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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Eightieth Meeting
Montreal, 13-17 November 2017

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, UNEP, UNIDO, World Bank, Germany, and Japan
• HCFC phase-out management plan (stage II, second tranche):	UNDP, UNEP, UNIDO, World Bank, Germany, Italy and Japan
Extruded polystyrene foam sector plan	UNIDO and Germany
Industrial and commercial refrigeration and air-conditioning sector plan	UNDP
Room air-conditioning manufacturing and heat pump water heaters sector plan	UNIDO and Italy
Solvent sector plan	UNDP

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

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. Dates of approvals of sector plans 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 80th meeting

5. On behalf of the Government of China UNDP, UNEP, UNIDO, the World Bank, and the Governments of Germany and Japan submitted annual progress reports on the implementation of the work programme associated with the final tranche for the sector plans associated with stage I of the HPMP.

HCFC consumption

6. The Government of China has reported HCFC consumption for 2016 under Article 7 of the Montreal Protocol as shown in Table 3.

Table 3. HCFC consumption in China (2012 to 2016) (Article 7)

Year	2012	2013	2014	2015	2016*	Starting point
	Metric tonnes					
HCFC-22	237,397	179,350	190,318	153,971	168,696	209,006
HCFC-123	778	998	1,006	900	943	507
HCFC-124	(6)	32	96	(46)	67	140
HCFC-141b	63,864	47,631	51,848	38,584	39,144	53,502
HCFC-142b	15,274	9,790	9,918	11,616	9,471	22,624
HCFC-225ca/cb	36	29	33	15	38	17
Total	**317,343**	**237,830**	**253,219**	**205,040**	**218,360**	**285,796**
	ODP tonnes					
HCFC-22	13,057	9,864	10,468	8,468	9,278	11,495
HCFC-123	16	20	20	18	19	10
HCFC-124	(0)	1	2	(1)	1	3
HCFC-141b	7,025	5,239	5,703	4,244	4,306	5,885
HCFC-142b	993	636	645	755	616	1,471
HCFC-225ca/cb	1	1	1	1	1	1
Total	**21,091**	**15,761**	**16,839**	**13,485**	**14,221**	**18,865**

* Preliminary. Article 7 data has been reported to the Ozone Secretariat, but of the issuance of the document, it had not been published at the Ozone Secretariat's website. However, UNDP provided a summary of the Article 7 data report during the project review process. Based on a preliminary analysis, it is noted that the data reported for the HCFC import, export and production is consistent with the verification.

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 2016 was 5.5 per cent higher (in ODP tonnes) than in 2015 but still lower than in 2014 and previous years. The reason for the variation in HCFC consumption is mainly the economic slowdown in 2015, 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 the 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 2016. Table 4 presents HCFC consumption per sector for 2016 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 2016*

Substance	XPS foam	PU foam	ICR	RAC	Solvent	Servicing
HCFC-22	1,458		2,063	3,025		2,607
HCFC-141b		3,830			413	
HCFC-142b	585		7			24
HCFC-123			13			6
HCFC-124						1

Substance	XPS foam	PU foam	ICR	RAC	Solvent	Servicing
HCFC-225ca/cb					1	
Total	**2,043**	**3,830**	**2,082**	**3,025**	**413**	**2,638**
Maximum allowable consumption	2,286	4,450	2,163	3,698	455	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 Economic Cooperation Office (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 Environmental Protection Bureaus (EPBs) 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 2016 HCFC production and consumption in China. The verification confirmed that the consumption of HCFCs in 2016 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) Fourteen XPS foam enterprises converted with the total phase-out of 5,993.7 mt of HCFC-22 and HCFC-142b; after completion of conversion of the remaining 11 enterprises, the total phase-out will reach 9,590 mt of HCFC-22 and HCFC-142b;

(c) Thirty-six PU foam enterprises converted with the total phase-out of 8,081.29 mt of HCFC-141b; after completion of conversion of the remaining 21 enterprises the total phase-out will reach of 12,969.10 mt of HCFC-141b;

(d) Thirty-one production lines in the ICR sector converted with the total phase-out of 7,448.45 mt of HCFC-22; after completion of conversion of the remaining 3 lines, the total phase-out will reach 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) Twenty-five RAC lines converted (HC-290, R-410A and compressors) with the total phase-out of 8,887.7 mt of HCFC-22 (of which 8,562.1 mt is associated with Article-5 ownership); after completion of conversion of the remaining four lines for which contracts have been signed, 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 60th meeting;

(f) All nine enterprises in the solvent sector converted with the total phase-out of 610.3 mt of HCFC-141b and received national acceptance and final payments. In addition, 27.82 mt of HCFC-141b were phased out through the solvent demonstration project;

(g) Activities in the refrigeration servicing sector included *inter alia* enforcement of the last code foreseen under stage I; selection of four additional regional training centers and one international; training of 180 refrigeration technicians and trainers; revision of the scheme for certification of servicing enterprises; law enforcement and policy workshops for local authorities; update of the automatic system for approval of ODS import/export application; training of 180 customs officers; and awareness activities focusing on Kigali amendment and alternative technologies; and

(h) Through the national coordination component, UNDP 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 six consumption sectors to the 80th meeting; meetings to facilitate the formulation and issuance of the 2017 HCFC production and consumption quotas covering 25 production enterprises and 76 consumption enterprises; and commissioning and submission of the financial audit report including funding disbursement and accrued interest of each sector in 2016.

13. As indicated by UNDP at the 75th meeting, the revised date of completion of stage I is December 2019 as additional time is required to disburse incremental operating cost to converted enterprises and to complete administrative closure of contracts established under stage I. However, most of the activities in each sector are expected to be completed during 2017 and 2018. 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 will 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.

Disbursement of funds and interest accrued

14. 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 and summarized in Table 5.

Table 5. Level of disbursement per sector as of September 2017 (US $)

Sectors	Funds approved (US $) (tranches 1-5)	Disbursements from IA to FECO		Disbursements by FECO*	
		US $	%	US $	%
XPS foam sector plan (UNIDO/Germany)	50,000,000	39,409,800	79	38,761,970	78
PU foam sector plan (World Bank)	73,000,000	67,525,000	93	41,710,168	57
ICR sector plan (UNDP)	61,000,000	60,876,272	100	44,383,749	73
RAC sector plan (UNIDO)	75,000,000	60,769,717	81	38,206,668	51
Solvent (UNDP)	5,000,000	5,000,000	100	4,905,807	98
Servicing (UNEP /Japan)	5,640,000	4,857,000	86	3,819,929	68
National coordination (UNDP)	360,000	360,000	100	345,979	96
Total all sectors	**270,000,000**	**238,797,789**	**88**	**172,134,270**	**64**

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

15. Eighty-eight per cent of the funds approved for the implementation of stage I have been disbursed to FECO, and 64 per cent have been disbursed to final beneficiaries.

16. Information on interest accrued as of the end of 2016 is presented in Table 6. The information was provided by an audit report on the disbursement for stage I of the HPMP sector plans of 2016 submitted by UNDP on 18 September 2017.

Table 6. Information provided on interest accrued

Sector plan	Interest accrued as of December 2016 (US $)					
	2012	2013	2014	2015	2016	Total
XPS (UNIDO, Germany)	12,583	43,153	62,905	24,945	12,621	156,208
PU (World Bank)*	0.00	5,195	6,431	3,443	4,813	19,883
ICR (UNDP)	70,628	87,093	33,651	103,708	97,468	392,548
RAC (UNIDO)	10,016	66,791	94,424	62,305	49,273	282,809
Solvent (UNDP)	2,289	5,293	7,091	2,656	1,101	18,430
Servicing (UNEP, Japan)	642	1,427	1,079	663	886	4,696
Total	**96,158**	**208,952**	**205,581**	**197,721**	**166,163**	**874,574**

*The interest in the PU foam sector is calculated based on the total interest accrued in the PU foam and the production sectors proportionally to the funding received for each sector.

17. As in previous years the information provided on disbursements and on interest accrued for all sectors was in the Chinese RMB and in US dollars except for the PU foam for which it was only in US dollars. The level of interest generated from the XPS foam and the RAC sector in 2016 was lower than in previous years because the funding disbursed in these sectors is higher than the funding received.

18. The recommendation for each sector plan by the Executive Committee includes a request to the Treasurer to offset future transfers to the implementing agencies by the amount of interest accrued by the Government of China up to 31 December 2016. Given that no funding is requested for the PU foam and refrigeration servicing sectors at the current meeting, the interests accrued will be accounted for during future tranche requests.

Progress reports

19. Detailed stand-alone progress reports on the implementation of the XPS, PU, ICR, RAC solvent servicing 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 activities to be implemented in 2017-2018; comments by the Fund Secretariat; and the recommendation.

HPMP (stage I): XPS foam sector (UNIDO (Lead) and Germany)

Progress report on the implementation

20. A total of 25 XPS foam enterprises with a consumption of 9,590 mt of HCFC-22 and HCFC-142b[1] participated in stage I of the HPMP. Fourteen of these enterprises with a combined consumption of 5,993.7 mt have already completed their conversion and passed national commissioning. An additional eight enterprises (2,208.4 mt) have completed trials and are preparing for national commissioning. Two other enterprises (1,167.4 mt) have installed the equipment and one enterprise (220.5 mt) is expected to finalize equipment procurement in October 2017. Twenty-four of the 25 enterprises have chosen CO_2-based technology, while one opted for HC. The progress in the enterprises' conversions is presented in Table 1.

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

Status of implementation	Number of enterprises	HCFC consumption (mt)	Expected date of completion	Share of stage I target (%)
Enterprises conversions				
Projects completed	14	5,993.70	n/a	59.8
Trials completed	8	2,208.35	Dec 2017/ June 2018	22.0
Equipment delivered and installed	2	1,167.43	June 2018	11.6
Procurement process ongoing	1	220.5	June 2018	2.2
Sub-total	**25**	**9,589.98**		**95.6**
Additional reductions through regulations		441.02		4.4
HCFC reduction target		**10,031.00**		**100.0**

21. Additional technical assistance activities implemented include approval of two new technical standards for XPS foam application in cold storage and civil engineering (in effect from January 2018); revision of the standard on XPS foam board for thermal insulation (expected to be approved in November 2017); continuation of the research on optimization of CO_2; preparation of the second draft of the book on good practices for safe production of XPS foam using CO_2 technology (final draft to be submitted to FECO in November 2017); verification of financial reports prior to payments to enterprises; and support to FECO and enterprises by the implementation support agency (ISA).

Level of fund disbursement

22. As of September 2017, of the US $50,000,000 approved, US $39,409,800 had been disbursed from the implementing agencies to FECO, and US $38,761,970 (78 per cent) had been disbursed from FECO to beneficiaries (Table 2). The remaining funds (US $11,238,030) will be disbursed between 2017 and 2018.

Table 2. Status of disbursements for the XPS foam sector plan as of September 2017

Component	Funds approved (US $)	Funds disbursed (US $)		Planned disbursement (US $)	
		From IAs to FECO	From FECO to beneficiaries	Aug- Dec 2017	After 2017
Enterprise activities	45,234,353	36,341,436	36,042,891	3,068,638	6,122,824
Technical assistance	1,958,648	1,098,400	880,408	400,000	678,240
PMU	2,807,000	1,969,965	1,838,671	545,308	423,021
Total	**50,000,000**	**39,409,800**	**38,761,970**	**4,013,945**	**7,224,085**

[1] Sixty per cent of the blend is HCFC-22 and 40 per cent is HCFC-142b.

Remaining activities in the XPS foam sector plan

23. FECO will continue enforcing the quota permits for XPS foam enterprises consuming more than 100 mt of HCFCs per year; four enterprises will complete their conversions including national acceptance by 31 December 2017, and the remaining seven by 30 June 2018. Ongoing technical assistance activities will be completed, including verifications by technical experts of safety measures at converted enterprises, finalization of the research on CO_2 technology and sharing outcomes with the industry, public awareness activities to facilitate HCFC phase-out in the XPS foam sector and a review meeting of stage I of the XPS foam sector plan.

Secretariat's comments

HCFC consumption

24. Consumption of HCFCs in the XPS foam manufacturing sector in 2016 was 35,500 mt (2,042.5 ODP tonnes), which is lower than the 38,746 mt (2,286 ODP tonnes) allowable consumption in the Agreement between the Government of China and the Executive Committee, as shown in Table 3.

Table 3. Consumption of HCFCs in the XPS foam sector

XPS foam sector		2009	2010	2011	2012	2013	2014	2015	2016
Consumption*	mt	41,000	45,100	43,905	44,200	41,164	39,200	30,100	35,500
	ODP tonnes	2,419	2,661	2,583	2,529	2,377	2,249	1,761	2,043
Maximum allowable consumption**	mt	n/a	n/a	n/a	n/a	43,051	43,051	38,746	38,746
	ODP tonnes	n/a	n/a	n/a	n/a	2,540	2,540	2,286	2,286
Phase-out target	mt	n/a	n/a	n/a	n/a	5,726	n/a	4,305	n/a
	ODP tonnes	n/a	n/a	n/a	n/a	338	n/a	254	n/a

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

25. The reduction in HCFC consumption in 2014 and 2015 was achieved through the application of the HCFC production quota and domestic sale quota issued for each producer, HCFC consumption quotas for manufacturing enterprises using more than 100 mt, and the XPS foam conversion projects completed. However, HCFC consumption in the sector grew in 2016 due to an increase of demand for XPS foam products for civil applications and for insulation.

26. UNIDO reported that FECO and UNIDO are aware that this market expansion may represent risks to maintaining compliance with HCFC consumption in the sector, and are committed to accelerating the ongoing conversion projects under stage I, as well as new projects under stage II.

Status of implementation and disbursement

27. The Secretariat noted with appreciation the overall progress in stage I; however, it noted that little progress was achieved during 2017 by six additional enterprises that were expected to complete their conversions by March 2017. UNIDO indicated that some enterprises faced greater difficulty in obtaining the necessary environmental documents as local authorities had different approval times; however, it was confirmed that all projects will be completed between December 2017 and June 2018.

28. Moreover, UNIDO indicated that stage I of the XPS foam sector plan would be operationally completed by 30 June 2018, as planned. As the revised date of operational completion is before the second meeting in 2018, UNIDO could still present the PCR at that meeting, which would not represent any change to the already agreed decision 75/54(b).

Disbursement

29. The Secretariat also noted that while 78 per cent of the approved funding has already been disbursed, there was still around US $11.2 million to be disbursed by FECO to beneficiaries. UNIDO indicated that all the fund balances would be spent before project completion. As shown in Table 2, US $9.2 million would be spent on remaining payments to beneficiaries subject to the finalization of project acceptance, and the remaining funds would be spent on the ongoing technical assistance activities, including supporting activities being undertaken by the implementation support agency, supervision and verification, consultancy services, and public awareness and workshops.

Interest

30. In line with decision 69/24(b)(ii), UNIDO reported that FECO has earned a cumulative interest of US $12,621 for the XPS foam sector plan in 2016.

Conclusion

31. The XPS foam sector plan continues to progress with 14 enterprises having phased out HCFCs and eight enterprises having completed their trials with CO_2 as the blowing agent. The 25 enterprises assisted will phase out a consumption of 9,590 mt of HCFC-22 and HCFC-142b, which represents around 95.6 per cent of the HCFC reduction target for stage I of the XPS foam sector plan. The remaining reductions of 441 mt to reach the target of 10,031 mt will mostly occur through the application of the licensing system by FECO. The technical assistance component has facilitated the safe introduction of the selected technology (CO_2 and ethanol) at performance parameters comparable to the baseline technology and will facilitate the conversion of XPS foam enterprises to be converted in stage II of the HPMP. The level of disbursement is 78 per cent of the funds approved, and the remaining funds are expected to be disbursed before mid-2018.

Secretariat's recommendation

32. The Executive Committee may wish to consider:

(a) Noting the 2017 progress report on the implementation of the fifth tranche of the extruded polystyrene (XPS) foam sector plan of stage I of the HCFC phase-out management plan (HPMP) for China submitted by UNIDO; and

(b) Requesting the Treasurer to offset future transfers to UNIDO by US $12,621, representing additional interest accrued by the Government of China up to December 2016 from funds previously transferred for the implementation of the XPS foam sector plan for China, as per decision 69/24.

HPMP (stage I): PU foam sector (World Bank)

Progress report on the implementation

33. The ban on using HCFC-141b as blowing agent in the sub-sectors of reefer containers, refrigerators and freezers, and small household appliances is being prepared by the China Household Electrical Appliance Association (CHEAA), and is expected to be issued in 2018.

34. Three new PU foam enterprises have been added to the sector plan in stage I of the HPMP, for a total of 57 enterprises with a consumption of 12,969.10 mt (1,426.60 ODP tonnes) of HCFC-141b. Thirty-six of these enterprises with a consumption of 8,081.29 mt (888.94 ODP tonnes) have already completed their conversion and introduced hydrocarbon (HC) or water-blown technologies. Project completion has been verified and certificate of national commissioning has been provided for these enterprises. The remaining enterprises are at different stages of conversion, as shown in Table 1.

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	36	8,081		55
Trial running completed	7	1,281	2017/2018	9
Equipment delivered	6	1,939	2018	13
At different stages of procurement	5	1,462	2018	10
Signing implementation contract	3	206	2018	1
Sub-total	**57**	**12,969**		**88**
Estimated additional reductions through regulations	n/a	~1,716		12
HCFC reduction target	n/a	**14,685**		**100**

35. Two of the six systems houses included in stage I have completed their trials and received approval by the local environmental protection bureau (EPB) and safety departments, and are preparing project acceptance. The remaining four systems houses are currently conducting equipment procurement.

36. Technical assistance activities included an additional workshop for beneficiary enterprises on alternative technology development in the PU foam sector; continuation of the study on alternative technologies in the spray foam sub-sector, including water, liquid carbon dioxide and HFOs; revision of safety standards for the use of cyclopentane; establishment of a training centre to assist small and medium enterprise to select and access alternative technologies; safety-expert visits to review the safety measures put in place by the beneficiary enterprises converting to cyclopentane; arrangements for the delegation of monitoring activities to provinces where PU foam manufacturers are located; verification of financial reports prior to payments to enterprises that have achieved project milestones, project supervision and management; and support to FECO and beneficiary enterprises by the implementation support agency (ISA).

Level of fund disbursement

37. As of August 2017, of the US $73,000,000 approved, US $67,525,000 had been disbursed from the World Bank to FECO, and US $41,710,168 (57 per cent) had been disbursed by FECO to beneficiaries, as shown in Table 2.

Table 2. Status of disbursements of the PU foam sector plan as of August 2017

Component	Funds approved (US $)	Funds disbursed as of August 2017 (US $)	Planned disbursement (US $)	
			August – December 2017	To be disbursed after 2017
Enterprise activities	64,890,448*	37,476,234	5,808,762	21,605,452
Technical assistance	4,459,552*	1,131,434	184,414	3,143,704
PMU activities	3,650,000	3,102,500	547,500	0
Total	**73,000,000**	**41,710,168**	**6,540,676**	**24,749,156**

*Including the three new enterprises for US $1,527,021. The funds to convert these enterprises were reallocated from technical assistance.

Remaining activities in the PU foam sector plan

38. During 2017 and 2018, FECO will continue enforcing the HCFC-141b quota; complete the conversion of the remaining 21 enterprises to HC and water-based technology; complete the assistance to the remaining four systems houses and complete the ongoing technical assistance activities.

Secretariat's comments

HCFC consumption

39. Consumption of HCFC-141b in the PU foam manufacturing sector in 2016 was 34,821.19 mt (3,830.34 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 (Table 3).

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

PU foam sector		2009	2010	2011	2012	2013	2014	2015	2016
Consumption*	mt	45,971	52,069	63,570	59,109	46,338	46,864	34,202	34,821
	ODP tonnes	5,056.8	5,727.5	6,992.7	6,501.9	5,097.2	5,155.0	3,762.0	3,830.3
Maximum allowable consumption **	mt	n/a	n/a	n/a	n/a	49,018	49,018	40,451	40,451
	ODP tonnes	n/a	n/a	n/a	n/a	5,392.2	5,392.2	4,449.6	4,449.6
Phase-out target	mt	n/a	n/a	n/a	n/a	6,116	n/a	8,569	n/a
	ODP tonnes	n/a	n/a	n/a	n/a	672.8	n/a	942.6	n/a

*As per the country programme implementation report.

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

40. The reduction in consumption has been achieved through the application of the HCFC production quota and domestic sale quota issued for each producer; the HCFC consumption quotas issued to manufacturing enterprises using more than 100 mt per year; and the conversion of foam enterprises to HC and water-blown technologies.

41. A total of 12,969.10 mt of HCFC-141b will be phased out though the conversion of PU foam enterprises. The remaining 1,715.90 mt of HCFC-141b phase-out required to reach the stage I reduction target will be achieved through policy measures, including the quota system for PU foam enterprises consuming more than 100 mt of HCFC-141b per year, and the ban on the use of HCFC-141b for manufacturing of refrigerators, freezers, reefers and containers, and small household appliances, expected to enter into force during the first half of 2018, which will ensure that other non-eligible enterprises in the sector will also stop the use of HCFC-141b.

42. The World Bank explained that the timing of the ban on using HCFC-141b in subsectors covered in stage I of the HPMP has been postponed from 2017 to 2018 due to some updates and adjustments to the overarching ODS regulatory framework. FECO is working with MEP on updates that would permit this planned ban, as well as future subsector bans, to be legally accepted. In the meantime, all converted

enterprises have been requested to permanently stop the use of HCFC-141b, and are monitored by local EPBs according to the ODS Management Regulation.

Status of implementation and technical issues

43. The Secretariat noted with appreciation the completion of nine additional conversions and the addition of three new enterprises to stage I. However, it was also noted that all conversions were expected to be completed in December 2017, but 12 enterprises did not show significant progress in finalizing their conversions. The World Bank explained that the safety audits and approval process for use of HC by the local fire safety authorities was taking longer than expected due to several serious fire incidents in China (not related to Multilateral Fund projects). In response, FECO is hiring technical experts to carry out safety audits and, based on the results, will provide "acceptance" of project completion. For a number of cases where approval from fire authorities is awaited, enterprises have already phased out HCFC-141b. The 54 PU foam enterprises initially assisted in stage I consumed only 2,518.05 mt of HCFC-141b in 2016, indicating a phase-out of 10,244.90 mt. Finally, FECO is working closely with its ISA to help resolve specific delays related to a few enterprises. If there is still no substantial progress in meeting the agreed milestones, these enterprises will be informed of possible cancellation of their subprojects.

44. The three additional PU foam enterprises included in stage I represent additional 206.15 mt of HCFC-141b to be phased out from enterprises conversions. The three enterprises will be funded with resources initially allocated to technical assistance activities, without compromising the funding allocated to other enterprises, nor the expected results of the conversions or technical assistance activities.

45. The World Bank also reported that out of the six systems houses, four of them might have difficulty completing the projects by early 2018 due to the strict approval requirements of the local EPBs and safety departments. FECO, in collaboration with ISA, has urged the systems houses to expedite project implementation. It is expected that the subprojects will be completed by mid-2018, which will coincide with the effectiveness/enforcement of the ban, when supply of this pre-blended polyol from systems houses will be especially needed.

46. With regard to the low level of disbursement of funds approved for technical assistance (US $1.31 million out of US $4.5 million), the World Bank confirmed that activities continue to be implemented, and that the funds allocated to this component should be fully utilized. The World Bank also confirmed that in addition, technical assistance activities under the CFC PU foam phase-out plan have helped facilitate the adoption of technologies by beneficiaries of the HCFC PU foam sector plan[2].

Date of completion of stage I

47. In view of the above discussion, and given that decision 75/55(b) requests the submission of the project completion report by the last meeting of 2018, the Secretariat asked the World Bank if an extension of the date of completion of the sector plan was required. The World Bank indicated that stage I of the PU foam sector plan would be completed by June 2018. As the revised date of operational completion is before the second meeting of the Executive Committee in 2018, the World Bank can still present the PCR at that meeting and this would not represent any change to the already agreed decision 75/55(b).

Interest

48. In line with decision 69/24(b)(ii), the World Bank reported that FECO has earned a cumulative interest of US $4,813 for the PU foam sector plan in 2016.

[2] A report on the CFC PU foam sector phase-out plan has been submitted to the 80th meeting. (UNEP/OzL.Pro/ExCom/80/12).

Conclusion

49. The PU foam sector plan continues to progress, with three new enterprises added, 36 conversions completed, seven additional conversions about to obtain national acceptance, and the remaining 14 conversions planned for completion by 2018, along with the completion of the projects at the remaining four systems houses (out of six) and the technical assistance activities. The 57 eligible enterprises assisted will phase out 12,969 mt (1,427 ODP tonnes) of HCFC-141b, representing 88.0 per cent of the HCFC reduction target for stage I of the PU foam sector plan. The remaining reductions to meet the target of 14,685 mt (1,615.35 ODP tonnes) will be achieved through the application of regulations, including the quota system and the ban on the use of HCFC-141b for manufacturing of refrigerators, freezers, reefers and containers, and small household appliances in 2018. The overall level of disbursement increased in 2016 from 48.9 to 57.1 per cent of the overall funding approved, and the remaining funds are expected to be disbursed between 2017 and 2018. The date of completion of stage I is June 2018.

Secretariat's recommendation

50. The Executive Committee may wish to consider:

(a) Noting the 2017 progress report on the implementation of the fifth tranche of the polyurethane rigid (PU) foam sector plan of stage I of the HCFC phase-out management plan (HPMP) in China submitted by the World Bank; and

(b) Requesting the Treasurer to offset future transfers to the World Bank by US $4,813, representing interest accrued by the Government of China up to 31 December 2016 from funds previously transferred for the implementation of the PU foam sector plan for China, as per decision 69/24.

HPMP (stage I): ICR sector (UNDP)

Progress report on the implementation

51. A total of 18 enterprises (30 equipment lines and four compressor lines) with aggregated HCFC-22 phase-out of 8,029.24 mt have participated in the ICR sector plan of stage I of the HPMP. 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 shown in Table 1.

Table 1. Alternative technology used in conversion projects*

Sub-sector	R-32	R-410A	NH_3/ CO_2	CO_2/ HFC-134a	HFC-134a	NH_3	CO_2	HFO/ HFC-134a	Total
HCFC-22 consumption converted to different technologies (mt)									
Unitary air-conditioning	2,591.46	1,345.97							3,937.43
Multi-connected air-conditioning		814.83							814.83
Freezers, cold storage and condensing unit			1,135.39	65.75	31.77				1,232.91
Industrial and commercial water chiller (heat pump)	1,551.93				396.84	95.30			2,044.06
Compressors	0.00						0.00	0.00	0.00
Total consumption (mt)	4,143.39	2,160.80	1,135.39	65.75	428.60	95.30	0.00	0.00	8,029.24
Percentage (%)	51.60	26.91	14.14	0.82	5.34	1.19	0.00	0.00	100
Number of manufacturing lines converted to different technologies									
Unitary air-conditioning	6	3							9
Multi-connected air-conditioning		2							2
Freezers, cold storage and condensing unit			5	1	1				7
Industrial and commercial water chiller (heat pump)	7				4	1			12
Compressors	2						1	1	4
Total number of lines	15	5	5	1	5	1	1	1	34
Percentage (%)	44.12	14.71	14.71	2.94	14.71	2.94	2.94	2.94	100

*Based on all the conversion projects in stage I, excluding the demonstration projects.

52. As of September 2017, the conversion of 31 manufacturing lines had been completed, with a total phase-out of 7,448.45 mt of HCFC-22 (19 manufacturing lines at 12 enterprises with a total phase-out of 4,007.09 mt of HCFC-22 were converted during the period 2016-2017). The conversion of the remaining three lines was in progress and is expected to be completed by December 2018.

53. Several technical assistance activities have been undertaken to enable the smooth conversion of the enterprises. The revision of the National Standard for Safety and Environmental Requirements for Refrigeration Systems and Heat Pumps (GB-9237) for using flammable refrigerants has been completed and is expected to enter into effect before the end of 2017. Technology promotion and technical assistance activities, including studies on the use of low-GWP technologies, the formulation of national standards, a survey of the cold chain sub-sector, and the establishment of a training centre for NH_3 and CO_2 technology have been implemented to remove technical barriers, facilitate the implementation of the conversion projects and assist in a smooth transition to non-ODS technologies. These activities are all expected to be completed by the end of 2018.

54. At the 76th meeting, the Executive Committee approved a demonstration project for a semi-hermetic compressor using NH_3 refrigerant to replace HCFC-22. The demonstration project is progressing, three prototype trial production runs have been conducted and performance testing equipment has been installed. It is expected that the project will be completed by the end of 2017 or the first quarter of 2018 at the latest.

55. A verification was conducted at Yantai Moon and Yantai Dunham Bush, which covers two manufacturing lines and 463.53 mt of HCFC-22 consumption, accounting for 12 per cent of total amount of phase-out and 10.5 per cent of the total number of lines converted, in accordance with paragraph 5(b)(i) of the Agreement with the Executive Committee.

56. The verification confirmed that the two manufacturing lines in Yantai Moon and Yantai Dunham Bush have been converted to NH_3/CO_2 and HFC-134a, respectively. Both lines have already manufactured and sold new products using the respective alternative technologies, but the incremental operating cost (IOC) for both lines has not been disbursed.

Level of fund disbursement

57. As of end of September 2017, of the US $61,000,000 approved so far, US $60,933,899 had been disbursed from UNDP to FECO, and US $44,383,749 (73 per cent) had been disbursed by FECO to beneficiaries. Table 2 presents the status of total disbursement. The remaining balance will be disbursed after October 2017 up until completion of the sector plan, especially taking into consideration the procedures for disbursement of incremental operating costs.

Table 2. Status of disbursement of stage I of the ICR sector plan as of end of September 2017 (US $)

Component	Funds approved	Funds disbursed		Planned disbursement
		From UNDP to FECO	From FECO to beneficiaries	October 2017-December 2018
Enterprise activities	61,000,000	60,876,272	36,191,863	15,079,731
Technical assistance			4,226,886	1,200,000
PMU			3,965,000	0
Total	**61,000,000**	**60,876,272**	**44,383,749**	**16,279,731**

Remaining activities in the ICR sector plan

58. The Government will continue enforcing HCFC quotas for enterprises consuming more than 100 mt of HCFCs, and complete the ongoing activities, specifically:

(a) Issue consumption quota for 2018 taking into account the control target for 2018, collect and review consumption data for 2017;

(b) Complete the revision of four standards on compressors and condensing units and two standards on cold stores;

(c) Complete the six research projects on low-GWP technologies; and

(d) Continue the conversion of the remaining three manufacturing lines in three enterprises; complete the 11 demonstration projects on heat pumps and two demonstration projects in supermarkets; and disbursement of IOC for the converted lines once production with the selected technology begins.

Secretariat's comments

HCFC consumption

59. The consumption of HCFCs in the ICR sector in 2016 was 38,255 mt (2,082.09 ODP tonnes), which is lower than the maximum allowable consumption of 2,162.50 ODP tonnes established in the Agreement between the Government of China and the Executive Committee, as shown in Table 3. The increase in HCFC consumption in 2016 in the sector reflects recovery of the ICR industry from the economic downturn in 2015. The phase-out of HCFCs in enterprises owned by non-Article 5 countries is controlled through a quota system.

Table 3. Reduction in HCFC consumption in the ICR sector

	2012	2013	2014	2015	2016
Maximum allowable consumption (ODP tonnes)	n/a	2,402.80	2,402.80	2,162.50	2,162.50
Maximum allowable consumption (mt)	n/a	43,925.00	43,925.00	39,320.00	39,320.00
Actual consumption in ICR sector (ODP tonnes)*	2,610.47	2,224.80	2,219.48	1,981.70	2082.09
Actual consumption in ICR sector (mt)*	47,463.00	40,805.00	40,749.00	36,385.00	38,254.70
Reduction target set in HPMP (ODP tonnes)	n/a	224.50	0.00	240.30	0
Reduction target set in HPMP (mt)	n/a	4080.00	0.00	4370.00	0

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

Technical issues

60. The Secretariat noted that the revision of the safety and environmental requirements standard for refrigerating systems and heat pumps (GB 9237) was reported as "completed and sent for final approval in July 2016" but has not been approved, and therefore queried when it is expected to be approved. UNDP advised that GB 9237 is a national standard and a technical legal document, which requires a more complex approval process. Nevertheless, FECO has been following up on the final approval process and it is expected that the standard will be approved by December 2017.

Completion of stage I

61. With regard to completion of the remaining activities, UNDP reported that the revision of the six standards will be completed by December 2017; studies and technology-promotion activities will be completed by June 2018; and conversion of three manufacturing lines and disbursement of the IOC will be completed by December 2018. UNDP confirmed that all activities under the ICR sector plan will be operationally completed by December 2018, and that the project completion report will be submitted no later than the last meeting of 2019, as per decision 75/56.

Interest

62. In line with decision 69/24(b)(ii), UNDP informed the Secretariat that in 2016 FECO had earned a cumulative interest of US $97,468 for the ICR sector plan.

Conclusion

63. A licensing and quota system has been implemented to achieve compliance in the ICR sector. HCFCs are no longer used in enterprises that signed conversion contracts, resulting in the 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), thereby exceeding the planned phase-out target of 8,450.00 mt. The conversion of 31 production lines has been completed and verified in accordance with paragraph 5(b)(i) of the Agreement; and the conversion of the remaining three production lines will be completed in 2018. Technical assistance activities including standard revisions, research and development on low-GWP technologies, training, awareness raising, technology promotion and dissemination have been and will

continue to be implemented to facilitate implementation of the conversion of manufacturing capacity, and to assist in the adoption, marketing and commercialization of converted equipment in China and the global market.

Secretariat's recommendation

64. The Executive Committee may wish to consider:

(a) Noting the 2017 progress report on the implementation of the industrial and commercial refrigeration and air conditioning (ICR) sector plan of stage I of the HCFC phase-out management plan (HPMP) in China submitted by UNDP; and

(b) Requesting the Treasurer to offset future transfers to UNDP by US $97,468, representing additional interest accrued by the Government of China up to 31 December 2016 from funds previously transferred for the implementation of the ICR sector plan for China in line with decision 69/24.

HPMP (stage I): RAC sector (UNIDO)

Progress report on the implementation

65. As of August 2017, 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 mt of HCFC-22 will be phased out through those activities, of which 10,488.1 mt are associated with Article-5 ownership. Another 240 mt of HCFC-22 were phased out through the demonstration project at Midea approved at the 61st meeting.

66. Of the 18 R-290 RAC lines, 14 have been converted (eleven of which completed national acceptance), two have finished the equipment bidding process, and the remaining two have started the equipment bidding process. The consumption at TCL Zhongshan, which is the 18th R-290 line, has been verified at 847.6 mt (rather than 300 mt initially estimated at the 77th meeting, resulting in a higher than expected phase-out). All eight R-410A RAC and three R-290 compressor lines have been converted (seven of R-410A RAC lines and one R-290 compressor line completed national acceptance). National acceptance for remaining converted lines is expected in 2017 or 2018. The status of conversions as of August 2017 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 consumption (mt)
R-290 lines	18	14	11	7,827.3
R-410A lines	8	8	7	2,986.4
R-290 compressor lines	3	3	1	n/a
Total	**29**	**25**	**19**	**10,813.7**

67. The following technical assistance activities were implemented:

(a) Development of three standards for flammable refrigerants, of which one (safety code for servicing equipment with flammables) became effective on 1 January 2016 and the two others (safety code for using flammable refrigerants in the manufacture of RAC units and transport of RAC units charged with flammable refrigerants) were approved by the Standard Committee in April 2015 and took effect in 2017;

(b) Continued research on R-290 technology, including experiments and risk assessment on leakage of R-290 (finalized in May 2017); performance optimization of R-290 compressor based on reduced lubricant use; and refrigerant charge reduction through the use of microchannel technology; and

(c) Continued research on existing efficiency codes and standards[3] on refrigerants uses.

68. Public awareness and consultation activities were conducted, including establishing an account in the most popular social media platform (Wechat) to raise awareness of R-290; an international workshop on design and production of R-290 RAC equipment and a field trip showcasing installation of 1,000 R-290 RAC units; an Ozone-to-Climate (O2C) roundtable to raise awareness of R-290 technology; a workshop on the European Union fluorinated gas (F-gas) regulations; two events to promote R-290 air conditioners 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.

69. Incremental operating costs (IOCs) of US $2,416,502 have been disbursed to four enterprises based on limited sales of R-290 equipment, product type, energy efficiency (i.e., equipment with higher energy efficiency receive a higher level of subsidy in the form of IOCs), and certification of R-290 RAC models.

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

To date, the converted lines have manufactured a limited number of R-290 units: approximately 1,715 R-290 split units[4] were manufactured by the converted lines and sold in China, and approximately 9,300 units exported to Europe. The converted compressor lines have manufactured approximately 250,000 R-290 compressors for domestic use (principally for dehumidifiers) and approximately 400,000 units for export to both Article 5 and non-Article 5 Parties.

Level of fund disbursement

70. As of October 2017, of the US $75,000,000 approved, US $60,769,717 had been disbursed by UNIDO and US $38,206,668 (51 per cent) had been disbursed by FECO to the beneficiaries.

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	3,394,600	60,769,717
Committed by FECO	36,430,000	9,200,000	8,434,000	9,625,000	11,175,000	74,864,000
Disbursed by FECO	22,486,913	5,066,883	5,851,905	4,062,450	738,517	38,206,668

* Excluding agency support costs

Remaining activities in the RAC sector plan

71. The following activities will be implemented in 2017 and 2018: continuation of HCFC-22 quota enforcement; completion of conversion at the remaining four R-290 lines, and national acceptance for seven R-290, one R-410A and two compressor lines already converted; verification of completed conversion projects; promotion of alternative technologies, including a workshop on R-290; training on installation and servicing of the R-290 RAC; and awareness activities.

72. The planned completion date of the first through the third tranche is March 2019, while the fourth tranche will be completed by June 2019, and the fifth tranche by December 2019.

Secretariat's comments

HCFC consumption

73. The consumption of HCFCs in the RAC sector in 2016 was 55,000 mt (3,025 ODP tonnes), which is lower than the maximum allowable consumption in the Agreement between the Government of China and the Executive Committee (Table 3).

Table 3. HCFC-22 consumption and targets for the RAC sector

RAC sector plan		2009	2010	2011	2012	2013	2014	2015	2016
Consumption*	mt	71,500	77,900	74,700	72,600	68,900	62,000	54,000	55,000
	ODP tonnes	3,932.5	4,284.5	4,108.5	3,993	3,789.5	3,410.0	2,970.0	3,025.0
Maximum allowable consumption	mt	n/a	n/a	n/a	n/a	74,700	74,700	67,231	67,231
	ODP tonnes	n/a	n/a	n/a	n/a	4,108.5	4,108.5	3,697.7	3,697.7

*data from the progress report

[4] In addition, several enterprises have developed R-290-based dehumidifiers. In part due to the lower refrigerant charge, sales of R-290-based dehumidifiers have been higher than for RAC, with to date over 100,000 R-290 dehumidifiers sold.

Status of implementation

74. Notwithstanding the considerable efforts made by the enterprises, the Government of China, the China Household Electric Appliances Association and UNIDO, the production of R-290 equipment on the converted lines remains very low, due to, *inter alia*, safety concerns, challenges associated with both domestic and international standards, potential concerns related to the additional time needed for installation of R-290-based equipment, higher cost relative to other products that are already mass-produced and benefit from economies of scale. Continued efforts by the Government and all stakeholders under both stage I and stage II are expected to accelerate market acceptance and production of R-290-based equipment. Until that time, the rate of disbursement of stage I will not increase substantially as a significant portion of the funding (US $20.9 million) is associated with IOCs. As previously noted, the Secretariat considers the IOC mechanism used by China to be an effective approach to encourage faster introduction into the market of energy efficient R-290-based AC units.

75. Previously, UNIDO had reported that less than 10 per cent of the IOCs will be used to partially reimburse enterprises for the certification[5] costs of new R-290 RAC models. However, due to an inadvertent oversight, more than 10 per cent of the IOCs was used for this purpose. During the discussion it was noted that some enterprises received a lower level of IOCs but have a larger number of models that would require additional funding for certification, and UNIDO proposed the following changes to the IOC incentive scheme:

(a) The maximum reimbursement for certificates across all lines that converted to R-290 would increase to 15 per cent of the total IOC;

(b) Reimbursement will be by enterprise rather than line, since some enterprises have converted multiple lines that could share models requiring certification; and

(c) The maximum reimbursement for certificates for an individual enterprise may be up to 30 per cent, provided the enterprise applies for certification of highly energy efficient products and that the average reimbursement across all lines remains at 15 per cent or less.

76. The Secretariat notes the particular circumstances of the approval of the stage I for China, where specific enterprises to be converted were not identified; that the revised IOC incentive scheme furthers the intent of the project by encouraging the introduction into the market of energy efficient R-290-based AC units, which had been experiencing major challenges; and that funding for certification of R-290-based models might not be needed or will be substantially lower in stage II as additional manufacturing lines of several of the enterprises that participated in stage I are expected to participate in stage II.

77. In an effort to reduce the administrative burden and streamline reporting, UNIDO proposed to disburse the remaining funds for the first three tranches as soon as only the IOCs associated with those tranches are outstanding. In such case, UNIDO would continue monitoring the funds available at FECO, the disbursements made for IOCs and the interest earned until all funds have been disbursed under those tranches. While the Secretariat is sympathetic to the rationale behind UNIDO's proposal, it did not recommend disbursing the funds as proposed by UNIDO, noting that the Executive Committee in decision 73/63(b)(ii) re-affirmed its interest in ensuring that disbursement to FECO would be made closer to the time when those funds were needed.

[5] The mandatory China Compulsory Certification (3C) is a product quality and safety certification required for the sale of equipment on the domestic market.

78. The Secretariat considers that UNIDO and the Government of China have made best efforts to ensure the uptake in the market of R-290 RAC equipment. It would have been difficult to predict the extent of the delays in market uptake when the initial funding allocation was determined. The Secretariat notes with appreciation that the lesson learnt from stage I was applied to the allocation of tranches in stage II, whereby the initial tranches comprise incremental capital costs and technical assistance, while the allocation in the later tranches focused on IOCs, ensuring that funds can be disbursed as close as possible to the time when needed.

Interest

79. In line with decision 69/24(b)(ii), UNIDO informed that FECO has earned a cumulative interest of US $49,273 for the RAC sector plan in 2016.

Conclusion

80. The RAC sector plan continues to progress, with 14 R-290, 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, 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. The overall level of disbursement is 50.9 per cent and the remaining funds are expected to be disbursed no later than December 2019.

Secretariat's recommendation

81. The Executive Committee may wish to consider:

(a) Noting the 2017 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; and

(b) Requesting the Treasurer to offset future transfers to UNIDO by US $49,273, representing interest accrued by the Government of China up to 31 December 2016 from funds previously transferred for the implementation of the RAC sector plan for China, as per decision 69/24.

HPMP (stage I): solvent sector (UNDP)

Progress report on the implementation

82. A total of nine enterprises completed their conversion on December 2015 with an aggregated HCFC phase-out of 610.3 mt (67.13 ODP tonnes) of HCFC-141b; and the demonstration project at Zhejiang Medical Devices Co. Ltd., was completed on December 2014, with a total phase-out of 27.82 mt (3.06 ODP tonnes) of HCFC-141b. The total amount of HCFC-141b phase-out amounts to 638.12 mt under stage I, as shown in Table 1.

Table 1. Alternative technology used in solvent conversion projects

Enterprise	Application	Alternative technology	HCFC-141b to be phased out (mt)	Project cost (US $)
Jiangxi Hongda Medical Device Group Limited Company	Medical devices	KC-6	137.51	975,042
Zhejiang Kindly Medical Devices Co. Ltd.	Medical devices	KC-6	131.47	938,790
Jiangxi Yikang Medical Device Group Ltd. Company	Medical devices	KC-6	33.38	267,000
Shandong Wego Group Medical Polymer Co. Ltd.	Medical devices	KC-6	50.98	206,800
Jiangxi Fuerkang Industry Group Co. Ltd.	Medical devices	KC-6	29.16	210,002
Wenzhou Beipu Technical Co., Ltd	Medical devices	KC-6	28.40	204,530
Tianma Micro-electronics Co. Ltd.	Electronics	Isopropanol/ alcohol	59.90	469,265
Longshan Precision Machinery Branch of Zhuhai Gree Electric Appliances, Inc.	Metal	HC/ trans-1-chloro-3,3,3-trifluoropropene	74.75	573,250
Zhuhai Lingda Compressor Co., Ltd.	Metal	HC/ trans-1-chloro-3,3,3-trifluoropropene	64.75	503,250
Demonstration Project– Zhejiang Kindly Medical Devices Co. Ltd	Medical devices	KC-6	27.82	Demonstration project
Total			**638.12**	**4,347,929**

83. Technical assistance and project management activities implemented include preparation by FECO of the terms of reference for the evaluation report of stage I of the solvent sector plan; organization of a workshop with nine project enterprises to share lessons learned and the experience in the implementation of stage I; and verification of financial and procurement records prior to payments to enterprises.

Level of fund disbursement

84. As of 21 August 2017, of the US $5,000,000 approved, US $4,950,000 had been disbursed from UNDP to FECO, and US $4,905,807 (98 per cent) had been disbursed by FECO to beneficiaries, and for technical assistance activities, as shown in Table 2.

Table 2. Status of disbursements for the solvent sector plan as of 21 August 2017

Component	Funds approved (US $)	Funds disbursed (US $)	
		From UNDP to FECO	From FECO to beneficiaries
Enterprise activities	5,000,000	4,347,929	4,347,929
Technical assistance		327,071	232,878
PMU		325,000	325,000
Total	**5,000,000**	**5,000,000**	**4,905,807**

Remaining activities in the solvent sector

85. The remaining funds (US $94,193) will be used for payment of technical assistance activities already undertaken and those to be concluded in the last quarter of 2017, and for the evaluation of project management and implementation of stage I as lessons learnt for stage II implementation, and preparation of a project completion report.

Secretariat's comments

HCFC consumption

86. Consumption of HCFCs in the solvent sector in 2016 was 3,788 mt (413.45 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 (Table 3).

Table 3. HCFCs consumption and targets for the solvent sector

Solvent sector		2012	2013	2014	2015	2016
Maximum allowable consumption**	Mt	n/a	4,492.7	4,492.7	4,138.2	4,138.2
Maximum allowable consumption**	ODP tonnes	n/a	494.2	494.2	455.2	455.2
Actual consumption*	Mt	4,755.0	4,258.7	4,433.2	3,815.4	3,788
Actual consumption*	ODP tonnes	523.05	466.25	484.83	418.51	413.45
Phase-out target	Mt	n/a	272.7	0.0	354.5	0.0
	ODP tonnes	n/a	29.0	0.0	39.0	0.0

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

87. 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.

Status of implementation

88. Responding to the Secretariat's request, UNDP confirmed that all remaining activities under stage I of the solvent sector plan will be completed by December 2017; project completion report and final progress report will be submitted to the 81st meeting; and the financial completion will take place by December 2018.

Interest

89. In line with decision 69/24(b)(ii), UNDP reported that FECO has earned a cumulative interest of US $1,101 for the solvent sector plan in 2016.

Conclusion

90. The conversion of nine enterprises and one demonstration project, has been completed; enterprises have been verified, and received national acceptance and final payments in accordance with paragraph 5(b)(i) of the Agreement. A total consumption of 638.12 mt of HCFC-141b has been phased-out (conversion completed), higher than the targeted phase-out of 627.3 mt for stage I of the HPMP. Technical assistance and support activities including training, awareness raising, technology promotion and dissemination of experience and lessons learned from the conversion have been and will continue to be implemented to sustain the conversions in the enterprises. The overall level of disbursement is 98 per cent of the funds approved, and the remaining funds are expected to be disbursed by December 2017 when all the activities will be completed.

Secretariat's recommendation

91. The Executive Committee may wish to consider:

(a) Noting the 2017 progress report on the implementation of the solvent sector plan of stage I of the HCFC phase-out management plan (HPMP) in China submitted by UNDP; and

(b) Requesting the Treasurer to offset future transfers to UNDP by US $1,101, representing additional interest accrued by the Government of China up to December 2016 from funds previously transferred for the implementation of the solvent sector plan for China, as per decision 69/24.

HPMP (stage I): Refrigeration servicing sector and the national enabling programme (UNEP and Japan)

Progress report on the implementation

92. The following activities have been implemented:

(a) An automated system for approval of ODS import/export application is being updated; 180 customs officers were trained on this new system and monitoring ODS imports and exports; a workshop was organized for 100 importers/exporters on the requirements of the licensing system; and five ODS identifiers were procured; a workshop on law enforcement with 50 participants from local environmental protection bureau was organized; and 120 ozone officers participated in two training and communication workshops in Shenzhen and Beijing;

(b) The code on "Technical Specification for Servicing and Maintenance of Refrigeration and Air-Conditioning Equipment" became effective on 1 June 2017. With this, all the planned standards/codes under stage I of the HPMP are finalized;

(c) Project completion reports for six training centres were accepted by FECO; four additional regional training centres were selected to train at least 1,000 technicians; the selection of two training centres on proper management of R-290 and CO_2/NH_3 has started; and Guangzhou Industrial and Trade Technician College was selected as the international training centre to share experience with trainers in the region; visits were organized to 12 training centres to inspect the implementation of the training programme; and 21 training centres were evaluated for effectiveness and quality of the training with reports expected to be completed by October 2017;

(d) Additional 180 technicians were trained on good servicing practices resulting in 2,072 trained technicians/trainers and 853 students who are studying to become refrigeration technicians; and an overseas training workshop on good practices and alternative technologies was attended by 18 trainers from the training centres. The scheme for certification of servicing enterprises was revised to add requirements on good practices;

(e) The Ozone2Climate Industry Roundtable and Roadshow and forum on good practices training were organized in Shanghai in April 2017; and an international workshop on the alternative technologies in the room air-conditioner (RAC) sector and its implications on servicing will be organized in Ningbo in November 2017. A workshop was organized to share experience from the Shenzhen pilot city project on its servicing sector management activities; and

(f) Awareness activities, including 2017 Ozone Day celebration and international workshops on the Kigali Amendment and alternative technologies were organized; and a leaflet on China's compliance with the Montreal Protocol was distributed.

Level of fund disbursement

93. As of August 2017, of the US $5,640,000 approved so far, US $4,857,000 has been disbursed by the Government of Japan and UNEP to FECO under the Project Cooperation Agreement (PCA), and US $3,819,929 has been disbursed by FECO, as shown in Table 1.

Table 1. Status of disbursements for the servicing sector and enabling activities component as of August 2017

Description		Tranche 1	Tranche 2	Tranche 3	Tranche 4	Tranche 5	Total
Funds approved (US $)*		1,659,000	678,000	1,184,000	1,253,000	866,000	5,640,000
Disbursement to FECO	Amount (US $)	1,659,000	678,000	1,140,000	940,000	440,000	4,857,000
	Disbursement ratio (%)	100	100	96	75	51	86
Disbursement by FECO	Amount (US $)	1,659,000	571,688	656,101	677,127	256,013	3,819,929
	Disbursement ratio (%)	100	84.32	55.41	54.04	29.56	67.7

*Total funds approved for UNEP and the Government of Japan that requested UNEP to manage the implementation of their portion of the approved amount, i.e. US$ 80,000 for each tranche; of the total approved amount, US $368,500 has been allocated for procurement of equipment, technical assistance, and outreach activities, and will be disbursed through a Small Scale Funding Agreement (SSFA) directly to FECO.

Remaining activities in the refrigeration servicing sector

94. During 2017 and 2018, FECO will continue to implement activities for the servicing sector and enabling activities as follows:

(a) *Training of technicians by training centres*: Six new training centres will train over 1,480 technicians; the international training centre will host 100 international participants; and one or two additional training centres will be contracted;

(b) *Assessment of the training programme*: The assessment of the training centres will continue and cover, *inter alia*, feedback of the trained technicians and students and of servicing workshops on the performance of the trained technicians, and effectiveness of the training centres;

(c) *Capacity-building of national and local authorities*: One training workshop for law enforcement officers and one for ozone officers will be organized;

(d) *Strengthening the import/export controls*: One training workshop and an overseas for customs officers will be organized; and a study on the application of the criminal penalty laws for illegal ODS trade will be conducted; and

(e) *Outreach:* Activities to support 2018 Ozone Day celebrations will be undertaken, awareness materials on the servicing sector will be disseminated, and short videos on the Montreal Protocol and ozone layer protection in China will be developed.

Secretariat's comments

HCFC consumption

95. The consumption of HCFCs in the servicing sector in 2016 was 48,125.09 mt (2,638.29 ODP tonnes) as reported in the country programme implementation report data (Table 2). While this figure is higher than the previous year's consumption, there is no maximum allowable consumption for the servicing sector in the Agreement between the Government of China and the Executive Committee; the overall total consumption for the country in 2016 was not exceeded.

Table 2. HCFC consumption in the servicing sector in China (2012-2016 country programme data)

HCFC	2012	2013	2014	2015	2016
Metric tonnes (mt)					
HCFC-22	81,887.00	54,467.71	56,704.98	42,557.47	47,398.35
HCFC-123	267.65	425.97	356.78	314.91	288.14
HCFC-124		119.89	96.23	-46.32	67.16
HCFC-142b	5,364.28	1,491.04	518.41	1,016.42	371.44
Total (mt)	**87,518.93**	**56,504.61**	**57,676.40**	**43,842.48**	**48,125.09**
ODP tonnes					
HCFC-22	4,503.79	2,995.72	3,118.77	2,340.66	2,606.91
HCFC-123	5.35	8.52	7.14	6.30	5.76
HCFC-124		2.64	2.12	-1.02	1.48
HCFC-142b	348.68	96.92	33.70	66.07	24.14
Total (ODP tonnes)	**4,857.82**	**3,103.8**	**3,161.72**	**2,412.01**	**2,638.29**

Date of completion of stage I

96. Noting the balance of funding remaining (i.e., US $2.4 million), and that at the 75th meeting UNEP had indicated that activities for the servicing sector will be completed by June 2017, the Secretariat asked UNEP if an extension of the date of completion of the sector plan and submission of the project completion report due to the first meeting in 2018 was required. UNEP indicated that the initial intention was to complete all activities for the servicing sector in 2017, however as activities in the servicing sector are linked very closely to those in the ICR and RAC sectors, there are a number of activities that will need to be completed in 2018 to support both these sectors. UNEP indicated that stage I of the servicing sector will be completed by December 2018, noting that the overall completion date for stage I of the HPMP is December 2019 (for ICR and RAC), and the project completion report will be submitted to the first meeting of the Executive Committee in 2019.

Interest

97. In line with decision 69/24(b)(ii), UNEP informed that FECO has earned a cumulative interest of US $886 for the servicing sector and enabling component in 2016.

Conclusion

98. The Secretariat noted the substantive progress in the implementation of the planned activities for the servicing and enabling component of stage I. A total of 2,072 technicians and 853 students were already trained in stage I; four more training centres were selected to continue technicians training; 180 customs officers were trained; policy and law enforcement workshops were organized for local authorities; and awareness activities continued. All standards and codes planned for stage I were fully developed and are being implemented. Disbursement from UNEP to FECO has reached 86 per cent (US $4,857,000) of the total approval, with FECO disbursing 67.7 per cent (US $3,819,929) of this amount to stakeholders and partners.

Secretariat's recommendation

99. The Executive Committee may wish to consider:

(a) Noting the 2017 progress report on the implementation of stage I of the refrigeration servicing sector plan and the national enabling programme of stage I of the HCFC phase-out management plan (HPMP) in China submitted by UNEP; and

(b) Requesting the Treasurer to offset future transfers to UNEP by US $886, representing additional interest accrued by the Government of China up to December 2016 from funds previously transferred for the implementation of the servicing sector plan and enabling activities for China, as per decision 69/24.

HCFC PHASE-OUT MANAGEMENT PLAN (STAGE II, SECOND TRANCHE) (UNDP, UNIDO, Germany and Italy)

Overarching strategy of stage II of the HPMP for China

Background

100. 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 polyurethane (PU) foam sector and the extruded polystyrene (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.

101. The HCFC consumption limits and targeted phase-out amounts for the period of 2016 to 2026[6] 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
Servicing and enabling component	n/a	n/a	n/a	n/a	n/a	n/a	n/a

[6] 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.

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.

Submission to the 80th meeting

102. On behalf of the Government of China, UNDP, UNIDO and the Governments of Germany and Italy submitted requests for second tranches of the XPS foam, RAC, ICR and solvent sector plans associated with stage II of the HPMP for China as shown in Table 2, together with an independent verification of HCFC production and consumption in 2016 (World Bank), annual implementation reports covering the activities undertaken so far, and annual implementation plans for the activities to be implemented in 2017-2018.

103. The request for the second tranche of the PU foam sector plan (US $10,600,000) and for the refrigeration servicing sector plan (US $2,650,000) were not submitted to the 80th meeting.

Table 2. Tranche requests of sector plans submitted to the 80th meeting (excluding support costs)

Sector plan (lead and co-operating agency)	**Overall funding approved in principle (US $)**	**First tranche approved (US $)**	**First tranche approved as share of overall approved in principle (%)**	**Funding requested at 80th meeting (US $)**	**Share of funding approved and requested of total approved in principle (%)**
XPS (UNIDO, Germany)	112,786,630	7,514,867	6.7	9,000,000	14.6
PU (World Bank)	141,471,210	7,045,027	5.0	0*	5.0
ICR (UNDP)	89,144,797	13,368,756	15.0	20,000,000	37.4
RAC (UNIDO, Italy)	89,144,797	15,562,981	17.5	16,000,000	35.4
Solvent (UNDP)	47,262,566	2,821,937	6.0	3,777,190	14.0
Servicing and enabling programme (UNEP, Germany, Japan)	20,290,000	3,679,132	18.1	0*	18.1
Total	**500,100,000**	**49,992,700**	**10.0**	**48,777,190**	**19.8**

*Tranche request not submitted to the 80th meeting

104. After reviewing the project proposals, the Secretariat concluded that all of the sector plans received had merits to warrant their submission for consideration at the 80th meeting although some of the plans present issues for discussion, which will be further developed in this note and in the respective sector plans of this document.

HCFC consumption and verification of HCFCs in China

105. Please refer to paragraphs 6 to 10 of this document.

Overview of progress

106. 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) 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 the first two (1,146 mt of HCFC-22 and HCFC-142b) are being verified for eligibility; inception meeting was organized and project implementation manual for stage II was developed;

(c) The contract between FECO and UNDP for the implementation of the ICR sector plan was signed in early 2017. Sixteen ICR enterprises submitted applications and 14 manufacturing lines were selected for conversion; contracts have been prepared and signed with nine enterprises to phase out 1,096.72 mt of HCFC-22;

(d) The contract between FECO and UNIDO for the implementation of the RAC sector plan was signed in October 2017. Sixteen proposals from potential beneficiaries for conversion were received, reviews of six proposals have been completed while the remaining ten proposals are still under review. The lines are still to undergo verification of their baseline information; and

(e) The contract between FECO and UNDP for the implementation of the solvent sector plan was signed in early 2017. Twenty-four enterprises were selected and verified for eligibility, of which 18 signed contracts with FECO to phase out 525.07 mt (57.76 ODP tonnes) of HCFC-141b. The conversion of all 24 enterprises to low-GWP alternatives will result in the phase out of 1,176.19 mt (129.38 ODP tonnes) of HCFC-141b.

Disbursement of funds

107. As of October 2017, of the US $49,992,700 approved under the first tranche, US $14,670,135 have been disbursed from implementing agencies to FECO, and US $5,279,255 have been disbursed from FECO to beneficiaries, as summarized in Table 3.

Table 3. Level of disbursement per sector (as of October 2017)

Sectors	Funds approved (tranche 1)	Disbursements from IA to FECO	Disbursements from FECO to beneficiaries
XPS foam sector plan (UNIDO/Germany)	7,514,867	2,254,460	0
PU foam sector plan (World Bank)	7,045,027	0*	0*
ICR sector plan (UNDP)	13,368,756	6,649,378	3,982,341
RAC sector plan (UNIDO, Italy)	15,562,981	4,371,327	0
Solvent (UNDP) **	2,821,937	1,394,970	1,296,914
Servicing and enabling component (UNEP, Germany, Japan)	3,679,132	0*	0*
Total	**49,992,700**	**14,670,135**	**5,279,255**

*Tranche request not submitted to the 80th meeting.
** Funds disbursed are as of August 2017.

108. As at the time of submission of the tranche requests (twelve weeks before the 80th meeting), the rate of disbursement of funding from FECO to beneficiaries was above 20 per cent in the solvent sector; two per cent in ICR sector; and zero in the XPS foam and RAC sectors.

109. Given the progress reported in the XPS foam, ICR and RAC sectors, the Secretariat considered it appropriate to apply flexibility in these sectors and allowed updated information on disbursements to be submitted by 2 October 2017 (six weeks prior to the 80th meeting). Accordingly, UNDP reported for the ICR sector a level of fund disbursement from FECO to beneficiaries of US $3,982,341 (29.7 per cent of the approved tranche). For the XPS foam and the RAC sector, UNIDO informed that no disbursement from FECO to beneficiaries had been made yet as the verification of enterprises had still to be completed before any disbursement could take place. On this basis, the Secretariat suggested UNIDO to consider withdrawal of the second tranche request for the XPS foam and RAC sector plans.

110. While recognizing that the 20 per cent disbursement from FECO to the beneficiary enterprises in the XPS foam and RAC sectors had not been met, the Secretariat has assessed the additional information provided by UNIDO (as the implementing agency of both sector plans) and prepared recommendations accordingly in light of decisions and policies of the Multilateral Fund.

Interest accrued

111. No information on the interest accrued from the funding so far approved for the sector plans related to stage II was provided. The Secretariat notes that the first funding tranche of stage II for all sector plans was approved at the 77th meeting in December 2016, and that funds were transferred to FECO only in 2017.

Agency support costs

112. The Secretariat noted that UNIDO and UNDP requested seven per cent in administrative support costs for their tranche requests submitted to the 80th meeting, which was inconsistent with decision 79/35.

113. In response, UNIDO reiterated its disagreement with the adjustment to the support cost and indicated that decision 79/35 contravenes basic principles of equal treatment and non-discrimination, and full cost recovery, and that any modification of extra-budgetary contributions from standard cost recovery rates could not be arbitrary and would have to be substantiated in an audit-proof manner. UNIDO could not conform to anything else but the applicable regulatory framework, which requires UNIDO to operate on the basis of the established and consistently applied standard rate of seven per cent. Should the Executive Committee wish to propose a deviation from this rate, UNIDO would appreciate if a substantiated request could be shared for the consideration of UNIDO's Director General. UNIDO also expressed its expectation that the Executive Committee and its partners can rely also in this regard on joined efforts to maintain standards and principles expected by their common constituencies.

114. UNDP expressed concern that the reduction of fees to 6.5 per cent will reduce its overall capacity to effectively implement Multilateral Fund programmes. Noting that decision 79/35(b) contains a provision for the Executive Committee to reconsider the agency support costs at the 81st meeting, UNDP suggested that if the agency fees for this tranche is 6.5 per cent based on decision 79/35(b), that language be added in the document/recommendation to indicate "subject to Executive Committee review at the 81st meeting."

115. The Secretariat notes that it is the Executive Committee' prerogative to decide on adjustments to the agency support costs associated with the second tranches of all sector plans of stage II of the HPMP for China. In light of decision 79/35, the Secretariat adjusted the agency support costs to 6.5 per cent of four sector plans submitted to the 80th meeting.

Funding tranches request

116. Detailed stand-alone progress reports on the implementation of the XPS, ICR, RAC and solvent sector plans and requests for funding for the second tranches are attached to the Note by the Secretariat. Each report provides a progress report on the implementation of the first tranche; the level of fund disbursement; implementation plans for the second tranches; comments by the Fund Secretariat; and the recommendation.

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: 2015	13,485.2 (ODP tonnes)

(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)								Year: 2016	
Chemical	Aerosol	Foam	Fire fighting	Refrigeration		Solvent	Process agent	Lab use	Total sector consumption
				Manufacturing	Servicing				
HCFC-22	126.4	1,457.5		5,087.5	2,606.9				9,278.3
HCFC-123				13.1	5.8				18.9
HCFC-124					1.5				1.5
HCFC-141b	63.0	3,830.3				412.5			4,305.9
HCFC-142b		585.0		6.5	24.1				615.6
HCFC-225ca						0.9			0.9

(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		2017	2018	2019	2020	Total
UNIDO	ODS phase-out (ODP tonnes)	221.35	312.40	304.50	312.40	1,150.65
	Funding (US $)	9,804,275	12,757,933	14,795,881	14,974,215	52,332,304
Germany	ODS phase-out (ODP tonnes)	0.00	0.00	0.00	0.00	0.00
	Funding (US $)	300,000	0	400,000	0	700,000

(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)			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	567,620	520,000	600,827	624,000	961,270	741,000	734,500	620,750	624,000	778,165	7,298,172
	Germany	Project costs	-	267,386		356,514		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											7,514,867
		Support costs	526,041											526,041
Total funds requested for approval at this meeting (US $)		Project costs		9,000,000										9,000,000
		Support costs		599,497										599,497

Secretariat's recommendation:	For individual consideration

PROJECT DESCRIPTION

117. On behalf of the Government of China, UNIDO as the lead implementing agency, has submitted a request for funding for the second tranche of the extruded polystyrene (XPS) foam sector plan of stage II of the HCFC phase-out management plan (HPMP), at a total cost of US $9,599,497, consisting of US $8,732,614, plus agency support costs of US $567,620 for UNIDO, and US $267,386, plus agency support costs of US $31,877 for the Government of Germany.[7] The submission includes a progress report on the implementation of the first tranche of the XPS foam sector plan together with the tranche implementation plan for 2017 to 2018.

Progress report on the implementation of the first tranche

Enterprise-level activities

118. The contract between FECO and UNIDO for the implementation of the XPS foam sector plan (stage II) was signed in September 2017. A first group of 11 XPS foam enterprises applied for participation in stage II and convert to CO_2 technology. The enterprises are finalizing their project implementation plans and will undergo verification of their baseline information (i.e., non-article 5 ownership, baseline equipment, HCFC consumption and financial data). Once those steps have been completed, conversion of the enterprises will commence. The list of 11 enterprises (two of which (1,146 mt of HCFC-22 and HCFC-142b) will be assisted with funds from the first tranche and the rest (3,376 mt of HCFC-22 and HCFC-142b) with funds from following tranches) is presented in Table 1.

Table 1. List of XPS foam enterprises selected in the first tranche

Name of the enterprise	HCFC consumption 2016 (mt)	Year of establishment	Number of lines to be converted	Tranche
Beijing Hangyu insulation and building material Co.	655	2006	2	1
Dongguan Zhaoying building material Co., Ltd	491	2007	2	1
Jiangyin Qiazi Plastic Co., Ltd	480	2004	2	2
Shenyang Qiazi Plastic Co., Ltd	483	2005	2	2
Hohhot Jinli insulation and building material Co., Ltd	309	2007	1	2
Xinjiang Telun Shuangqiang building material Co.	478	2007	2	2
Qingdao Meilihua Plastic Co., Ltd	462	2006	2	2
Jinan Beisite new building material Co., Ltd	490	2005	2	2
Shenzhen Jialiang insulation material Co., Ltd	232	2007	1	2
Chongqing Jiakang insulation material Co., Ltd	206	2005	1	2
Xinzheng Zhongyuan foam factory	236	2003	2	2
Total	**4,522**	**n/a**	**19**	

119. Enterprises conversions are expected to last around two years (i.e., three months for equipment procurement; four to six months to deliver it; three to four months to commissioning, trial production, baseline equipment destruction and stop HCFC use; three months to complete project acceptance; and six months after completion of trial production and project acceptance to release the IOCs).

Technical assistance activities

120. Technical assistance activities implemented in 2017 include the inception meeting in March 2017 with the participation of XPS foam enterprises and other stakeholders covering policies and regulations, lessons learned from stage I and alternative technologies; an update of the ozone action and plastic industry websites; and development of the project implementation manual for stage II. The Beijing Technology and Business University (BTBU) will continue serving as the implementation support agency (ISA) under

[7] As per the letter of 18 August 2017 from the Ministry of Environmental Protection of China to UNIDO.

stage II and assist FECO in day-to-day operations, provide technical support for project implementation, on-site verifications and perform other tasks as assigned by FECO.

121. The project implementation manual developed follows the same implementation modality established for stage I, including further clarification on the roles and responsibilities of agencies, and the verification requirements on safety measures; updates on the procurement rules; and a change on the disbursement method from FECO to beneficiaries from five to four instalments.

Level of fund disbursement

122. The implementation subcontracts between FECO and the enterprises are performance-based, with disbursements to be released upon completion of the following milestones: 30 per cent of incremental capital costs (ICCs) will be paid upon signature of the contract with FECO, 10 per cent upon signature of the contract with suppliers, 40 per cent upon delivery of the equipment and completion of trials, and 20 per cent after project acceptance; incremental operational costs (IOCs) will be paid upon submission of the project completion and operation reports with verified financial evidence on purchase of the selected alternative technologies for an amount equal to or higher than the level of IOCs established in the proposal.

123. As of October 2017, of the US $7,514,867 approved, US $2,254,460 (30 per cent) had been disbursed from UNIDO to FECO. No disbursements from FECO to beneficiaries have taken place yet. Table 2 presents the status of total disbursement. The funds from the first tranche will be disbursed by FECO to beneficiaries between 2017 and 2018.

Table 2. Status of disbursements for the XPS foam sector plan (as of October 2017)

Component	Funds approved (US $)	Funds disbursed (US $)	
		From IAs to FECO	From FECO to beneficiaries
Enterprise activities	5,930,558	1,779,167	0
Technical assistance	1,192,755	357,827	0
PMU	391,554	117,466	0
Total	**7,514,867**	**2,254,460**	**0**

Implementation plan for the second tranche

124. FECO will continue enforcing the quota permits to XPS foam enterprises consuming more than 100 mt of HCFCs per year; continue with the conversion of the 11 enterprises identified; and select between two and ten additional enterprises for conversion, resulting in an additional reduction of at least 1,364 mt of HCFCs. The following technical assistance will be implemented: two technical workshops covering *inter alia* HCFC phase-out strategy and policies, and alternative technologies; enterprise baselines verifications; three study tours on alternative technologies for the project management team and technical experts; and public awareness activities to facilitate HCFC phase-out in the XPS foam sector (meetings on landmark occasions and information dissemination).

125. 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 XPS foam sector plan in China

Activity	Budget (US $)
Conversion of XPS foam enterprises to CO_2 technology	8,194,040
Technical assistance activities	337,024
Project monitoring	468,936
Total fifth tranche	**9,000,000**

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

Level of disbursement

126. The Secretariat noted with appreciation the efforts by the Government of China and the implementing agencies to continue implementing the XPS foam sector plan, i.e., the completion of five additional conversions under stage I, and the development of the project implementation manual, the identification of 11 potential enterprises, the selection of the body to verify them, and the initiation of verifications for contract signature under stage II.

127. Notwithstanding the progress achieved so far in stage II, the Secretariat noted that FECO was not able to disburse funding to final beneficiaries 12 weeks in advance of the 80th meeting as stipulated in the Agreement between the Government and the Executive Committee. The Secretariat considered it appropriate to apply flexibility taking into account the additional time that was required for signing the agreement for stage II of the HPMP between the Government of China and UNIDO, as well as the number of activities already undertaken and the status of implementation of stage I, and allowed updated information on disbursements to be submitted by 2 October 2017 (six weeks prior to the 80th meeting) on an exceptional basis. However, as of 2 October 2017 no disbursement from FECO to beneficiaries had been made yet. Accordingly, the Secretariat suggested UNIDO to consider withdrawal of the second tranche request for the XPS foam sector plan.

128. While recognizing that 20 per cent disbursement had not been met, UNIDO provided additional information to demonstrate progress and justify consideration of the tranche request taking into consideration other aspects with respect to the implementation of the project. In particular, UNIDO informed that the verification of the first two enterprises and the assessment of their project implementation plans will be completed during the week of 23 October 2017, with the expectation that their subcontracts will be signed by early November, allowing the first disbursement of US $1.78 million to those enterprises; an additional US $200,000 in technical assistance and US $100,000 in PMU are expected to be disbursed by mid-November, bringing the total level of disbursement expected to take place in 2017 to US $2.1 million, which is greater than the 20 per cent threshold.

129. UNIDO also emphasized that approving the second tranche at this meeting could help accelerate implementation, as it will allow the signature of more contracts with the remaining nine identified enterprises and additional new enterprises. The Secretariat notes that HCFC consumption in the XPS foam sector increased in 2016, and considers that signature of the largest possible number of contracts as early as possible would help send a signal to the industry and accelerate conversion activities.

130. With regard to the implications of not approving the second tranche at the 80th meeting, UNIDO indicated that signature of contracts with additional enterprises would have to be delayed for at least seven months, and would make impossible to reach the 20 per cent disbursement of the second tranche at the 82nd meeting when the third tranche is due. This would further delay project implementation and HCFC phase-out, and will extend current HCFC emissions in enterprises not assisted for an additional seven months. Therefore, UNIDO was concerned that a deferral of the second tranche for the XPS foam and RAC sectors might also necessitate changes to the Agreement.

131. Should the Executive Committee decide to defer the second tranche of the XPS foam and RAC sectors, and noting that the requests for the second tranche for the polyurethane foam and servicing sectors had not been submitted to the 80th meeting, the Secretariat considers that the Executive Committee may wish to consider revising the Agreement, noting that the level of funding would not change.

Conclusion

132. The Secretariat notes that China has been in compliance with the Montreal Protocol and the Agreement during the entire time of implementation of stage I and stage II. There is significant progress in the implementation of the first tranche of stage II despite the inherent difficulties associated to first tranches (e.g., time of preparation and signature of legal agreements, setting up of implementation bodies and their roles), as well as in the implementation of stage I, where 78 per cent of the approved funds have been disbursed and all activities will be completed by June 2018. Nevertheless, given that funding disbursed to FECO has not yet been disbursed to beneficiary enterprises as the required comprehensive verification has not been completed, the Secretariat is unable to recommend approval of the second tranche. However, based on the verification of XPS foam enterprises that is being undertaken, it is expected that the 20 per cent disbursement threshold would be reached in 2017. The Secretariat notes the increased 2016 HCFC consumption in the sector and considers it likely that approval of the second tranche could help accelerate implementation of phase-out activities.

RECOMMENDATION

133. The Executive Committee may wish:

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

(b) To consider whether or not to approve the second tranche of the XPS foam sector plan of stage II of the HPMP for China, and the corresponding 2017-2018 tranche implementation plan, at the amount of US $9,599,497, consisting of US $8,732,614, plus agency support costs of US $567,620 for UNIDO, and US $267,386, plus agency support costs of US $31,877 for the Government of Germany.

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: 2015	13,485.2 (ODP tonnes)

(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)								Year: 2016	
Chemical	Aerosol	Foam	Fire fighting	Refrigeration		Solvent	Process agent	Lab use	Total sector consumption
				Manufacturing	Servicing				
HCFC-22	126.4	1,457.5		5,087.5	2,606.9				9,278.3
HCFC-123				13.1	5.8				18.9
HCFC-124					1.5				1.5
HCFC-141b	63.0	3,830.3				412.5			4,305.9
HCFC-142b		585.0		6.5	24.1				615.6
HCFC-225ca						0.9			0.9

(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		2017	2018	2019	2020	Total
UNDP	ODS phase-out (ODP tonnes)	34.54	34.54	246.65	96.20	411.93
	Funding (US $)	24,403,855	13,184,017	14,907,321	11,465,170	63,960,363

(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	1,300,000	780,000	1,040,000	1,040,000	765,443	-	-	-	-	-	5,861,256
Funds approved by ExCom (US $)		Project costs	13,368,756											13,368,756
		Support costs	935,813											935,813
Total funds requested for approval at this meeting (US $)		Project costs		20,000,000										20,000,000
		Support costs		1,300,000										1,300,000

* 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.

Secretariat's recommendation:	For individual consideration

PROJECT DESCRIPTION

134. On behalf of the Government of China, UNDP, as the designated implementing agency, has submitted a request for funding for 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), at the amount of US $20,000,000, plus agency support costs of US $1,300,000[8]. The submission includes the progress report on the implementation of the first tranche and the tranche implementation plan for 2017-2018.

Progress report on the implementation of the first tranche

Enterprise-level activities

135. A project management office (PMO) was established to coordinate and monitor the progress of implementation. After the inception meeting for stage II of the ICR sector plan, a project document was signed by FECO and UNDP in early 2017, and a detailed project implementation plan with specific performance targets was finalized. A consultant firm was selected to verify the eligibility of enterprises. Working together with the China Refrigeration and Air-conditioning Industrial Association (CRAA), the PMO mobilized enterprises to develop their conversion plans and submit applications for phase-out. A total of 16 enterprises submitted applications and 14 manufacturing lines were selected for conversion at a total value of US $22,350,790 to phase out 1,645.57 mt of HCFC-22, as shown in Table 1. Contracts have been prepared and signed with nine enterprises at a total value of US $15,665,288 to phase out 1,096.72 mt of HCFC-22.

Table 1. Manufacturing lines identified for conversion in stage I of the HPMP

No.	Name of enterprise	Phase-out of HCFC-22 (mt)	No. of lines	Type of products	Alternative technology	Funding (US $)	Tranche	Contract signed
1	Nanjing TICA	91.58	1	Freezers and condensing units	NH3/CO_2	968,400	1	Yes
2	Nanjing TICA	32.52	1	Heat pump water heater	CO_2	547,038	1	Yes
3	Dunham-Bush	20.42	1	Heat pump water heater	HFC-32	282,636	1	Yes
4	Guangdong Jirong	21.13	1	Unitary AC	HFC-32	292,769	1	Yes
5	TCL (Zhongshan)	115.31	1	Unitary AC	HFC-32	1,020,456	1	Yes
6	Yantai Moon	590.23	1	Water chiller (heat pump)	HC-290	9,319,613	1	Yes
Total for first tranche		**871.19**	**6**			**12,430,912**		
7	Yantai Aowei	108.07	1	Freezers and condensing units	NH3/CO_2	1,561,153	2	Yes
8	Yantai Aowei	75.28	1	Freezers and condensing units	NH3/CO_2	1,168,935	2	Yes
9	Zhejiang Guoxiang	42.18	1	Heat pump water heater	HFC-32	504,288	2	Yes
10	Haixin (Shandong)	92.50	1	Unitary AC	HFC-32	867,650	2	No
11	Haixin (Shandong)	131.90	1	Unitary AC	HFC-32	1,131,630	2	No
12	Dunan Environment	140.34	1	Water chiller (heat pump)	R-513A	1,947,066	2	No

[8] As per the letter of 18August 2017 from the Foreign Economic Cooperation Office of the Ministry of Environmental Protection of China to UNDP.

No.	Name of enterprise	Phase-out of HCFC-22 (mt)	No. of lines	Type of products	Alternative technology	Funding (US $)	Tranche	Contract signed
13	Dunham-Bush	105.00	1	Water chiller(heat pump)	R-513A	1,524,400	2	No
14	Zhejiang Guoxiang	79.11	1	Water chiller (heat pump)	R-513A	1,214,756	2	No
Total for second tranche		**774.38**	**8**			**9,919,878**		
Grand total		**1,645.57**	**14**			**22,350,790**		

Technical assistance activities

136. The following technical assistance and awareness-raising activities were implemented:

(a) Inception meeting for stage II of the ICR sector plan to disseminate the sector phase-out strategy and promote low-GWP technologies;

(b) Organized an international exhibition for refrigeration technologies and equipment in the ICR sector;

(c) Conducted a roundtable forum on policies and technologies for zero-ODP, low-GWP and low-carbon alternative technologies; and

(d) Carried out a technical workshop on CO_2 refrigeration heat pumps.

Level of fund disbursement

137. The implementation subcontracts between FECO and the enterprises are performance-based, with disbursements to be released upon completion of the following milestones: 30 per cent of incremental capital costs (ICCs) will be paid upon signature of the contract with FECO; 20 per cent upon completion of design and procurement contracts; 30 per cent upon completion of prototype manufacture, conversion line and performance test; 20 per cent upon completion of trial production, training, equipment disposal and project acceptance. The incremental operational costs (IOCs) will be paid according to the verified production and sales on the converted line using the alternative technology.

138. As of August 2017, of the US $13,368,756 approved so far US $6,649,378 has been disbursed from UNDP to FECO, and US $267,434 had been disbursed to final beneficiaries for technical assistance activities, accounting for two per cent of the total funding for the first tranche. The Secretariat applied flexibility to allow additional information to be submitted six weeks prior to the Executive Committee meeting. As of 3 October 2017, UNDP informed that an additional of US $3,714,907 was disbursed to the nine enterprises that have signed contracts for conversion. Thus, the total disbursement amounted to US $3,982,341, accounting for 29.8 per cent of the funding for the first tranche.

Implementation plan for the second tranche

139. During the second tranche, it is planned to phase out 1,400 mt of HCFC-22 at a total cost of US $16,500,000 through enterprise conversion. This includes the eight manufacturing lines that have already been identified for conversion and additional manufacturing lines to be identified for conversion to alternative technologies. The conversion process will be closely monitored and milestones of conversion will be verified by an independent consultant firm.

140. The following technical assistance activities will be implemented:

(a) Five studies on alternative technologies to overcome the barriers created by flammability, high pressure and toxicity, including: study on performance comparison of alternatives in the commercial refrigeration sector (including drop-in blends, CO_2 system); certification of ICR products using alternative technologies; feasibility study on the use of pure HFO in chillers; maintenance of equipment using HFO blends (R513/R515) in chillers; study on HFCs alternatives in ICR sector; study on the use of R-290 in cold water heat pump, and the use of CO_2 system in freezer and cold storage sub-sector (US $480,000);

(b) Revision of 13 standards, including: five safety standards (safety requirements for unitary ACs, air handling units, fan and air-conditionings, lithium bromide absorption chillers and fan coil air-conditioners); and seven product standards (water chillers using the vapor compression, water chilling packages using the vapor compression cycle part 1, low ambient temperature air source heat pump packages-parts 1 and 2, water-source high temperature heat pumps using vapor compression cycle, heat pump water heater for commercial and industrial and similar application, and low-ambient temperature air source multi-connected heat pump), and one on testing of refrigerating systems (US $520,000);

(c) Technical services for reviewing proposals for conversion projects; and verification of eligibility of enterprises and progress milestones as well as financial audit of enterprises' disbursement for meeting payment conditions (US $200,000);

(d) Conduct three to five technology demonstration projects to show case the use of alternative technologies (hydrocarbon, NH_3, CO_2, HFOs, HFC-32), to collect data and analyse the performance of equipment; to gain experience in installation, operation and maintenance of equipment using these technologies; and to raise publicity and awareness (US $1,000,000);

(e) Participating in international seminars, conduct workshops, and exchanges for ICR equipment manufacturers to gain, exchange and disseminate technical information on technology development in ICR sector (US $50,000); and

(f) Public awareness, and training workshops, policy advice, dissemination of lessons learnt for enterprises, end-users and general public (US $50,000).

141. Project management and coordination (US $1,200,000) will be conducted to closely monitor the progress of implementation.

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

Alternative technologies used in conversion projects

142. For the conversion of the 14 manufacturing lines that have been identified, a number of alternative technologies have been selected in different applications, as shown in Table 2.

Table 2. Alternative technologies for stage II conversion (mt)

Technology	HFC-32	NH_3/CO_2	CO_2	HC-290	R-513A	Total
Freezers and condensing units		274.93				274.93
Water chiller (heat pump)				590.23	324.45	914.68
Heat pump water heater	62.60		32.52			95.12

Technology	HFC-32	NH_3/CO_2	CO_2	HC-290	R-513A	Total
Unitary AC	360.84					360.84
Total	423.44	274.93	32.52	590.23	324.45	1,646.00
Percentage (%)	25.7	16.7	2.0	35.9	19.72	100.0

143. The Secretariat noted that a new technology, R-513A[9], has been selected as an alternative technology for the conversion of three lines in the water-chiller heat-pump application with a total consumption of 324.45 mt. This technology was not listed among the six low-GWP technologies that were proposed for conversion. UNDP explained the reasons for selecting this alternative instead of pure HFO-1234yf as an alternative: while HFO-1234yf has low flammability, it is not allowed, under the current safety standards and regulations, to be used in large commercial equipment, and it is also not commercially available in China; according to the expert of CRAA, the energy efficiency and performance of R-513A is slightly better than that of pure HFO-1234yf in chiller applications and the cost is also more acceptable for the market; and, the technology has been tested and used in a non-Article 5 country which will also supply the technology. China believes this is the most suitable technology at this time for the chiller application and would like to follow the technology route that has been tested to ensure smooth conversion.

144. The Secretariat further explained that conversion to R-513A, which contains 44 per cent of HFC-134a, would constitute a second-stage conversion for future phase-out of HFC-134a under Kigali Amendment. UNDP responded that the Government will follow the guidelines of the Multilateral Fund in that case.

145. UNDP did not consider the use of R-513A to be a change in technology as both pure HFOs and blends thereof were included in the stage II proposal. The Secretariat considers R-513A to be an HFO-HFC blend and therefore its selection would be a change in technology. As such, the selection of R-513A requires approval by the Executive Committee according to paragraph 7 of the Agreement. Moreover, funding for conversions in the ICR sector in stage II was only approved for low-GWP alternatives. The Secretariat is unsure whether a refrigerant with a GWP of 631 would be considered as a low-GWP alternative. The Secretariat further noted that the flexibility clause in paragraph 2 of Appendix 8-A of the stage II Agreement with regard to technology selection does not apply here as the consumption is not in the unitary AC or heat pump water heater (HPWH) application, and R-513A is not among one of the six technologies approved. Given the change in technology and that the selected technology's GWP deviates from the approved technologies in the Agreement, the Secretariat seeks the Executive Committee's guidance on this issue.

Conversion of small and medium sized enterprises (SMEs)

146. In approving stage II of the ICR sector plan, the Executive Committee added the condition that at least 20 per cent of the total phase-out of HCFC-22 in the ICR sector would be from enterprises that consume 50 mt or less. The Secretariat noted that, of the total 1,645.57 mt consumption identified for conversion, 116.25 mt is from SMEs, accounting for 7.1 per cent. While this condition applies to the entire stage II, the Secretariat inquired on how it will be fulfilled. UNDP explained that there are various obstacles to attracting SMEs to participate in conversion at this stage due to the lack of alternative technology and low funding level. HCFC-22 is still the main refrigerant for low-grade products manufactured by SMEs, and would cause undue business difficulties if consumption of HCFC-22 is required to be reduced. FECO will continue to increase the publicity of HCFC-22 phase-out and take measures to encourage SMEs to participate in production-line conversion in future tranches.

Disbursement of the first tranche

147. The Secretariat noted with appreciation the efforts by the Government of China and the implementing agencies to continue implementing the ICR sector plan, i.e., the completion of conversion of 24 additional manufacturing lines under stage I, the development of the project implementation manual, the

[9] 56 per cent of HFO-1234yf and 44 per cent of HFC-134a, with a GWP value of 631.

identification of 14 lines for conversion under stage II and verified their eligibility, and the signing of conversion contracts for nine manufacturing lines under the first tranche of stage II.

148. Notwithstanding the progress achieved so far in stage II, the Secretariat noted that FECO was not able to disburse funding to final beneficiaries 12 weeks in advance of the 80th meeting as stipulated in the Agreement between the Government and the Executive Committee. The Secretariat considered it appropriate to apply flexibility taking into account the additional time that was required for signing the agreements for stage II of the HPMP between the Government of China and UNDP, as well as the number of activities that are still being finalized under stage I, and allowed updated information on disbursements to be submitted by 2 October 2017 (six weeks prior to the 80th meeting) on an exceptional basis. As of 2 October 2017, the additional disbursement from FECO to beneficiaries had been made. The overall disbursement of 29.8 per cent of the first tranche had met the pre-condition for the approval of the second tranche.

Conclusion

149. The Secretariat notes that implementation of the first tranche of the ICR sector plan has progressed well. Several workshops were organized to promote the stage II strategy and low-GWP technologies, resulting in the identification of 14 manufacturing lines for conversion; nine contracts have been signed to phase out 1,645.57 mt of HCFC-22. Of this amount, 74 per cent of the consumption will be converted to other low/zero GWP technologies than HFC-32. The Government has continued to implement the licensing and quota system to control consumption in the sector; and consumption quotas have been issued to 17 large enterprises in the sector. In view of the progress made and the overall disbursement rate of 29.8 per cent, the Secretariat recommends approval of the second tranche.

RECOMMENDATION

150. The Executive Committee may wish to consider:

(a) Noting the progress report on the implementation of the first 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 second tranche of the ICR sector plan of stage II of the HPMP for China, and the corresponding 2017-2018 tranche implementation plan, at the amount of US $20,000,000, plus agency support costs of US $1,300,000 for UNDP; and

(c) Whether or not to approve the conversions of three manufacturing lines at Dunan Environment, Dunham Bush and Zhejiang Guoxiang to R-513A alternative technology.

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS

China

(I) PROJECT TITLE	AGENCY	MEETING APPROVED	CONTROL MEASURE
HCFC phase-out plan (stage II) room air-conditioning manufacturing and heat pump water heaters	Government of Italy and UNIDO (lead)	77th	45% by 2020

(II) LATEST ARTICLE 7 DATA (Annex C Group l)	Year: 2015	13,485.2 (ODP tonnes)

(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)								Year: 2016	
Chemical	Aerosol	Foam	Fire fighting	Refrigeration		Solvent	Process agent	Lab use	Total sector consumption
				Manufacturing	Servicing				
HCFC-22	126.4	1,457.5		5,087.5	2,606.9				9,278.3
HCFC-123				13.1	5.8				18.9
HCFC-124					1.5				1.5
HCFC-141b	63.0	3,830.3				412.5			4,305.9
HCFC-142b		585.0		6.5	24.1				615.6
HCFC-225ca						0.9			0.9

(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		2017	2018	2019	2020	Total
UNIDO	ODS phase-out (ODP tonnes)	111.50	111.50	375.60	203.40	802
	Funding (US $)	14,961,895	12,583,394	15,602,947	19,534,307	62,682,543
Italy	ODS phase-out (ODP tonnes)	0	0	0	0	0
	Funding (US $)	0	0	0	0	0

(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)			3,697.7	3,697.7	2,876.0	2,876.0	2,259.7	2,259.7	*	*	*	*	*	n/a
Agreed funding (US $)	UNIDO	Project costs	14,671,089	16,000,000	18,000,000	14,000,000	14,000,000	11,581,816	-	-	-	-	-	88,252,905
		Support costs	1,026,976	1,040,000	1,170,000	910,000	910,000	752,818	-	-	-	-	-	5,809,794
	Italy	Project costs	891,892	-	-	-	-	-	-	-	-	-	-	891,892
		Support costs	108,108	-	-	-	-	-	-	-	-	-	-	108,108
Funds approved by ExCom (US $)		Project costs	15,562,981											15,562,981
		Support costs	1,135,084											1,135,084
Total funds requested for approval at this meeting (US $)		Project costs		16,000,000										16,000,000
		Support costs		1,040,000										1,040,000

*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.

Secretariat's recommendation:	For individual consideration

PROJECT DESCRIPTION

151. On behalf of the Government of China, UNIDO as the designated implementing agency, has submitted a request for funding for the second tranche of the room air-conditioning manufacturing (RAC) and heat pump water heaters (HPWH) sector plan (RAC sector plan) of the HCFC phase-out management plan (HPMP) for China, at the amount of US $16,000,000, plus agency support costs of US $1,040,000[10]. The submission includes a progress report on the implementation of the first tranche of the RAC sector plan and the tranche implementation plan for 2017-2019.

Progress report on the implementation of the first tranche

Enterprise-level activities

152. The contract between FECO and UNIDO for the implementation of the RAC sector plan (stage II) was signed in October 2017. A notice on the request for proposals for conversion under stage II was issued in May 2017, and 16 proposals were received to convert 11 RAC manufacturing lines, one HPWH line, and four compressor manufacturing lines. Reviews of six proposals have been completed while the remaining ten proposals are still under review. The lines will undergo verification of their baseline information (i.e., non-article 5 ownership, baseline equipment, HCFC consumption and financial data) to determine the HCFC-22 phase-out and the incremental capital costs (ICC). The list of 16 enterprises is presented in Table 1.

Table 1. List of RAC, HPWH and compressor enterprises in the first three tranches

RAC				
Name	**HCFC-22 (mt)***	**Technology**	**Estimated ICC(US $)***	**Tranche**
TCL Zhongshan	776.3	R-290 RAC	1,352,355	1
TCL Wuhan	823.2	R-290 RAC	1,340,805	1
Hisense Guangdong	120	R-290 RAC	1,340,805	1
Hisense Guangdong	80	R-290 RAC	1,340,805	1
Jiangsu Sinco	89.7	R-290 RAC	1,340,805	1
Foshan Daishiba	295.9	R-290 RAC	1,340,805	1
Zhongshan Changhong	60	R-290 RAC	1,340,805	1
Chuzhou Yangzi	218	R-290 RAC	1,340,805	1
Compressor				
Name	**Compressor/yr ***	**Technology**	**Estimated ICC(US $)***	**Tranche**
Guangdong GMCC	1,600,000	R-290 Compressor	1,600,000	1
Shenyang Sanyo	899,806	R-290 Compressor	899,806	1
RAC and HPWH				
Name	**HCFC-22 (mt)***	**Technology**	**Estimated ICC(US $)***	**Tranche**
Hisense Shandong	47.3	R-290 RAC	1,340,805	2 or 3
Hisense Zhejiang	175	R-290 RAC	1,340,805	2 or 3
Foshan Baiyide	231.2	R-290 RAC	1,340,805	2 or 3
Chuzhou Yangzi	24	R-290 HPWH	338,750	2 or 3
Compressor				
Name	**Compressor /yr***	**Technology**	**Estimated ICC(US $)***	**Tranche**
Xi'an Qing'an	935,591	R-290 Compressor	935,591	2 or 3
Shanghai Highly	1,000,000	R-290 Compressor	1,000,000	2 or 3

* To be verified by audit

[10] As per the letter of 18 August 2017 from the Foreign Economic Cooperation Office of the Ministry of Environmental Protection of China to UNIDO.

153. The China Household Electric Appliances Association (CHEAA) will continue to assist UNIDO and FECO by providing policy recommendations for introduction of environmentally friendly technologies; supporting the enterprises; assisting FECO to select beneficiaries; supporting technology transfer and implementation of investment projects; and establishing and operating an industrial database on HCFC consumption, alternatives technologies and phase-out activities.

Technical assistance activities

154. Technical assistance (TA) activities implemented in 2017 include the inception meeting in March covering the Kigali Amendment, the implementation concept for the stage II, requirements for the preparation of project proposals, policies and regulations, and lessons learned from stage I; updating the project implementation manual from stage I; and a workshop on research and development (R&D) needs with participation from FECO, Government of Germany, UNIDO, universities, technical institutions and enterprises' representatives.

155. The funding allocation plan was updated based on the agreed level of funding for stage II of the RAC sector, as reflected in Table 2.

Table 2. Funding allocation plan for stage II of the RAC sector plan

Item		Total (US $)
Production line conversion	RAC to R290 (20 lines)	33,575,100
	HPWH to R290 (3 lines)	1,016,250
	HPWH to R744 (2 lines)	528,250
	Compressor (3-4 lines)	4,500,000
	IOC	33,648,412
TA	TA - Italy	891,892
	Verification	606,200
	R&D and standards	3,365,000
	Technical communication	340,000
	Publicity	250,000
Servicing tools		3,996,000
Management cost	FECO	4,644,797
	CHEAA	1,782,896
Total		**89,144,797**

Level of fund disbursement

156. The implementation subcontracts between FECO and the enterprises are performance-based with disbursements to be released upon completion of the following milestones: 30 per cent of ICCs will be paid upon signature of contract with FECO, 10 per cent upon signature of contract with suppliers, 40 per cent upon delivery of equipment and completion of trials, and 20 per cent after project acceptance. Disbursement of the incremental operating costs (IOCs) will be based upon the manufacturing of equipment with the agreed technology. The intention is to allocate 20 per cent of the IOCs with the manufacturers and 80 per cent will be used by FECO for an incentive scheme that is still to be developed.

157. As of October 2017, of the total US $15,562,981 approved, US $4,371,327 (28 per cent) has been transferred to FECO. No disbursement from FECO to beneficiaries have taken place yet. The funds from the first tranche will be disbursed by FECO to beneficiaries between 2017 and 2019 (Table 3).

Table 3. Status of disbursements for the RAC sector plan as of October 2017

Component	Funds approved (US $)	Funds disbursed (US $)	
		From UNIDO to FECO	From FECO to beneficiaries
Enterprise activities	11,977,500	3,593,250	0
TA	2,463,328	441,431	0
PMU	1,122,153	336,646	0
Total	**15,562,981**	**4,371,327**	0

Implementation plan for the second tranche

158. FECO will continue enforcing the quota permits to RAC enterprises consuming more than 100 mt of HCFCs per year, continue conversion of the ten lines identified, and select between two and six additional lines for conversion. The following TA will be implemented: enterprise baselines verifications; continued R&D activities for the introduction of R-290 and new technologies for the RAC sector; a study tour on the performance of alternative technologies in the air-conditioning industry, analysis of the barriers of international standards, and discussion of possible revisions to international safety standards; and at least two technical communication meetings, and at least one public awareness activity.

159. Table 4 presents the budget of the activities to be implemented during the implementation of the second tranche.

Table 4. Budget for the second tranche of the RAC sector plan in China

Activity	Budget (US $)
Conversion of RAC, HPWH and compressor lines	14,464,125
TA activities	382,212
Project monitoring	1,153,663
Total	**16,000,000**

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

HCFC consumption

160. The Secretariat requested an update on 2016 and 2017 quotas, noting that notwithstanding the conversion activities in stage I, the 2016 consumption had slightly increased (two per cent) relative to that in 2015. The 2016 and 2017 quota was 53,789 mt and 58,154 mt, respectively, with the increase due to a predicted increase in demand. The existing quota system will continue to be implemented to meet the phase out requirement for stage II.

Level of disbursement

161. The Secretariat noted with appreciation the work of the Government of China, UNIDO and the Government of Italy to continue the progress in implementing China's RAC sector plan. In particular, the Secretariat noted the signature of the project contract for the stage II and the project implementation plan; the disbursement of 28 per cent of the tranche from UNIDO to FECO; the finalization of the project implementation manual; the submission of proposal from 16 manufacturing lines; the approval of six of the proposals and the ongoing review of the remaining ten proposals; and the implementation of TA activities.

162. Notwithstanding the progress achieved so far in stage II, the Secretariat noted that FECO was not able to disburse funding to final beneficiaries 12 weeks in advance of the 80th meeting as stipulated in the Agreement between the Government and the Executive Committee. The Secretariat considered it

appropriate to apply flexibility taking into account the additional time that was required for signing the agreement for stage II of the HPMP between the Government of China and UNIDO, as well as the number of activities already undertaken and the status of implementation of stage I, and allowed updated information on disbursements to be submitted by 2 October 2017 (six weeks prior to the 80th meeting) on an exceptional basis. However, as of 2 October 2017 no disbursement from FECO to beneficiaries had yet been made. Accordingly, the Secretariat suggested UNIDO to consider withdrawal of the second tranche request for the RAC sector plan.

163. While recognizing that 20 per cent disbursement had not been met, UNIDO provided additional information to demonstrate progress and justify consideration of the tranche request taking into consideration other aspects with respect to the implementation of the project. In particular, UNIDO informed that the verification team will visit four enterprises selected to participate in the first tranche during the week of 16 October 2017, with the expectation that contracts for those enterprises will be signed by early November, allowing the first disbursement to be made to those beneficiaries. The expected disbursement from those four contracts is US $3.1 million. An additional US $28,134 in TA and US $336,646 in PMU are expected to be disbursed by mid-November, bringing the total level of disbursement expected in 2017 to US $3,464,780, which is greater than the 20 per cent threshold.

164. With regard to the implications of not approving the second tranche at the 80th meeting, UNIDO indicated that signature of contracts with additional enterprises would have to be delayed for at least seven months, and would make impossible to reach the 20 per cent disbursement of the second tranche at the 82nd meeting when the third tranche is due. This would further delay project implementation and HCFC phase-out, and will extend current HCFC emissions in enterprises not assisted for an additional seven months. Therefore, UNIDO was concerned that a deferral of the second tranche for the XPS foam and RAC sectors might also necessitate changes to the Agreement.

165. Should the Executive Committee decide to defer the second tranche of the XPS foam and RAC sectors, and noting that the requests for the second tranche for the polyurethane foam and servicing sectors had not been submitted to the 80th meeting, the Secretariat considers that the Executive Committee may wish to consider revising the Agreement, noting that the level of funding would not change.

Technical issues

166. Recalling that over half of the phase-out under stage II (i.e., 10,505 mt) would be achieved through conversions at enterprises without assistance from the Multilateral Fund, the Secretariat asked whether any information was available on those conversions. UNIDO indicated that it was expected that those conversions would predominantly be to R-410a, but no detailed information was available.

167. Regarding the expected duration of conversions under the first tranche, UNIDO indicated that contract signature for the lines was expected between October and the end of 2017, with the equipment purchase order issued in the first and second quarters of 2018. Installation, commissioning, and commercial manufacturing, was expected in 2019, with project acceptance anticipated by the end of 2019. Payment of IOCs was expected in the 2019 to 2021 timeframe.

168. The Secretariat requested clarification for the lower level of funding allocated for IOCs that had been agreed between the Secretariat and UNIDO at the 77th meeting. UNIDO clarified that the level of funding agreed at the 79th meeting for stage II was below the level proposed by the Government. Therefore, changes in the funding allocation were needed. To ensure that the conversions are done in a safe manner, part of the IOC had to be reallocated to ICCs of conversion.

169. Noting the unusual provision of IOCs whereby 20 per cent of the IOCs would be allocated to the manufacturers and the remaining 80 per cent to FECO for an incentive scheme, UNIDO clarified that the level of IOC will continue to be based on the verified HCFC consumption at the converted enterprise, with

disbursement based on an independent report on the number of HC-290-based units that are sold, their energy efficiency and type and after the lines completed their project acceptance. Further details of the IOC scheme will only be available following an assessment of market barriers to be undertaken by FECO and CHEAA. Noting that no funding was allocated for IOCs under the first and second tranche, and that updates on the incentive scheme for stage II might be warranted relative to that used for stage I (e.g., funding for certification of R-290-based models might not be needed in stage II or will be substantially lower as many of the same enterprises that participated in stage I are expected to participate in stage II), the Secretariat looks forward to regular updates on the IOC scheme that will be provided by UNIDO in subsequent progress reports and tranche requests. Based on those updates, the Secretariat would be in a position make a recommendation to the Executive Committee regarding the new IOC scheme.

170. Regarding the lines selected for participation thus far, the following issues were discussed:

(a) With only two exceptions, the identified RAC lines had a lower level of consumption than expected from the stage II proposal (i.e., 402.5 mt/year), raising a possible concern of whether the agreed phase-out would be achieved by converting 20 RAC lines as stipulated in Appendix 8-A of the Agreement. UNIDO clarified that the characteristics of lines that participated under stage I varied. Lines that decide to participate later may be larger than those currently wishing to participate. The Government of China was committed to the phase-out agreed under stage II; and

(b) The four compressor manufacturing lines had a lower production capacity than expected from the stage II proposal (i.e., 1.7 million units/year), leading to approximately 13 per cent lower converted capacity and raising a possible concern that that there would be insufficient compressors for the 20 RAC lines that will convert to R-290. In addition, the Secretariat expected that one compressor manufacturing line would be converted to R-744. UNIDO clarified that the need for the conversion of an additional compressor line will be assessed in a later tranche, and that the need to convert a compressor line to R-744, or whether the compressors could be sourced without conversion, will be assessed once the conversion for a R-744 HPWH line is decided.

Conclusion

171. There is significant progress in the implementation of the first tranche of stage II, as well as in the implementation of stage I, where 51 per cent of the approved funds have been disbursed. However, given the zero disbursement achieved at the time of issuance of the present document, the Secretariat is unable to recommend approval of the second tranche. However, based on the verification of four enterprises that is being undertaken at the time of finalization of the present document, it is expected that the 20 per cent disbursement threshold would be reached in 2017. The Secretariat notes that despite not having reached the 20 per cent disbursement threshold, China has been in compliance with the Montreal Protocol and the Agreement during the entire time of implementation of stage I and stage II, and that approval of the second tranche could help accelerate implementation of phase-out activities in the RAC sector.

RECOMMENDATION

172. The Executive Committee may wish:

(a) To note the progress report on the implementation of the first tranche of the room air-conditioning manufacturing (RAC) and heat pump water heaters (HPWH) sector plan (RAC sector plan) of the HCFC phase-out management plan (HPMP) for China; and

(b) To consider whether or not to approve the second tranche of the RAC sector plan of stage II of the HPMP for China, and the corresponding 2017-2019 tranche implementation plan, at the amount of US $16,000,000, plus agency support costs of US $1,040,000 for UNIDO.

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: 2015	13,485.2 (ODP tonnes)

(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)									Year: 2016
Chemical	Aerosol	Foam	Fire fighting	Refrigeration		Solvent	Process agent	Lab use	Total sector consumption
				Manufacturing	Servicing				
HCFC-22	126.4	1,457.5		5,087.5	2,606.9				9,278.3
HCFC-123				13.1	5.8				18.9
HCFC-124					1.5				1.5
HCFC-141b	63.0	3,830.3				412.5			4,305.9
HCFC-142b		585.0		6.5	24.1				615.6
HCFC-225ca						0.9			0.9

(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		2017	2018	2019	2020	Total
UNDP	ODS phase-out (ODP tonnes)	30.46	45.69	48.74	53.78	178.67
	Funding (US $)	3,784,255	3,593,086	3,616,409	3,933,171	14,926,921

(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	245,517	192,396	209,887	234,070	512,780	463,358	238,183	356,304	176,012	260,134	3,086,177
Funds approved by ExCom (US $)		Project costs	2,821,937											2,821,937
		Support costs	197,536											197,536
Total funds requested for approval at this meeting (US $)		Project costs		3,777,190										3,777,190
		Support costs		245,517										245,517

Secretariat's recommendation:	For blanket approval

PROJECT DESCRIPTION

173. On behalf of the Government of China, UNDP, as the designated implementing agency, has submitted a request for funding for the second tranche of the solvent sector plan of stage II of the HCFC phase-out management plan (HPMP), at the amount of US $3,777,190, plus agency support costs of US $264,403.[11] The submission includes the progress report on the implementation of the first tranche and the tranche implementation plan for 2017-2018.

Progress report on the implementation of the first tranche

174. The Government of China continued implementing the ODS regulations and policies established in stage I, including the quota permits to solvent enterprises consuming more than 100 mt of HCFCs per year.

Enterprise-level activities

175. The inception meeting was organized in September 2016 for solvent enterprises, technical experts, suppliers of alternative technology and Government officials to discuss the objectives of the solvent sector plan, requirements of the HPMP and alternative technologies. Beneficiary enterprises from stage I also participated sharing their experience and lessons learned during the conversion process.

176. Twenty-four enterprises were selected and verified for eligibility, of which 18 signed contracts with FECO; remaining six enterprises are expected to sign the contracts by 31 October 2017. The total value of the conversion of these 24 enterprises is estimated at US $19,927,337.

177. The conversion of all 24 enterprises to low-GWP alternatives[12] will result in the phase-out of 1,176.19 mt (129.38 ODP tonnes) of HCFC-141b, representing 28 per cent the HCFC reduction target of 455.2 ODP tonnes for stage II of the solvent sector. An overview of the progress in the implementation of the solvent sector plan is presented in Table 1.

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

Status of implementation	Number of enterprises	Number of lines	HCFC consumption (mt)	Estimated date of conversion
Enterprises conversions				
Contracts signed	18	440	525.07	December 2019
Contracts to be signed	6	74	651.12	December 2019
Total	**24**	**514**	**1,176.19**	n/a

Technical assistance

178. The following activities were implemented:

(a) Inception meeting with stakeholders in the solvent sector to discuss and disseminate the agreed phase-out strategy;

[11] As per the letter of 21 August 2017 from the Ministry of Environmental Protection of China to UNDP; support costs requested at 7 per cent

[12] 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.

(b) Two training workshops for solvent enterprises to discuss implementation of stage II of the HPMP, alternative technologies and lessons learned from stage I with over 160 participants;

(c) Verification of the 24 enterprises and their implementation plans by the technical experts;

(d) Preparation of draft Technical Conversion Guideline for Medical Devices Enterprises by China Association for Medical Macromolecule Products of Medical Devices Industry, expected to be finalized in September 2017 and shared with disposal medical devices (DMD) enterprises;

(e) A study tour for two FECO staff and three technical experts for the project from universities and cleaning association, to Japan to learn the application experience of the ODS-free solvents developed and produced by the Japanese company ZEON, AGC and vacuum degreasing equipment developed and produced by Cleanvy Company; and,

(f) Preparation of terms of reference (TOR) and commencement of bidding process for recruitment of Implementing Support Agency (ISA) for the implementation of the stage II Solvent Sector Plan.

Level of fund disbursement

179. As of August 2017, of the US $2,821,937 approved for the first tranche, US $1,410,696 (50 per cent) had been disbursed from UNDP to FECO, and US $1,296,914 (46 per cent) had been disbursed by FECO to beneficiaries.

Implementation plan for the second tranche

180. FECO will continue its work with the identified enterprises to initiate the procurement of equipment; facilitate the contracts signature with the remaining six enterprises; and initiate the verification and assessment of eligibility of an additional 16 enterprises. It will also hold two workshops, one will be organized for the staff of the selected 24 enterprises to introduce requirements and material needed to prepare and pass verification at various stages of project implementation, and the second for potential beneficiaries to introduce the HCFC phase-out sector plan and provide details on preparation of implementation plans and verification; development of policy and standards to control HCFCs use in solvents; and awareness activities to, *inter alia*, promote alternative technologies in the solvent sector and mobilize more enterprises to participate in conversions.

181. Table 2 presents the budget for the second tranche. Project management and coordination will continue to closely monitor the progress of implementation of the activities of stage II.

Table 2. Budget for the second tranche of the solvent sector plan in China

Activity	**Budget (US $)**
Conversion of solvent enterprises to non-HCFC technology	3,400,000
Technical assistance activities	180,399
Project monitoring	196,791
Total final tranche	**3,777,190**

SECRETARIAT`S COMMENTS AND RECOMMENDATION

COMMENTS

Status of implementation

182. The Secretariat noted that funding tranches for the solvent sector plan are distributed evenly and expressed concern that funding per tranche might cause difficulties with regard to expediting the signature of agreements with enterprises. Upon a request for clarification on the disbursement mechanism developed by FECO, UNDP indicated that payments are done according to a set of milestones as shown in Table 3. To avoid shortage of funding, the contracts between FECO and enterprises will include a special clause noting that disbursement will only be made from FECO to the enterprise upon transfer from UNDP. In the event of late disbursement, the enterprises agree to continue conversion activities with their own funding, with retroactive reimbursement to be made by FECO upon availability of funds.

Table 3. Payment schedule for enterprises conversions

ICC payment (per cent)	Milestone
20	Signature of HCFC phase-out contracts with FECO
30	Signature of procurement contracts for equipment, production line and construction between enterprises and its suppliers
30	Completion of production line conversion, installation of equipment, completion of production commissioning and verification by technical experts
20	Completion of project activities and expert verification and technical assessment
IOC payment	Completion of national acceptance procedure

Conclusion

183. The Secretariat noted that the solvent plan is progressing well with 24 enterprises selected of which 18 signed contracts, and with a disbursement rate of 46 per cent. 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. In view of the progress taking place the Secretariat recommends approval of the second tranche of the solvent sector plan.

RECOMMENDATION

184. The Fund Secretariat recommends that the Executive Committee takes note of the progress report on the implementation of the first tranche of stage II of the solvent sector plan of stage II of the HCFC phase-out management plan (HPMP) for China and further recommends blanket approval of the second tranche of the solvent sector plan of stage II of the HPMP for China, and the corresponding 2017-2018 tranche implementation plan, at the funding level shown in the table below.

	Project title	Project funding (US $)	Support cost (US $)	Implementing agency
(a)	Sector plan for phase-out of HCFCs in the solvent sector (stage II, second tranche)	3,777,190	245,517	UNDP