I up to 2015, and as per the Agreement signed at the 79th meeting for stage II from 2016 to 2018.

107. While HCFC consumption in the sector grew in 2016 and 2017 due to the increased demand for XPS foam products for insulation, UNIDO and FECO continued to accelerate the completion of conversion projects under stage I, achieving the HCFC reduction target in 2018. FECO continued to apply the HCFC production quota and the domestic sales quota issued for each producer, as well as the HCFC consumption quotas for manufacturing enterprises using more than 100 mt.

Status of progress

108. The Secretariat noted the efforts by the Government of China and the implementing agencies to initiate the first 10 conversions (245 ODP tonnes), as well as the plan to start two to six additional conversions under the third tranche (estimated at 70 ODP tonnes). The HCFC reductions generated by all of these projects together would amount to 315 ODP tonnes, to take place between 2019 and 2021, in view of the two-year duration of each conversion. Given that a reduction of 635 ODP tonnes is required by 2020 in line with the Agreement, the Secretariat enquired how those additional reductions would be achieved.

109. UNIDO explained that stage II of the XPS foam sector plan would eliminate a total of 2,286 ODP tonnes of HCFCs not only from the conversion of eligible enterprises, but also from the self-funded conversion of ineligible ones. This reduction will be supported by TA activities that will strengthen the industry's technical capacity and facilitate the adoption of low-GWP alternatives. Also, policy and regulatory interventions, including the HCFC production quota and domestic sales quota issued for each producer, as well as the HCFC consumption quotas for eligible and non-eligible manufacturing enterprises using more than 100 mt, will ensure timely and sustained phase-out of HCFCs in the sector. The total supply of HCFCs to be sold to the domestic market is controlled in accordance with the compliance targets, and the HCFC consumption quota for the non-eligible enterprises will be reduced in 2020.

110. In addition, enterprises consuming less than 100 mt of HCFCs annually for controlled uses must register with provincial environmental protection agencies (EEBs), which are responsible for their daily supervision and inspections to ensure compliance with regulations.

111. UNIDO also provided reassurance that FECO and UNIDO were identifying and engaging with more eligible enterprises to participate in conversion projects as soon as possible.

112. Given that the third tranche was not approved at the 83rd meeting as planned, UNIDO also indicated that four of the ongoing conversions would rely on funds from subsequent tranches to enable their completion. Once the funding is approved, the projects will likely proceed as planned, and may be completed by the end of 2021.

Project implementation and monitoring unit (PMU)

113. UNDP as lead agency of the HPMP for China 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 XPS foam sector implemented by UNIDO are summarized in Table 5.

Table 5. PMU expenditures for 2017-2018, stage II of the XPS foam sector plan in China

Items	Description	Funding (US $)
Sector-specific costs	Project staff	164,561
	Domestic travel	26,108
	International travel	3,821
	Domestic meetings	23,055
	International meetings	0
	Consulting service	20,891
Subtotal (sector-specific costs)		**238,436**
Operational costs	Shared costs (support staff, computers, Internet, printing, office operation and maintenance)	335,562
Total disbursement 2017-2018		**573,997**

Interest

114. UNIDO reported that in 2018 FECO earned cumulative interest for the XPS foam sector of US $3,130 under stage I and US $2,163 under stage II of the HPMP.

Sustainability of the HCFC phase-out

115. In explaining how the policy framework and enforcement will be strengthened to ensure sustained phase-out of HCFC in the XPS foam sector, UNIDO indicated that the Government of China would promulgate the ban on the use of HCFCs as blowing agent before the complete phase-out of HCFCs. Additionally, in line with decision 82/65, the Government of China submitted to the 83rd meeting the review of current monitoring, reporting, verification and enforcement systems under the HCFC consumption and production phase-out management plans (HPMP and HPPMP),[9] including the action plan to strengthen legislation and its implementation. In line with decision 83/41(e)[10] the Government of China had also submitted a report to the 84th meeting detailing the progress made in the implementation of activities related to the current monitoring, reporting, verification and enforcement systems under the HPMP and HPPMP.

Conclusion

116. The Secretariat notes that China continues to be in compliance with the Montreal Protocol and its Agreement with the Executive Committee with regard to the XPS foam sector plan, including the reduction target agreed for 2018. There is significant progress in the implementation of the first two tranches of stage II, including the completion of one conversion project, initiation of another nine conversions to be completed between 2020 and 2021, and several TA activities. Four of the ongoing conversions would rely on funds from subsequent tranches to enable their completion. The level of disbursement to beneficiary enterprises is over 31 per cent of the funds approved in the second tranche. Given the imminent HCFC

[9] UNEP/OzL.Pro/ExCom/83/11/Add.1.
[10] UNEP/OzL.Pro/ExCom/84/22/Add.1.

reductions in the Agreement by 2020, the funding from the third tranche is required to continue implementing investment projects, TA activities and policy and regulatory measures, to ensure that HCFC consumption in the sector is reduced and maintained below the maximum allowable consumption in the Agreement.

RECOMMENDATION

117. The Executive Committee may wish to consider:

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

(b) Approving the third tranche of the XPS foam sector plan of stage II of the HPMP for China, and the corresponding 2020-2022 tranche implementation plan, at the amount of US $8,000,000, plus agency support costs of US $560,000 for UNIDO.

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS
China

(I) PROJECT TITLE	AGENCY	MEETING APPROVED	CONTROL MEASURE
HCFC phase-out plan (stage II) PU foam sector	World Bank (lead)	77th	100 % in 2026

(II) LATEST ARTICLE 7 DATA (Annex C Group l)	Year: 2018	14,382.12 (ODP tonnes)

(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)						Year: 2018
Chemical	Aerosol	Foam	Refrigeration		Solvent	Total sector consumption
			Manufacturing	Servicing		
HCFC-22	101.20	1,595.00	4,840.00	3,290.20		9,826.40
HCFC-123			11.06	8.75		19.81
HCFC-124				-0.12		-0.12
HCFC-141b	52.80	3,759.14			374.00	4,186.24
HCFC-142b		325.00	5.85	18.00		348.85
HCFC-225ca					0.43	0.43
HCFC-225cb					0.69	0.69

(IV) 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

(V) BUSINESS PLAN		2019	2020	2021	Total
World Bank	ODS phase-out (ODP tonnes)	279.71	250.68	335.12	865.51
	Funding (US $)	11,342,000	10,165,000	13,589,000	35,096,000

(VI) PROJECT DATA			2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Montreal Protocol consumption limits			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)			4,449.6	4,449.6	3,774.5	3,774.5	2,965.7	2,965.7	2,965.7	1,078.4	1,078.4	330.0	0.0	n/a
Agreed funding (US $)	World Bank	Project costs	7,045,027	10,600,000	9,500,000	12,700,000	12,700,000	20,000,000	15,700,000	15,600,000	10,500,000	13,100,000	14,026,183	141,471,210
		Support costs	493,152	689,000	617,500	825,500	825,500	1,300,000	1,020,500	1,014,000	682,500	851,500	911,702	9,902,985
Funds approved by ExCom (US $)		Project costs	7,045,027	0	0		0	0	0	0	0	0	0	7,045,027
		Support costs	493,152	0	0		0	0	0	0	0	0	0	493,152
Total funds requested for approval at this meeting (US $)		Project costs				10,600,000*								
		Support costs				689,000*								

*Initially requested in 2017, deferred to 84th meeting.

Secretariat's recommendation:	For individual consideration

PROJECT DESCRIPTION

118. On behalf of the Government of China, the World Bank as the designated implementing agency has submitted a request for funding for the second tranche of the polyurethane (PU) rigid foam sector plan of stage II of the HCFC phase-out management plan (HPMP), at the amount of US $10,600,000, plus agency support costs of US $689,000.[11] The submission includes a progress report on the implementation of the first tranche and the tranche implementation plan for 2020.

Progress report on the implementation of the first tranche of stage II

Regulatory activities

119. In October 2018, the Ministry of Ecology and Environment (MEE) issued the ban on using HCFC-141b as blowing agent in the refrigerator and freezer, reefer container, and electric water-heater sub-sectors as of January 1, 2019. Any violation of the ban will be penalized according to the provisions in the Regulation on Ozone Depleting Substances (ODS) Management.

Investment projects

120. The contract between the Foreign Environmental Cooperation Office (FECO) and the World Bank for the implementation of the PU rigid foam sector plan (stage II) was signed on 8 January 2019. A total of 43 enterprises have submitted project applications to participate. Upon verification of their baseline information (i.e., non-Article-5 ownership, baseline equipment, HCFC consumption and financial data), 11 PU foam enterprises consuming 1,189 metric tonnes (mt) of HCFC-141b were selected as beneficiaries and have signed contracts with FECO for conversion to water-blown or hydrocarbon (HC) technology. Conversion of five enterprises will be completed by December 2019, two more by mid-2020 and the remaining four (converting to HC) within three years, and no later than the end of 2021. The status of progress of the conversions of the 11 enterprises is presented in Table 1.

Table 1. Status of progress of PU foam enterprises selected in the first tranche

Status of implementation	Number of enterprises	HCFC consumption		Value of contract (US $)
		mt	ODP tonnes	
Ongoing conversion	**11**	**1,189**	**130.81**	**8,181,024**
Trial production completed	3	188	20.73	942,460
Conducting polyol system modification	4	591	64.96	3,790,300
Equipment bidding process	4	410	45.12	3,448,264
Future conversions	**32**	***2,755**	***303.05**	**TBD**

*Estimation. Projects' impact currently under verification

Technical assistance (TA) activities

121. TA activities have been implemented, and include a workshop to launch the implementation of stage II of the HPMP in the PU foam sector organized in April 2017; training workshops for the 11 beneficiaries on sub-project implementation procedures, the application of alternative technologies, potential safety risks and safety measures; technical support by the implementation support agency (ISA) to FECO on, *inter alia*, operational management, on-site verifications, project document preparation and design of TA activities.

[11] As per the letter of 24 September 2019 from the Ministry of Ecology and Environment of China to the World Bank.

122. FECO organized a study tour to the United States of America, including visits to HFO suppliers, with the goal of sharing information on: the progress and perspectives of HCFC-141b phase-out in China, market updates on the new applications of HFO-based technology, and present and future HFC control measures taking place in both countries.

Level of fund disbursement

123. As of the 12-week deadline for submission (23 September 2019), of the US $7,045,027 approved no funds were disbursed by the World Bank to FECO. However, US $2,691,628 were disbursed by FECO to beneficiary enterprises, as shown in Table 2. On 31 October 2019, US $3,522,514 (50 per cent of the total funding approved) was disbursed from the World Bank to FECO.

Table 2. Status of disbursements for the PU foam sector plan (as of September 2019) (US $)

PU foam sector plan	Tranche 1
Funds approved	**7,045,027**
Disbursements from the World Bank to FECO	0
Disbursement ratio	0%
Disbursements from FECO to beneficiaries	2,691,628
Disbursement ratio	38.2%

Implementation plan for the third tranche of stage II

124. In order to achieve the HCFC consumption target established in the Agreement between the Government and the Executive Committee for 2020 (26,960.9 mt or 2,965.70 ODP tonnes), additional HCFC-141b reductions of 7,352 mt (808.72 ODP tonnes) from the 2019 consumption target (or 7,215 mt (793.65 ODP tonnes) from the actual 2018 consumption level) will be ensured through conversion sub-projects, systems house projects, TA activities, and policy actions.

Regulatory activities

125. A ban on the consumption of HCFC-141b as a blowing agent in the insulation-pipe and solar water-heater manufacturing sub-sectors is under preparation and is planned to be issued by end of 2020. FECO will continue enforcing the quota permits for PU foam enterprises that consume more than 100 mt of HCFCs per year; and will also reduce the consumption quota in 2020.

Investment projects

126. China will continue the first 11 enterprise conversions (1,189 mt of HCFC-141b). The verification of eligibility, baseline consumption and equipment, phase-out impact and funding levels of additional 32 enterprises, with a total consumption of 2,755 mt (303.05 ODP tonnes) of HCFC-141b, will be completed by December 2019, and the sub-grant agreements to start conversions will then be signed. Conversions of all the 32 enterprises will be completed by the first quarter of 2021.

127. FECO will continue to identify additional foam enterprises and their associated systems houses for conversion. As a large number of small and medium-sized enterprises (SMEs) will be involved in the implementation of stage II, FECO and the World Bank have designed a new implementation modality that will provide SMEs with basic equipment/materials and TA, enhancing their capacity to adopt alternatives and alleviating their financial burden. Several large suppliers of the equipment that would be required for the conversion of the foam SMEs, systems houses supplying foam formulations to SMEs, and about 20 solar water-heater and insulation-pipe enterprises expressed their interest in participating. It is expected that a SMEs pilot programme will be launched in 2020.

TA activities

128. The following TA activities will be implemented: two technical workshops on HCFC phase-out strategy, policies, and alternative technologies; two annual meetings to discuss project implementation, potential risks and solutions; public awareness activities to facilitate HCFC phase-out in the PU foam sector; and continued technical support by the ISA to FECO including, *inter alia*, operational management, on-site verifications, project document preparation and design of activities.

129. Monitoring activities planned include performance verifications for ongoing projects and projects expected to be completed by December 2019; and the development of a standard methodology and technical procedures for detecting, identifying and analysing the types of blowing agents in the polyol and final foam products. With the support of the foam association, FECO will conduct an annual market assessment of the foam sector. Annual training workshops will be conducted at the provincial level to enhance the knowledge of the MEE and local ecology and environment bureau (EEB) officials for conducting monitoring of ODS consumption, and to provide information exchange for strengthening cross-regional enforcement actions.

130. Table 3 presents the budget of the activities to be implemented during the implementation of the second tranche.

Table 3. Budget for the second tranche of the PU foam sector plan in China

Activity	Budget (US $)
Conversion of PU foam enterprises to hydrocarbon technology	9,566,500
TA activities	450,500
Project monitoring: - Project staff – programme management, support, financial, procurement legal support (US $218,920) - Domestic travel (US $23,430) - Domestic meetings (US $20,690) - Consulting services (US $18,760) - Operating costs – daily operating expenses, support staff, office facilities and equipment (US $301,200)	583,000
Total second tranche	**10,600,000**

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

HCFC consumption

131. The overview of HCFC consumption in the PU foam manufacturing sector in 2018 is contained in paragraphs 25 and 26 above.

Level of disbursement

132. The Secretariat noted that FECO disbursed funding to beneficiaries before receiving the disbursement from the World Bank. The process for payment, where FECO used its own financial resources to temporarily cover the costs associated with the conversion of PU foam enterprises in stage II of the HPMP, seems contrary to what has been the practice under the Multilateral Fund. In previous discussions on the HPMP for China it was noted that FECO could not sign and start implementing sub-agreements with beneficiary enterprises without having the funding in its account to support them. In view of this the Secretariat requested several clarifications.

133. The World Bank explained that the payment had been made by FECO on an exceptional basis for compliance reasons, specifically the need to address 13,400 mt (1,474 ODP tonnes) of HCFC-141b in reductions in only a half-year's time. The main reasons for the delay in the transfer of funds from the World Bank to FECO were changes in the official names of the national organization and of the designated bank account for the project. Until those issues were resolved, the World Bank was unable to transfer funding to FECO. The use of FECO's own funds was discussed with the World Bank in advance, was completely in accordance with World Bank policies and procedures stipulated in its Grant Agreement (GA) with China, and detailed in the project implementation manual (PIM). The GA has a "retroactive financing" clause which allows China to begin implementation after Bank project appraisal but before GA effectiveness. In this case, the GA was already in effect. Furthermore, the conditions of the GA stipulate that disbursement to China can only take place after funds have been approved, which was the case as the first tranche had been deposited with the World Bank. The funds that FECO transferred to beneficiary enterprises followed the same detailed process of verification that the World Bank applies to transfers from the Fund. FECO furthermore assumed responsibility for all costs and risks associated with the funding, in the knowledge that if the fund transfers to enterprises did not comply with Bank requirements (including eligibility requirements and other Multilateral Fund policies), the funding would not be reimbursed. The World Bank also clarified that the funding disbursed by FECO in advance was not from previously approved Montreal Protocol projects in China.

134. During the project review process, the World Bank confirmed that the administrative issues that were preventing the disbursement from the Wold Bank to FECO were resolved and payment of US $3,522,514 (representing 50 per cent of the total funding tranche) took place on 31 October 2019.

Status of progress

135. Based on the milestones reached in the implementation of conversion projects for the first 11 enterprises and the ongoing verifications of the next 32 enterprises, FECO currently complies with the conditions to request a second installment from the World Bank for US $2.1 million. It is estimated that FECO would disburse an additional US $1.5 million to beneficiary enterprises by the end of 2019, and an additional US $ 1.4 million by mid-2020 upon compliance of implementation milestones by enterprises. The World Bank estimates that with the available funds from the first tranche a total of 2,700 mt (297 ODP tonnes) of HCFC-141b would be reduced. It is expected that with the funding from the second and third tranches China would be able to address the additional 4,600 mt (506 ODP tonnes) of HCFC-141b to reach the reduction of 7,300 mt (803 ODP tonnes) of HCFC-141b needed to meet the 2020 consumption target.

Implementation of the SME conversions

136. Given the need to achieve reductions in HCFC-141b consumption in a short period of time, the Secretariat asked for more details on the modality of implementation to expedite the assistance to SMEs, as well as on the pilot programme that will be launched in 2020 and how it will be scaled up in the coming years. The World Bank explained that the assistance will be provided through a voucher mechanism to more efficiently deliver technical and financial support while enabling enterprises to choose suitable equipment required for their conversions and technologies from a group of qualified suppliers.

137. This approach is compatible with the sector's commercial practices and would accommodate the SMEs with the most limited technical and financial capacity. FECO has already organized several workshops to discuss the responsibilities, implementation procedures, timeline for implementation and sector survey with stakeholders. The phase-out commitment, verification and monitoring requirements, reporting obligations during the sub-project period and after handover to local EEBs will be no different from the individual sub-projects.

Project implementation and monitoring unit (PMU)

138. UNDP as lead implementing agency of the HPMP for China 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 PU foam sector implemented by the World Bank are summarized in Table 4.

Table 4. PMU expenditures for 2017-2018, stage II of the PU foam sector plan in China

Items	Description	Funding (US $)
Sector-specific costs	Project staff	218,222
	Domestic travel	23,359
	International travel	0
	Domestic meetings	20,628
	International meetings	0
	Consulting service	18,692
Subtotal (sector-specific costs)		**280,901**
Operational costs	Shared costs (support staff, computers, Internet, printing, office operation and maintenance)	300,239
Total disbursement 2017-2018		**581,140**

Interest

139. The World Bank reported that FECO earned cumulative interest of US $8,004 for stage I of the PU foam sector plan in 2018. No interests were accrued in 2018 from stage II of the PU foam sector plan as no funds had been disbursed from the World Bank to FECO that year.

Sustainability of the HCFC phase-out

140. Regarding the monitoring mechanisms in place to assure that the converted enterprises do not revert to controlled substances, the World Bank confirmed that stage II of the HPMP would follow the same monitoring, verification and reporting mechanism as in stage I, given that the requirements are the same for large enterprises and SMEs. A comprehensive description of this system is contained in the Desk study on the current system of monitoring consumption of foam blowing agents at enterprises assisted under stage I of the HPMP and verification methodology submitted by the Government of China to the 83rd meeting, in line with decision decision 82/67(c).[12]

141. Meanwhile, the management capacity of local EEBs and the registration mechanism continue to be improved. In parallel to stage II implementation and after project completion, local EEBs will carry out regular inspections of both systems houses and PU foam manufacturers. Additional TA activities have been designed, such as blowing-agent monitoring activities in major provinces/cities, market assessment of the raw materials, and enforcement support to the MEE and EEBs.

142. Additionally, in line with decision 82/65, the Government of China submitted to the 83rd meeting the review of current monitoring, reporting, verification and enforcement systems under the HCFC consumption and production phase-out management plans (HPMP and HPPMP),[13] including the action plan to strengthen legislation and its implementation. In line with decision 83/41(e)[14] the Government of China had also submitted a report to the 84th meeting detailing the progress made in the implementation of activities related to the current monitoring, reporting, verification and enforcement systems under the HPMP and HPPMP.

[12] Part II of document UNEP/OzL.Pro/ExCom/83/11/Add.1.
[13] Part I of document UNEP/OzL.Pro/ExCom/83/11/Add.1.
[14] UNEP/OzL.Pro/ExCom/84/22/Add.1.

Conclusion

143. The Secretariat notes that China continues to be in compliance with the Montreal Protocol and its Agreement with the Executive Committee with regard to the PU foam sector plan. There is significant progress in the implementation of the first tranche of stage II, including the initiation of 11 conversion projects, five of which will be fully converted by the end of 2019, and several TA activities. Given the imminent HCFC-141b reduction in the Agreement in 2020, the funding from the second tranche is required to continue ongoing conversions and start new ones, many of which will be related to SMEs and associated systems houses, and to implement TA activities and policy and regulatory measures in order to ensure that HCFC consumption in the sector is reduced and maintained below the maximum allowable consumption in the Agreement. The Executive Committee may wish to consider whether to approve the second tranche request noting that the 20 per cent disbursement from FECO to beneficiary enterprises achieved by the 12-week deadline was from FECO's own resources as FECO could only receive the disbursement from the World Bank by 31 October 2019.

RECOMMENDATION

144. The Executive Committee may wish to consider:

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

(b) Whether to approve the second tranche of the PU foam sector plan of stage II of the HPMP for China, and the corresponding 2020 tranche implementation plan, in the amount of US $10,600,000, plus agency support costs of US $742,000 for the World Bank.

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS

China

(I) PROJECT TITLE	AGENCY	MEETING APPROVED	CONTROL MEASURE
HCFC phase-out plan (stage II) industrial and commercial refrigeration and air-conditioning	UNDP	77th	33% by 2020

(II) LATEST ARTICLE 7 DATA (Annex C Group l)	Year: 2018	14,382.12 (ODP tonnes)

(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)						Year: 2018
Chemical	Aerosol	Foam	Refrigeration		Solvent	Total sector consumption
			Manufacturing	Servicing		
HCFC-22	101.20	1,595.00	4,840.00	3,290.20		9,826.40
HCFC-123			11.06	8.75		19.81
HCFC-124				-0.12		-0.12
HCFC-141b	52.80	3,759.14			374.00	4,186.24
HCFC-142b		325.00	5.85	18.00		348.85
HCFC-225ca					0.43	0.43
HCFC-225cb					0.69	0.69

(IV) CONSUMPTION DATA (ODP tonnes)			
2009 - 2010 baseline:	19,269.0	Starting point for sustained aggregate reductions:	18,865.44
CONSUMPTION ELIGIBLE FOR FUNDING (ODP tonnes)			
Already approved:	12,161.02	Remaining:	6,704.42

(V) BUSINESS PLAN		2019	2020	2021	After 2021	Total
UNDP	ODS phase-out (ODP tonnes)	64.68	86.24	86.24	63.47	300.63
	Funding (US $)	12,840,000	17,120,000	17,120,000	12,600,364	59,680,364

(VI) PROJECT DATA			2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Montreal Protocol consumption limits			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)			2,162.5	2,162.5	2,042.4	2,042.4	1,609.9	1,609.9	*	*	*	*	*	n/a
Agreed funding (US $)	UNDP	Project costs	13,368,756	20,000,000	12,000,000	16,000,000	16,000,000	11,776,041	-	-	-	-	-	89,144,797
		Support costs	935,813	1,400,000	840,000	1,120,000	1,120,000	824,323	-	-	-	-	-	6,240,136
Funds approved by ExCom (US $)		Project costs	13,368,756	20,000,000	0									33,368,756
		Support costs	935,813	1,400,000	0									2,335,813
Total funds requested for approval at this meeting (US $)		Project costs				12,000,000**								12,000,000
		Support costs				840,000								840,000

* Maximum allowable total consumption of Annex C, Group I substances in the ICR sector for the period 2021 to 2026 will be determined later, but would in no case be greater than 1,609.9 ODP tonnes prior to 2025, and no greater than 781 ODP tonnes thereafter.

** The third (2018) tranche was submitted to the 82nd meeting and deferred for consideration at the 84th meeting (decision 82/71(b) and decision 83/55).

Secretariat's recommendation:	For individual consideration

PROJECT DESCRIPTION

145. On behalf of the Government of China, UNDP, as the designated implementing agency, has re-submitted[15] a request for funding for the third tranche of the industrial and commercial refrigeration and air-conditioning (ICR) sector plan of stage II of the HCFC phase-out management plan (HPMP), at the amount of US $12,000,000, plus agency support costs of US $840,000.[16] The submission includes the progress report on the implementation of the second tranche and the tranche implementation plan for 2020.

Progress report on the implementation of the second tranche of stage II

Enterprise-level activities

146. Contracts were signed with 12 enterprises for the conversion of 18 manufacturing lines to phase out 2,557.42 metric tonnes (mt) of HCFC-22 after verification of the baseline consumption and capacity of these lines. The implementation of the conversion projects is progressing and is being closely monitored according to the defined milestones.[17] One line has completed national acceptance; three lines have started trial production; twelve lines have completed the design and procurement contract; one line has just signed the conversion contract and is in the process of design; and one additional line that has completed the design and procurement, needs to re-locate the workshop, which will delay completion of the conversion by June 2021. Table 1 shows the progress in the conversion of manufacturing lines so far achieved.

Table 1. Progress in the conversion of manufacturing lines under tranches I, II and III

No.	Name of enterprise	Phase-out of HCFC-22 (mt)	No. of lines	Type of products	Alternative technology	Funding (US $)	Milestones achieved
1-1	Yantai Moon	590.23	1	Water chiller (heat pump)	R-290	9,319,613	National project acceptance in August 2019
1-2	Dunham-Bush	20.42	1	Heat pump water heater	R-32	282,762	Started trial production, pending national project acceptance
1-3	Nanjing TICA	91.58	1	Freezers, refrigeration and condensing units	NH_3/ CO_2	968,400	Workshop relocation, requested for delayed completion to June 2021
1-4	Nanjing TICA	32.52	1	Heat pump water heater	CO_2	547,038	Completion of design and procurement contracts
1-5	TCL ZhongShan	115.31	1	Unitary air-conditioning	R-32	1,020,456	Completion of design and procurement contracts
1-6	Guangdong Jirong	21.13	1	Unitary air-conditioning	R-32	292,769	Started trial production, pending national project acceptance
Total tranche I		**871.19**	**6**			**12,431,038**	
2-1	Yantai Aowei	108.07	1	Freezers, refrigeration and condensing units	NH_3/ CO_2	1,561,153	Completion of design and procurement contracts

[15] Initially submitted for consideration at the 82nd and further to the 83rd meeting, the Executive Committee decided to defer consideration to the 83rd meeting, further to the 84th meeting (decision 82/71(b) and 83/55).

[16] As per the letter of 24 September 2019 from the Foreign Environmental Cooperation Center (FECO) of the Ministry of Ecology and Environment of China to UNDP.

[17] 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.	Name of enterprise	Phase-out of HCFC-22 (mt)	No. of lines	Type of products	Alternative technology	Funding (US $)	Milestones achieved
2-2	Yantai Aowei	75.28	1	Freezers, refrigeration and condensing units	NH_3/ CO_2	1,168,935	Completion of design and procurement contracts
2-3	Zhejiang Guoxiang	42.18	1	Unitary air-conditioning	R-32	504,288	Started trial production, pending national project acceptance
2-4	Haixin Shandong	85.26	1	Unitary air-conditioning	R-32	819,134	Completion of design and procurement contracts
2-5	Haixin Shandong	105.31	1	Unitary air-conditioning	R-32	953,449	Completion of design and procurement contracts
2-6	Qingdao Haier	492.00	1	Unitary air-conditioning	R-32	3,265,986	Completion of design and procurement contracts
2-7	Dunham-Bush	112.20	1	Water chiller (heat pump)	R-513A	1,610,512	Completion of design and procurement contracts
2-8	Dunan Environment	147.34	1	Water chiller (heat pump)	R-513A	2,030,774	Completion of design and procurement contracts
2-9	Zhejiang Guoxiang	95.22	1	Water chiller (heat pump)	R-513A	1,407,457	Completion of design and procurement contracts
2-10	Dalian Refrigeration	237.04	1	Water chiller (heat pump)	R-290	3,373,561	Completion of design and procurement contracts
2-11	Shandong Shenzhou	114.09	1	Freezers, refrigeration and condensing units	NH_3/ CO_2	1,633,116	Completion of design and procurement contracts
Total tranche II		**1,613.99**	**11**			**18,328,365**	
3-1	Dalian Refrigeration	72.24	1	Water chiller (heat pump)	R-290	1,231,414	Signed the conversion contract

147. Twelve enterprises submitted letters of intent to convert 16 manufacturing lines, of which 11 are small and medium-sized enterprises (SMEs) that manufacture freezers and refrigeration condensing units. Based on the preliminary data, the total consumption to be addressed through the conversion of 16 manufacturing lines amounts to 1,069.31 mt of HCFC-22 at a total estimated cost of US $16,770,034. Verification of actual consumption and manufacturing capacity has been conducted for six manufacturing lines. One contract has been signed to convert one manufacturing line to R-290 to phase out 72.24 mt of HCFC-22 at a total cost of US $1,231,414. Due to the delay in the approval of the third tranche, the verification of the eligibility of the remaining lines has been discontinued. Implementation of these conversion contracts is planned for the third and fourth tranches.

Technical assistance (TA) activities

148. The following TA and awareness-raising activities were also implemented:

(a) The China Refrigeration and Air-conditioning Industrial Association (CRAA) continues to assist in the smooth implementation of phase-out activities, including providing assistance with project application and verification; monitoring progress of conversion and overall phase-out in the sector; coordinating workshops, seminars and awareness-raising activities; tracking alternative technology development, assessing emerging alternatives in the ICR sector and providing advice to enterprises on technology selection; and collecting data and monitoring sector consumption. After signing the contract, CRAA has assisted FECO in identifying 33 manufacturing lines for conversion, verifying baseline consumption, and monitoring the progress of conversion projects;

(b) Two contracts were also signed with Daxin Certified Public Accountant (DCPA) to conduct verification of the baseline consumption and eligibility of the manufacturing lines to be converted, and verification of performance milestones during the conversion process. Since the signature of the contracts, DCPA has verified the consumption of 23 manufacturing lines and the project implementation milestones of 17 manufacturing lines;

(c) A research project was initiated to develop a methodology for evaluating the performance and energy consumption of the R-134a/CO_2 cascade refrigeration system in supermarkets. The TA is intended to compare refrigeration systems using CO_2 and other refrigerants including HCFC-22, and R-404A to collect and analyse the data on system performance and energy consumption. As of September 2019, performance tests and energy consumption for refrigeration systems using CO_2, HCFC-22 and R-404A had been completed and a report on performance, energy consumption, and evaluation method of commercial refrigeration systems in supermarkets has been submitted;

(d) A study on energy conservation in small and medium-sized cold-storage and compression-condensing units was launched to develop a methodology for the evaluation of the energy efficiency of cold-storage equipment (20-70 tonnes of refrigeration capacity). The activity will assist in the establishment of an energy-efficiency standard for refrigeration equipment, eliminating the obsolete technologies and removing barriers for the transition to energy-efficient and environment-friendly technologies. The project is progressing. As of September 2019, the research on the evaluation methods of energy-conservation in small and medium-sized cold storage and compression condensing unit had been completed. A comprehensive method has been proposed for evaluation of energy saving and emission reduction of small and medium-sized cold storage equipment;

(e) A study on the safety requirements and evaluation methodology for using flammable refrigerants in industrial refrigeration and air-conditioning equipment has been started. The TA intends to collect data and analyse the information for implementing a safety certification system in order to reduce the safety risks linked to the manufacturing and use of such products;

(f) A study covering both product safety and manufacturing-process safety has been started. The manufacturing-process safety certification is to ensure that the facilities (including the testing equipment) meet the safety requirements for using flammable refrigerants. The current certification system in China does not include products using flammable refrigerants. It is planned to carry out on-site research at enterprises' production sites, identify problems and propose solutions. These activities will support further work in formulating safety requirements and verification methods. As of September 2019, the relevant safety requirements for flammable refrigerants in national standard GB/T 9237-2017 were addressed and the relevant restrictions and requirements at each stage were clarified. The project team had conducted literature review and case studies; analysed the safety measures and solutions for each stage of the use of flammable refrigerants; and conducted research and testing of three types of refrigerants. The guidelines on safety certification of three types of refrigerants are being drafted;

(g) One training session was conducted for 10 SMEs on project preparation. The training covered stage II HPMP implementation; requirements and procedures when implementing manufacturing-line conversion projects; preparation of project proposals and key aspects during implementation; verification of capacity and baseline consumption of manufacturing lines; verification of progress performance milestones; as well as project financial management. After the training session, nine enterprises consuming less than

50 mt submitted letters of intent to convert their manufacturing lines; and

(h) In April 2019, an international exhibition for ICR equipment and a 2019 industrial roundtable and ozone-to-climate roadshow were held. Experts from different countries made presentations reviewing policies and alternative technologies. A special pavilion was set up to showcase ozone and climate friendly technologies, including CO_2, NH_3, hydrocarbons, HFOs and HFC-32, and to highlight the progress of refrigerant replacement. A series of technical workshops were organized covering the themes of ICR equipment, cold chain and refrigerants. A seminar was organized for enterprises in ICR sector to share experience in project implementation. Difficulties and obstacles faced in adopting low-global warming potential (GWP) alternatives were extensively discussed; and the assistance and technical support required were also expressed.

Project implementation and monitoring unit (PMU)

149. FECO is responsible for the overall implementation of the ICR sector plan. The roles and responsibilities include *inter alia,* identification of new lines for conversion, monitoring conversion of the lines; organizing meetings with stakeholders to discuss issues in implementation, develop terms of reference for TA activities, managing contracts for conversion projects and TAs, implementing awareness raising activities to assist smooth implementation of ICR sector plan; and coordination with implementing agency for preparing reports to the Executive Committee. After approval of the second tranche, FECO identified new enterprises and manufacturing lines for conversion, organized training workshops and sessions to disseminate policies and procedures for projects, undertook verification missions, and signed contracts with enterprises. FECO also developed terms of reference for five TA projects and signed contracts for the TA activities. CRAA assisted FECO to implement the sector plan and monitor the progress of implementation.

Level of fund disbursement

150. As of September 2019, of the US $33,368,756 approved so far, US $33,167,580 had been transferred from UNDP to FECO, and US $19,224,325 had been disbursed to final beneficiary enterprises and for TA activities, accounting for 57.61 per cent of the total funding approved by the Executive Committee. The disbursement of US $8,773,988 from the second tranche accounts for 43.87 per cent of the funding for the second tranche, as shown in Table 2.

Table 2. Status of disbursement of stage II of the ICR sector plan as of September 2019 (US $)

ICR sector plan		Tranche I (2016)	Tranche II (2017)	Total
Funds approved by the Executive Committee		13,368,756	20,000,000	33,368,756
Disbursement from UNDP to FECO	Amount (US $)	13,265,048*	19,902,532*	33,167,580*
	Disbursement ratio (%)	99.22	99.51	99.40
Disbursement from FECO to beneficiaries	Amount (US $)	10,450,337	8,773,988**	19,224,325
	Disbursement ratio (%)	78.17	43.87	57.61

*After deducting the interest of US $103,708 for 2015 from the first tranche; deducting the interest of US $97,468 for 2016 and US $7,299 for 2017 from the second tranche.

** Includes the funds disbursed to Dalian Refrigeration for the conversion of one manufacturing line to be charged to the third tranche.

Implementation plan for the third tranche

151. During the third tranche, it is planned to phase out 750 mt of HCFC-22 at a total cost of US $9,000,000 through enterprise conversion. The enterprises to be converted with the funding from the third tranche will be selected from the 16 manufacturing lines that have been initially identified in Table 3; the remaining lines identified will be converted with the funding from the fourth tranche. The eligibility and baseline consumption of six lines (plant no. 3-1 to 3-6) have been verified and the verification of the

remaining lines will start once the third tranche is approved. The conversion process will be closely monitored; and milestones achieved during conversion will be verified by an independent consultant firm. The duration of implementation of the third tranche is estimated to be 30 months.

Table 3. Manufacturing lines identified for conversion in the ICR sector plan

No.	Name of enterprise	Phase-out of HCFC-22 (mt)	No. of lines	Type of products	Alternative technology	Funding (US $)
3-1	Dalian Refrigeration*	72.24	1	Water chiller (heat pump)	R-290	1,231,414
3-2	Tianjin Fashihao	49.58	1	Freezers, refrigeration and condensing units	NH_3	791,900
3-3	Jinan Oufeite	188.41	1	Freezers, refrigeration and condensing units	NH_3/CO_2	2,517,080
3-4	Jinan Oufeite	116.97	1	Freezers, refrigeration and condensing units	NH_3/CO_2	1,667,920
3-5	Jinan Dasen	176.06	1	Freezers, refrigeration and condensing units	NH_3/CO_2	2,373,560
3-6	Jinan Dasen	37.61	1	Freezers, refrigeration and condensing units	NH_3/CO_2	672,380
3-7	Yantai Ousenna	70.00	1	Freezers, refrigeration and condensing units	HFC-134a/CO_2	1,105,800
3-8	Liaoning Gaoxiang	47.00	1	Freezers, refrigeration and condensing units	HFC-134a/CO_2	821,780
3-9	Liaoning Gaoxiang	38.00	1	Freezers, refrigeration and condensing units	HFC-134a/CO_2	687,320
3-10	Shenyang Anjie	45.00	1	Freezers, refrigeration and condensing units	HFC-134a/CO_2	791,900
3-11	Shanghai Jiadun	35.00	1	Freezers, refrigeration and condensing units	HFC-134a/CO_2	642,500
3-12	Yantai Wanxin	44.00	1	Freezers, refrigeration and condensing units	HFC-134a/CO_2	776,960
3-13	Hunan Nanfang	46.34	1	Freezers, refrigeration and condensing units	HFC-134a/CO_2	806,840
3-14	Hunan Nanfang	23.16	1	Freezers, refrigeration and condensing units	HFC-134a/CO_2	463,220
3-15	Quanzhou Zhiyun	49.73	1	Freezers, refrigeration and condensing units	HFC-134a/CO_2	851,660
3-16	Shenyang Gulun	30.22	1	Freezers, refrigeration and condensing units	HFC-134a/CO_2	567,800
	Total	**1,067.00**	**16**			**16,770,034**

*Contract has been signed and 30 per cent of funds have been disbursed.

152. The ongoing TA activities started in the first and second tranches will continue to be implemented during the third tranche. In addition, the following TA activities have been identified for implementation during the third tranche (the costs of the planned TA activities will be determined through bidding). Additional activities may be identified and implemented as required:

(a) A review of the latest research on HFO refrigerants and its application to various types of water chiller (heat pump), and an analysis of the characteristics of HFO refrigerants, system cycles, components and optimization of energy use. A prototype of a water chiller (heat pump) will be constructed to conduct experiments and analysis. The final report will provide guidance on the selection of HFOs as an alternative in the phase-out of HCFCs in chillers;

(b) Research and an expert review on safety requirements for the CO_2 refrigeration systems, verifying technical data and formulating draft Safety Regulations for CO_2 refrigeration systems. The outcomes will include safety requirements for equipment and accessories, system design, construction and other conditions. The safety regulations will lay a foundation for the widespread use of CO_2 refrigeration systems in China;

(c) A review of the scope and classification of low-ambient-temperature-air-source heat-pump products to include additional provisions applicable to equipment using alternative technologies, and study on the performance testing methods and safety requirements introduced when using alternative technologies. Based on the review and study, three standards will be revised for water chiller (heat pump) packages under the vapor compression cycle for industrial, commercial and similar applications (GB/T 18430.1-2007); and low ambient temperature air source heat pump (water chilling) packages for industrial, commercial and similar application (GB/T 25127.1-2010 and GB/T 25127.2-2010);

(d) A demonstration of HC-290 chillers to promote their use in the dairy products and meat processing industry. This activity includes manufacturing a prototype chiller unit and installing it at a demonstration site; collecting data and monitoring its operation; analysing the data and developing a report; and disseminating the outcomes of the demonstration; and

(e) Technical workshops and awareness-raising activities among key stakeholders to address the safety concerns of end-users regarding the flammability of HFC-32 units produced on the converted lines in order to increase market acceptance of HFC-32 technologies in the ICR sector.

153. FECO will coordinate, monitor and report on the progress of implementation. The proposed budget for the third tranche is presented in Table 4.

Table 4. Proposed budget for the implementation plan of the third tranche

Activities	Funding (US $)
Conversion of manufacturing lines	9,000,000
TA activities	
Studies and research activities on alternatives, certification and barrier removal	800,000
Establish new standards and revise existing standards	400,000
Technical consultant services and verification	250,000
Demonstration of products with alternative technologies	700,000
Technical communication and seminars including travel costs	50,000
Public awareness and training workshops	45,004
Sub-total for TA activities	2,245,004
PMU	754,996
Total	**12,000,000**

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

HCFC consumption

154. The consumption of HCFCs in the ICR sector in 2018 is discussed in paragraphs 43 and 44 of the present document.

Alternative technologies used in conversion projects

155. The proposed third tranche includes a request for replacing the CO_2/NH_3 technology as originally approved in the HPMP, with CO_2/HFC-134a technology in 10 manufacturing lines of freezers and refrigeration equipment for cold storage and food processing, mostly in small enterprises consuming less than 50 mt. UNDP explained that, due to several explosions involving ammonia in recent years, the Government has enacted strict laws and regulations on the use of ammonia, including a cold storage safety code (GB28009/2011); a cold storage design code (GB50072/2010); and an ammonia refrigeration system installation engineering construction and acceptance code (SBJ12/2011). Accordingly, all enterprises using ammonia have to rectify their safety systems and assess their risk management in terms of controlling the sources of chemicals, the refrigeration system, the certification of operators, and emergency management.

156. Due to the limited technical capacity of these enterprises and the complexity and challenges in managing the toxicity of ammonia, they find it difficult to meet the requirements set forth in the national laws and regulations, even with the TA provided through the HPMP implementation and the 25 per cent additional funding. Based on these constraints, SMEs are unable to take the safety risks and choose to use CO_2/HFC-134a cascade technology instead of ammonia. UNDP further confirmed that the costs related to the conversion to HFC-134a by these enterprises will not be funded by the Multilateral Fund.

157. The Secretariat noted that the lack of viable low-GWP technologies for SMEs has made the phase-out of HCFCs in the ICR sector challenging. As reported by UNDP, the replacement of one mt of HCFC-22 will phase in 0.85 mt of CO_2 and 0.15 mt of HFC-134a. The proposed conversion of 10 lines would phase out 427 mt of HCFC-22 and phase in approximately 64 mt of HFC-134a, resulting in a net greenhouse gas (GHG) emission reduction of 680,916 tCO_2-eq from refrigerant replacement (88 per cent of GHG emission reduction from the baseline). The energy efficiency of the CO_2/HFC-134a technology is 5 to 10 per cent higher than that of the HCFC-22 system, which will imply additional GHG emission reduction. Based on the above, the Executive Committee may wish to consider the request for replacing CO_2/NH_3 technology with CO_2/HFC-134a technology submitted by UNDP on behalf of the Government of China.

Reporting of expenditures of the PMU

158. Upon a request for a detailed report on the expenditures of the PMU in line with decision 81/46(b), UNDP provided an estimated breakdown as shown in Table 5.

Table 5. PMU breakdown of expenditures as of November 2019 and budget for 2020-2021 (US $)

Items	Description	Expenditure	Budget
Sector-specific costs	Project staff	214,644	264,249
	Domestic travel	30,230	37,750
	International travel	4,000	3,775
	Domestic meetings	26,695	30,200
	International meetings	0	0
	Consulting service	24,189	26,425
Subtotal (sector-specific costs)		**299,759**	**264,249**
Operational costs	Shared costs (support staff, computers, Internet, printing, office operation and maintenance)	388,545	392,597
Total disbursement 2017-2018		**688,304**	**754,996**

Interest

159. UNDP reported that in 2018 FECO earned cumulative interest for the ICR sector of US $64,593 under stage I and US $34,887 under stage II of the HPMP.

Sustainability of the HCFC phase-out

160. In explaining how the policy framework and enforcement will be strengthened to ensure sustained phase-out of HCFCs in the ICR sector, UNDP indicated that in line with decision 82/65, the Government of China submitted to the 83rd meeting the review of current monitoring, reporting, verification and enforcement systems under the HCFC consumption and production phase-out management plans (HPMP and HPPMP),[18] including the action plan to strengthen legislation and its implementation. In line with decision 83/41(e),[19] the Government of China also submitted a report to the 84th meeting detailing the progress made in the implementation of activities related to the current monitoring, reporting, verification and enforcement systems under the HPMP and HPPMP.

Conclusion

161. The Secretariat notes that implementation of the second tranche of the ICR sector plan has progressed well. Eighteen conversion contracts have been signed to phase out 2,557.42 mt of HCFC-22. Of this amount, 66 per cent of the consumption will be converted to low-/zero-GWP technologies other than HFC-32. The conversion of manufacturing capacity is progressing. Out of the 18 lines that have signed the conversion contract, one line has completed national acceptance; three lines have started trial production; 13 lines have completed the design and procurement contract; and one line has just signed the conversion contract and is in the process of design. The SMEs that have opted for CO_2/HFC-134a technologies will not seek funding from the Multilateral Fund for future phase-out of HFC-134a phased in through these conversion projects. Several TA activities have been implemented, including technology studies, the development of technical guidelines for meeting safety regulations, and the revision of standards to assist in the conversion of manufacturing capacity and support market adoption of the alternative technologies. In view of the progress made and the overall funding disbursement of 57.61 per cent, the Secretariat recommends approval of the third tranche.

RECOMMENDATION

162. The Executive Committee may wish to consider:

(a) Noting the 2018-2019 progress report on the implementation of the second 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) Approving the third tranche of the ICR sector plan of stage II of the HPMP for China, and the corresponding 2020 tranche implementation plan, in the amount of US $12,000,000, plus agency support costs of US $840,000 for UNDP, on the understanding that:

(i) Consistent with decision XXVIII/2, those manufacturing lines that are converted to CO_2/HFC-134a technology under the third tranche would not be eligible for further funding under the Multilateral Fund; and

(ii) The level of funding provided to those manufacturing lines would not constitute a precedent for any such future conversions.

[18] UNEP/OzL.Pro/ExCom/83/11/Add.1 and decision 83/41(e).
[19] UNEP/OzL.Pro/ExCom/84/22/Add.1.

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS

CHINA

(I) PROJECT TITLE	AGENCY	MEETING APPROVED	CONTROL MEASURE
HCFC phase-out plan (stage II) refrigeration servicing and enabling programme	UNEP (lead), Germany and Japan	76th	n/a

(II) LATEST ARTICLE 7 DATA (Annex C Group l)	Year: 2018	14,382.12 (ODP tonnes)

(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)						Year: 2018
Chemical	Aerosol	Foam	Refrigeration		Solvent	Total sector consumption
			Manufacturing	Servicing		
HCFC-22	101.20	1,595.00	4,840.00	3,290.20		9,826.40
HCFC-123			11.06	8.75		19.81
HCFC-124				-0.12		-0.12
HCFC-141b	52.80	3,759.14			374.00	4,186.24
HCFC-142b		325.00	5.85	18.00		348.85
HCFC-225ca					0.43	0.43
HCFC-225cb					0.69	0.69

(IV) 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

(V) BUSINESS PLAN		2019	2020	2021	Total
Japan	ODS phase-out (ODP tonnes)	2.89	2.89	2.89	8.67
	Funding (US $)	90,400	90,400	90,400	271,200
UNEP	ODS phase-out (ODP tonnes)	118.29	121.91	129.15	369.35
	Funding (US $)	3,631,431	3,742,484	3,964,590	11,338,505
Germany	ODS phase-out (ODP tonnes)	10.85	7.24	0.00	18.09
	Funding (US $)	336,000	224,000	0	560,000

(VI) PROJECT DATA			2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Montreal Protocol consumption limits			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	*	*	*	*	*	*	n/a
Agreed funding (US $)	UNEP	Project costs	3,299,132	2,570,000	3,270,000	3,370,000	3,570,000	2,810,868	-	-	-	-	-	18,890,000
		Support costs	364,651	284,061	361,431	372,484	394,590	310,684	-	-	-	-	-	2,087,900
	Germany	Project costs	300,000	-	300,000	200,000	-	200,000	-	-	-	-	-	1,000,000
		Support costs	36,000	-	36,000	24,000	-	24,000	-	-	-	-	-	120,000
	Japan	Project costs	80,000	80,000	80,000	80,000	80,000	-	-	-	-	-	-	400,000
		Support costs	10,400	10,400	10,400	10,400	10,400	-	-	-	-	-	-	52,000
Funds approved by ExCom (US $)		Project costs	3,679,132	0	2,650,000									6,329,132
		Support costs	411,051	0	294,461									705,512
Total funds requested for approval at this meeting (US $)		Project costs				3,850,000**								3,650,000
		Support costs				431,831								407,831

* Maximum allowable total consumption of Annex C, Group I substances for the period 2021 to 2026 would be determined at a later date, but would in no case be greater than 11,772 ODP tonnes prior to 2025, and no greater than 6,131 ODP tonnes thereafter.

** The third (2018) tranche was submitted at the 82nd meeting and deferred for consideration at the 84th meeting (decisions 82/71(b) and 83/55). The funds requested also include the 2019 tranche (US $200,000) for Germany.

Secretariat's recommendation:	For individual consideration

PROJECT DESCRIPTION

163. On behalf of the Government of China, UNEP as the lead implementing agency, has resubmitted[20] to the 84th meeting a request for funding for the third tranche of the refrigeration servicing sector and enabling components of stage II of the HCFC phase-out management plan (HPMP), at a total cost of US $4,281,831, consisting of US $3,270,000, plus agency support costs of US $361,431 for UNEP, US $500,000, plus agency support costs of US $60,000 for Germany[21] and US $80,000, plus agency support costs of US $10,400 for Japan.[22] The submission included a 2018-2019 progress report on the implementation of the second tranche and the tranche implementation plan for 2020.

Progress report on the implementation of the second tranche of stage II

164. As of September 2019, the following activities were implemented:

(a) The project cooperation agreement (PCA) for the second tranche between UNEP and the Foreign Environmental Cooperation Centre (FECO) was signed in September 2018, and funds were subsequently transferred from UNEP to FECO in October 2018;

(b) Agreements with three pilot cities (Guangzhou, Shenzhen and Tianjin) with agreed work plans were finalised; a capacity building workshop on enforcing ODS regulations for 45 participants from local ecology and environment bureaus (EEBs) was conducted; a training workshop for local capacity building on ODS policies and regulations, China's domestic and international compliance situation, issues related to increased emissions of CFC-11, and the status of the implementation of the HPMP was conducted in January 2019 for 150 participants from 31 EEBs;

(c) Agreement and work plan for the national executing agency for the delivery of the technician training programme was finalised; criteria for selection of new training centres was completed; proposals submitted by 15 training centres were reviewed; and contracts were signed after the verification of their training delivery capabilities; 497 trainers and technicians have been trained;

(d) The terms of reference (TOR) for developing the codes for the servicing and maintenance of air-conditioning units, and servicing and maintenance of water chillers (heat pumps) were finalised and the procurement process and contracts were initiated; contracts with the relevant institute for the development of these two codes were signed in mid-2019; the TOR for the adjustments in the standards for the installation of room air-conditioners were revised, and the development of the codes of good practices for installation and servicing of air-conditioners was finalised. The first set of codes (i.e., codes for the servicing and maintenance of air conditioning units) would be completed by December 2019, while the code for the servicing and maintenance of water chillers (heat pumps) was postponed for funding under the third tranche;

[20] Initially submitted for consideration at the 82nd meeting, the Executive Committee decided to defer consideration to the 84th meeting (decisions 82/71(b) and 83/55).

[21] Comprises the 2018 and 2019 tranches, amounting to US $300,000 plus agency support costs of US $36,000, and US $200,000, plus agency support costs of US $24,000, respectively.

[22] As per the letter of 23 September 2019, from the Foreign Environmental Cooperation Centre, Ministry of Ecology and Environment of China, to UNEP.

(e) Implementation agreement for the Government of Germany's component of the first tranche was signed; one beneficiary for the demonstration of a CO_2-transcritical system application was identified (Chaoshifa supermarket chain), contract with the supermarket was signed, equipment was delivered and the final acceptance will be done by end of 2019. Six trainers from vocational training centres and six managers/engineers from the sub-sector participated in an overseas training workshop/study tour on the application of flammable refrigerants (e.g. R-290) in the cold chain and supermarket sub-sector; a national training workshop on alternatives to HCFC-22 in the supermarket sector was organised; and outreach activities for the refrigeration servicing sector were conducted;

(f) The TOR and selection criteria for the delivery of the technicians' training programme through manufacturers' servicing workshops were finalised; and a workshop was conducted with eight room air-conditioner manufacturers to discuss details of the training plan for implementation through their training system;

(g) A survey on barrier analysis and market mechanisms for HCFC recovery was conducted and completed; the report analyzing these barriers and options for market mechanisms for HCFC recovery was reviewed and revised for final publication; and

(h) Awareness raising activities continued including the upgrade of the website "OzonAction in China," in both Chinese and English versions with information on China's implementation of the Montreal Protocol available for the general public. The 2018 and 2019 Ozone2Climate Alternative Roadshows and Roundtables and International Ozone Day celebrations were organised.

165. Activities were also completed to strengthen the management of the import/export of ODS in China through the ODS Import and Export Management Office (I/E Office) during the second tranche. The I/E Office has developed an online paperless approval system on ODS trade to facilitate real time monitoring of the customs clearance on ODS trade. Between June and August 2019, 100 participants from ODS import and export companies, 55 customs officers, and 70 officers from the Commerce Department were trained on import and export management matters, customs management on ODS import and export, international cooperation on combatting illegal ODS trade, ODS trade in vulnerable regions in China, ODS transit routes, and typical case analysis of current examples where illegal ODS trade was discovered, and the I/E office online system on ODS trade. The I/E Office has printed new training materials for customs officers, which will be distributed before the end of 2019.

166. A special investigation and special law enforcement inspection of nearly 20 ODS importers and exporters were also conducted at the Ningbo Port. The Customs authorities in the Ningbo Port also visited ODS producers in Jinhua and Quzhou as well as the local businesses where ODS is being sold. The field visit deepened the understanding of the Customs on the production, storage and sales of ODS; identified potential illegal trade risks; and allowed discussions with authorities on how to jointly crackdown ODS illegal trade.

Level of fund disbursement

167. As of September 2019, of the US $6,329,132 approved so far, US $3,170,274 had been disbursed (US $2,760,000 for UNEP, US $250,274 for Germany and US $160,000 for Japan) as shown in Table 1. The balance of US $3,158,858 will be disbursed in 2019-2020.

Table 1. Financial report of refrigeration servicing and enabling programme for China (US $)

Agency	First tranche		Second tranche		Total approved	
	Approved	Disbursed	Approved	Disbursed	Approved	Disbursed
UNEP	3,299,132	1,540,000	2,570,000	1,220,000	5,869,132	2,760,000
Germany	300,000	250,274	0	0	300,000	250,274
Japan	80,000	80,000	80,000	80,000	160,000	160,000
Total	3,679,132	1,870,274	2,650,000	1,300,000	6,329,132	3,170,274
Disbursement rate (%)		50.8		49.1		50.1

168. UNEP clarified that the second payment from the first tranche of US$1,030,000 under the PCA between FECO and UNEP had not been released due to delays in the recording of the expenditure report submitted by FECO/MEE because of changes in the internal reporting systems. It is expected that this amount will be disbursed by the end of 2019.

Implementation plan for the third tranche of stage II

169. The following activities will be implemented between from January to December 2020.

(a) One training workshop each for local commercial officers, ODS dealers and local Customs officers to strengthen import/export management and identify four districts to further conduct capacity-building activities on ODS import/export control (UNEP) (US $205,000);

(b) Capacity building of local EEBs through two training workshops on ODS phase-out management at provincial and city levels to exchange experiences on best practices for enforcement of ODS regulations; providing technical and policy assistance to local EEBs on management and supervision activities related to the HPMP implementation, and compiling a book on China's regulations and policies on ODS management (UNEP) (US $375,000);

(c) Signing contracts with additional 10 regional training centres to implement the technicians training programmes, including training coordination and monitoring by China Association of Staff and Workers Education and Vocational Training (CASWEVT) (UNEP/Japan) (US $1,820,000);

(d) Training of 3,000 technicians through three manufacturers' servicing workshops (UNEP/Japan) (US $340,000);

(e) Study on the revision of the national certification examination for servicing technicians to support the changes proposed to the national certification criteria, and formalization of the technicians' certification programme (UNEP/Japan) (US $100,000);

(f) One workshop to prepare policy recommendations following the completed study on management of HCFC recovery in the refrigeration servicing sector (UNEP/Japan) (US $50,000);

(g) A second demonstration project for a CO_2-transcritical system in a selected supermarket in the south of China (Hema); organizing two training workshops for 200 managers and technicians on HCFC management and phase-out in the supermarket sub-sector; developing training materials to promote the use of low-GWP refrigerants in the supermarket sub-sector and introducing Green Energy labelling for supermarkets; conducting meetings on the finalization of international standards, and developing

performance indicators for the demonstration projects in supermarkets; and conducting overseas study tour on policy and regulation for the cold chain sector for technicians (Germany) (US $500,000);

(h) Design, prepare and conduct the activities for the 2020 International Day for the Preservation of the Ozone Layer, including outreach workshops on ODS management, exhibitions, and information materials; promote awareness on the preservation of ozone layer, and maintain and update the "OzonAction in China" website in both English and Chinese (UNEP) (US $205,000); and

(i) Operation of the Working Group for the implementation of the refrigeration servicing sector of stage II of the HPMP which includes direct coordination, implementation and monitoring of the activities for the servicing sector as well as capacity-building of national and local authorities, and the awareness and outreach strategy; and FECO/MEE will continue its efforts on the management and monitoring of the overall project implementation (PMU) (UNEP) (US $255,000).

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

HCFC consumption

170. The consumption of HCFCs in the servicing sector in 2018 was 60,531.03 mt (3,316.83 ODP tonnes), as shown in Table 2. While the consumption is higher than the previous year, there is no maximum allowable consumption for the refrigeration servicing sector in the Agreement between the Government of China and the Executive Committee. The overall total consumption of HCFC in 2018 in China was below the maximum allowable consumption in the Agreement with the Executive Committee.

Table 2. HCFC consumption in the servicing sector in China (2013-2018 country programme data)

HCFC	2014	2015	2016	2017	2018	Average (2009-2010)
Metric tonnes						
HCFC-22	56,704.98	42,557.47	47,398.35	51,482.65	59,821.81	64,466.58
HCFC-123	356.78	314.91	288.14	347.29	437.57	113.75
HCFC-124	96.23	-46.32	67.16	-5.71	-5.32	139.56
HCFC-142b	518.41	1,016.42	371.44	662.43	276.97	5,338.58
Total (mt)	**57,676.40**	**43,842.48**	**48,125.09**	**52,486.66**	**60,531.03**	**70,058.47**
ODP tonnes						
HCFC-22	3,118.77	2,340.66	2,606.91	2,831.55	3,290.20	3,545.68
HCFC-123	7.14	6.30	5.76	6.95	8.75	2.30
HCFC-124	2.12	-1.02	1.48	-0.13	-0.12	3.05
HCFC-142b	33.70	66.07	24.14	43.06	18.00	347.03
Total (ODP tonnes)	**3,161.72**	**2,412.01**	**2,638.29**	**2,881.42**	**3,316.83**	**3,898.06**

171. The Secretariat noted that in stage II of its HPMP, the Government of China committed to reduce HCFC-22 consumption in the refrigeration servicing sector from 3,734 ODP tonnes in 2015 to 3,000 ODP tonnes (i.e., a reduction of 734 ODP tonnes) in 2020, without any annual reduction targets during that period. The reported consumption for 2018 was already 11.2 per cent below the 2015 target and 10.5 per cent above the 2020 target.

172. The Government of China is enforcing strict quota management system for HCFC production and consumption to ensure that the country meets its national compliance target, and its committed phase-out target for 2020 for stage II of the servicing sector. It is expected that the consumption of HCFC-22 for servicing installed equipment will decrease with further implementation of the activities in the RAC manufacturing sector. The training programmes for technicians, together with the technical assistance activities in the refrigeration servicing sector under implementation will further accelerate the phase-out of HCFC-22 consumption.

Status of progress

173. The Secretariat noted that the Government of China and UNEP, the Governments of Japan and Germany have implemented a number of activities for the servicing sector and the enabling activities programme for stage II of the HPMP which will support the phase out in the manufacturing sector.

174. UNEP clarified that the requested activities had been adjusted in consideration of the delayed release of funding associated with new tranches for this sector, but provided assurance that FECO is on track to ensure that the implementation of the activities in the servicing sector would not impact its overall contribution to meeting compliance for the HPMP. While there had been some delays in disbursing funds for already approved tranches due to changes in the internal administrative reporting requirements on the part of FECO, UNEP confirmed that activities had taken place as planned. UNEP also noted that any further deferrals in the approval of tranches for the HPMP might eventually impact the completion of activities.

175. The Secretariat observed that the present tranche request included funding for the second and third tranches for the component to be implemented by the Government of Germany. It was explained that this will allow the bilateral agency to catch up with delays in project implementation resulting from the deferred second tranche, in particular, to address the immediate financial needs on the different demonstration projects (CO_2 in supermarkets) and conduct the planned capacity development measures. Combining these two tranches would also reduce administrative and transaction efforts which sometimes result in further implementation delays. Accordingly, the Secretariat agreed in principle with the request of combining the two tranches, subject to the agreement of the Executive Committee.

176. In addition to the request to combine two funding tranches for the Government of Germany, adjustments in future tranche distribution for the servicing sector have also been requested and will be further discussed in paragraphs 87 to 90, under the section Revision of the Agreement for China's stage II of the HPMP. UNEP as the lead implementing agency for the sector explained that these changes were necessary to accommodate funding for activities that had been delayed due to the deferred tranche approvals for stage II of the China HPMP.

Project implementation and monitoring unit (PMU)

177. The responsibilities for direct coordination, implementation and monitoring of the activities of the servicing sector plan of the HPMP, as well as capacity building of national and local authorities, and the awareness and outreach strategy is with the Working Group for the refrigeration servicing sector plan which acts as the PMU for this sector. UNDP as the lead implementing agency of stage II of the HPMP provided a cumulative report on PMU expenditures for stages I and II of the HPMP for China, in line with decision 81/46(b). Based on that report, the expenditures related to the PMU for the servicing sector are summarized in Table 3.

Table 3. PMU expenditures for 2017-2018, stage II of the refrigeration servicing and enabling programme in China

Items	Description	Funding (US $)
Sector specific costs	Project staff	35,774
	Domestic travel	10,993
	International travel	0
	Domestic meeting	9,707
	International meetings	0
	Consulting service	8,796
Sub-total (sector costs)		**65,270**
Operations costs	Shared costs (support staff, computers, Internet, printing, office operations and maintenance	141,289
Total disbursements 2017-2018		**206,559**

178. UNEP also confirmed that there was no overlap in the funding provided for the institutional strengthening (IS) project and the awareness and outreach activities being implemented under the servicing sector, as those activities included in the servicing sector plan are not carried out through the IS.

Interest

179. UNEP reported that FECO earned cumulative interest of US $1,818 for the servicing sector in 2018 under stage I and US $3,856 under stage II of the HPMP.

Sustainability of the HCFC phase-out

180. In explaining how the policy framework and enforcement will be strengthened to ensure sustained phase-out of HCFC in the servicing sector, UNEP had indicated that information on the policies that would support such phase out was submitted by the Government of China to the 83rd meeting on the review of current monitoring, reporting, verification and enforcement systems under the HCFC consumption and production phase-out management plans (HPMP and HPPMP),[23] including the action plan to strengthen legislation and its implementation. In line with decision 83/41(e)[24] the Government of China had also submitted a report to the 84th meeting detailing the progress made in the implementation of activities related to the current monitoring, reporting, verification and enforcement systems under the HPMP and HPPMP.[25]

Conclusion

181. The Secretariat noted that while several activities proposed in the second tranche had been delayed, outstanding issues have been addressed, allowing the full implementation of the servicing sector plan without further delays. Initial and preparatory activities including workshops were completed, the work plan for stage II has been finalised, and the groundwork has been laid for a faster implementation of the activities in this sector. The Secretariat further noted that while there was an increase in the reported HCFC consumption associated with the servicing sector in the last five years, the reported consumption is already 11.2 per cent lower than the 2015 consumption target of 3,734 ODP tonnes, and only 10.5 per cent above the 2020 target for the servicing sector of 3,000 ODP tonnes; and that the Government of China is strongly committed to ensure that the target reduction of 734 ODP tonnes will be met by 2020. This would be done through the strict enforcement of the quota management system for HCFC production and consumption. It is expected that training programmes and other technical assistance activities under the

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

[24] Further to note the Government of China will report to the Executive Committee, at the 84th meeting and again to the 86th meeting, on its progress in implementing the activities described in paragraphs (a), (b), and (c) of decision 83/41.

[25] UNEP/OzL.Pro/ExCom/84/22/Add.1.

servicing sector will also further facilitate this decrease in consumption for the servicing sector in future years. It was also confirmed that there was no overlap in the funding provided for the IS project and the awareness and outreach activities being implemented under the servicing sector; and that the Government of China had submitted a comprehensive report on the sustainability of the phase-out of ODS to the 84th meeting. The overall disbursement rate is 50.1 per cent.

RECOMMENDATION

182. The Executive Committee may wish to consider:

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

(b) Approving the third tranche of the servicing sector plan and the enabling programme of stage II of the HPMP for China, and the corresponding 2020 tranche implementation plan, in the amount of US $4,281,831, consisting of US $3,270,000, plus agency support costs of US $361,431 for UNEP, US $500,000 (US $300,000 and US $200,000 for the third and fourth tranches respectively), plus agency support costs of US $60,000 (US $36,000 and US $24,000 for the third and fourth tranches respectively) for the Government of Germany, and US $80,000, plus agency support costs of US $10,400 for the Government of Japan.

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS

China

(I) PROJECT TITLE	AGENCY	MEETING APPROVED	CONTROL MEASURE
HCFC phase-out plan (stage II) solvent	UNDP	77th	100 % by 2026

(II) LATEST ARTICLE 7 DATA (Annex C Group l)	Year: 2018	14,382.12(ODP tonnes)

(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)						Year: 2018
Chemical	Aerosol	Foam	Refrigeration		Solvent	Total sector consumption
			Manufacturing	Servicing		
HCFC-22	101.20	1,595.00	4,840.00	3,290.20		9,826.40
HCFC-123			11.06	8.75		19.81
HCFC-124				-0.12		-0.12
HCFC-141b	52.80	3,759.14			374.00	4,186.24
HCFC-142b		325.00	5.85	18.00		348.85
HCFC-225ca					0.43	0.43
HCFC-225cb					0.69	0.69

(IV) 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

(V) BUSINESS PLAN		2019	2020	2021	Total
UNDP	ODS phase-out (ODP tonnes)	28.51	31.10	34.69	94.30
	Funding (US $)	3,167,125	3,455,062	3,853,159	10,475,346

(VI) PROJECT DATA			2016	2017	2018*	2019	2020	2021	2022	2023	2024	2025	2026	Total
Montreal Protocol consumption limits			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)			455.2	455.2	395.4	395.4	321.2	321.2	321.2	148.3	148.3	55.0	0.0	n/a
Agreed funding (US $)	UNDP	Project costs	2,821,937	3,777,190	2,959,930	3,229,030	3,601,083	7,888,921	7,128,589	3,664,360	5,481,592	2,707,880	4,002,054	47,262,566
		Support costs	197,536	264,403	207,195	226,032	252,076	552,224	499,001	256,505	383,711	189,552	280,144	3,308,380
Funds approved by ExCom (US $)		Project costs	2,821,937	3,777,190	0									6,599,127
		Support costs	197,536	264,403	0									461,939
Total funds requested for approval at this meeting (US $)		Project costs				5,549,492*								5,549,492
		Support costs				388,464								388,464

* The third (2018) tranche was submitted at the 82nd meeting and deferred for consideration at the 84th meeting (decisions 82/71(b), 83/41(g) and 83/55). The funds requested is according to the revised Agreement.

Secretariat's recommendation:	For individual consideration

PROJECT DESCRIPTION

183. On behalf of the Government of China, UNDP, as the designated implementing agency, has resubmitted[26] a request for funding for the third tranche of the solvent sector plan of stage II of the HCFC phase-out management plan (HPMP), at the amount of US $5,549,492, plus agency support costs of US $388,464.[27] The submission included a progress report on the implementation of the second tranche and the tranche implementation plan for 2020.

Progress report on the implementation of the second tranche of stage II

184. The Foreign Environmental Cooperation Center (FECO) continued to implement quota permits to solvent enterprises consuming more than 100 metric tonnes (mt) of HCFCs per year.

Enterprise-level activities

185. As of August 2019, all 24 enterprises identified as part of the previous tranches had signed contracts with FECO. The total phase out associated with these 24 enterprises is 1,176.19 mt (129.38 ODP tonnes) of HCFC-141b, representing 28 per cent of the HCFC reduction target of 455.2 ODP tonnes for stage II of the solvent sector. The total value of the conversion of these 24 enterprises to low-GWP alternatives[28] amounts to US $20,040,546.

186. Based on the terms of the contracts, first payment had been disbursed to all 24 enterprises; 18 of those enterprises have reached key milestones of implementation (17 of them have received the second payment and one has received the second and third payments). Among the 18 enterprises, 13 have finished equipment installations and trial production, three have installed and adjusted all the conversion equipment and are ready to proceed to trial production, while the remaining two have installed part of the conversion equipment and waiting for the delivery of the remaining equipment. Of the remaining six enterprises with contracts signed, three have completed equipment procurement (one enterprise has submitted documents for its second payment, and the remaining two are preparing documentation for the second payment); three others are in the process of testing new alternatives, and are expected to request a revision to their previously submitted implementation plan with project completion delayed to June 2021.

187. An additional 27 enterprises (mostly small and medium-sized enterprises (SMEs) with annual consumptions of no more than 5 mt of HCFC-141b) had submitted proposals for conversion that would result in an additional phase out of 436.00 mt (47.96 ODP tonnes) of HCFC-141b. The baseline verifications for the 26 visited enterprises had been completed resulting in a verified HCFCs baseline consumption of 372.19 mt (40.94 ODP tonnes); one of which was required to submit additional documents to confirm its application; and the remaining enterprise is pending verification of consumption. An overview of the progress in the implementation of the solvent sector plan is presented in Table 1.

[26] Initially submitted for consideration at the 82nd meeting, the Executive Committee decided to defer consideration to the 84th meeting (decisions 82/71(b), 83/41(g) and 83/55).

[27] As per the letter of 23 September 2019 from the Ministry of Ecology and Environment of China to UNDP. The amount requested for this tranche is higher than what had been originally agreed (i.e., US $2,959,930, plus agency support costs); the Government of China requested for redistribution of tranches for the solvent sector plan as discussed in paragraphs 195 to 196.

[28] KC-6, HC's or diluent, trans-1, 2-dichloroethylene and HFE, water-based cleaning agent, modified alcohol, nano silicon carbonate, F-solvents, and naphthenic aromatics.

Table 1. Status of progress of the solvent sector plan in China

Status	Number of enterprises	Number of lines	HCFC consumption		Estimated date of conversion
Enterprises conversions			mt	ODP tonnes	
Contracts signed (a)	24	514	1,176.19	129.38	
Equipment purchased and installed; trial production	13	309	588.20	64.70	December 2019
Testing alternatives	3	91	96.99	10.67	December 2019
Installed partial equipment, pending delivery of remaining equipment	5	60	109.60	12.06	December 2020
Testing high cost-effective alternatives, implementation plan to be revised	3	54	381.40	41.95	June 2021
New contracts to be signed (b)	25	347	372.19*	40.94*	**
Total (a+b)	**49**	**861**	**1,548.38**	**170.32**	**n/a**

*Based on baseline verification for 26 enterprises; one of which is pending additional documents to confirm its application
**Dependent on the approval of the third tranche

Technical assistance (TA) activities

188. The following activities were implemented:

(a) Second implementation meeting for beneficiary enterprises to discuss, review and adjust implementation plans accordingly with guidance from technical experts;

(b) A training workshop on project implementation for project managers, financial and procurement staff from the 24 enterprises was conducted;

(c) Completed the *Technical Conversion Guideline for Medical Devices Enterprises*, and used it to train beneficiary disposable medical devices (DMD) enterprises, collected feedback on the guideline, revised this based on the feedback received, and circulated the revised guideline to participants in the annual meeting of China Association for Medical Devices Industry Medical Macromolecule Products;

(d) Signed a contract with the China Industry Cleaning Association as implementing support agency (ISA) in January 2018;

(e) Signed a contract with the Beijing University of Chemical and Technology (BUCT) in June 2018 to conduct a research on the impact of the ban of the use of HCFC-141b in the solvent sector, and the first payment was disbursed in July 2018; as at April 2019, BUCT completed distribution and collection of 64 filled questionnaires and conducted 19 on-site visits to enterprises; a workshop to discuss the results of the survey was completed, and a draft of the research report was prepared with expected completion date in the third quarter of 2019; and

(f) Completed the baseline verification of 26 new enterprises through a contract with Beijing Xinghua Accounting firm.

Level of fund disbursement

189. As of August 2019, of the US $6,599,127 approved so far, US $6,538,026 had been disbursed by UNDP to FECO, and US $6,435,160 by FECO to beneficiaries, as shown in Table 2. The balance of US $61,101 will be disbursed in 2019.

Table 2. Status of disbursements for the solvent sector plan stage II (as of August 2019)

Agency	First tranche		Second tranche		Total	
	Approved	Disbursed	Approved	Disbursed	Approved	Disbursed
UNDP	2,821,937	2,796,937	3,777,190	3,741,089*	6,599,127*	6,538,026*
Disbursement rate (%)		**99.11**		**99.04**		**99.07**
FECO to beneficiaries		2,796,937		3,638,223		6,435,160
Disbursement rate (%)		**99.11**		**96.32**		**97.52**

*A total of US $60,000 from these two tranches was retained in UNDP to cover activities to be implemented by UNDP

Implementation plan for the third tranche of stage II

190. The following activities will be implemented until December 2020:

(a) *Policy actions:* FECO will continue to enforce quota management in the solvent sector, local ecology and environment bureaus (EEBs) will improve their registration systems for HCFC consumers and sales; and BUCT will continue research on the ban of using HCFCs in the DMD sub-sector (funds from previous tranche);

(b) *Enterprise level activities:* The first 24 enterprises will continue with conversion in order to achieve HCFC phase-out by December 2019; a workshop for these enterprises will be organized to exchange lessons learned and experiences in their project implementation to facilitate the work for succeeding participating enterprises; contracts with the next batch of qualified beneficiary enterprises (26 enterprises) are expected to be signed in 2020 depending on the approval of the third tranche for the solvent sector (US $5,074,893);

(c) *TA:* A workshop for representatives from solvent enterprises, technical experts, industrial associations, local EEBs and other stakeholders to introduce the available alternatives, conversion costs, project implementation modality, effectiveness of the policy measures will be organized; and public awareness activities will continue (US $185,471); and

(d) *Project management:* FECO will continue with contract management for the 24 beneficiary enterprises and for new enterprises that will sign contracts in order to meet the phase-out targets. New beneficiary enterprises will be trained on how to implement projects funded by the Multilateral Fund (US $289,128).

Project implementation and monitoring unit (PMU)

191. UNDP as the lead implementing agency provided a consolidated report on PMU expenditures for stages I and II of the HPMP for China, in line with decision 81/46(b). Based on that report, the expenditures related to the PMU for the solvent sector are summarized in Table 3.

Table 3. PMU expenditures for 2017 - 2018, stage II of the solvent sector in China

Items	Description	Funding (US $)
Sector specific costs	Project staff	35,774
	Domestic travel	9,619
	International travel	0
	Domestic meeting	8,494

Items	Description	Funding (US $)
	International meetings	0
	Consulting service	7,697
Sub-total (sector costs)		**61,584**
Operational costs	Shared costs (support staff, computers, Internet, printing, office operation and maintenance)	123,628
Total disbursement 2017-2018		185,212

SECRETARIAT`S COMMENTS AND RECOMMENDATION

COMMENTS

HCFC consumption

192. Consumption of HCFCs in the solvent sector in 2018 was 3,400 mt (374 ODP tonnes), which is lower than the maximum allowable consumption established for the same year in the Agreement between the Government of China and the Executive Committee for stage II of the HPMP as shown in Table 4.

Table 4. Consumption of HCFCs in the solvent sector

Solvent sector		2014	2015	2016	2017	2018
Consumption*	mt	4,433.23	3,815.40	3,787.98	3,638.40	3,438.00
	ODP tonnes	484.83	418.51	413.45	396.96	375.12
Maximum allowable consumption**	mt	4,492.70	4,172.00	4,172.00	4,172.00	4,172.00
	ODP tonnes	494.2	455.2	455.2	455.2	395.4
Phase-out target	mt	272.7	0.0	354.5	n/a	n/a
	ODP tonnes	29.0	0.0	39.0	n/a	n/a

*As per the country programme implementation report.
**As per the Agreement signed at the 67th meeting for stage I up to 2015, and as per the Agreement signed at the 79th meeting for stage II from 2016 to 2018.

193. The reduction in HCFC consumption has been achieved through the application of the HCFC production quota and domestic sale quota issued for each producer; the HCFC consumption quotas to manufacturing enterprises using more than 100 mt; and the conversion of enterprises in stage I of the HPMP with a total phase-out of 599 mt (65.90 ODP tonnes) of HCFC-141b.

Status of progress

194. In responding to the query on what new initiatives were completed for the policy and regulatory aspect of the plan, UNDP explained that the preparation for issuing a ban on the use of HCFC-1411b in the DMD sub-sector by 1 January 2026, started in July 2018. BUCT is presently conducting the research and analysis to assess the potential impacts of the ban to the country in general and the solvent sector in particular; views have been gathered from industry through questionnaires and on-site visits to minimize any negative impact on the enterprises, as well as propose the text for the ban.

195. At the 80th meeting, the Secretariat already noted that the funding tranches for the solvent sector might cause difficulties with regard to expediting signature of agreements with enterprises. UNDP indicated that contracts have already been signed for all of the 24 enterprises initially identified, and that there is substantial progress in reaching key milestones of implementation for 18 of these enterprises. In addition, 26 out of the new 27 SMEs identified have completed verifications of consumption and 25 were expected to sign contracts with FECO; however, the delay in the approval of the third tranche has moved the contract signing to 2020, depending on whether the tranche is approved at the 84th meeting. These new commitments will require additional financial resources to ensure the timely implementation of their conversion.

196. Based on this, the Government of China and UNDP requested an adjustment to the tranche distribution for the years 2018-2026, to meet the cash flow needed for signing up new enterprises, and timely payment according to their implementation progress and the established milestones. The proposed tranche adjustment also reflects adjustments to incremental operating cost payments which will be made only in 2020 and 2021 once the first set of enterprises had completed their conversions. UNDP also reiterated that continued delays in the tranche approvals may compromise the ability of the Government of China to meet the phase-out agreed.

197. The redistribution of tranches is presented in paragraphs 87 to 90, under the section Revision of the Agreement for China's stage II of the HPMP.

Project implementation and monitoring unit (PMU)

198. In line with decision 83/61(b)[29] regarding the need for cost details for the PMU for the requested tranche, UNDP had provided a breakdown of the budget for the PMU summarized in Table 5 below. The cost items indicated are consistent with the consolidated PMU report that had been submitted to the 84th meeting in line with decision 81/46(b):

Table 5. PMU budget for 2020-2021, stage II of the solvent sector plan in China

Items	Description	Funding (US $)		
		2020	Jan-June 2021	Total
Sector specific costs	Project staff	38,552	19,272	57,824
	Domestic travel	8,996	4,498	13,494
	International travel	0	0	0
	Domestic meeting	8,996	4,498	13,494
	International meetings	0	0	0
	Consulting service	8,996	4,498	13,494
Sub-total (sector costs)		65,540	32,766	98,306
Operational costs	Shared costs (support staff, computers, Internet, printing, office operation and maintenance	127,222	63,600	190,822
Total budget for 2020 and 2021		192,762	96,366	289,128

Interest

199. UNDP reported that FECO earned cumulative interest of US $2,373 for stage II of the solvent sector in 2018 under stage II of the HPMP. No interest had been reported for stage I, as this was completed in December 2017.

Sustainability of the HCFC phase-out

200. In explaining how the policy framework and enforcement will be strengthened to ensure sustained phase-out of HCFC in the solvent sector, UNDP indicated that the Government of China would promulgate the ban on the use of HCFC-141b as solvent in the sector before the complete phase-out of HCFCs. Additionally, in line with decision 82/65, the Government of China submitted to the 83rd meeting the review of current monitoring, reporting, verification and enforcement systems under the HCFC consumption and production phase-out management plans (HPMP and HPPMP),[30] including the action plan to strengthen

[29] To request bilateral and implementing agencies, when submitting tranche funding requests for HCFC phase-out management plans, to include: in the tranche implementation plan, the specific activities that would be implemented by the PMU, and the associated funding; and in the implementation report of the previous tranche, the activities implemented by the PMU and the associated funding disbursed.

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

legislation and its implementation. In line with decision 83/41(e)[31] the Government of China had also submitted a report to the 84th meeting detailing the progress made in the implementation of activities related to the current monitoring, reporting, verification and enforcement systems under the HPMP and HPPMP.[32]

Conclusion

201. The Secretariat noted that the solvent sector plan is progressing well with all 24 enterprises selected having signed their contracts with FECO, and demonstrating substantial progress in implementation. The conversion of these 24 enterprises will result in the phase-out of 129.38 ODP tonnes of HCFC-141b, representing 28 per cent of the HCFC reduction target for stage II of the solvent sector plan. In addition, a second set of 26 enterprises have been identified and have completed the verification of consumption with an estimated phase-out of 372.19 mt (40.94 ODP tonnes) of HCFC-141b, contracts for 25 of these enterprises are expected to be signed once funds for the third tranche are released. The Government of China is also requesting for a reallocation of the tranches from 2018-2026 which will facilitate the overall implementation of the solvent sector plan to completely phase out the use of HCFC-141b by 2026. The disbursement rate is 97.52 per cent. The Secretariat supports the request to adjust the funding tranches for the solvent sector in principle to ensure efficient implementation of the plan, subject to the decision of the Executive Committee at the 84th meeting. In view of the implementation progress, the Secretariat recommends approval of the third tranche of the solvent sector plan.

RECOMMENDATION

202. The Executive Committee may wish to consider:

(a) Noting the progress report on the implementation of the second tranche of stage II of the solvent sector plan of stage II of the HCFC phase-out management plan (HPMP) for China; and

(b) Approving the third tranche of the solvent sector plan of stage II of the HPMP for China, and the corresponding 2020 tranche implementation plan, in the amount of US $5,549,492, plus agency support costs of US $388,464 for UNDP.

[31] Further to note the Government of China will report to the Executive Committee, at the 84th meeting and again to the 86th meeting, on its progress in implementing the activities described in paragraphs (a), (b), and (c) of decision 83/41.

[32] UNEP/OzL.Pro/ExCom/84/22/Add.1.

Annex I

REVISED TRANCHE DISTRIBUTION AMONG SECTORS OF STAGE II OF THE HPMP FOR CHINA

Table 1. Tranche distribution as per decision 79/35 (including support cost)

Sector*	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Total
PU foam	7,538,179	11,289,000	10,117,500	13,525,500	13,525,500	21,300,000	16,720,500	16,614,000	11,182,500	13,951,500	14,937,885	-	150,702,064
RAC	16,698,065	17,040,000	19,170,000	14,910,000	14,910,000	12,334,634	-	-	-	-	-	-	95,062,699
Solvent	3,019,473	4,022,707	3,152,325	3,438,917	3,835,153	8,401,701	7,591,947	3,902,543	5,837,895	2,883,892	4,262,188	-	50,348,742
XPS	8,040,908	9,599,496	8,520,000	10,243,329	10,224,000	15,986,452	12,141,000	12,034,500	10,450,554	10,224,000	12,749,928	-	120,214,166
ICR	14,304,569	21,300,000	12,780,000	17,040,000	17,040,000	12,541,484	-	-	-	-	-	-	95,006,053
Servicing	4,090,183	2,944,461	4,057,831	4,056,884	4,054,990	3,345,551	-	-	-	-	-	-	22,549,900
Total	**53,691,376**	**66,195,664**	**57,797,657**	**63,214,630**	**63,589,643**	**73,909,822**	**36,453,447**	**32,551,043**	**27,470,949**	**27,059,392**	**31,950,000**	**-**	**533,883,625**

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

Table 2. Revised tranche distribution as proposed by the Government of China (including support cost)

Sector	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Total
PU	7,538,179	0	0	11,342,000	16,050,000	16,050,000	18,190,000	16,799,000	16,692,000	16,585,000	16,050,000	16,078,016	151,374,195
RAC	16,698,065	17,120,000	0	0	19,260,000	14,980,000	14,980,000	12,392,543	0	0	0	0	95,430,608
Solvent	3,019,473	4,041,593	0	*5,937,956	12,454,800	6,484,200	5,820,800	5,574,700	1,669,200	1,284,000	4,284,224	0	50,570,946
XPS	8,040,908	9,643,160	0	*8,959,016	13,910,000	16,060,397	16,310,530	14,231,000	10,498,304	10,272,000	12,809,786	0	120,735,100
ICR	14,304,569	21,400,000	0	*12,840,000	21,400,000	17,120,000	8,320,364	0	0	0	0	0	95,384,933
Servicing	4,090,183	2,944,461	0	*4,281,831	3,923,284	4,188,590	3,121,551	0	0	0	0	0	22,549,900
Total	**53,691,376**	**55,149,214**	**0**	**43,360,804**	**86,998,084**	**74,883,186**	**66,743,245**	**48,997,243**	**28,859,504**	**28,141,000**	**33,144,010**	**16,078,016**	**536,045,682**

*Tranche not approved at the 82nd and 83rd meetings and resubmitted to the 84th meeting.

Table 3. Differences between Table 1 and Table 2

Sector	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Total
PU	-	-11,289,000	-10,117,500	-2,183,500	2,524,500	-5,250,000	1,469,500	185,000	5,509,500	2,633,500	1,112,115	16,078,016	672,131
RAC	-	80,000	-19,170,000	-14,910,000	4,350,000	2,645,366	14,980,000	12,392,543	0	0	0	0	367,909
Solvent	-	18,886	-3,152,325	2,499,039	8,619,647	-1,917,501	-1,771,147	1,672,157	-4,168,695	-1,599,892	22,036	0	222,205
XPS	-	43,664	-8,520,000	-1,284,313	3,686,000	73,945	4,169,530	2,196,500	47,750	48,000	59,858	0	520,933
ICR	-	100,000	-12,780,000	-4,200,000	4,360,000	4,578,516	8,320,364	0	0	0	0	0	378,880
Servicing	-	0	-4,057,831	224,947	-131,706	843,039	3,121,551	0	0	0	0	0	0
Total	**-**	**-11,046,450**	**-57,797,656**	**-19,853,826**	**23,408,441**	**973,364**	**30,289,798**	**16,446,200**	**1,388,555**	**1,081,608**	**1,194,009**	**16,078,016**	**2,162,058**

Annex II

TEXT TO BE INCLUDED IN THE UPDATED AGREEMENT BETWEEN THE GOVERNMENT OF CHINA AND THE EXECUTIVE COMMITTEE OF THE MULTILATERAL FUND FOR THE REDUCTION IN CONSUMPTION OF HYDROCHLOROFLUOROCARBONS IN ACCORDANCE WITH STAGE II OF THE HCFC PHASE-OUT MANAGEMENT PLAN

(Relevant changes are in bold font for ease of reference)

17. This updated Agreement supersedes the Agreement reached between the Government of China and the Executive Committee at the 79th meeting of the Executive Committee.

APPENDIX 2-A: THE TARGETS, AND FUNDING

Row	Particulars	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Total
	Consumption targets													
1.1	Montreal Protocol reduction schedule of Annex C, Group I substances (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	6,262.4	n/a
1.2	Maximum allowable total consumption of Annex C, Group I substances (ODP tonnes)	16,978.9	16,978.9	15,048.1	15,048.1	11,772.0	*	*	*	*	*	*	*	n/a
1.3.1	Maximum allowable consumption of Annex C, Group I substances in the ICR sector (ODP tonnes)	2,162.5	2,162.5	2,042.4	2,042.4	1,609.9	1,609.9	**	**	**	**	**	*	n/a
1.3.2	Maximum allowable consumption of Annex C, Group I substances in the XPS foam sector (ODP tonnes)	2,286.0	2,286.0	2,032.0	2,032.0	1,397.0	1,397.0	1,397.0	762.0	762.0	165.0	**0.0**	0.0	n/a
1.3.3	Maximum allowable consumption of Annex C, Group I substances in the PU foam sector (ODP tonnes)	4,449.6	4,449.6	3,774.5	3,774.5	2,965.7	2,965.7	2,965.7	1,078.4	1,078.4	330.0	**0.0**	0.0	n/a
1.3.4	Maximum allowable consumption of Annex C, Group I substances in the RAC sector (ODP tonnes)	3,697.7	3,697.7	2,876.0	2,876.0	2,259.7	2,259.7	***	***	***	***	***	***	n/a
1.3.5	Maximum allowable consumption of Annex C, Group I substances in the solvent sector	455.2	455.2	395.4	395.4	321.2	321.2	321.2	148.3	148.3	55.0	**0.0**	0.0	n/a
	Funding industrial and commercial refrigeration and air conditioning (ICR) sector plan													
2.1.1	Sector Lead IA (UNDP) agreed funding (US $)	13,368,756	20,000,000		12,000,000	**20,000,000**	**16,000,000**	**7,776,041**						89,144,797
2.1.2	Support costs for UNDP (US $)	935,813	**1,400,000**		**840,000**	**1,400,000**	**1,120,000**	**544,323**						**6,240,136**

Row	Particulars	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Total
	Funding extruded polystyrene (XPS) foam sector plan													
2.2.1	Sector Lead IA (UNIDO) agreed funding (US $)	7,514,867	8,732,614		8,000,000	**13,000,000**	14,788,765	15,243,486	**13,300,000**	9,550,000	9,600,000	11,971,763		111,701,495
2.2.2	Support costs for UNIDO (US $)	526,041	**611,283**		**560,000**	**910,000**	**1,035,214**	**1,067,044**	**931,000**	**668,500**	**672,000**	**838,023**		**7,819,105**
2.2.3	Sector cooperating agency (Germany) agreed funding (US $)	-	267,386	-	356,514	-	211,235	-	-	250,000	-	-		1,085,135
2.2.4	Support costs for Germany (US $)	-	31,877	-	42,502	-	25,182	-	-	29,804	-	-		129,365
	Funding polyurethane (PU) foam sector													
2.3.1	Sector Lead IA (World Bank) agreed funding (US $)	7,045,027			**10,600,000**	**15,000,000**	**15,000,000**	**17,000,000**	**15,700,000**	**15,600,000**	**15,500,000**	**15,000,000**	**15,026,183**	141,471,210
2.3.2	Support costs for World Bank (US $)	493,152			**742,000**	**1,050,000**	**1,050,000**	**1,190,000**	**1,099,000**	**1,092,000**	**1,085,000**	**1,050,000**	**1,051,833**	**9,902,985**
	Funding room air conditioning (RAC) sector plan													
2.4.1	Sector Lead IA (UNIDO) agreed funding (US $)	14,671,089	16,000,000			**18,000,000**	**14,000,000**	**14,000,000**	**11,581,816**					88,252,905
2.4.2	Support costs for UNIDO (US $)	1,026,976	**1,120,000**			**1,260,000**	**980,000**	**980,000**	**810,727**					**6,177,703**
2.4.3	Sector cooperating agency (Italy) agreed funding (US $)	891,892												891,892
2.4.4	Support costs for Italy (US $)	108,108												108,108
	Funding service sector plan, including enabling programme													
2.5.1	Sector Lead IA **(UNEP)** agreed funding (US $)	3,299,132	2,570,000		3,270,000	**3,370,000**	**3,570,000**	**2,810,868**						18,890,000
2.5.2	Support costs for **UNEP** (US $)	364,651	284,061	-	361,431	**372,484**	**394,590**	**310,683**						2,087,900
2.5.3	Sector cooperating agency (Germany) agreed funding (US $)	300,000			500,000		200,000							1,000,000
2.5.4	Support costs for Germany (US $)	36,000			60,000		24,000							120,000
2.5.5	Sector cooperating agency (Japan) agreed funding (US $)	80,000	80,000		80,000	160,000								400,000
2.5.6	Support costs for Japan (US $)	10,400	10,400		10,400	20,800								52,000
	Funding solvent sector plan													
2.6.1	Overall Lead IA (UNDP) agreed funding (US $)	2,821,937	3,777,190		**5,549,492**	**11,640,000**	**6,060,000**	**5,440,000**	**5,210,000**	**1,560,000**	**1,200,000**	**4,003,947**		47,262,566
2.6.2	Support costs for UNDP (US $)	197,536	**264,403**		**388,464**	**814,800**	**424,200**	**380,800**	**364,700**	**109,200**	**84,000**	**280,277**		**3,308,380**
	Overall funding													
3.1	Total agreed funding (US $)	49,992,700	**51,427,190**	0	**40,356,006**	**81,170,000**	**69,830,000**	**62,270,395**	**45,791,816**	**26,960,000**	**26,300,000**	**30,975,710**	**15,026,183**	500,100,000
3.2	Total support cost (US $)	3,698,676	**3,722,024**	0	**3,004,798**	**5,828,084**	**5,053,186**	**4,472,850**	**3,205,427**	**1,899,504**	**1,841,000**	**2,168,300**	**1,051,833**	**35,945,682**
3.3	Total agreed costs (US $)	53,691,376	**55,149,214**	0	**43,360,804**	**86,998,084**	**74,883,186**	**66,743,245**	**48,997,243**	**28,859,504**	**28,141,000**	**33,144,010**	**16,078,016**	**536,045,682**
	Phase-out and remaining eligible consumption													
4.1.1	Total phase-out of HCFC-22 agreed to be achieved under this Agreement (ODP tonnes)													3,878.80
4.1.2	Phase-out of HCFC-22 to be achieved in previously approved projects (ODP tonnes)													1,479.72
4.1.3	Remaining eligible consumption for HCFC-22 (ODP tonnes)													6,136.79
4.2.1	Total phase-out of HCFC-123 agreed to be achieved under this Agreement (ODP tonnes)													2.70

Row	Particulars	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Total
4.2.2	Phase-out of HCFC-123 to be achieved in previously approved projects (ODP tonnes)													0.00
4.2.3	Remaining eligible consumption for HCFC-123 (ODP tonnes)													7.43
4.3.1	Total phase-out of HCFC-124 agreed to be achieved under this Agreement (ODP tonnes)													0.00
4.3.2	Phase-out of HCFC-124 to be achieved in previously approved projects (ODP tonnes)													0.00
4.3.3	Remaining eligible consumption for HCFC-124 (ODP tonnes)													3.07
4.4.1	Total phase-out of HCFC-141b agreed to be achieved under this Agreement (ODP tonnes)													4,187.18****
4.4.2	Phase-out of HCFC-141b to be achieved in previously approved projects (ODP tonnes)													1,698.00
4.4.3	Remaining eligible consumption for HCFC-141b (ODP tonnes)													0.00
4.5.1	Total phase-out of HCFC-142b agreed to be achieved under this Agreement (ODP tonnes)													646.02
4.5.2	Phase-out of HCFC-142b to be achieved in previously approved projects (ODP tonnes)													267.47
4.5.3	Remaining eligible consumption for HCFC-142b (ODP tonnes)													557.04
4.6.1	Total phase-out of HCFC-225 agreed to be achieved under this Agreement (ODP tonnes)													1.13
4.6.2	Phase-out of HCFC-225 to be achieved in previously approved projects (ODP tonnes)													0.00
4.6.3	Remaining eligible consumption for HCFC-225 (ODP tonnes)													0.09

* Maximum allowable total consumption of Annex C, Group I substances for the period 2021 to 2026 would be determined at a later date, but would in no case be greater than 11,772 ODP tonnes prior to 2025, and no greater than 6,131 ODP tonnes thereafter.

** Maximum allowable total consumption of Annex C, Group I substances in the ICR sector for the period 2021 to 2026 would be determined later, but would in no case be greater than 1,609.9 ODP tonnes prior to 2025, and no greater than 781 ODP tonnes thereafter.

*** Maximum allowable total consumption of Annex C, Group I substances in the RAC sector for the period 2021 to 2026 would be determined later, but would in no case be greater than 2,259.7 ODP tonnes prior to 2025, and no greater than 1,335 ODP tonnes thereafter.

**** In accordance with decision 68/42(b), includes 137.83 ODP tonnes of HCFC-141b contained in exported pre-blended polyols.

Note: Date of completion of stage I as per stage I Agreement: 31 December 2019.

Annex III

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

Stage I - Cumulative expenditure (US $) as of 31 December 2018

Content	Sectors*							Remarks
	Production	**RAC**	**PU foam**	**XPS foam**	**ICR**	**Solvent**	**Servicing**	
Sector costs	10,082,647							
Project staff	1,768,942	1,367,981	1,438,739	1,084,951	1,415,153	235,859	235,859	
Domestic travel	199,305	154,008	190,246	144,949	181,186	13,589	22,648	
International travel	24,000	20,000	16,000	16,000	20,000	4,000	4,309	
Domestic meeting	176,004	136,003	168,004	128,003	160,004	12,000	20,000	Costs for venue, equipment rental and other costs
International meetings	0	0	0	0	0	0	0	Please specify which meeting and number of participants
Consulting service	159,479	123,234	152,230	115,985	144,981	10,874	18,123	Consulting institutions and experts hired for project evaluation, financial and technical verification, technical review, bidding evaluation, technical support etc. Would also include contractual staff to help with high workload or special events, such as meetings, exhibitions and workshops, as well as translation-related costs
Sub-total sector costs	2,327,729	1,801,227	1,965,218	1,489,887	1,921,324	276,322	300,939	
Share costs	11,644,009							
Supporting staff							6,045,624	Costs associated with apportioned supporting staff e.g., financial division, division of contract management, general affairs division, and other relevant divisions
Computer, internet, post, phone, printing, etc.							1,497,282	
Office operation service and maintenance, utilities							4,101,103	
Total	**4,889,411**	**3,780,708**	**4,410,460**	**3,352,929**	**4,250,126**	**450,982**	**592,039**	

Remarks: Total cumulative expenditure of PMU from 2011-2018 for the implementation of stage I of the HPMP is US $21,726,655. Among them, US $18,691,475 came from the sector plans of stage I, US $3,035,180 came from other individual projects or FECO. In addition, the expenditure supported by IS and the co-financing of the Government of China (about US $3.12 million from 2011-2018) are not included in the expenditure in the table above.

*PU= polyurethane foam; XPS= extruded polystyrene foam; RAC=room air-conditioning manufacturing; ICR=industrial and commercial refrigeration and air conditioning

Stage II - Cumulative expenditure (US $) as of 31 December 2018

Content	Sectors*							Remarks
	Production	**RAC**	**PU foam**	**XPS foam**	**ICR**	**Solvent**	**Servicing**	
Sector costs	1,529,293							
Project staff	268,305	207,490	218,222	164,561	214,644	35,774	35,774	
Domestic travel	20,611	16,489	23,359	26,108	30,230	9,619	10,993	
International travel	8,000	0	0	3,821	4,000	0	0	
Domestic meeting	18,201	14,561	20,628	23,055	26,695	8,494	9,707	Costs for venue, equipment rental and other costs
International meetings	0	0	0	0	0	0	0	Please specify which meeting and number of participants
Consulting service	16,493	13,194	18,692	20,891	24,189	7,697	8,796	Consulting institutions and experts hired for project evaluation, financial and technical verification, technical review, bidding evaluation, technical support etc. Would also include contractual staff to help with high workload or special events, such as meetings, exhibitions and workshops, as well as translation-related costs
Sub-total sector costs	331,611	251,734	280,901	238,435	299,759	61,583	65,270	
Share costs	1,766,113							
Supporting staff							916,974	Costs associated with apportioned supporting staff e.g., financial division, division of contract management, general affairs division, and other relevant divisions
Computer, internet, post, phone, printing, etc.							227,101	
Office operation service and maintenance, utilities							622,038	
Total	**596,528**	**463,667**	**581,140**	**573,997**	**688,304**	**185,211**	**206,559**	

Remarks: Total cumulative expenditure of PMU from 2017-2018 for the implementation of stage II of the HPMP is US $3,295,406. Among them, US $2,651,050 came from the sector plans of stage II, the expenditure of the foam and production sectors was advanced from FECO's own budget and will be reimbursed from future. The expenditure supported by the IS and the Government of China are not included in the table above.
*PU= polyurethane foam; XPS= extruded polystyrene foam; RAC=room air-conditioning manufacturing and heat pump water heaters; ICR=industrial and commercial refrigeration and air conditioning