UNITED NATIONS

EP

United Nations Environment Programme

Distr.
GENERAL

UNEP/OzL.Pro/ExCom/90/9
2 June 2022

ORIGINAL: ENGLISH

EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Ninetieth Meeting
Montreal, 20-23 June 2022
Item 7(a) of the provisional agenda[1]

STATUS REPORTS AND REPORTS ON PROJECTS WITH SPECIFIC REPORTING REQUIREMENTS

1. The present document on the status of the reports and on projects with specific reporting requirements consists of the following sections:

Section I: Projects with implementation delays and for which special status reports were requested

Section II: Projects with specific reporting requirements:
- II.1 An overview
- II.2 "Blanket" approval – reports on projects for which there are no outstanding policy, cost or other issues and for which the Executive Committee may wish to take decision on the basis of the Secretariat's recommendations without further discussion
- II.3 Individual consideration – reports on the status of implementation of activities, management plans and extensions of completion dates which the Executive Committee needs to consider individually

2. In addition, document UNEP/OzL.Pro/ExCom/90/9/Add.1 consists of four reports related to China: report on progress in the implementation of activities listed in decision 83/41(e); study to determine the regulatory, enforcement, policy or market circumstances that might have led to the illegal production and use of CFC-11 and CFC-12 (decision 83/41(d)); updated report on the production of CTC and its feedstock uses; and a report on disbursement of funds for incremental operating costs under stage I of the industrial and commercial refrigeration and air-conditioning sector plan, which will be for individual consideration by the Executive Committee.

[1] UNEP/OzL.Pro/ExCom/90/1.

I. Projects with implementation delays and for which special status reports were requested

3. At the 88th meeting, the Executive Committee noted that the bilateral and implementing agencies would report, at the 90th meeting, on 129 projects with implementation delays and 53 ongoing projects[2] or tranches of multi-year agreements (MYAs) recommended for additional status reports (decision 88/11(c)). Accordingly, relevant bilateral and implementing agencies submitted the requested reports to the 90th meeting. In reviewing the reports, the Secretariat held discussions with relevant bilateral and implementing agencies and several issues have been satisfactorily addressed. Table 1 provides a summary of projects with implementation delays and projects recommended for additional status reports including their levels of progress, recommendations by the Secretariat and references to annexes to the present document.

Table 1. Summary of projects with implementation delays and additional status reports

Level of progress	Number of projects	Decision	Recommendation	Annex
Implementation delays				
Progress (Individual projects and MYAs)	89	32/4	To be removed from future reporting	n/a
Some progress (Individual projects and MYAs)	25	32/4	To continue monitoring until their final completion	Annex I
No progress for the first time (MYAs)	13	84/45	To continue monitoring until their final completion	Annex II
No progress for two consecutive meetings (MYAs)	2	84/45	To send notices of possible cancellation	Annex III
Total	**129**			
Status reports				
No outstanding issues	12	51/13	To be removed from future reporting	n/a
Issues still need to be resolved	23	51/13	To request submission of additional status reports	Annex IV
Total*	**35**			

*Excluding 18 projects that are included in the implementation delays section.

Recommendations made by the United Nations Office of Internal Oversight Services (OIOS)

4. At the 88th meeting, in the context of the audit of the Multilateral Fund by OIOS[3], the Executive Committee requested the Fund Secretariat, the Treasurer and the bilateral and implementing agencies to complete implementation of the recommendations made by OIOS, to include information in that regard in relevant meeting documents, and to give further consideration to the recommendation related to project implementation delays, among others, under the relevant agenda item at the present meeting (decision 88/1(d)). In line with the decision and in response to the recommendation on the need for more effective analysis of root causes for delays in project implementation and for taking corrective action to address the systemic issues, the Secretariat and the implementing agencies identified both operational and systemic issues as the root causes of the recurrent reasons for project implementation delays. The Secretariat took action and requested implementing agencies to provide, in future progress reports submitted to the Executive Committee, detailed information on specific steps taken to address delays in implementation of activities, including the analysis of the relevant root causes and information on how to avoid reoccurrence. Implementing agencies reported to have established robust internal monitoring and support systems to

[2] Eighteen of the 53 projects recommended for additional status reports were also classified as projects with implementation delays. The review for these projects is included in the implementation delays section.
[3] UNEP/OzL.Pro/ExCom/88/2/Add.1.

ensure that project implementation is closely monitored to minimize the number of projects with delays and have also adopted measures to avoid reoccurrence.

5. The Secretariat thus prepared a response to the auditor's recommendations, which was communicated to OIOS through the Executive Director of UNEP on 12 April 2022, as a result of which, 5 of the 6 recommendations have been closed by OIOS,[4] after having considered them as implemented, including the recommendation on implementation delays.

Recommendation

6. The Executive Committee may wish:

(a) To note:

(i) The implementation delay reports and status reports submitted by bilateral and implementing agencies, contained in document UNEP/OzL.Pro/ExCom/90/9;

(ii) That the Secretariat would send letters to the relevant Governments and UNEP as the lead implementing agency regarding possible cancellation of the following projects:

a. HCFC phase-out management plan (stage I, third tranche) for the Congo (PRC/PHA/76/TAS/30); and

b. HCFC phase-out management plan (stage I, second tranche) for Saint Kitts and Nevis (STK/PHA/74/TAS/20);

(iii) That bilateral and implementing agencies would report to the Executive Committee at the 91st meeting on 40 projects with implementation delays, as indicated in Annexes I, II and III to the present document, and on 23 projects recommended for additional status reports, as indicated in Annex IV to the present document, as part of the 2021 annual and financial progress report of the bilateral and implementing agencies; and

(b) To approve the recommendations on ongoing projects with specific issues listed in the last column of the table in Annex IV to the present document.

II. Projects with specific reporting requirements

II.1 Overview

7. Table 2 lists the reports on projects with specific reporting requirements submitted to the 90th meeting recommended for blanket approval.

Table 2. Reports on projects with specific reporting requirements recommended for blanket approval

Country	Project title	Paragraphs
Reports related to HCFC phase-out management plans		
Argentina	HCFC phase-out management plan (stage II – update on the financial viability of the enterprise Celpack)	10 - 13
Bahrain	HCFC phase-out management plan (stage I – progress report)	14 - 21

[4] UNEP/OzL.Pro/ExCom/90/2, paragraphs 13-14.

Country	Project title	Paragraphs
Reports related to HCFC phase-out management plans		
Brazil	HCFC-phase out management plan (stage II – report on temporary use of high-GWP technology by U-Tech)	22 - 27
Chile	HCFC phase-out management plan (stage II – annual progress report and request for extension of the completion date)	28 - 42
Colombia	HCFC phase-out management plan (stage II – update on progress toward finalization of the draft Act and the entry into force of the bans described in document UNEP/OzL.Pro/ExCom/88/44)	43 - 49
Dominican Republic (the)	HCFC phase-out management plan (stage II – third and final tranche – progress report)	50 -61
Jamaica	HCFC phase-out management plan (stage II – Update on the status of implementation of the measures for strengthening the licensing and quota system and monitoring and reporting of HCFC consumption recommended in the verification report)	62 - 66
Kenya	HCFC phase-out management plan (stage II, second tranche – update on the status of implementation of activities for strengthening the licensing and quota system for HCFCs and information sharing with the Kenya Revenue Authority on HCFC imports)	67 – 71
Kyrgyzstan	HCFC phase-out management plan (stage II – final progress report)	72 - 79
Oman	HCFC phase out management plan (stage II – final progress report)	90 – 99
Philippines (the)	HCFC phase-out management plan (stage II – progress report and request for extension of completion date)	100 – 113
Saint Lucia	HCFC phase-out management plan (stage I, fifth tranche and stage II, first tranche – Update on the status of the signing of the small-scale funding agreement (SSFA) and disbursement of the first instalment under the SSFA)	114 - 117
Uruguay	HCFC phase-out management plan (stage II – progress report on implementation of the conversion of the foam enterprises)	118 - 128
Reports related to HFC projects		
Argentina	Control of emissions of HFC-23 generated in the production of HCFC-22	129 - 142
Low-global warming potential projects		
Saudi Arabia	Demonstration project on promoting HFO-based low-global-warming-potential refrigerants for the air-conditioning sector in high ambient temperatures (progress report)	143 - 150

8. Table 3 lists the reports on projects with specific reporting requirements submitted to the 90th meeting for individual consideration and a brief explanation of related issues.

Table 3. Reports on projects with specific reporting requirements for individual consideration

Country	Project title	Issue	Paragraphs
Reports related to HCFC phase-out management plans			
Democratic People's Republic of Korea	HCFC phase out management plan (stage I – progress report on the implementation of activities)	Request for guidance in view of the challenges in implementing activities in light of the United Nations Security Council resolutions	151 - 166
Viet Nam	HCFC phase out management plan (stage II, third tranche – progress report on	Major changes to stage II, including in the refrigeration manufacturing and servicing sectors, technical assistance and the project implementation and management	167 - 208

Country	Project title	Issue	Paragraphs
Reports related to HCFC phase-out management plans			
	implementation of activities)	unit, and other changes, including conditions associated with the revised funding.	
Sixteen countries	Status of implementation of activities in the 16 Article 5 countries for which extension of the completion dates of stage I and stage II of their HCFC phase-out management plans beyond 31 December 2022 was requested (decision 88/29)	Extension requests, submission of status reports and requests for submission of implementation plans at a future meeting, for relevant countries	209 - 218
Reports related to HFC projects			
Jordan	Report on the project for the conversion from HFC to propane of the facility manufacturing large commercial unitary roof-top air-conditioning units of up to 400 kW at Petra Engineering Industries Co.	Request for guidance on the flexibility to allocate approved funding from incremental operating costs to incremental capital costs, and whether certain baseline equipment should be destroyed or rendered unusable.	219 – 237
Sixteen countries	Requests for extension of the completion dates of enabling activities for HFC phase-down	Project completion of enabling activities delayed and extension needed to be approved by the Executive Committee for completion of remaining activities under the relevant projects	238 - 243

II.2 "Blanket" approval

9. This section includes reports on projects related to HCFC phase-out management plans, one report on an HFC project and one report on a low-GWP project.

A. Reports related to HCFC phase-out management plans

Argentina: HCFC phase-out management plan (stage II – update on the financial viability of the enterprise Celpack) (UNIDO and the Government of Italy)

Background

10. At its 84th meeting, the Executive Committee considered the funding request for the second tranche of stage II of the HPMP for Argentina.[5] The tranche request included a progress report indicating *inter alia* that the conversion from HCFC-22 to CO_2 at the extruded polystyrene (XPS) foam enterprise Celpack had been delayed due to economic difficulties faced by the enterprise and to its interest in evaluating butane as an alternative to HCFCs. In approving the funding tranche, the Committee requested UNIDO to submit at the 85th meeting an update on the financial viability of the enterprise and whether it would be assisted by

[5] UNEP/OzL.Pro/ExCom/84/39.

the Multilateral Fund, on the understanding that the funds from the conversion would be returned in the event that the enterprise were removed from the project (decision 84/64(d)(ii)).

11. In line with decision 84/64(d)(ii), UNIDO submitted progress reports to each of the Executive Committee meetings[6] since the 84th meeting, indicating that the majority of Celpack's debt was with the Federal Agency for Public Incomes (AFIP), and that the Parliament of Argentina, recognizing the economic impact of COVID-19, approved a moratorium for financing debts due by 31 July 2020. Since then, Celpack has been paying off its debt in accordance with the schedule approved by the Tax Authority. This was expected to have a positive impact on the financial viability of the enterprise.

Progress report

12. UNIDO has submitted an update to the 90th meeting, indicating that Celpack has continued to meet all scheduled payments as approved by AFIP. The Government of Argentina and UNIDO affirmed that they would continue monitoring the financial situation of Celpack, and the Government further reiterated that the funding associated with Celpack would not be disbursed until the issue had been resolved (i.e., the financial health of the enterprise is confirmed) and its resolution considered by the Executive Committee. In the event that the enterprise was found to not be financially viable, the level of funds to be returned to the Multilateral Fund would be calculated taking into consideration the terms of flexibility used for the approval of funds for the XPS foam sector in Argentina.[7]

Recommendation

13. The Executive Committee may wish:

(a) To note the update on the financial viability of the extruded polystyrene (XPS) foam enterprise Celpack funded under stage II of the HCFC phase-out management plan (HPMP) for Argentina, provided by UNIDO and contained in document UNEP/OzL.Pro/ExCom/90/9;

(b) To request the Government of Argentina, through UNIDO, to provide to the 91st meeting an update on the financial viability of the XPS foam enterprise Celpack and a decision on whether the enterprise would be assisted by the Multilateral Fund under stage II of the HPMP for Argentina, in line with decision 84/64(d)(ii), and

(c) To note that, in the event that the enterprise referred to in sub-paragraph (b) above would not be assisted by the Multilateral Fund, the funds associated with its conversion would be calculated taking into consideration the flexibility in the allocation of funds approved for the Government of Argentina for the XPS foam sector, and would be deducted from the approval of the next tranche of stage II of the HPMP for Argentina.

[6] The Executive Committee noted the relevant progress reports submitted between the 85th and 88th meetings in decisions 85/4, 86/22, 87/7, and 88/17.

[7] Funding approved for two enterprises in the XPS foam sector in the amount of US $348,767 was lower than the estimated incremental costs of US $439,200; it was agreed that the Government of Argentina would have flexibility in the allocation of funds between the two enterprises, on the understanding that both enterprises would convert to the selected technology on time (paragraph 76 of document UNEP/OzL.Pro/ExCom/79/27).

Bahrain: HCFC phase-out management plan (stage I – progress report) (UNEP and UNIDO)

Background

14. Stage I of the HPMP for Bahrain was originally approved at the 68th meeting,[8] updated at the 80th meeting[9] and revised at the 84th meeting[10] to meet the 35 per cent reduction from the baseline by 2020, at a total cost of US $1,019,455, plus agency support costs, to phase out 18.03 ODP tonnes of HCFCs used in the refrigeration and air-conditioning (RAC) servicing sector. At the 88th meeting, the Government requested to cancel the fourth and final tranche and to complete stage I of the HPMP by the end of 2021. The Executive Committee noted the cancellation of the fourth tranche, approved the updated Agreement between the Government of Bahrain and the Executive Committee[11] to reflect the cancellation of the fourth tranche, and requested the Government of Bahrain, UNEP and UNIDO to submit a progress report on the implementation of the work programme associated with the third tranche and the project completion report to the 90th meeting; and to return the remaining funding balance from stage I of the HPMP to the 91st meeting (decision 88/45).

15. On behalf of the Government of Bahrain, UNEP and UNIDO submitted a progress report on the implementation of the work programme associated with the third tranche. A project completion report has also been submitted to the 90th meeting.

HCFC consumption

16. The Government of Bahrain reported a consumption of 24.61 ODP tonnes of HCFC-22 in 2021, which is 53 per cent below the HCFC baseline for compliance of 51.9 ODP tonnes. In addition, Bahrain also imported 115.18 metric tonnes of HCFC-141b contained in pre-blended polyols, which is a 28 per cent increase compared to the amount reported for 2020.

Progress report

17. The progress made in the implementation of the activities in the refrigeration servicing sector since the 88th meeting is summarized below:

(a) Preparing training materials, and training 40 customs officers, 36 government officials, 60 importers, and 64 distributors and traders in enforcing the licensing and quota system and ODS regulations; monitoring and preventing illegal trade; training 25 traders in appropriate licensing before importing or selling/buying refrigerants;

(b) Purchasing seven refrigerant identifiers for training of 100 customs and enforcement officers through four sessions on the identification of ODS and alternative refrigerants, as there was no further need for new refrigerant identifiers;

(c) Conducting four training sessions to train 28 master trainers on the technician certification course, focusing on recovery, recycling and reclamation, containment and leak detection, the safe handling of refrigerants, and covering the installation, servicing and operation of air-conditioning units with cooling capacities less than 15 refrigeration tonnes, more than 15 refrigeration tonnes, and units operating on alternative refrigerants;

[8] UNEP/OzL.Pro/ExCom/68/22 and Annex XIX of UNEP/OzL.Pro/ExCom/68/53.
[9] UNEP/OzL.Pro/ExCom/80/12 and Annex V of UNEP/OzL.Pro/ExCom/80/59.
[10] UNEP/OzL.Pro/ExCom/84/40 and Annex XXI of UNEP/OzL.Pro/ExCom/84/75.
[11] UNEP/OzL.Pro/ExCom/88/38 and Annex XVII of UNEP/OzL.Pro/ExCom/88/79.

(d) Training of 150 technicians in the use and handling of flammable and toxic alternative refrigerants (HFC-32, R-290, R-600a and R-717); and

(e) Developing and introducing national standards and codes, including labelling requirements; record-keeping and reporting requirements; standards for equipment operation with hydrocarbons and ammonia; and procedures for installing, operating and servicing equipment using flammable and toxic refrigerants.

18. The Supreme Council for the Environment, in collaboration with the Bahrain Society of Engineers, implemented the project, monitored the progress and collected data for reporting.

Level of fund disbursement

19. As at April 2022, of the US $994,455 approved for stage I of the HPMP,[12] US $984,455 (representing 99 per cent) had been disbursed. The funding balance of US $10,000 will be disbursed in 2022.

Secretariat's comments

20. The implementation of the final tranche of stage I of the HPMP is progressing well and all the activities planned in the third tranche have been completed. UNEP advised that any balance of the US $10,000 not disbursed in the coming months will be returned at the 91st meeting.

Recommendation

21. The Executive Committee may wish to note the progress report on the implementation of stage I of the HCFC phase-out management plan for Bahrain, submitted by UNEP and UNIDO, and contained in document UNEP/OzL.Pro/ExCom/90/9.

Brazil: HCFC-phase out management plan (stage II – report on temporary use of high-GWP technology by U-Tech) (UNDP)

Background

22. At the 80th meeting, UNDP informed the Secretariat that the systems house U-Tech had requested to temporarily use HFC-134 in place of HCFC-22 in froth applications, as HFOs were not yet available on a commercial scale in the country. U-Tech had signed a commitment to stop the temporary use of HFC blends once HFOs were commercially available, and the systems had been developed and optimized at no additional cost to the Multilateral Fund.

23. Accordingly, the Executive Committee requested UNDP to continue assisting U-Tech in securing the supply of the alternative technologies selected, on the understanding that the incremental operational costs (IOCs) would not be paid until either the selected alternative or another low-GWP-based technology had been fully introduced, and to report on the status of use of the interim technology until the technology originally selected or another low-GWP-based technology had been fully introduced (decision 80/12(e)). At the 81st meeting, UNDP was further requested to provide to each meeting an update from the suppliers on the progress made toward ensuring that the selected technologies, including associated components, were available on a commercial basis in the country (decision 81/9(b)). UNDP has reported on the status of the use of interim technology at each meeting since.

[12] The total of stage I was adjusted after deducting US $25,000 associated with the cancellation of the fourth tranche.

24. At the 88th meting, UNDP reported that U-Tech had concluded the development of a formulation using gaseous HFO (Solstice GBA), indicating that the high cost of the substance made it commercially unfeasible. Additionally, an incident at an HFO production plant had further affected the availability of HFO in Brazil. The Secretariat enquired if any other way forward had been considered, and if not, what was the expected timeline to replace the temporary use of HFC-134a in this application (i.e., whether the price of Solstice GBA was expected to decrease within the implementation timeframe for stage II). UNDP confirmed that, should Solstice GBA not become commercially available by 2024, the remaining funds from U-Tech's conversion associated with the phase-out of HCFC-22 would be returned to the Fund by the end of stage II.

25. In line with decisions 80/12(e) and 81/9(b), at the present meeting, UNDP has informed the Secretariat that no further development had taken place since the 88th meeting in the situation of temporary use of HFC-134a by the enterprise U-Tech.

Secretariat's comments

26. Noting that the issues related to the availability and cost of the alternative technology have not changed since the 88th meeting, and that the implementation of stage II extends to December 2024, the Secretariat recommends, in line with decisions 80/12(e) and 81/9(b), that UNDP continues assisting U-Tech in securing the supply of the alternative technology selected or another low-GWP technology, and reporting on the temporary use of HFC-134a by U-Tech and on the status of commercial availability of the alternative technology selected.

Recommendation

27. The Executive Committee may wish:

(a) To note the report provided by UNDP on the temporary use of high global-warming potential (GWP) alternatives in the system house U-tech and contained in document UNEP/OzL.Pro/ExCom/90/9; and

(b) To request UNDP to continue assisting the Government of Brazil in securing the supply of alternative technologies with low GWP to the systems house U-Tech, on the understanding that any incremental operational costs related to the conversion of froth system applications would not be paid under stage II of the HCFC phase-out management plan until the technology originally selected or another low-GWP technology had been fully introduced, and to provide, at each meeting until the technology originally selected or another low-GWP technology had been fully introduced, a report on the status of the conversion, along with an update from the suppliers on the progress made towards ensuring that the selected technologies, including associated components, were available on a commercial basis in the country.

Chile: HCFC phase-out management plan (stage II - annual progress report and request for extension of the completion date) (UNDP, UNEP and UNIDO)

Background

28. On behalf of the Government of Chile, UNDP as lead implementing agency, has submitted the annual progress report on the implementation of the work programme associated with the third and final

tranche of stage II of the HCFC phase-out management plan (HPMP) in line with decision 85/22(a)[13] and a request for extension of the implementation of stage II.

HCFC consumption

29. The Government of Chile reported under country programme (CP) implementation report a consumption of 14.79 ODP tonnes of HCFCs in 2021, which is 83 per cent below the HCFC baseline for compliance of 87.5 ODP tonnes.

Progress report on the implementation of the third and final tranche of stage II of the HPMP

Legal framework

30. The ban on the import and use of HCFC-141b for the polyurethane (PU) foam manufacturing sector and on the import and export of HCFC-141b contained in pre-blended polyols has been in place since 1 January 2020. Implementation of this ban has been reported in the verification report, which found no import of this substance and customs has not detected any possible smuggling intent. The update of the national customs code for HCFCs, HFCs and their alternatives, for pure substances, blends and fully formulated polyols is in place since 1 January 2022. The system of registry for products and equipment[14] containing or using HCFCs was finalized and tested, and it is being adjusted for incorporation into the web-based platform on the Pollutants Release and Transfer Registry of the Ministry of Environment.

31. Training was conducted for 91 customs officers (including 36 women) and a training booklet was developed to support the registry process at the National Customs Service. Although the bidding process was launched for the refrigerant identifiers for customs officers to support enforcement activities, prices have risen sharply and there is uncertainty about maintaining the price offered, the national ozone unit (NOU) is evaluating the best way to proceed with the implementing agency.

PU foam manufacturing sector

32. Prior to the submission of the third tranche the following foam enterprises had been converted to alternative technologies:

(a) Two individual enterprises: one (Inema) to cyclopentane/ hydrofluoroolefin (HFO) and one (Polchile and Claudia Letelier F&C) to HFO technology, with a phase-out of 7.22 ODP tonnes (77.36 metric tonnes) (mt) of HCFC-141b;

(b) Two small- and medium- sized enterprises (SMEs): Ingepur and Sociedad Aislaciones Térmicas formerly part of the group supported by Austral, with a total consumption of 1.03 ODP tonnes (9.36 mt) of HCFC-141b, and one SME (Fidel Valenzuela) formerly part of the group supported by Ixom, with a total consumption of 0.26 ODP tonnes (2.36 mt) of HCFC-141b, completed their conversion to HFO technology as "individual enterprises" without any additional funding from the Multilateral Fund; and

[13] The Government of Chile was requested through UNDP as lead implementing agency, to submit progress reports on a yearly basis on the implementation of the work programme associated with the final tranche until the completion of the project, verification reports until approval of stage III, and the project completion report to the first meeting in 2023 (Annex IV of document UNEP/OzL.Pro/ExCom/85/67).

[14] The online registry contains information on products and equipment, including brand, model, type of HCFC, amount of HCFC, and the type of use (refrigerant, insulation, etc). The registry contains the information submitted by national producers, importers and exporters of products and equipment containing or using HCFC.

(c) Twenty-seven SMEs supported by Austral, (one (Victor Himmers) moved from Ixom to Austral during project implementation), to HFO technology with a total phase-out of 6.37 ODP tonnes (57.91 mt) of HCFC-141b.

33. The three remaining enterprises (Danica, Refricentro and Superfrigo) and one systems house (Ixom, which originally included the conversion of eight SMEs[15]), were to be converted during implementation of the third tranche. In May 2020, Superfrigo sent a letter to the NOU cancelling its participation in the project; Danica and Refricentro completed their conversions to HFO in October and December 2020, respectively, phasing out 4.16 ODP tonnes (37.82 mt) of HCFC-141b.

34. The Ixom systems house signed the agreement with seven downstream SMEs in July 2020, the conversion to HFO technology began in 2021 and three enterprises completed the process phasing out 0.77 ODP tonnes (7.34 mt) of HCFC-141b. The four remaining enterprises are expected to complete their conversions during the second half of 2022.

Refrigeration servicing sector

35. The following activities were implemented:

(a) One online train-the-trainers course for eight women; twenty online training courses on good refrigeration practices for 290 refrigeration and air-conditioning (RAC) technicians (including 17 women); five in person courses on good refrigeration practices with 81 students (including 19 women) at four educational centres; completion of a training manual on good refrigeration practices, including flammable refrigerants which was published on the NOU website;

(b) The NOU continued collaborating with the Centre of Evaluation and Certification for Labour Skills as a technical counterpart for assessing requirements in the RAC and heating sectors for the creation of standards and the development of labour skill profiles. As a result of the implementation of the certification process, 227 technicians (including 8 women) were certified since January 2021;[16]

(c) Work to establish the recovery and recycling (R&R) centres was initiated including hiring a consultant to assist with the technical specifications of the equipment required. The bidding process for establishing three reclamation centres was completed and two enterprises were selected to implement R&R in the central and southern part of the country. The bidding process for the third centre in the north was declared void because no qualified offers were received. The bidding process to buy the machines and equipment was finalized and the delivery of equipment is expected by June 2022. Consequently, the reclaiming centres are expected to be operational by the end of 2022;

(d) The NOU is cooperating in the 4th Clean Production Agreement[17] in the agroindustry sector by encouraging the training and certification of RAC servicing technicians and the use of alternatives to HCFCs and HFCs in the industrial installations;

[15] Of the original eight SMEs anticipated for the group project, two became individual projects and converted on their own; two did not participate; and three were incorporated into the group project which met the eligibility requirements but had not originally been identified in the market study during the project preparation.

[16] Certifications were for the following: installer of air-conditioning (AC) systems: 17 people (3 women and 14 men); installer and maintainer of RAC equipment: 187 people (2 women and 185 men); and installer of refrigeration systems: 23 people (3 women and 20 men).

[17] The Clean Production Agreements are voluntary agreements adopted by the private sector establishing actions and goals to achieve clean production in a given period.

(e) Technical specifications to identify beneficiary enterprises for a demonstration project for the conversion of cold rooms and air conditioners to trans-critical CO_2, trans-critical CO_2/ammonia, and ammonia were finalized with the assistance of an international consultant; a workshop was held to disseminate the co-financing process; and

(f) Awareness activities were targeted in the RAC sector to support the implementation of activities and were focused through multiple online platforms to adjust to the COVID-19 pandemic conditions; the NOU continued publishing monthly bulletins and posted information on various online media to promote the switch to HCFC-free technologies; publication of several online videos about good refrigeration practices, the refrigerant reclamation centre, and the Kigali Amendment.

Project implementation and monitoring unit (PMU)

36. Of the US $14,200 (US $4,830 for UNDP and US $9,370 for UNIDO) approved for project monitoring and implementation for the third tranche, a consultant for HCFC consumption verification and experts to provide technical support to the NOU were engaged as well as an assistant.

Status of disbursement

37. As of March 2022, of the US $3,394,017 approved for stage II, US $2,325,279 (69 per cent) had been disbursed (i.e., US $1,720,375 for UNDP, US $82,363 for UNEP, and US $522,541 for UNIDO), as shown in Table 4. The balance will be disbursed by 30 June 2023.

Table 4. Financial report of stage II of the HPMP for Chile (US $)

Agency	Funds approved	Funds disbursed	Balance	Disbursement rate (%)
UNDP	2,145,047	1,720,375	424,672	80
UNEP	218,270	82,363	135,907	38
UNIDO	1,030,700	522,541	508,159	51
Total	**3,394,017**	**2,325,279**	**1,068,738**	**69**

Proposal for revision of the implementation plan for stage II of the HPMP

38. Stage II of the HPMP is to be completed in December 2022, as stipulated in the Agreement between the Government of Chile and the Executive Committee. However, global supply chain difficulties and increased prices have impacted the delivery of equipment, polyols and catalysts, to the country. Furthermore, delays in the internal processes of the Ministry of Environment (as a consequence of the sanitary restrictions adopted due to the COVID-19 pandemic) prevented the timely implementation of activities in the RAC servicing sector. Therefore, on behalf of the Government of Chile, UNDP is submitting a request of extension and a revised action plan to be implemented between 1 July 2022 and 31 June 2023 as listed below:

39. The following activities will be delivered:

(a) *Technical assistance for policy/enforcement and customs department:* finalizing the delivery of spare parts to the Customs' Laboratory to strengthen its control capacities; conducting a new bidding process to acquire the portable refrigerant identifiers; finalizing the integration of the "Ozone Registry System" with the Pollutants Release and Transfer Registry and launching a national web registry of Montreal Protocol controlled substances, products and equipment;

(b) *Conversion of manufacturers of discontinuous panels and PU foam spray applications:*

completing the conversion of Ixom into HFO and payment of incremental operating costs to the four remaining enterprises;

(c) *Technical assistance to promote low-global warming potential (GWP) alternatives for the RAC sector and R&R:* continuing the ongoing good refrigeration practices courses, the certification of technicians, and participating in the meetings of the Clean Production Agreement; opening a new public tender for establishing the reclamation centre in the northern zone; delivery of the reclaim machines to the R&R centres, launching the reclamation process, and conducting regional outreach activities to support the R&R network;

(d) *Demonstrative conversions in cold rooms and air conditioners*: completing the selection of the beneficiary and signing the agreements for implementation of the demonstration conversion projects to low-GWP alternatives. With the agreement signed by both parties, the Ministry of the Environment issues a Resolution of Approval, which allows the implementation of the two demonstration conversion projects in an AC system and a cold room system. The conversions are expected in May 2023 for the AC system and in June 2023 for the cold room system; and

(e) *Awareness raising programme:* continuation of the incorporation of the gender policy in activities and monitoring the execution of the planned activities.

Secretariat's comments

PU foam manufacturing sector

40. Upon request for clarification on the cancellation of the individual project for Superfrigo and on the group projects for Austral and Ixom for enterprises that were identified but withdrawn, UNDP confirmed that the balance of funds (US $111,443), after deducting the funds allocated to enterprises that joined the group project, would be returned to the present meeting. The balance of allocated funds to be returned to the Secretariat is shown in Table 5 below. UNDP also explained that Superfrigo has converted to an HFC-based PU system (i.e., HFC-365mfc blend (93 per cent) with HFC-227ea (7 per cent)).

Table 5. Balance of funds associated with the withdrawal of enterprises from the PU foam conversions

Enterprise	Project	Consumption HCFC-141b (kg)	Consumption HCFC-141b (ODP tonnes)	Allocated funds (US $)
Enterprises that did not participate in the project				
Térmica Camval	Austral Chemicals	410	0.0451	3,976
Refritec	Austral Chemicals	222	0.0244	2,154
Kaefer Souyet	Ixom	2,084	0.2292	19,307
Tulio Mosso	Ixom	316	0.0348	2,925
Superfrigo	Individual	9,510	1.0461	103,201
Subtotal of enterprises that did not participate (a)		**12,542**	**1.3796**	**131,563**
Eligible enterprises that joined the project				
Génesis	Ixom	1,175	0.1293	11,157
Soldaduras Edith Paz	Ixom	471	0.0518	4,472
Servicios Polares	Ixom	473	0.0520	4,491
Subtotal of enterprises that joined the project (b)		**2,119**	**0.2331**	**20,120**
Total to be returned to the Fund = (a)-(b)		**10,423**	**1.1465**	**111,443**

Refrigeration servicing sector

41. Regarding the establishment of the R&R centres UNDP explained that a purchase order had been prepared for the machines and equipment (including three refrigerant reclaim machines with pressure regulators, three gas recycling machines; three refrigerant identifiers; 90 low-capacity, 90 medium-capacity and six high-capacity reusable, refrigerant recovery cylinders; and three Goetz tubes) and were to be delivered no later than the end of April 2022; however, the supplier reported encountering major issues in their supply chain which caused a delay in delivery which is now expected in June 2022. The Secretariat understands the reasons of the delays in the project delivery and supports the requested extension required for equipment delivery and the set up of the R&R centres.

Recommendation

42. The Executive Committee may wish:

(a) To note the annual progress report on the implementation of the third and final tranche of stage II of the HCFC phase-out management plan (HPMP) for Chile, submitted by UNDP and contained in document UNEP/OzL.Pro/ExCom/90/9;

(b) To note that the individual enterprise Superfrigo and four enterprises associated with the two umbrella projects (Austral and Ixom) have opted not to participate in the polyurethane foam conversion projects under stage II of the HPMP; that three eligible enterprises were identified and agreed to join the Ixom group conversion project; and that the associated balance of approved funds of US $111,443, plus agency support costs of US $7,801 will be returned to the Fund by UNDP at the present meeting;

(c) To approve, on an exceptional basis, the extension of the date of completion of stage II of the HPMP for Chile to 31 June 2023, given the delay in implementing phase-out activities due to the COVID-19 pandemic, and noting that no further extension of project implementation would be requested; and

(d) To request the Government of Chile, through UNDP as lead implementing agency, to submit progress reports on the implementation of the work programme associated with the final tranche to the second meeting in 2023, and the project completion report to the second meeting in 2023.

Colombia: HCFC phase-out management plan (stage II – update on progress toward finalization of the draft Act and the entry into force of the bans described in document UNEP/OzL.Pro/ExCom/88/44) (UNDP)

Background

43. At the 88th meeting, in the request for the fourth tranche of stage II of the HCFC phase-out management plan for Colombia, it was reported that the bans on the use of HCFC-141b in the fire protection sector (expected by 31 December 2017, in line with decision 75/44(b)(ii)), for all uses of HCFC-141b pure and contained in imported pre-blended polyols (expected by 31 December 2020, in line with decision 75/44(b)(iii)), and on the manufacture and import of packaged type and condensed air-conditioning equipment that used HCFC-22 with a cooling capacity of less than 5 tonnes (expected by 1 January 2021, in line with decision 75/44(b)(iv)) were delayed as the Government decided to combine the legislative measures into a single draft Act. The remaining steps for finalization of the Act are approval by the Vice Minister of Environment and the legal office, and signature of the draft Act by the ministers of

Environment and of Industry and Commerce, which was expected by December 2021. The entry into force of these bans would be upon those signatures.

44. Subsequently, in approving the tranche request, UNDP was requested to provide to the 90th meeting confirmation of the finalization of the draft Act described in document UNEP/OzL.Pro/ExCom/88/44 and the entry into force of the bans on the use of HCFC-141b in the fire protection sector, for all uses of HCFC-141b pure and contained in pre-blended polyols, and on the manufacture and import of HCFC-based refrigeration and air-conditioning (RAC) equipment (decision 88/40(a)).

45. On behalf of the Government of Colombia, UNDP has submitted an update on the progress of the finalization of the draft Act and the entry into force of the bans, mentioned above, in line with decision 88/40(a).

Progress report

46. The draft Act has not yet been finalized, as a new tariff code entered into force on 1 January 2022, which required a complete revision of codes and description of the draft Act. This revision has since been completed by the National Directorate of Customs and Taxes (DIAN). In addition, the Ministry of Environment and Sustainable Development (MADS) required an endorsement letter of the updated draft Act from DIAN and the Ministry of Commerce, Industry and Tourism; those endorsement letters have been received.

47. UNDP further noted that all guilds that will be controlled by or are related to the Act, including RAC manufacturers, the firefighting association, and civil aeronautics have indicated their support for the draft Act and requested its enactment to MADS. Moreover, there were no imports of HCFC-141b in 2021, as reported by Colombia in its country programme data report.

Secretariat's comments

48. The Secretariat notes with appreciation the progress made toward finalization of the draft Act. The remaining step is signature of the draft Act by the ministers of Environment and of Industry and Commerce; the bans would enter into force three months after the finalization of the Act, except for the ban on HCFC-141b that would enter into force immediately upon finalization. It was agreed that UNDP would provide to the 91st meeting confirmation of the finalization of the draft Act and the entry into force of the bans described in document UNEP/OzL.Pro/ExCom/88/44.

Recommendation

49. The Executive Committee may wish:

(a) To note the update on progress toward finalization of the draft Act and the entry into force of the bans described in document UNEP/OzL.Pro/ExCom/88/44, in the context of stage II of the HCFC phase-out management plan for Colombia, submitted by UNDP and contained in document UNEP/OzL.Pro/ExCom/90/9; and

(b) To request UNDP to provide, to the 91st meeting, confirmation of the finalization of the draft Act and the entry into force of the bans mentioned in the update referred to in sub-paragraph (a) above.

Dominican Republic (the): HCFC phase-out management plan (stage II - third and final tranche – progress report) (UNDP and UNEP)

Background

50. Stage II of the HCFC phase-out management plan (HPMP) for the Dominican Republic was approved at the 77th meeting[18] to meet the 40 per cent reduction of HCFC consumption from the baseline by 2020, at a total funding level of US $1,589,477, consisting of US $1,279,558, plus agency support costs of US $89,569 for UNDP, and US $195,000, plus agency support costs of US $25,350 for UNEP, to phase out 15.36 ODP tonnes of HCFCs.

51. At its 86th meeting, the Executive Committee approved the third and final tranche of stage II and requested the Government of the Dominican Republic, UNDP, and UNEP to submit a progress report on the implementation of the work programme associated with the final tranche, which was to be completed by the end of 2021, to the first meeting of the Executive Committee in 2022[19]. Stage III of the HPMP was approved at the 86th meeting. In line with decision 86/53, on behalf of the Government of the Dominican Republic, UNDP as the lead implementing agency, has submitted the final progress report on the implementation of stage II of the HPMP.

HCFC consumption

52. The Government of the Dominican Republic reported under its country programme implementation report a consumption of 12.05 ODP tonnes of HCFCs in 2021, which is 76 per cent below its HCFC baseline for compliance of 51.2 ODP tonnes and 61 per cent below the maximum allowable consumption in the Agreement with the Executive Committee of 30.72 ODP tonnes.

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

Legal framework

53. The Dominican Republic has issued a ban on import and production of HCFC-based equipment (new or used) and a ban on the import of HCFC-141b, in bulk and/or contained in pre-blended polyols, both bans have been in place since 1 January 2017. Since 1 January 2019, the Government imposed administrative fees on HCFC imports to support the phase-out of HCFCs. The regulation for the monitoring of ODS imports also includes the management of HFCs, to support the Kigali Amendment; new tariff codes for HCFCs and HFC-blends were introduced to improve the control of import and export of these substances.

54. A draft standard on the use of hydrocarbons (HCs) as refrigerant was prepared and submitted to the Dominican Institute for Quality (INDOCAL) for review and consultations were held with interested stakeholders. It has since been adjusted according to comments received from a local manufacturer of HC-based refrigeration and air-conditioning (RAC) equipment and a new round of consultations is required. The National Ozone Unit (NOU) is following up closely on the process and attending the technical committee meetings on safety, where the standard would be adopted prior to being issued by INDOCAL and the Ministry of Environment and Natural Resources.

55. An online registration system containing digital documentation and records management related to HCFC imports and exports is operational and accessible through the website of the Ministry of Environment and Natural Resources; online training courses were conducted for 130 customs brokers and officials of the customs office on control procedures related to HCFCs, alternative refrigerants and HCFC-based

[18] Document UNEP/OzL.Pro/ExCom/77/41.
[19] Annex XV of document of UNEP/OzL.Pro/ExCom/86/100.

technologies; the development of a diploma course on Customs Management of Environmental Goods in the Dominican Republic covering the import and export processes to strengthen the control of substances under the Montreal Protocol was initiated and is an ongoing activity that will be completed along with the stage III in coordination with the Dominican Association of Customs.

Refrigeration servicing sector

56. The following activities were implemented under the final tranche:

(a) The procedure for granting licenses to RAC technicians including those from the informal sector was established and is being implemented through a national certification commission (CONALTRA); information on RAC technicians was collected to include them in a database to facilitate the certification process; regular consultations with stakeholder organizations were held to review the certification process; in coordination with the Association of Refrigeration and Air-Conditioning Technicians (ADOMTRA), 20 refresher courses were conducted for RAC technicians to enable them to participate in the labour competency certification process; an awareness-raising campaign on the requirement and the procedures to obtain a labor certification in refrigeration for all technicians was designed and launched;

(b) One hundred technicians and end-users completed a virtual three-month-long course (15 hr/week) on the latest technologies to phase-out HCFCs in the RAC sector, including ammonia and HCs in commercial refrigeration; to strengthen formal education at technical institutes, 300 Good practices in refrigeration manuals and 300 sets of personal safety gear were distributed among 20 training centres; due to the COVID-19 pandemic the National Institute of Professional Education Training (INFOTEP) closed all its centres during much of 2020 and 2021, which limited the capability to conduct more training courses for RAC technicians; the Good practices in refrigeration courses have been integrated into the curriculum at INFOTEP;

(c) Fifty R-290-based air conditioners were procured and the delivery was delayed due to the global supply crisis; the equipment arrived in the Dominican Republic in January 2022. The equipment was installed in training centres (for training purposes) and different regional offices of the Ministry of Environment and Natural Resources. Lessons learned on their installation, service and use (such as energy efficiency and performance) will be collected after one year of operation;

(d) An initial 685 kits of tools and equipment to facilitate good refrigeration practices among RAC technicians were procured with the funds approved under the second tranche, and 125 additional sets of tools were acquired with the funds initially allocated to an incentive project for installing trans-critical CO_2 in a supermarket;[20] of these 405 kits have already been received in the country and delivered to CONALTRA and 67 kits were distributed among certified technicians. The remaining kits are being shipped to the country and are expected to arrive on 6 June 2022;

(e) Twenty new recovery and recycling (R&R) centres were established; tools and equipment (such as cylinders, recovery machines, manometers, and vacuum pumps, etc.,) were distributed to the R&R network; the R&R centres provide access to RAC technicians to use the equipment and tools; a contact directory of centres and associated technicians was developed to strengthen the relationship between technicians and the R&R centres; the

[20] The incentive project of conversion was cancelled, as the enterprise focused their efforts and resources to manage the challenges of the pandemic.

monitoring of the R&R network continued, but due to the COVID-19 pandemic, there were a limited number of in-person visits; and

(f) Design and production of awareness-raising material related to HCFC alternatives and the certification programme for RAC technicians; and an awareness campaign to disseminate control measures and phase-out initiatives related to HCFCs, HCFC-based equipment and the use of alternative refrigerants.

Project implementation and monitoring unit (PMU)

57. Of the US $31,201 approved for project monitoring US $30,000 was used for consultants for project implementation and monitoring and US $1,201 for meetings with stakeholders and miscellaneous expenses.

Status of disbursement

58. As of May 2022, of the US $1,474,558 approved for stage II, US $1,313,088 (89 per cent) had been disbursed (i.e., US $1,123,955 for UNDP, US $189,133 for UNEP) and the balance of US $161,470 is committed and will be disbursed by the 31 December 2022.

Completion of stage II

59. UNDP confirmed that stage II of the HPMP was operationally completed in December 2021; however, the tools and equipment for technicians had been delayed due to the COVID-19 pandemic and constraints in the supply chain and would be delivered in June 2022. Once the tools and equipment are received by CONALTRA, UNDP can initiate financial completion of the project. The remaining commitment of US $161,470 will be disbursed upon confirmation of delivery of the equipment.

Secretariat's comments

60. Regarding the remaining tools and equipment for distribution, the Secretariat requested UNDP to report on the final delivery and distribution of these tools and equipment when requesting for the next tranche for stage III of the HPMP. UNDP informed that the delays in the arrival of the tools and equipment would not affect the financial completion date of 31 December 2022, and that any remaining balance will be returned to the Multilateral Fund as per the usual practices.

Recommendation

61. The Executive Committee may wish:

(a) To note the progress report on the implementation of the work programme associated with the third and final tranche of stage II of the HCFC phase-out management plan (HPMP) for the Dominican Republic, submitted by UNDP and contained in document UNEP/OzL.Pro/ExCom/90/9; and

(b) To request UNDP to report on the final delivery and distribution of the tools and equipment for refrigeration technicians when requesting for the next tranche for stage III of the HPMP.

Jamaica: HCFC phase-out management plan (stage II – Update on the status of implementation of the measures for strengthening the licensing and quota system and monitoring and reporting of HCFC consumption recommended in the verification report) (UNDP and UNEP)

Background

62. At the 88th meeting, the Executive Committee requested the Government of Jamaica and UNDP to provide, at the 90th meeting, an update on the additional steps taken in relation to the recommendations in the verification report submitted to the 85th meeting on the implementation of the measures for strengthening the licensing and quota system and monitoring and reporting of HCFC consumption under stage II of the HCFC phase-out management plan (HPMP) (decision 88/19).

63. In response to decision 88/19, UNDP submitted to the 90th meeting a report providing the following information:

(a) The review of the Trade Order (2014) for revising the annual HCFC import allocations in line with stage II of the HPMP and drafting policies related to import of cooling equipment and refrigerants, was completed in November 2021 after detailed stakeholder consultations and with support from a legal consultant. The national ozone unit (NOU) is following up on the next steps relating to approval of the relevant provisions of the Trade Order (e.g., annual HCFC import quota allocations) by the Chief Parliamentary Counsel (CPC);

(b) Four virtual capacity building workshops on HCFC import controls, monitoring and reporting, targeting 20 individuals each from the National Environment and Planning Agency (NEPA) Enforcement, Jamaica Customs Agency, Ministry of Health and Wellness, and customs brokers, will be convened in June 2022; and

(c) The format for data reporting was finalised in 2021 and is currently being used by importers.

Secretariat's comments

64. The Secretariat requested additional information on the timelines for finalisation of the amendments to the Trade Order (2014). UNDP explained that at this stage, the NOU is unable to present a timeline for completion as the process involves other ministries; the NOU is following up on the process for expediting approval of the Trade Order. UNDP also explained that the importers have been duly informed about the revised quotas for HCFCs in line with the Agreement of stage II of the HPMP.

65. The Secretariat notes that the Government of Jamaica with support from UNDP and UNEP is implementing the recommendations of the verification report and will continue to monitor finalisation of the Trade Order (2014).

Recommendation

66. The Executive Committee may wish:

(a) To note the update on the status of implementation of the measures for strengthening the licensing and quota system and monitoring and reporting of HCFC consumption recommended in the verification report under stage II of the HCFC phase-out management plan (HPMP) for Jamaica, submitted by UNDP and contained in document UNEP/Ozl.Pro/ExCom/90/9; and

(b) To request the Government of Jamaica and UNDP to provide an update on the approval of the Trade Order (2014) at the time of submission of the request for the second tranche of stage II of the HPMP.

Kenya: HCFC phase-out management plan (stage II, second tranche – update on the status of implementation of activities for strengthening the licensing and quota system for HCFCs and information-sharing with the Kenya Revenue Authority on HCFC imports) (Government of France)

Background

67. The Executive Committee, at its 88th meeting, took note of the status report submitted by the Government of Kenya[21] on the strengthening of the licensing and quota system for HCFCs and information-sharing with the Kenya Revenue Authority (KRA) on HCFC imports, in light of the recommendations made in the verification report associated with the second tranche of stage II of its HCFC phase-out management plan (HPMP); and requested the Government of Kenya, through the Government of France, to provide, at the 90th meeting, an update on the status of implementation of activities for strengthening the licensing and quota system for HCFCs and information-sharing with KRA on HCFC imports (decision 88/20).

68. In response to the decision, the Government of France submitted the following information:

(a) In November 2021, the national ozone unit (NOU) and the National Environmental Management Authority (NEMA) held a meeting at the port on enforcement of licensing system for HCFC imports with the KRA Operations Manager, who confirmed that no controlled substances are cleared without an original license issued by NEMA;

(b) In December 2021, a two-day in-person training programme on control measures of ODS, ODS alternatives and ODS-based equipment was held in Kisumu and was attended by 15 customs officers stationed at various entry points in the western region of the country, and three facilitators from the KRA, the NEMA and the NOU under the Ministry of Environment and Forestry; and

(c) In March 2022, the NOU undertook visits to the importers for exchange of information relating to ODS data collection, reporting and monitoring systems.

Secretariat's comments

69. The Secretariat noted that the NOU continued to hold discussions and exchanged information with customs and enforcement authorities since November 2021; further, the customs trainer plans to conduct one additional training programme for customs and enforcement authorities in May 2022 and one train-the-trainer programme in June 2022.

70. It was agreed that the Government of France would provide an update on activities implemented relating to the strengthening of the licensing and quota system for HCFCs and information-sharing with KRA on HCFC imports when the third tranche of stage II of the HPMP would be submitted.

Recommendation

71. The Executive Committee may wish:

[21] In response to decision 86/53(a) and the provision contained in Annex XV of document UNEP/OzL.Pro/ExCom/86/100.

(a) To note the update on the status of implementation of activities for strengthening the licensing and quota system for HCFCs and information-sharing with the Kenya Revenue Authority (KRA) on HCFC imports, submitted by the Government of Kenya through the Government of France and contained in document UNEP/OzL.Pro/ExCom/90/9; and

(b) To request the Government of Kenya, through the Government of France, to provide an update on the status of activities implemented for strengthening the licensing and quota system for HCFCs and information-sharing with KRA on HCFC imports, when the third tranche of stage II of the HCFC phase-out management plan would be submitted.

Kyrgyzstan: HCFC phase-out management plan (stage II - final progress report) (UNDP and UNEP)

Background

72. Stage II of the HPMP was approved at the 74th meeting[22] and revised at the 85th meeting[23] to meet a 97.5 per cent reduction from the baseline by 2020 and a 100 per cent reduction by 2025, at a total funding level of US $712,000, plus agency support costs, to phase out 2.40 ODP tonnes of HCFCs used in the refrigeration and air-conditioning (RAC) servicing sector. When the third and final tranche was approved at the 85th meeting,[24] it was requested *inter alia* that a progress report on the implementation of the work programme associated with the final tranche be submitted to the first meeting of the Executive Committee in 2022, and detailed reports on the results of the end-user incentive scheme and demonstration projects once they had been completed (decisions 84/84(d) and 85/22(a)).

73. In line with these decisions and on behalf of the Government of Kyrgyzstan, UNDP has submitted the above-mentioned reports.

HCFC consumption

74. The Government of Kyrgyzstan reported under country programme implementation report a consumption of 0.00 ODP tonnes of HCFC in 2021, which is 100 per cent below the HCFC baseline for compliance. The Article 7 data for 2021 has not been reported yet.

Progress report

75. Under the legal framework, a cumulative number of 3,686 customs officers and related personnel, including customs agents, law enforcement officers, and inspectors, were trained under stage II. Further, the country developed and updated regulatory acts in accordance with the requirements of the Montreal Protocol and the Eurasian Economic Union (EAEU), including:

(a) Introduction of a licensing system for HFC imports and exports;

(b) Adoption of the decision to include HFCs in the Unified List of Goods, to which non-tariff regulation measures are applied in trade with countries outside of the EAEU;

(c) Development of a draft regulation on the import and export of ODS, HFCs, and products containing ODS and HFCs;

(d) Development of a vocational training standard on refrigeration systems and heat pumps for the safe handing of alternative refrigerants, used in the certification of technicians;

[22] Annex XII of document UNEP/OzL.Pro/ExCom/74/56.
[23] Annex V of document UNEP/OzL.Pro/ExCom/85/67.
[24] Annex IV of document UNEP/OzL.Pro/ExCom/85/67.

(e) Prohibition of trade with countries that have not ratified the Kigali Amendment, effective 1 January 2033; and

(f) Ratification of the Kigali Amendment in September 2021.

76. The following activities were conducted in the servicing sector:

(a) Procurement of 56 sets of training equipment (including vacuum pumps, manifolds, welding equipment, flanging tools, tube cutters, and tube expanders) and servicing tools distributed to technicians and training centres; and five sets of recovery and recycling equipment (including recovery unit, recovery station, spare parts, and cylinders) distributed to recovery and recycling centres and the national RAC association;

(b) Completion of the end-user incentive programme and the provision of co-financed low-GWP-based equipment to end-users;

(c) Organization of two annual awareness-raising events for RAC technicians and end-users to share updates on the Montreal Protocol, best practices in servicing equipment, new low-GWP alternatives, the HFC licensing system, energy efficiency standards, and opportunities to improve the efficiency of RAC equipment;

(d) Organization of 30 workshops with 666 participants from 2020 to 2021, including five workshops for RAC technicians and end-users on the phase-out of HCFCs and the recovery and recycling of refrigerants;

(e) Training of 1,449 technicians during stage II, of which 398 were certified; and

(f) Continuation of HPMP monitoring activities, including monitoring of the recovery and recycling of refrigerants. A total of 20.8 mt of CFC-12 and 13.1 mt of HCFC-22 were recovered during stage II.

End-user incentive scheme

77. Under the second tranche, UNDP had planned to import key components and assemble *in situ* one or two cold rooms in commercial installations based on natural refrigerants such as ammonia and CO_2 to introduce the technology to the market and demonstrate its benefits. However, it was found that ammonia and CO_2 technologies were too expensive for the low level of capitalization of end-users in the country, and the focus of the project was changed to smaller-scale R-290-based refrigeration equipment.

78. Five awareness-raising workshops were organized for owners of retail stores, hotels and other organizations that used refrigeration equipment; these workshops also included training on the safe handling of flammable refrigerants and good servicing practices. Twelve interested end-users were then selected who would provide at least 50 per cent co-funding and promote the use of technology through their networks; 30 R-290-based refrigeration units were purchased and installed at these end-users.

79. To support the uptake of the technology, installations of R-290 equipment were demonstrated, and the Government of Kyrgyzstan established regulations requiring national certification of refrigeration specialists working with HCFCs, HFCs and flammable refrigerants, and the renewal of such certification through trainings every two years. Certification is competency-based and follows the newly developed vocational training standard.

Demonstration projects

80. Six R-290-based refrigeration units and three corresponding insulation chambers, plus a further six refrigerated display cases where R-290-based refrigeration units will be installed, were purchased to increase awareness of R-290 technology; the procurement of that equipment was separate from the end-user incentive scheme. The national ozone unit (NOU) used the equipment in training seminars for end-users and refrigeration technicians to demonstrate the equipment's operation under different climatic conditions across the country.

81. In addition, eight free-cooling systems[25] using smart control technology were installed at cellphone communication stations that had been consuming HCFC-22 in air-conditioning (AC) units. Those installations were intended to demonstrate the benefits of not-in-kind technology through reduced energy consumption and use of AC equipment, which would also reduce the servicing demand of the AC equipment.

Level of fund disbursement

82. As of December 2021, 99.9 per cent of funds had been disbursed (US $399,496 for UNDP and US $312,000 for UNEP). UNDP has confirmed that the project was completed by December 2021 and will be financially completed by December 2022.

Secretariat's comments

HCFC consumption

83. The Government has issued quotas for 2022 at the level of zero ODP tonnes, which is below the Montreal Protocol control target for that year and consistent with the target specified in row 1.2 of the Agreement (maximum allowable consumption) between the country and the Executive Committee.

84. The Secretariat noted with appreciation that UNDP included in its work programme for 2022 a request for funding for the verification report of Kyrgyzstan's 2019-2022 consumption, in line with decision 85/22(a).

End-user incentive programme

85. In line with decisions 84/84(d) and 85/22(a), UNDP provided a report on the results of the end-user incentive scheme in Kyrgyzstan. The Secretariat will prepare a factsheet on the scheme and will include the results of the project in the document it will prepare for the first meeting of 2023, in line with decision 84/84(e).

Demonstration projects

86. The Secretariat sought clarification on the ownership of the R-290-based refrigeration equipment used for the demonstration projects upon completion of those projects, and information on the performance of the R-290-based equipment compared to the HCFC-22-based baseline equipment, as well as HFC-134a- and R-404A-based equipment that was prevalent in the country.[26] The R-290-based refrigeration units procured for the demonstration projects were used by the NOU in training seminars; the national RAC association will take ownership of the equipment after three years of demonstration. The six R-290-based refrigeration units were installed in 2021 and the NOU had been monitoring their performance; to date, the units have performed well, including by maintaining stable refrigeration

[25] http://www.barantech.com.tr/products/free-cooling/
[26] Paragraph 16(d) of document UNEP/OzL.Pro/ExCom/85/32.

temperatures even in extreme weather conditions; additional time was required to monitor their long-term performance. The R-290 refrigerated display cases had not yet been installed at end-users as they were used for demonstration purposes; accordingly, information on their performance was not yet available.

87. The performance of the free-cooling systems was also being collected. The use of the free-cooling equipment reduced the need to service the AC equipment at the cellphone communication stations, including the need to recharge the equipment with HCFC-22. Information on energy consumption was still being collected. The NOU would monitor the use of the equipment for three years, after which the communications operator would take ownership of the equipment. The NOU plans to organize a workshop in 2024 to disseminate the results of the project, including information on savings due to reductions in energy consumption.

Adoption of R-290-based equipment

88. In light of the end-user incentive scheme and R-290 demonstration projects, the Secretariat inquired whether end-users had purchased R-290-based equipment since the completion of the project. UNDP noted that while there had been substantial uptake of stand-alone refrigeration equipment with a charge of up to 100 grams of R-290 in the country, and the performance of the larger R-290-based commercial refrigeration equipment had thus far been positive, end-users have to date remained hesitant to adopt R-290 technology for the larger charges required for cold stores due to safety concerns. Those concerns may be allayed as further results from the demonstration projects and end-user incentive scheme are disseminated.

Recommendation

89. The Executive Committee may wish to note the final progress report on the implementation of the work programme associated with the final tranche of stage II of the HCFC phase-out management plan for Kyrgyzstan, and the results of the end-user incentive scheme and demonstration projects in Kyrgyzstan, submitted by UNDP in line with decisions 84/84(d) and 85/22(a), and contained in document UNEP/OzL.Pro/ExCom/90/9.

Oman: HCFC phase-out management plan (stage II – final progress report) (UNIDO and UNEP)

Background

90. At its 75th meeting,[27] the Executive Committee approved, in principle, stage II of the HCFC phase-out management plan (HPMP) for Oman, with UNIDO as lead implementing agency and UNEP as cooperating implementing agency, for the period 2016-2020 at a total cost of US $485,000, plus agency support costs, to phase out 5.32 ODP tonnes of HCFCs used in the refrigeration and air-conditioning (RAC) servicing sector and meet the 35 per cent reduction from the baseline by 2020. The third and final tranche was approved at the 86th meeting.[28]

91. On behalf of the Government of Oman, UNIDO submitted a progress report on the implementation of the work programme associated with the final tranche of stage II, in line with decision 86/53(a).

HCFC consumption

92. The Government of Oman reported under Article 7 of the Montreal Protocol a consumption of 14.85 ODP tonnes of HCFC in 2021, which is 53 per cent below the HCFC baseline for compliance. This is consistent with the HCFC sector consumption data reported under the 2021 country programme implementation report.

[27] Annex XXII of document UNEP/OzL.Pro/ExCom/75/85.
[28] Annex XV of document UNEP/OzL.Pro/ExCom/86/100.

Progress report

93. The following activities were conducted in the servicing sector:

(a) Continued meetings of the National Ozone Committee (NOC) to supervise and monitor the implementation of the HPMP, operation of the quota and e-licensing system, and update of standards to facilitate the uptake of low-global-warming-potential (GWP) alternative technologies, including for the introduction of higher energy-efficient equipment, labelling, and safe handling of flammable and toxic refrigerants;

(b) Completion of a technical report assessing low-GWP technologies in the fisheries sector, and development of a related training video shared with interested parties; organization of an in-person workshop is planned for October 2022 as part of stage III;

(c) Continued strengthening of the recovery and recycling network by supplying two refrigerant collection centres and a laboratory with tools (gas chromatograph, 10 refrigerant recovery units with recycling module, 20 50-lb and 100 30-lb recovery cylinders);

(d) Organization of two in-person trainings on the reclamation supply chain and reclamation centre equipment for 33 participants from service workshops;

(e) Organization of a targeted awareness campaign for public, stakeholders, and end-users on matters related to the Montreal Protocol and the HPMP;

(f) A memorandum of understanding was drafted and several meetings were held to finalize the implementation plan of the RAC technician certification system, coordinated by the Ministry of Labour; launch of the system has been further delayed and was expected by December 2022;

(g) Two workshops were held, and 41 additional technicians trained on refrigerant management and good servicing practices; and

(h) Ongoing project monitoring and verification of implementation, including consumption verification reports covering 2018 to 2020 and monitoring of the recovery and recycling of refrigerants; in 2021 and 2022, a total of 10.2 mt of refrigerants were recovered and 9.2 mt recycled.[29]

Level of fund disbursement

94. As of April 2022, 91 per cent of funds had been disbursed as shown in Table 6. UNIDO has confirmed that the project was operationally completed by 31 December 2021 and will be financially completed by 31 December 2022.

Table 6. Financial report of stage II of the HPMP for Oman (US $)

Agency	First tranche		Second tranche		Third tranche		Total	
	Approved	Disbursed	Approved	Disbursed	Approved	Disbursed	Approved	Disbursed
UNIDO	215,000	214,443	50,000	49,913	20,000	19,336	285,000	283,692
UNEP	83,500	83,500*	59,500	54,550**	57,000	20,000**	200,000	158,050
Total	**298,500**	**297,943**	**109,500**	**104,463**	**77,000**	**39,336**	**485,000**	**441,742**
Disbursement rate (%)	**100**		**95**		**51**		**91**	

[29] Recovered refrigerants include R-134a (7.21 mt), R-407a (0.10 mt), R-410a (0.63 mt), and R-22 (2.23 mt); recycled refrigerants include R-134a (6.50 mt), R-407a (0.10 mt), R-410a (0.57 mt), and R-22 (2.03 mt).

[*] Including the return of US $7,846, plus agency support costs, to the 84th meeting.
[**] A higher level of disbursement was inadvertently reported to the 88th meeting.

Secretariat's comments

HCFC consumption

95. The Government has issued quotas for 2022 at the level of 14.33 ODP tonnes, which is below the Montreal Protocol control target for that year and the target specified in row 1.2 of the Agreement between the country and the Executive Committee.

Progress report

96. At the 86th meeting, it was noted that the development of the business plan for the reclamation centre had been delayed given the need to first organize training sessions on reclamation. UNIDO clarified that while the training sessions were organized in early 2021, the development of the business plan was further delayed due to the need to repair the reclamation machine at the beneficiary. UNIDO expected to develop the business plan by early 2023 as part of the activities of the first tranche of stage III of the HPMP.

97. Also at the 86th meeting, it was noted that UNIDO would include information on the level of implementation of the mandatory logbook to record leaks and repairs and of the mandatory leak detection of all controlled substances in RAC systems with a charge greater than 3 kg, as well as on the implementation of the RAC technician certification scheme, including the number of technicians certified under the HPMP, as part of the final progress report to be submitted to the first meeting in 2022.[30] Accordingly, UNIDO confirmed that all major maintenance enterprises are now recording leaks and repairs in logbooks and implementing the leak test detection procedures. As reported to the 88th meeting, the launch of the RAC technician certification system had been delayed because of Government restructuring and was expected to be in place by 1 January 2022. However, UNIDO informed that the implementation of the certification system was further delayed; the system was expected to be launched by December 2022.

98. At the 88th meeting, it was noted that the ongoing training of 1,000 technicians (in addition to the 200 trained during the first and second tranches) had been delayed due to the COVID-19 pandemic and were expected to be completed by December 2021; however, only a further 41 technicians could be trained due to continued COVID-19-related restrictions. Most restrictions caused by the pandemic were lifted in March 2022 and UNEP was hopeful that implementation of training activities would resume under the first tranche of stage III of the HPMP. UNEP confirmed that the savings associated with the technician trainings that could not be held would be returned to the Multilateral Fund upon financial closure of the project in 2022.

Recommendation

99. The Executive Committee may wish to note the progress report on the implementation of the final tranche of stage II of the HCFC phase-out management plan for Oman, submitted by UNIDO in line with decision 86/53(a) and contained in document UNEP/OzL.Pro/ExCom/90/9.

[30] At the 86th meeting, it was also noted that UNIDO would include information on the implementation of the ban on disposable cylinders; however, at the 88th meeting, it was agreed that the ban would be implemented under stage III of the HPMP, was expected to be in place by 2026-2027, and would address all controlled gases that may be imported in disposable cylinders.

Philippines (the): HCFC phase-out management plan (stage II – progress report and request for extension of completion date) (UNIDO)

Background

100. At the 87th meeting, the Executive Committee, *inter alia*, approved the request from the Government of the Philippines through UNIDO as designated implementing agency, to cancel the air-conditioning (AC) manufacturing sector plan originally included in stage II of the HCFC phase-out management plan (HPMP) at the 80th meeting and approved a revised implementation plan for the combined first, second and third tranche activities in the servicing sector and technical assistance in the AC manufacturing sector; requested UNIDO to return to the Multilateral Fund at the 90th meeting the amount of US $212,152, approved as part of the first tranche of stage II of the HPMP; and further requested the Government of the Philippines and UNIDO to submit progress reports on a yearly basis on the implementation of the work programme associated with the combined tranches until the completion of the project, verification reports until approval of stage III, and the project completion report to the second meeting in 2023 (decision 87/19).

101. In line with decision 87/19, UNIDO, on behalf of the Government of the Philippines, has submitted to the present meeting the above-mentioned progress report. In addition, the Government of the Philippines through UNIDO is requesting an extension of the implementation of stage II until 31 December 2023.

HCFC consumption

102. The Government of the Philippines reported a consumption of 60.40 ODP tonnes of HCFC in 2021, which is 63 per cent below the HCFC baseline for compliance and 27 per cent below the targets set in the Agreement with the Executive Committee for that year. The 2017-2021 HCFC consumption is shown in Table 7.

Table 7. HCFC consumption in the Philippines (2017-2021 Article 7 data)

HCFC	2017	2018	2019	2020	2021	Baseline
Metric tonnes (mt)						
HCFC-22	1653.69	1615.61	1643.24	843.69	1039.63	1,959.45
HCFC-141b	183.46	144.5	110.98	18.90	18.90	475.05
HCFC-142b	0.00	0.00	0.00	0.00	0.00	3.99
HCFC-123	57.13	57.4	57.13	106.66	57.12	84.38
HCFC-225ca	0.31	0.15	0.38	0.00	0.00	0.17
HCFC-225cb	0.31	0.16	0.38	0.00	0.00	0.17
Total	**1,894.28**	**1,817.51**	**1,811.36**	**969.25**	**1,115.65**	**2,523.21**
ODP tonnes						
HCFC-22	90.95	88.86	90.38	46.40	57.18	107.77
HCFC-141b	20.18	15.90	12.21	2.08	2.08	52.26
HCFC-142b	0.00	0.00	0.00	0.00	0.00	0.26
HCFC-123	1.14	1.15	1.14	2.13	1.14	1.69
HCFC-225ca	0.01	0.00	0.01	0.00	0.00	0.00
HCFC-225cb	0.01	0.01	0.01	0.00	0.00	0.00
Total	**112.28**	**105.90**	**103.73**	**50.62**	**60.40**	**161.98**

103. The Government of the Philippines reported HCFC sector consumption data under the 2021 CP implementation report which is consistent with the data reported under Article 7 of the Montreal Protocol.

Revised implementation plan for stage II of the HPMP

Progress report on the implementation

104. In addition to activities in the refrigeration servicing sector, the revised implementation plan approved at the 87th meeting retained technical assistance to the AC manufacturing sector to support the sector in exploring the use of lower-GWP equipment and encourage their uptake in the market.

105. The implementation of the remaining activities for the servicing sector and the technical assistance activities in the AC manufacturing sector have been impacted by the ongoing COVID-19 restrictions. The Philippines was in a nationwide lockdown for most of 2020 and 2021 and only small group gatherings were allowed, thus slowing down the implementation of training and technical assistance activities.

106. Since the 87th meeting, the following activities were undertaken:

(a) *Technical assistance for policy/enforcement and customs authorities*: minimum energy performance standards were updated by the Department of Energy, and the Implementing Guidelines of the Philippine Energy Labelling Program for Air Conditioners was issued in May 2021; multi-refrigerant identifiers were distributed to the regional offices of the Environmental Management Bureau of the Department of the Environment and Natural Resources during 2021; discussions with the Bureau of Customs to implement the customs training programme were finalized; one online training for 30 customs officers and other enforcement agencies was organized and one in-person train-the-trainers workshop was initiated on 5 May 2022 for 20 trainers; Terms of Reference for the hiring of an information technology consultant to upgrade the licensing and data management system of the National Ozone Unit, was drafted;

(b) *Technical assistance for the servicing sector to promote good refrigeration practices, and to demonstrate and encourage the use of low-GWP alternatives:* training of technicians was not completed; however, coordination with the training institute, Technical Education and Skills Development Authority (TESDA), was done to facilitate the conduct of training at the soonest possible time; technical support continued to be provided to the designated central recycling centre, DELSA Inc; an analysis is being done with regard to the amount of HCFCs and other refrigerants collected from the regional collection centres and central recycling centres, to determine a way forward on their disposal; awareness raising activities for firefighting authorities were initiated to consider potential alternatives for fire protection applications;

(c) *Technical assistance for AC manufacturing sector to promote low-GWP alternatives*: preparation of training modules has started for the conduct of safety training and awareness programme for low-GWP alternatives (including HFC-32) for AC manufacturing, installation, and servicing; and

(d) *Project Management Unit (PMU):* a national coordinator was hired for monitoring the progress and the implementation of the remaining activities for the HPMP; visits were made to regional offices to discuss the country's commitments to the Montreal Protocol and promote the use of low-GWP refrigerants; information awareness activities were implemented (i.e., webinars on climate and ozone protection, etc.); gender indicators continue to be monitored. Of the US $75,000 allocated, US $30,500 was disbursed on project staff (US $17,500), consulting services and recruitment of experts (US $8,000), and domestic travel (US $5,000).

Level of fund disbursement

107. As of April 2022, of the US $811,750 approved for stage II, US $251,917 (31 per cent) had been disbursed. The balance of US $559,833 will be disbursed by 31 December 2023.

108. In addition, funding in the amount of US $212,152, consisting of US $53,273 for the AC manufacturing sector plan and US $145,000 for the associated PMU costs, plus agency support costs of US $13,879 is being returned to the 90th meeting in line with decision 87/19.

Implementation plan for 2022-2023

109. The following activities will be implemented with the remaining balance:

(a) Technical assistance for policy/enforcement and customs authorities:

(i) Four policy awareness-raising activities with 100 stakeholders to facilitate the transition to energy-efficient AC equipment and to encourage the uptake of low-GWP refrigerants; issuance of a circular to notify AC market suppliers that any AC model containing HCFC-22 cannot be registered and sold in the Philippines market from January 2023 to discourage the demand of HCFC-based AC equipment (US $12,000);

(ii) Five workshops for 150 customs and enforcement officers on the monitoring of ODS imports, trade control of HCFCs and illegal imports; update of training materials used in customs training; review of the online licensing system to include recommendations from the verification report submitted to the 87th meeting to include an early warning system to detect illegal trade; two training workshops on effective enforcement of the licensing and quota system for 45 participants from the Government and distributors/suppliers of refrigerants (US $102,410);

(iii) Assessment of the data management system to include requirements for the registration of refrigeration and air-conditioning (RAC) service providers and enhance the management of the online licensing system; two meetings with a total of 30 distributors and suppliers of HCFCs and HCFC-based equipment to discuss requirements for registration and data reporting (US $19,000);

(iv) Verification of HCFC consumption and HPMP implementation (US $3,500);

(b) Technical assistance for the servicing sector to promote good refrigeration practices, and to demonstrate and encourage the use of low-GWP alternatives:

(i) Training 100 RAC technicians on good refrigeration practices to minimize refrigerant leaks from equipment and safety considerations for flammable refrigerants; technical support for the central recycling centre; collection of HCFCs and other refrigerants; review of the disposal options for unused and unwanted controlled substances including three stakeholder meetings and three coordination meetings (US $126,521);

(ii) Continue updating training capacity of TESDA and TESDA-accredited institutions to strengthen the technician certification and training programme through the development of new material and of a new code of practice on the handling of low-GWP alternatives to HCFC-22 (i.e., HFC-32, R-290) to ensure that technicians are prepared when uptake of these alternatives increases; develop new

training material for alternatives to HCFC-141b for flushing in the servicing sector; train at least 25 trainers on the new service code of practice; and five training workshops for 120 service technicians for certification on the handling of low-GWP alternatives to HCFC-22 (i.e., HFC-32 and R-290) and on alternatives to HCFC-141b (US $82,000); and

(iii) A study on the potential alternatives to HCFC-225ca and HCFC-225cb for cleaning refrigeration systems and to HCFC-123 for firefighting; informing and educating stakeholders on the alternatives and cost-effectiveness through two workshops for a total of 40 participants; a study to identify where HCFC-141b is used as a solvent and to recommend alternatives for flushing and two training workshops for 60 participants on the findings (US $78,000);

(c) Technical assistance to promote low-GWP alternatives for the AC manufacturing sector (US $91,902):

(i) Three workshops for 100 AC manufacturers, importers, end-users to provide information and demonstrate, encourage, and promote the use of low-GWP alternatives in the AC sector;

(ii) Development of a market study on the current situation in the Philippines for the AC sector looking at the availability, technical feasibility, and potential environmental and economic benefits for transitioning to low-GWP alternatives both in the manufacturing and import categories;

(iii) Preparation of a pilot online training programme to be publicly available on the e-learning websites specifically on the safe handling of flammable, toxic, and high-pressure refrigerants targeted towards manufacturing enterprises, technicians, end-users, importers, and other relevant stakeholders to support the uptake of these alternatives, with the view to including this in the overall servicing technician training programme; and

(d) PMU: (US $44,500) for the overall implementation and monitoring of activities including hiring of a coordinator and survey experts; stakeholder coordination; information dissemination on various topics related to the stage II implementation; engaging an expert to implement the gender policy of the Multilateral Fund consistent with UNIDO's guide for gender mainstreaming in Montreal Protocol projects; and continue implementation of general awareness raising programmes.

Secretariat's comments

110. The Secretariat noted that the verification of HCFC consumption for 2021 requested by decision 87/19 has not been submitted; and further noted that Article 7 data reported for the year indicates that the country is in compliance with the Montreal Protocol and the targets set in the HPMP Agreement. UNIDO explained that the verification of consumption in the Philippines is still underway, and will be completed by December 2022, for submission to the 91st meeting. The Secretariat also noted that the consumption of the country in 2021 is 16 per cent higher than 2020; UNIDO explained that it was due to the market recovery after COVID-19 restrictions were lifted, noting the steep decrease in consumption between 2019-2020.

111. The Secretariat further noted that the challenges due to the COVID-19 pandemic had caused delays in the implementation of the HPMP. However, there was an overall disbursement of 31 per cent and a few notable outcomes during this period which included the development of minimum energy performance

standards for RAC equipment in close coordination with the Department of Energy and the issuance in May 2021 of the Implementing Guidelines of the Philippine Energy Labelling Program for Air Conditioners, which will support the uptake of low-GWP alternatives in the country.

112. The Secretariat considered that the request for extension of the HPMP until end of December 2023 would allow the Government of the Philippines and UNIDO to complete all the remaining activities for the combined tranches. UNIDO also indicated that stage III of the HPMP will be submitted to the second meeting in 2023.

Recommendation

113. The Executive Committee may wish:

(a) To note the progress report on the implementation of the work programme associated with stage II of the HCFC phase-out management plan (HPMP) for the Philippines and the request for extension submitted by UNIDO, contained in document UNEP/OzL.Pro/ExCom/90/09;

(b) To extend, on an exceptional basis, due to the delays imposed by the COVID-19 pandemic, the completion date of stage II of the HPMP for the Philippines until 31 December 2023 noting that no further extension would be requested;

(c) To request the Government of the Philippines through UNIDO to submit:

(i) The verification report of HCFC consumption for 2021 to the 91st meeting; and

(ii) Progress reports on a yearly basis on the implementation of the work programme associated with the final tranche until the completion of the project, verification reports until approval of stage III, and the project completion report to the first meeting in 2024.

Saint Lucia: HCFC phase-out management plan (stage I, fifth tranche and stage II, first tranche – Update on the status of the signing of the small-scale funding agreement (SSFA) and disbursement of the first instalment under the SSFA) (UNEP)

Background

114. At the 88th meeting, after hearing the report from UNEP in response to a request by one member for an update on the status of the signature of the small-scale funding agreement (SSFA) with the Government of Saint Lucia for the fifth tranche of stage I of the HCFC phase-out management plan (HPMP) pursuant to (decision 87/28(a))[31] and the SSFA for the first tranche of stage II approved at the 87th meeting, and their related disbursements, the Executive Committee requested UNEP to provide, at the 90th meeting, an update on the status of the signing of the SSFA for the fifth tranche of stage I of the HPMP and the SSFA for the first tranche of stage II of the HPMP for Saint Lucia and disbursement of the first instalments under each of the SSFAs (decision 88/22(b)).

115. In line with the decision, UNEP provided the following information:

(a) The SSFA for the fifth tranche of stage I of the HPMP was signed for US $21,000 on 6 December 2021 and the first cash advance amounting to US $10,500 was disbursed to the country on 2 March 2022; and

[31] Annex XI of document UNEP/OzL.Pro/ExCom/87/58.

(b) The SSFA for the first tranche of stage II was signed for US $81,000 on 22 December 2021. The first cash advance amounting to US $40,500 was disbursed to the country on 25 April 2022.

Secretariat's comments

116. The Secretariat noted that UNEP in close consultation with the relevant Government authorities in Saint Lucia undertook necessary steps to ensure the signing of both SSFAs and transfer of first cash advance under the SSFAs.

Recommendation

117. The Executive Committee may wish to note the update on the status of the signing of the small-scale funding agreement (SSFA) for the fifth tranche of stage I of the HCFC phase-out management plan (HPMP) and the SSFA for the first tranche of stage II of the HPMP for Saint Lucia and disbursement of the first instalments under each of the SSFAs, submitted by UNEP and contained in document UNEP/OzL.Pro/ExCom/90/9.

Uruguay: HCFC phase-out management plan (stage II – progress report on implementation of the conversion of the foam enterprises) (UNDP)

Background

118. Stage II of the HCFC phase-out management plan (HPMP) for Uruguay was approved in principle, at the 77th meeting[32] and the second tranche which included a request for the implementation of a conversion project in 21 small- and medium-sized foam manufacturing enterprises (SMEs) for the phase-out of 5.53 ODP tonnes (50.24 metric tonnes) (mt) of HCFC-141b contained in imported pre-blended polyols to hydrofluoroolefin (HFO) technology[33] was approved at the 82nd meeting. UNDP had indicated there were challenges in securing the supply of HFOs in the region. In approving the tranche, the Executive Committee requested UNDP to report on the progress in implementation of the conversion of the SMEs and the availability of HFO/HFO-based polyurethane (PU) systems and their associated components to the 84th meeting (decision 82/76(b)(ii)). Following this, the Executive Committee requested UNDP to continue reporting on the implementation of the conversions at subsequent meetings.[34]

119. At the 87th meeting, the Executive Committee considered the request for extension of stage II of the HPMP for Uruguay and the report on implementation of the foam sector conversion project. In that report, UNDP reported that only one enterprise (James) in the water heating sub-sector had converted its production to cyclopentane, with an associated phase-out of 1.02 ODP tonnes (9.3 mt) of HCFC-141b. A thermoware manufacturing enterprise (Ferroco S.A.) for which a new water-based system had been identified, was waiting for the supplier to import a sample for testing to adjust the dosage ratio. For the spray foam sub-sector, results on initial performance tests with HFO were not satisfactory as the foam did not meet the requirements, and additional tests for these enterprises were delayed due to the pandemic. Likewise, progress on the conversions for the other seven enterprises from different sub-sectors had been delayed or halted due to the COVID-19 pandemic.

120. UNDP had also reported that the national ozone unit (NOU), with support of UNDP and a foam expert, had been working with different systems houses around the region and with local distributors to facilitate samples of HFO-based PU system, while exploring options such as receiving HFO-based PU system without the catalyst and blending it in-place, or trying other low-global warming potential (GWP)

[32] UNEP/OzL.Pro/ExCom/77/67 and Annex XXIV of document UNEP/OzL.Pro/ExCom/77/76.
[33] UNEP/OzL.Pro/ExCom/82/61.
[34] Decision 84/37(b) and Annex IV of document UNEP/OzL.Pro/ExCom/85/67.

alternatives (such as water-based systems); that the five importers/distributors of foam blowing agents in the country were assessing different alternatives to HCFC-141b contained in imported pre-blended polyols including water-blown- and HFO-based systems; and that as a consequence of the pandemic, there were logistical constraints in obtaining the raw materials, which has led to a shortage of polyols and other components, as well as a drastic increase in the freight costs.

121. Subsequently, the Executive Committee *inter alia* approved an extension of the date of completion of stage II of the HPMP for Uruguay to 31 December 2022, and requested UNDP to report to the 90th meeting on progress in implementation of the conversion of the foam enterprises and the availability of HFO/HFO-based PU systems and their associated components (decision 87/20).

122. In line with decision 87/20, UNDP has submitted the above-mentioned progress report to the present meeting.

Progress report

123. UNDP reported that none of the conversions for the 20 remaining eligible SMEs participating in the project have been completed. Two water heater manufacturers (Warner and Rivomark S.A.) and a thermoware enterprise (Ferroco) received samples and performed trials with HFO-based and water-based products, which were not satisfactory. Nevertheless, the enterprises are still willing to test new blended polyols but are facing low availability of samples on the market. In the spray sub-sector, the polyol suppliers started working with six of the larger enterprises testing HFOs or water-based products, and difficulties were encountered because the resulting foam did not fulfill the technical requirements. The leading manufacturers in the spray foam sub-sector are making adjustments to the formulation in order to develop trials during the winter season. After the technical problems are solved, the supplier will share results and cost estimations to the other enterprises in the spray sub-sector.

124. As part of the project's strategy the NOU has worked with the suppliers of the PU systems, the suppliers have focused their efforts on those enterprises with more significant consumption and technical capabilities. Therefore, nine smaller users are waiting for their suppliers to determine the best alternative for their respective production systems once the technical issues identified are resolved through trials with the leading enterprises of each sub-sector. Furthermore, two enterprises have currently suspended their manufacturing operations and substituted their activities with the import of finished products, namely Colder (discontinuous panels) and Fumaya (integral skin). However, these two enterprises still have the production lines installed, and their respective production could be reactivated in the second half of 2022. The NOU will be holding meetings to know the enterprises' plans since they have not withdrawn from the project.

Level of fund disbursement

125. As of 30 March of 2022, of the US $522,889 approved for the foam sector, US $172,465 had been disbursed. The balance of US $350,424 will be disbursed by 31 December 2022.

Secretariat's comments

126. Upon clarification UNDP informed that the ban on the import and use of HCFC-141b and HCFC-141b contained in pre-blended polyols will be difficult to establish by 1 January 2023 due to the delayed conversions in the foam sector.

127. The Secretariat discussed with UNDP the issues identified (HFO availability, problems in testing the formulations, particularities of the spray foam sub-sector, and the small users, among others). UNDP indicated that it is likely that many enterprises will complete their conversions in the period remaining for stage II; yet it is uncertain if all of them will succeed in that time frame. In addition, UNDP needs to continue

working with suppliers to ensure the sustainability of the conversions and the availability of alternatives. Due to the lack of systems houses operating in the country, this project is particularly challenging, and it may be premature for any decision at this stage. The Secretariat considers it appropriate to let the Government and UNDP continue progressing and submit an updated report to the 91st meeting on the progress of the conversions and the status of the legislation for the ban.

Recommendation

128. The Executive Committee may wish:

(a) To take note of the report on the progress in the implementation of the conversion of the foam enterprises and the availability of hydrofluoroolefin (HFO)/HFO-based polyurethane (PU) systems and their associated components funded under stage II of the HCFC phase-out management plan for Uruguay, submitted by UNDP and contained in document UNEP/OzL.Pro/ExCom/90/9; and

(b) To request the Government of Uruguay, through UNDP, to submit a progress report on the implementation of the conversion of the foam enterprises, the availability of HFO/HFO-based PU systems and the status of the legislation for the ban on import and use of HCFC-141b and HCFC-141b contained in imported pre-blended polyols to the 91st meeting.

B. Reports related to HFC projects

Argentina: Control of emissions of HFC-23 generated in the production of HCFC-22 (UNIDO)

Background

129. At the 87th meeting, subsequent to discussions in a contact group, the Executive Committee decided to approve, in principle, the project for the control of emissions of HFC-23 generated in the production of HCFC-22 at Frio Industrias Argentina (FIASA) (decision 87/52(b)). The Committee also requested the Secretariat, in cooperation with UNIDO, to prepare a draft Agreement between the Government of Argentina and the Executive Committee for the control of HFC-23 by-product emissions for consideration at the 88th meeting, using the Agreement between the Government of Mexico and the Executive Committee for the destruction of emissions of HFC-23 generated in the production of HCFC-22 at Quimobásicos (decision 87/53) as a starting point and in light of the guidance provided by the Executive Committee at the 87th meeting (decision 87/52(d)). It also requested the Government of Argentina, through UNIDO, to submit an annual implementation plan, in accordance with the anticipated draft Agreement, for consideration at the 88th meeting (decision 87/52(f)). Amongst the guidance provided at the 87th meeting was that the draft Agreement would include the same flexibility in the start date for the destruction of HFC-23 by-product in Argentina as that which had been granted for Mexico, noting *inter alia* that the Government of Argentina and UNIDO would make best efforts to ensure that emissions of HFC-23 by-product were controlled as soon as possible.[35]

130. In line with decision 87/52(d), the Secretariat, in cooperation with UNIDO, prepared the draft Agreement for the control of emissions of HFC-23 generated in the production of HCFC-22 at FIASA contained in document UNEP/OzL.Pro/ExCom/88/77. Subsequent to an exchange of views during the intersessional approval process (IAP-88), and revisions to paragraph 12 of the draft Agreement, the Executive Committee *inter alia* approved the Agreement (decision 88/77(c)) and the 2021-2022 annual

[35] Paragraph 199 of document UNEP/OzL.Pro/ExCom/87/58.

implementation plan for the control of emissions of HFC-23 generated in the production of HCFC-22 at FIASA contained in document UNEP/OzL.Pro/ExCom/88/77 (decision 88/77(b)).

131. The 2021-2022 annual implementation plan *inter alia* anticipated that the costs for the refurbishment of the incinerator at FIASA would be verified with the original equipment supplier, SGL Carbon LLC (SGL), and other suppliers, by December 2021; that site preparations for the cryogenic storage of HFC-23 would be conducted, and that any HFC-23 by-product generated after 1 January 2022 and before the completion of the refurbishment of the incinerator would be stored in the on-site cryogenic tank until the maximum capacity of the cryogenic tank had been reached; and commissioning of the refurbished incinerator and destruction of HFC-23 by-product was expected to start from 1 June 2022. UNIDO noted that in case of unforeseen delays caused by *force majeure*, such as the COVID-19 pandemic, FIASA, the Government of Argentina and UNIDO would immediately inform the Executive Committee and propose HFC-23 emission mitigation measures.[36]

132. In line with the approved 2021-2022 annual implementation plan, the Government of Argentina, through UNIDO, submitted a progress report on 5 May 2022 detailing delays in the implementation of the project and requesting that, notwithstanding paragraphs 1 and 12 of the Agreement, no penalty be applied for the first seven months of project implementation, i.e., from January through the end of July 2022, as the Government considered the delays in implementation to be outside the control of the Government, FIASA, and UNIDO.

Progress report submitted to the 90th meeting

133. The project was approved in July 2021. By August 2021, UNIDO had held a kick-off meeting with FIASA and provided to SGL terms of reference for the equipment necessary to refurbish the incinerator. Notwithstanding numerous discussions and exchanges with SGL, UNIDO was unable to finalize a contract for the refurbishment of the incinerator, as SGL declined to provide a fixed cost for the on-site supervision of installation and commissioning. In December 2021, SGL informed UNIDO that it was not in a position to take the overall responsibility for the refurbishment of the incinerator. In January 2022, a meeting was held with FIASA, and it was agreed that FIASA would assume the responsibilities for the refurbishment and would manage the purchase of the required parts with SGL or another supplier that could supply them. On that basis, an agreement with SGL was finalized on 17 January 2022, and a contract for the remaining equipment, works and services was concluded between FIASA and UNIDO. On 31 March 2022, inquiries were made to SGL regarding the delivery date for the parts necessary to refurbish the incinerator; SGL informed UNIDO that due to delays, delivery of the parts was expected by 12 June 2022.

134. UNIDO estimated that at least seven months would be required to complete the refurbishment of the incinerator once all the parts were received. UNIDO further informed that in March 2022 FIASA had temporarily stopped producing HCFC-22 due to challenges in purchasing raw materials (i.e., chloroform and anhydrous hydrogen fluoride) given supply chain disruptions. Instead, the enterprise had been able to temporarily meet market demand by selling some of the HCFC-22 it had in stock, but the enterprise expected to resume HCFC-22 production by the end of May 2022. Once the enterprise restarted production of HCFC-22, it would store the HFC-23 by-product generated in the cryogenic tank until the refurbishment of the incinerator was completed or the maximum capacity of the cryogenic tank was reached. However, the Government estimated that the cryogenic tank would reach its maximum capacity with two- or three-months' worth of production and, therefore, did not consider storage of HFC-23 by-product in the cryogenic tank to be a long-term solution. Accordingly, the Government was requesting that no penalty be applied for January 2022 through the end of July 2022.

[36] Paragraph 5 of document UNEP/OzL.Pro/ExCom/88/77.

HCFC production

135. In 2021, FIASA produced 1,027 mt of HCFC-22, a 15 per cent reduction from the enterprise's 2020 production.

Secretariat's comments

Status of the cryogenic tank

136. UNIDO confirmed that the (gross) capacity of the cryogenic tank is 39.93 mt of HFC-23. In order to ensure outage (the volumetric vapor space above the liquid in the tank) and to ensure safety, the tank should be filled no more than 80 per cent of the gross capacity, or up to 31.95 mt.

137. Regarding the status of the cryogenic tank, UNIDO confirmed that while the tank was reconnected and FIASA would store the HFC-23 by-product generated in the cryogenic tank once the enterprise restarted producing HCFC-22, the tank had only been reconnected in March or April 2022. Between 1 January 2022 and the time the tank was reconnected, FIASA had produced approximately 534.3 mt of HCFC-22; the unspecified quantity of HFC-23 by-product generated during that period was vented to the atmosphere. Accordingly, at the time of finalization of the present document, the cryogenic tank was empty.

Flexibility in the date of commencement of destruction of HFC-23

138. At the 88th meeting, the Secretariat had noted that a cryogenic storage tank could be used to store HFC-23 by-product while the incinerator refurbishment was ongoing at FIASA, but that this could not be done at Quimobásicos; accordingly, the Secretariat had suggested at the 88th meeting that the "the same" flexibility was not intended to mean that destruction had to start by 1 May 2022. Rather, FIASA would store HFC-23 by-product in its cryogenic tank as of 1 January 2022, and the Government of Argentina would have the flexibility to emit in 2022 up to the quantity of HFC-23 by-product generated in the period 1 January 2022 to 30 April 2022 if the maximum capacity of the cryogenic tank was reached prior to the completion of the refurbishment of the incinerator; i.e., Argentina would be in compliance with its Agreement and no penalty would be applied if FIASA emitted HFC-23 by-product in 2022 because its cryogenic tank was full and the refurbishment of the incinerator had not yet been completed, as long as the quantity of HFC-23 by-product emitted in 2022 was equal to or less than that generated in the period 1 January 2022 to 30 April 2022.[37] That flexibility was reflected in paragraph 12 of the Agreement between the Government and the Executive Committee.

139. The Secretariat appreciates that FIASA was hesitant to reconnect the cryogenic tank until a clear timeline for the refurbishment of the incinerator could be established, and notes that the Government, FIASA, and UNIDO undertook best efforts to ensure the incinerator could be refurbished on time and the delay in the refurbishment was outside their control.

140. As the quantity of HFC-23 by-product so far vented to the atmosphere in 2022 was not yet known, and it was not clear whether any additional emissions would be vented in 2022, the Secretariat suggested that UNIDO provide an update on the status of implementation of the project to the 92nd meeting that would *inter alia* include the 2022 HCFC-22 production and the quantity of HFC-23 by-product generated, stored, and vented. The Executive Committee could then decide how it wished to proceed in light of that additional information and any other information it may consider relevant.

141. The Secretariat notes that depending on the time required to refurbish the incinerator and the quantity of HCFC-22 FIASA produces for the remainder of 2022, the capacity of the cryogenic tank would

[37] Paragraph 8 of document UNEP/OzL.Pro/ExCom/88/77.

likely be sufficient to ensure that no further HFC-23 by-product was vented to the atmosphere in 2022.[38] In such case, the only emissions of HFC-23 that would have taken place were in the same period for which the Government of Mexico was granted flexibility. The Secretariat notes that cases of Article 5 countries being in non-compliance with their Agreements with the Executive Committee are rare; in those rare cases, the Executive Committee has at times applied flexibility in imposing a penalty in light of the particular circumstances of the situation.

Recommendation

142. The Executive Committee may wish:

(a) To note the progress report on the implementation of the project for the control of emissions of HFC-23 generated in the production of HCFC-22 at Frio Industrias Argentina, submitted by UNIDO, and contained in document UNEP/OzL.Pro/ExCom/90/9; and

(b) To request UNIDO to provide a report on the implementation of the project referred to in sub-paragraph (a) above to the first meeting of 2023. That report would *inter alia* include the 2022 HCFC-22 production and the quantity of HFC-23 by-product generated, stored, and vented to the atmosphere.

C. Low-GWP projects

Saudi Arabia: Demonstration project on promoting HFO-based low-global-warming-potential refrigerants for the air-conditioning sector in high ambient temperatures (progress report) (UNIDO)

Background

143. The project was approved at the 76th meeting to manufacture, test and optimize pilot model air-conditioners with low-global warming potential (GWP) hydrofluoroolefin (HFO)/HFC blends, as well as R-290, to undertake a demonstration production run and to convert a production line, at the amount of US $1,300,000, plus agency support costs of US $91,000 for UNIDO.

144. The project was originally expected to be completed by May 2018. As further detailed in document UNEP/OzL.Pro/ExCom/88/18, between the 80th and 85th meetings, the Executive Committee decided to extend the project three times in light of the potential replicability of the results in several Article 5 countries and the progress achieved, which included *inter alia* delivery of the manufacturing equipment, moving the manufacturing line and installation of the manufacturing equipment and a quality control system, upgrading of the laboratories and testing rooms, completion of civil works, and testing and optimization of the R-290 units.[39]

145. At the 88th meeting, it was reported that due to the continuous constrains from the COVID-19 pandemic, the following activities have not been completed: commissioning of the manufacturing line and safety components for the laboratories by the Italian equipment provider (who had not been able to travel); delivery of R-290 inverter compressors; a trial manufacturing run of the converted line; certification of the

[38] For reference, if FIASA's 2022 production of HCFC-22 increased 40 per cent relative to its 2021 production, the capacity of the cryogenic tank would still be sufficient to store the HFC-23 by-product generated for the rest of 2022 given FIASA's historic by-product generation rate of 3.24 per cent and the quantity of HCFC-22 already produced in 2022.

[39] At the 83rd meeting, it was reported that based on the testing by the enterprise, as well as results from the demonstration project on promoting refrigerant alternatives for high-ambient-temperature countries (PRAHA-II), the enterprise decided to focus its production on R-290-based equipment, though future use of HFO and HFO blends could not be excluded.

R-290 air-conditioning (AC) equipment;[40] finalization of the servicing manual and training materials for technicians; and conducting a workshop to disseminate the project results. Based on that report, the Executive Committee decided *inter alia* to extend the completion date of the project referred to 15 March 2022 on an exceptional basis given the COVID-19 pandemic and the advanced progress achieved; and requested UNIDO to submit the final report of the project no later than 28 March 2022 and to return all remaining balances by the 90th meeting (decision 88/27(b) and (c)).

146. On behalf of the Government of Saudi Arabia, UNIDO submitted to the 90th meeting a progress report on the demonstration project on promoting HFO-based low-GWP refrigerants for the AC sector in high ambient temperatures, in line with decision 88/27.

Progress report

147. While commissioning of the manufacturing line and delivery of safety components for the laboratories have been completed, and R-290 compressors delivered, the certification of R-290 AC units has not yet been finalized, as the enterprise is continuing to optimize the equipment design to ensure the charge remains at 500 g/unit while achieving an energy efficiency ratio (EER) at least 5 per cent higher than the minimum energy performance standards (MEPS). An international expert will visit the enterprise in May to provide technical assistance for the model design and verification, after which the certification of the R-290 AC units and the servicing manual can be finalized, expected by 31 July 2022. In addition, third party safety testing of the R-290 AC units will be conducted by 31 July 2022. Promotion of R-290 AC equipment and a dissemination workshop are planned for August 2022. Accordingly, UNIDO requested to extend the date of completion of the project to 30 September 2022.

Secretariat's comments

148. The Secretariat noted that notwithstanding the progress in implementing the remaining activities, a further extension of the project was requested to complete activities that could facilitate the uptake of R-290 technology. Additional efforts to optimize the R-290 AC units to ensure they achieve the required energy efficiency will allow R-290 AC units to better compete against HFC-based AC units that may have a lower EER. Third party testing of the R-290 AC units, while not necessary, will provide further confidence in the safety of the units. The enterprise anticipated commercial manufacturing of R-290 AC units would start by December 2022.

149. Noting that the ongoing activities could be completed in the near future, the Secretariat recommends extending the date of completion of the project to 30 September 2022 and requesting UNIDO to submit the final report of the project to the 92nd meeting.

Recommendation

150. The Executive Committee may wish:

(a) To note the progress report on the demonstration project on promoting hydrofluoroolefin-based low-global-warming-potential refrigerants for the air-conditioning sector in high ambient temperatures in Saudi Arabia, submitted by UNIDO and contained in document UNEP/OzL.Pro/ExCom/90/9;

(b) To extend the completion date of the project referred to in sub-paragraph (a) above to 30 September 2022 given the advanced progress achieved; and

[40] In line with Gulf Cooperation Council (GCC) regulations for placement on the market of air-conditioners, certification (referred to as G-mark certification) is required.

(c) To request UNIDO to submit the final report of the project referred to in sub-paragraph (a) above and return all remaining balances by the 92nd meeting.

II.3 Individual consideration

151. This section includes two HPMPs for individual consideration, sixteen HPMPs requesting extensions beyond December 2022, one HFC project, and sixteen HFC enabling activities requesting an extension.

A. Reports related to HCFC phase-out management plans

Democratic People's Republic of Korea: HCFC phase-out management plan (stage I – progress report on the implementation of activities) (UNIDO)

Background

152. At its 73rd meeting, the Executive Committee approved, in principle, stage I of the HPMP for the Democratic People's Republic of Korea, with UNIDO as lead implementing agency and UNEP as cooperating implementing agency, to achieve a reduction of HCFC consumption to a sustained level of 66.30 ODP tonnes by 1 January 2018 (i.e., 15 per cent below the HCFC baseline for compliance of 78.00 ODP tonnes). The approval took place upon confirmation by the implementing agencies that stage I of the HPMP could be implemented in compliance with the resolutions of the United Nations Security Council's (UNSC) Committee[41] on the Democratic People's Republic of Korea.

153. Since the approval of stage I, the Executive Committee has approved three out of four funding tranches at a total level of US $808,550 (i.e., 95.3 per cent of the total funds of US $848,550 approved in principle), as well as the transfer to UNIDO of all phase-out activities to be implemented by UNEP. In line with the Agreement between the Government and the Executive Committee, the last tranche of stage I of the HPMP, in the amount of US $40,000, was scheduled to be submitted at the 81st meeting. However, due to the UNSC resolutions UNIDO had been unable to submit the tranche request.

Progress report submitted to the 85th meeting

154. UNIDO has submitted to the 85th meeting a progress report on the implementation of stage I of the HPMP, listing activities implemented so far, the achieved level of disbursement, challenges encountered in the continued implementation of activities in compliance with the UNSC resolutions, and a request for guidance from the Executive Committee.

155. The report indicated that, despite difficulties resulting from the UNSC resolutions, the following activities were completed during the first and second tranches:

(a) Procurement of three refrigerant identifiers for the country's customs office;

(b) Purchase of one spray foaming machine for the Puhung Building Material factory upon clearance from the UNSC Committee in 2015, and preparation of a contract for and shipment of auxiliary equipment to enable the installation/commissioning of spray foaming equipment;

(c) Procurement of polyurethane (PU) foam equipment (methyl formate), cleared by the

[41] The UNSC Committee established pursuant to Resolution 1718 was consulted before the submission of stage I of the HPMP to establish whether the equipment or any other services under the HPMP could be provided to the country.

UNSC Committee in line with the procedures established in the UNSC Resolution 2270 (2016); a purchase contract was issued to equipment suppliers; the equipment was shipped through China, as it could not be shipped directly to the Democratic People's Republic of Korea, but was rejected by the Customs authorities in China and returned to the supplier;

(d) Procurement of training equipment for the refrigeration and air-conditioning (RAC) servicing technicians upon clearance by the UNSC Committee, shipped and distributed to technicians in June 2016;

(e) Organization of a train-the-trainers workshop for 35 RAC servicing technicians conducted in August and September 2016;

(f) Completion of an additional training session for five trainers on best practices in RAC servicing, conducted in India in December 2016; and

(g) Conducting the first train-the-trainers workshop for 40 customs officers in May 2017.

Level of fund disbursement

156. As at 30 March 2020, of the total amount of US $808,550 of funds approved, US $303,313 (38 per cent) had been disbursed, as shown in Table 8.

Table 8. Financial report of stage I of the HPMP for the Democratic People's Republic of Korea (US $)

Tranche	Approved	Disbursed	Disbursement rate (%)
First	134,003	87,386	65.2
Second	506,680	214,110	42.3
Third	167,867	1,817	1.1
Total	**808,550**	**303,313**	**37.5**

Update on the implementation plan for stage I of the HPMP

157. The activities that have not been implemented yet include:

(a) Follow-up on the training workshops for RAC servicing technicians and customs officers;

(b) Mapping of the existing reclaim and recovery centres and procurement of additional equipment; and

(c) Establishment of a project management unit once the funding transfer channel has been approved and made operational.

158. In addition, the PU foam equipment that was returned to the supplier by the Customs authorities in China, could not be re-imported as an additional resolution 2397 issued in 2017 specifically prohibits "all industrial machinery (HS codes 84 and 85), transportation vehicles (HS codes 86 through 89), and iron, steel, and other metals (HS codes 72 through 83)." Subsequent to this resolution, UNIDO was advised to submit to the UNSC a new exemption request, together with an updated list of equipment to be imported into the country. UNIDO submitted an official exemption request on 8 May 2019, and the UNSC Committee denied the exemption on 18 June 2019. In view of the above, UNIDO has not been able to proceed with the delivery of equipment.

159. Non-investment activities have also been impacted due to the inability to transfer funds within the country, made even more difficult by the introduction of stricter sanctions following the adoption of resolution 2397 (2017).

160. In view of the above, UNIDO indicated in its report that it was not in a position to continue the implementation of the HPMP for the Democratic People's Republic of Korea and requested guidance from the Executive Committee.

Secretariat's comments

161. Consideration of the report submitted by UNIDO at the 85th meeting had been deferred and re-submitted at the 86th, 87th, and 88th meetings in accordance with the agreed procedure of the Executive Committee for conducting those meetings. The report has been re-submitted to the 90th meeting.

162. Since the submission of the report to the 86th meeting, at their Thirty-second Meeting of the Montreal Protocol,[42] the Parties noted that the Democratic People's Republic of Korea was in non-compliance with the consumption and production control measures under the Protocol for HCFCs, as its annual consumption of 72.27 ODP tonnes of HCFCs exceeded the country's maximum allowable consumption of 70.2 ODP tonnes for that year, and its annual production of 26.95 ODP tonnes of HCFCs in 2019 exceeded the country's maximum allowable production of 24.8 ODP tonnes. The Parties *inter alia* noted with appreciation the submission by the country of an explanation for its non-compliance and a plan of action to ensure its return to compliance with the Protocol's HCFC consumption and production control measures in 2023; further noting that, under that plan of action, without prejudice to the operation of the financial mechanism of the Protocol, the Democratic People's Republic of Korea committed to specific reductions in the production and consumption of HCFCs; urged the country to work with the relevant implementing agencies to explore options for the implementation of its plan of action to phase out the consumption and production of HCFCs subject to the application of the relevant UNSC resolutions; and invited the country to establish additional national policies facilitating HCFC phase-out that might include, but would not be limited to, bans on imports, on production or on new installations, and certification of refrigeration technicians and companies (decision XXXII/6).[43]

163. The Secretariat notes that UNIDO has continued exercising due diligence and monitoring throughout the implementation of the project. Upon the adoption of an additional UNSC resolution in 2017, it has submitted to the UNSC Committee, pursuant to resolution 1718, an exemption request, together with an updated list of equipment to be imported into the country, and has remained in close cooperation with relevant member states regarding the procurement and export of equipment designed to phase out the use of controlled substances in the country.

164. In preparation for the 87th meeting, upon enquiry by the Secretariat on new developments in the implementation of the HPMP for the Democratic People's Republic of Korea, UNIDO reported that there was no information additional to that provided at the 86th meeting, and that the implementation of the HPMP would only be feasible for UNIDO if UNSC sanctions were lifted or an exemption was granted. However, UNIDO was not in a position to obtain such exemption. Consequently, UNIDO reiterated that it was not able to continue the implementation of the HPMP for the Democratic People's Republic of Korea and requested guidance from the Executive Committee.

165. Upon request for clarification on any new developments that would allow the submission of the last tranche of stage I to the 90th meeting, UNIDO indicated that there was no additional progress or information to report.

[42] 23 to 27 November 2020.

[43] The HCFC consumption and production levels reported by the Government of the Democratic People's Republic of Korea under Article 7 for the year 2020 are in line with those in the plan of action for returning to compliance contained in decision XXXII/6, while the levels reported for the year 2021 slightly exceed the limits (consumption of 58.03 ODP tonnes against a target of 58.00 ODP tonnes, and production of 24.81 ODP tonnes against a target of 24.80 ODP tonnes). The 68th meeting of the Implementation Committee (9 July 2022) will consider the country's compliance status for 2021 in light of the data reported.

Recommendation

166. The Executive Committee may wish to consider the information on the implementation of activities under stage I of the HCFC phase-out management plan for the Democratic People's Republic of Korea, submitted by UNIDO, giving due consideration to decision XXXII/6 of the meeting of the Parties.

Viet Nam: HCFC phase-out management plan (stage II, third tranche – progress report on implementation of activities) (World Bank and Government of Japan)

Background

167. Stage II of the HCFC phase-out management plan (HPMP) for Viet Nam was originally approved at the 76th meeting and revised at the 84th meeting to phase out 130.6 ODP tonnes of HCFCs used in the refrigeration and air-conditioning (RAC) servicing sector, RAC manufacturing sector, and foam sector for the period 2016 to 2022, and to meet the 35 per cent reduction from the baseline by 2020, in the amount of US $15,584,097, consisting of US $14,317,846, plus agency support costs of US $1,002,249 for the World Bank, and US $233,630, plus agency support costs of US $30,372 for the Government of Japan. The HCFC baseline for compliance is 221.21 ODP tonnes; implementation of stage II of the HPMP will actually phase out 55.31 ODP tonnes of HCFC-22 and 223.85 ODP tonnes of HCFC-141b in imported pre-blended polyols. Table 9 summarizes the costs for stage II of the HPMP by sector as approved at the 76th meeting.

Table 9. Funding levels of stage II of the HPMP by sector

Sector	Phase-out		Eligible phase-out		Agreed costs (US $)	CE* (US $/kg)
	mt	ODP	mt	ODP		
AC sector (including installation kits)	268.63	14.77	192.63	10.59	2,184,867	11.34
Refrigeration manufacturing	303.00	16.67	303.00	16.67	3,636,000	12.00
XPS foam	100.00	5.50	100.00	5.50	613,568	6.14
Servicing	334.00	18.37	334.00	18.37	1,603,200	4.80
Sub-total HCFC-22	1,005.63	55.31	929.63	51.13	8,037,635	8.65
Pre-blended polyol	2,035.00	223.85	684.18	75.26	5,522,397	8.07
TA and PMU					1,084,802	
Total	**3,040.63**	**279.16**	**1,613.81**	**126.39****	**14,644,834**	**9.07**

* Based on eligible phase-out. Overall cost-effectiveness including non-eligible phase-out is US $4.82/kg.

** Stage II of the HPMP phased out 130.6 ODP tonnes of HCFCs from the country's remaining consumption eligible for funding based on the 126.39 ODP tonnes of eligible consumption phased out plus 4.18 ODP tonnes of HCFC-22 phased out without assistance from the Multilateral Fund.

168. Subsequent to the 76th meeting, the Executive Committee agreed to the following changes:

(a) Stage II included the conversion of four air-conditioning (AC) manufacturing enterprises. Three of the enterprises (i.e., Hoa Phat, Nagakawa and Reetech (REE)) decided to convert to HFC-32, while the fourth, Midea Consumer Electric (Viet Nam) Co. Ltd. (Midea Viet Nam), had decided to convert two manufacturing lines to R-290. The Executive Committee approved the change of technology at Midea Viet Nam from R-290 to HFC-32, in the amount of US $743,659, plus agency support costs of US $52,056 for the World Bank, resulting in the return to the Multilateral Fund at the 82nd meeting of US $93,358, plus agency supports costs of US $6,535 by the World Bank (decision 82/37(b)); and

(b) Stage II included funding for the conversion of one extruded polystyrene (XPS) foam manufacturing enterprise, Phu Vuong Corporation Industry, to phase out 100.0 mt of HCFC-22, and was later found to be not eligible for funding from the Multilateral Fund due to the date of establishment; in conjunction with the approval of the third tranche, the associated funds of US $613,568, plus agency support costs of US $42,950 from the World Bank, were returned to the 87th meeting (decision 87/28(a)).

Delay of tranche submissions

169. Since the approval of stage II of the HPMP, the Executive Committee has approved three of six funding tranches at a total level of US $6,496,817 plus agency support costs (i.e., 45 per cent of the total funding of US $14,551,476, plus agency support costs, approved in principle).[44] In line with the Agreement between the Government and the Executive Committee, the second and third tranches had been scheduled to be submitted in 2017 and 2018, respectively, and were instead submitted in 2019 and 2021; the fourth, fifth, and sixth tranches have not yet been submitted. The comparison of expected versus actual submission of tranches and the corresponding funding is shown in Table 10. The date of completion of stage II as per the stage II Agreement is 31 December 2022.

Table 10. Date of submission of funding tranches compared to date expected for stage II

Funding tranche	Funds approved (US $)	Year of expected submission	Year of actual submission
First	345,987	2016 (76th meeting)	2016 (76th meeting)
Second	2,343,173	2017 (80th meeting)	2019 (84th meeting)
Third	3,807,657	2018 (82nd meeting)	2021 (87th meeting)

170. On behalf of the Government of Viet Nam, the World Bank submitted a progress report on the implementation of the third tranche of stage II of the HPMP for Viet Nam. The progress report includes a proposal for major changes to stage II of the HPMP, requests an extension of the date of completion, and includes the 2022-2023 action plan and the 2021 verification report; the Government endorsement letter accompanied the submission. The submission does not include a request for release of tranche funding at the present meeting.

Progress report submitted to the 90th meeting

Report on HCFC consumption

171. The Government of Viet Nam reported under the country programme (CP) implementation report a consumption of 141.79 ODP tonnes of HCFC in 2021, which is 36 per cent below the HCFC baseline for compliance. Article 7 data for 2021 has not yet been reported. The Government submitted sector consumption data under the 2020 CP implementation report that is consistent with the data reported under Article 7 of the Montreal Protocol. The 2017-2021 HCFC consumption is shown in Table 11.

Table 11. HCFC consumption in Viet Nam (2017-2021 Article 7 data)

HCFC	2017	2018	2019	2020	2021*	Baseline
Metric tonnes						
HCFC-22	3,568.52	3,516.23	3,558.55	2,585.02	2,574.95	3,039.00
HCFC-123	17.17	16.34	16.34	0.00	8.17	8.00
HCFC-141b	0.00	0.00	0.00	0.00	0.00	490.00
HCFC-225	13.90	26.87	21.46	0.00	0.00	0.00
Total (mt)	**3,599.59**	**3,599.44**	**3,596.36**	**2,585.02**	**2,583.12**	**3,537.00**
HCFC-141b in imported pre-blended polyols*	1,879.00	1,145.50	687.29	147.66	87.5	1,496.36**
ODP tonnes						
HCFC-22	196.27	193.39	195.72	142.18	141.62	167.15
HCFC-123	0.34	0.33	0.33	0.00	0.16	0.16
HCFC-141b	0.00	0.00	0.00	0.00	0.00	53.90
HCFC-225	0.97	1.88	1.50	0.00	0.00	0.00

[44] Funding level listed is in line with the updated Agreement from the 84th meeting (Annex XXVIII of document UNEP/OzL.Pro/ExCom/84/75); i.e., reflects the return of US $93,358 from to the change of technology at Midea Viet Nam from R-290 to HFC-32 but not the return of US $613,568 from the removal of XPS foam manufacturing enterprise Phu Vuong Corporation Industry from the HPMP.

HCFC	2017	2018	2019	2020	2021*	Baseline
Metric tonnes						
Total (ODP tonnes)	**197.58**	**195.60**	**197.55**	**142.18**	**141.79**	**221.21**
HCFC-141b in imported pre-blended polyols*	206.69	126.00	75.60	16.24	9.63	164.56**

* CP data.

** Average consumption between 2007 and 2009.

Verification report

172. The verification report confirmed that the Government is implementing a licensing and quota system for HCFC imports and exports and that the total consumption of HCFCs reported under the 2021 country programme implementation report was correct; Article 7 data for 2021 has not been reported yet. The verification concluded that Viet Nam is in compliance with the thresholds as stipulated in the Agreement between the Government and the Executive Committee.

Manufacturing sector

AC manufacturing sector

173. Of the four AC manufacturing enterprises included in the stage II funding, two (Hoa Phat and Nagakawa) have signed sub-grant agreements (SGAs) and are waiting for delivery of the manufacturing equipment needed for conversion; completion of these projects is expected by November 2022. The remaining two enterprises will no longer participate in the project given shifting market demand and challenges associated with the pandemic:

(a) Midea Viet Nam has ceased manufacturing AC units in Viet Nam and decided to withdraw from the project; Midea has opened a new plant in Thailand to compensate for the reduced manufacturing capacity; and

(b) REE has experienced ongoing problems in producing the documentation required for participation in the project; additionally, the enterprise has experienced difficulties in remaining competitive, and as a result has shifted to importing fully charged AC units. Accordingly, the Government and the enterprise decided to cancel the conversion of REE, though it will continue to participate in the technical assistance (TA) component on the safe use of HFC-32 being implemented by the Government of Japan.

Polyurethane (PU) foam manufacturing sector

174. Stage II included funding for the conversion of 44 PU foam enterprises to phase out 684.18 mt of HCFC-141b contained in imported pre-blended polyols. Three of the enterprises have signed SGAs and are expected to complete their conversion to cyclopentane (Yantai Moon and Tran Huu Duc) and pre-blended cyclopentane (Saree) by December 2022; those SGAs account for US $849,589 and will phase out 86.87 mt of HCFC. Two enterprises (Darling and Tan A) have also confirmed their participation in the project but have not yet signed SGAs; the estimated costs of those conversions are US $500,000 to phase out 61.06 mt of HCFC. In addition, with the assistance of a consultant, a standard for foam manufacturing with flammable blowing agents was developed.

Refrigeration manufacturing sector

175. Stage II included funding for 34 refrigeration manufacturing enterprises to phase out 303.0 mt of HCFC-22. Equipment has been installed for one enterprise, Phuong Nam, which is expected to complete its conversion to ammonia by June 2022; this SGA accounts for US $147,366 and will phase out 9.82 mt of HCFC-22. Two other enterprises, Saree and Hung Tri, have confirmed their interest to participate in the

project with SGAs under preparation; the estimated costs of those conversions are US $624,000 to phase out 52.0 mt of HCFC-22.

Refrigeration servicing sector

176. The following activities were implemented:

(a) Under the TA implemented by the Government of Japan, the training curriculum on the safe use of HFC-32 in the AC sector has been completed. The start date of the training at the three participating AC manufacturing enterprises (Hoa Phat, Nagakawa and REE) were delayed given restrictions related to the COVID-19 pandemic but are expected to be completed by December 2022;

(b) A consultant reviewed the standards and regulations related to AC equipment using flammable refrigerants, and virtual consultation workshops for stakeholders were organized in October and December 2021;

(c) Tool kits (e.g., leak detector; pressure gauge; refrigerant recovery machine; refrigerant containing tank; vacuum pump; AC unit; tool set of torque wrench, flaring, and tubing cutter; refrigerant scale) were delivered to 65 vocational training schools, and 100 tool kits (e.g., vacuum pump; tool set of torque wrench, flaring, and tubing cutter) were delivered to servicing shops;

(d) A reference database of vocational schools, training schools, and servicing centres was created;

(e) A training curriculum on good and safe servicing practices of flammable refrigerants in RAC was developed, and three training-of-trainers workshops were held for 71 trainers. RAC technician training resumed in October 2021 as restrictions from the COVID-19 pandemic began to lift, with a further 850 technicians trained;

(f) Leakage management activities were evaluated at industrial refrigeration end-users, with 20 leak detectors procured for distribution in 2022; and

(g) A training workshop was held for 58 customs officers on controlling and monitoring HCFC imports and exports. Additional training workshops for approximately 250 customs officers, which were delayed due to COVID-19, are planned for 2022 and 2023.

Project implementation and monitoring unit (PMU)

177. Activities undertaken by the PMU included further revision of the project implementation manual in response to the in-depth project review that took place in November 2021; organization of virtual meetings with enterprises to support sub-project implementation and solicit further interest in the project; public outreach on financial and TA available for HCFC phase-out; finalization of contract for the first annual financial audit of project expenditures; and support for the 2021 consumption verification report. As of March 2022, disbursements for the PMU (US $359,766), which comprises five staff, included staff salaries (US $285,289), consultants (US $14,975), office equipment (US $14,338), accounting software (US $2,464), operating expenses (US $37,732), and the stage II kick-off workshop (US $4,968).

Level of fund disbursement

178. As of March 2022, of the US $5,883,249 approved so far, US $1,902,533 had been disbursed (US $1,844,495 for the World Bank and US $58,038 for the Government of Japan), as shown in Table 12.

Table 12. Financial report of stage II of the HPMP for Viet Nam (US $)

Tranche		World Bank	Japan	Total	Disbursement rate (%)
First	Approved	302,737*	43,250	345,987*	100
	Disbursed	302,737*	43,250	345,987*	
Second	Approved	2,179,193	163,980	2,343,173	59
	Disbursed	1,363,060	14,788	1,377,848	
Third	Approved	3,167,689*	26,400	3,194,089*	6
	Disbursed	178,698	0	178,698	
Total	**Approved**	**5,649,619***	**233,630**	**5,883,249***	**32**
	Disbursed	**1,844,495**	**58,038**	**1,902,533**	

* Updated to reflect the return of US $93,358, plus agency support costs, due to the change of technology at Midea Viet Nam from R-290 to HFC-32 (decision 82/37(b)), and the return of US $613,568, plus agency support costs, associated with the XPS foam manufacturing enterprise Phu Vuong Corporation Industry, which was found not eligible for funding (decision 87/28(a)).

Proposed changes to stage II of the HPMP

179. An in-depth review of implementation of HPMP activities was completed by the World Bank and PMU in November 2021 in light of the delays in project implementation and challenges in securing the participation of enterprises in the project. The review revealed the significance of the delays caused by the COVID-19 pandemic and a lack of demand for the conversion of sub-projects in the AC, foam, and refrigeration manufacturing sectors. In particular, the small- and medium-sized enterprises (SMEs) in the foam and refrigeration manufacturing sectors that were to participate have been hesitant to do so given the extensive documentation, validation, and reporting requirements needed to meet SGA requirements. In addition, a number of enterprises in the refrigeration manufacturing sector that originally identified as manufacturers had changed to or are operating more in assembly. Those enterprises that still manufacture were hesitant to commit to manufacturing with low-global-warming-potential (GWP) alternatives; enterprises can make a range of products depending on the application and end-user demand and restricting the technology to flammable or toxic substances was perceived as taking away flexibility and competitiveness.

180. As a result of the review, the Government of Viet Nam was proposing changes to the AC and PU foam manufacturing sectors, and to the implementation modality in the refrigeration manufacturing sector, resulting in a reduction of US $6,789,971[45] in the funding allocated to those components. In addition, the Government was proposing to increase the funding for the servicing sector by US $1,330,000 and for TA and the PMU by US $180,539; no additional reductions from the country's remaining HCFC consumption eligible for funding were proposed based on the additional funding allocated to those sectors. The proposed changes, together with the cancellation of the project in the XPS foam manufacturing sector (decision 87/28(a)), would reduce the total funding for stage II of the HPMP from US $14,644,834 to US $8,751,834 as further detailed below.

Manufacturing sector

AC manufacturing sector

181. Funding for the AC manufacturing sector had been agreed at US $2,184,867 for the conversion of four enterprises. Midea Viet Nam and REE decided to withdraw from the project, resulting in a reduction of US $743,659[46] and US $226,300, respectively, in project costs. The conversions of two enterprises, Hoa Phat and Nagakawa, are ongoing; the Government was requesting funding in the amount of US $554,612 for their conversions, which is US $566,938 below the agreed costs of US $1,121,550 for those conversions.

[45] Including US $93,358, plus agency support costs, already returned due to the change of technology at Midea Viet Nam from R-290 to HFC-32 (decision 82/37(b)).

[46] US $93,358, plus agency support costs, had already been returned due to change of technology at Midea Viet Nam (decision 82/37(b)).

PU foam manufacturing sector

182. To enable the conversion of SMEs that had not yet confirmed their participation in the project, the Government proposed targeting blending houses rather than individual enterprises. Four eligible blending houses were identified, three of which would convert to pre-blended cyclopentane and the fourth to pre-blended (reduced) HFOs. The blending houses would assist approximately 200 SMEs with a consumption of approximately 150 mt of HCFC-141b contained in pre-blended polyols. The World Bank estimated the costs to support the blending houses based on historical costs for system houses, with US $95,000 for non-flammable foam-blowing agents to a maximum of US $350,000 for the blending of cyclopentane; the expected range, however, was US $155,000 to US $255,000, where the exact costs will be known once the four blending houses are screened and submit proposals. In addition, US $40,000 is proposed for a national consultant for coordination support.

183. Based on the SGAs for the three enterprises already participating in the project (US $849,589), the expected participation of a further two enterprises (US $500,000), the assistance to the four systems houses (US $1,140,000) and TA (US $40,000), the total costs for the conversions in the PU foam manufacturing sector are US $2,529,589, a reduction of US $2,992,808 from the agreed funding for the sector (US $5,522,397). In addition, the World Bank proposed allocating an additional US $45,000 and US $45,539 for TA and for the PMU, respectively, to support technical, organizational, and outreach activities in the foam sector.

Refrigeration manufacturing sector

184. To date, one enterprise had signed an SGA to participate in the project, and a further two enterprises had confirmed their interest to participate; the costs of those conversions were estimated at US $771,366. To support conversions of additional enterprises in the sector, the World Bank considered other delivery approaches that could overcome barriers and support SME conversions, and proposed an approach similar to that for the foam sector where an intermediary in the supply chain would serve as a group project coordinator to provide TA, know-how on design and development, and hands-on practical training to build refrigeration equipment prototypes using the approved low- to no-GWP alternative refrigerants. Each participating SME would receive the necessary equipment and tools for working with the new refrigerants. The coordinator would help recruit SMEs, prepare specifications, and other tasks. Approximately 15 SMEs with a combined consumption of approximately 30 to 50 mt of HCFC-22 will be targeted to participate by industry specialists. The World Bank estimated the costs of the group project at US $633,926, resulting in a total cost for the sector of US $1,405,292, which is US $2,230,708 below the agreed costs of US $3,636,000 for the sector.

Refrigeration servicing sector

185. The Government proposed additional funding of US $1,330,000 to further support the training-of-trainers programme (US $60,000), develop an online database of trained technicians and training activities (US $35,000), develop a certification and assessment standard for the training of technicians (US $35,000), and provide additional toolkits for 50 training centres and 200 service shops (US $1,200,000).

Technical assistance

186. The World Bank proposed to increase the funding for TA by US $90,000 for the development of a national standard on safe manufacture and installation of room AC that use flammable refrigerants, and to further support agreed activities.

PMU

187. Because of the limited capacity of SMEs in completing proposals and procuring equipment, the reluctance of SMEs to participate in the project have resulted in the PMU incurring expenditures beyond those originally anticipated. Accordingly, and given the extension of the project by one year, the World Bank proposed additional funding of US $90,539 to ensure that the PMU can continue to effectively manage the project while fulfilling monitoring, reporting, and fiduciary responsibilities through the completion of the project.

Table 13. Proposed funding for revised stage II of the HPMP for Viet Nam (US $)

Sector	Agency	Approved funding	Proposed changes	Revised funding
AC manufacturing	World Bank	2,184,867	-1,566,455*	618,412
XPS foam manufacturing	World Bank	613,568	-613,568**	0
PU foam manufacturing	World Bank	5,522,397	-2,992,808	2,529,589
Refrigeration manufacturing	World Bank	3,636,000	-2,230,708	1,405,292
Refrigeration servicing	Japan	233,630	0	233,630
Refrigeration servicing	World Bank	1,369,570	1,330,000	2,699,570
TA	World Bank	406,801	90,000	496,801
PMU	World Bank	678,002	90,539	768,541
Total		**14,644,834**	**-5,893,000**	**8,751,834**

* Includes the return of US $93,358, plus agency support costs, due to change of technology at Midea Viet Nam from R-290 to HFC-32 that was already returned (decision 82/37(b)).

** Includes US $613,568, plus agency support costs, associated with the XPS foam manufacturing enterprise Phu Vuong Corporation Industry, which was found not eligible for funding, that was already returned (decision 87/28(a)).

Completion of stage II

188. The Government of Viet Nam is requesting an extension on the date of completion of stage II to 31 December 2023 to implement the proposed changes to stage II of the HPMP. Given the need for additional time to implement conversions in the PU foam manufacturing sector, the country postponed the ban on HCFC-141b contained in pre-blended polyols noted in decision 76/42(c)(i) to 1 January 2023.

Secretariat's comments

Progress report submitted to the 90th meeting

Report on HCFC consumption

189. The reduction in consumption in 2020 was in line with the reduced quotas issued to meet the country's 35 per cent reduction target. While consumption of HCFC-22 in RAC manufacturing has steadily decreased, that decrease differed between the AC and refrigeration manufacturing sectors: HCFC-22 consumption in AC manufacturing was zero in 2019 and had remained at that level as manufacturers shifted to importing non-HCFC-22-based AC units due to high demand for both inverter AC and for HFC-32-based AC, and because a highly competitive market decreased manufacturing. Consumption of HCFC-22 in refrigeration manufacturing in 2014 was estimated at 617 mt; that consumption increased to 890 mt in 2019 and then decreased to 266 mt in 2021; that decrease was likely driven by the increased uptake of HFC refrigerants (e.g., R-404A and HFC-134a), the quota reductions, an increase in assembly rather than manufacturing, and the economic impacts of the COVID-19 pandemic. Consumption of HCFC-22 for servicing has not shown a consistent decreasing trend, suggesting that additional activities in the servicing sector would be meaningful.

190. Consumption of HCFC-141b contained in pre-blended polyols continued the decreasing trend noted at the 87th meeting,[47] with the 2020 and 2021 consumption falling by 87 and 93 per cent relative to the 2018 consumption. The World Bank confirmed that the continued decrease was *inter alia* because small users dependent on pre-blended polyol were sensitive to market prices and may shift to lower cost pre-blended polyol, most likely water-based pre-blended polyol for certain applications. In addition, pre-blended cyclopentane polyols were being imported, while supply chain issues may have impacted the availability of imports of HCFC-141b contained in pre-blended polyols from a major Article 5 supplier in the region.

Legal framework

191. The Government has issued quotas for 2022 at the level of 143.78 ODP tonnes, which is in line with the Montreal Protocol control target for that year. In line with decision 76/42(c)(ii), the Government banned the import and manufacture of HCFC-22-based AC units by 1 January 2022.

Proposed changes to stage II of the HPMP

192. The Secretariat noted with appreciation the comprehensive and critical review undertaken by the Government and the World Bank to identify the stage II implementation challenges, and the changes proposed to address those challenges. While the Secretariat considered many of the proposed changes meaningful and noted the urgency of ensuring continued implementation to ensure that eligible enterprises could be assisted under the HPMP, the Secretariat was concerned that some of the proposed changes could not be implemented by the revised date of completion. Accordingly, the Secretariat developed the proposal described below based on the proposal submitted by the World Bank, with some adjustments.

AC manufacturing sector

193. The World Bank assessed the financial viability of the two participating enterprises and *inter alia* confirmed that over the last three years the enterprises were profitable, their revenue increased, and they were operating and growing. Notwithstanding that the enterprises had ceased manufacturing AC equipment in the three years prior to the submission, the manufacturing capacity was eligible and the project to convert the enterprises was approved at the 76th meeting. Moreover, at the 87th meeting the Secretariat had noted significant consumption of HFC-32 in the country;[48] that consumption had continued to increase largely due to increased penetration of HFC-32-based AC units in the local market. Accordingly, the Secretariat shares the World Bank's assessment that the enterprises would be able to sell HFC-32-based AC units after conversion.

194. The costs to convert the two participating enterprises are US $554,612. The World Bank clarified its original proposal included US $63,800 associated with the planned conversion of REE and confirmed that this funding was no longer required. On that basis, the Secretariat proposed funding of US $554,612 to convert the AC manufacturing sector on the understanding that the enterprises commit to no longer importing R-410A-based AC units by the completion of the project.

PU foam manufacturing sector

195. The Secretariat supported the use of up to four blending houses to locally manufacture pre-blended cyclopentane and pre-blended (reduced) HFOs. However, the exact funding required for the blending houses, confirmation of their participation, and the exact funding for the conversion of the two individual enterprises (Darling and Tan A) were pending submission of project proposals from those enterprises and signature of SGAs. Recognizing the limited time available until the 1 January 2023 ban on the import of

[47] Paragraph 16 of document UNEP/OzL.Pro/ExCom/87/40.
[48] Paragraph 18 of document UNEP/OzL.Pro/ExCom/87/40.

HCFC-141b contained in pre-blended polyols, and recalling that at the 76th meeting incremental operating costs (IOCs) were agreed at US $5.90/kg for pre-blended HFOs, the Secretariat proposed:

(a) To note that the Government will issue a ban on import of HCFC-141b contained in pre-blended polyols, and on the use of HCFC-141b contained in imported pre-blended polyols, by 1 January 2023, as proposed;

(b) That the Government would submit through the World Bank a progress report 16 weeks in advance of the 91st meeting detailing the following: progress toward implementing the ban; the number of blending houses that had signed SGAs and the exact cost of those SGAs; and confirmation that Darling and Tan A had signed SGAs and their exact cost;

(c) That the maximum level of funding for the conversion of Darling and Tan A would be US $500,000;

(d) That the maximum level of funding for support to up to three blending houses would be US $973,500, calculated based on up to US $312,500 per blending house to blend cyclopentane and up to US $36,000 for TA for the blending houses;

(e) That the maximum level of funding support for the blending house that wished to manufacture pre-blended (reduced) HFO systems would be US $206,500, calculated based on the expected phase-out to be achieved from the conversion of 80 SMEs of 35 mt, noting that such funding could only be disbursed in line with decision 77/35, and that the World Bank would include in the submission referred to in sub-paragraph (b) above the number of SMEs that had signed letters of commitment to participate in the project to convert to pre-blended HFOs, and that the eligible level of funding would be determined by the consumption of eligible enterprises that had signed those letters and the agreed IOCs;

(f) That only eligible enterprises with confirmed consumption of HCFC-141b contained in pre-blended polyols would be assisted and the World Bank would provide the list of those enterprises in the project completion report (PCR);

(g) That the capacity converted to low-GWP alternatives in the assisted enterprises under this project would not be eligible for further funding from the Multilateral Fund;

(h) Agree on a maximum funding level for the foam sector of US $2,529,589, as proposed by the World Bank, on the understanding that based on the information on eligible costs to be submitted to the 91st meeting in line with sub-paragraphs (b) and (e) above, the Government of Viet Nam, through the World Bank, would return to the 91st meeting the difference between the agreed maximum funding level (US $2,529,589) and the eligible costs. For example, if the conversion of Darling and Tan A only cost US $490,000; only two blending houses signed SGAs to convert to pre-blended cyclopentane (US $625,000); the blending house providing pre-blended HFOs was only able to secure the participation of eligible SMEs with a consumption of 30 mt of HCFC-141b contained in pre-blended polyols (US $177,000), and the TA was implemented as planned (US $36,000), then the Government, through the World Bank, would return US $352,000, plus agency support costs, to the 91st meeting; and

(i) That the date of completion of the project would be extended to 31 December 2023 as proposed by the World Bank.

Refrigeration manufacturing sector

196. While noting with appreciation the proposal to use an approach similar to that in the foam sector to secure the participation of the SMEs in the sector, the Secretariat considered that there was a significant risk that the proposed activities would not be successfully implemented, including by achieving the agreed phase-out by the revised date of completion of the project. While the use of an intermediary in the supply chain to coordinate the group project is innovative, given the variety of intermediaries SMEs in the refrigeration manufacturing sector may choose to work with, the role of that intermediary in the business practices of SMEs in the refrigeration manufacturing sector is less clear than for blending and systems houses in the foam manufacturing sector. Moreover, the enterprises that comprise this sector have been hesitant to participate *inter alia* due to an unwillingness to forfeit the use of HFCs and HFC blends; enterprises are able to make a range of products depending on the application and end-user demand and restricting their choice of technology was perceived to take away flexibility and competitiveness; and the limited administrative and financial capacity of the SMEs to meet SGA requirements. Based on the experience in implementing projects in this sub-sector in other countries, the Secretariat considered it unlikely that those conversions could be completed by the revised date of completion of 31 December 2023.

197. Accordingly, the Secretariat proposed to remove the group project and to only include funding of US $771,366 based on the conversions of Phuong Nam, Saree and Hung Tri, as proposed by the World Bank, noting that any savings from those conversions would be returned to the Multilateral Fund.

Refrigeration servicing sector

198. Based on the timeframe available to complete activities, the Secretariat proposed the allocation of US $700,000 (rather than US $1,330,000 proposed by the World Bank) to undertake additional activities in the refrigeration servicing sector and requested the World Bank to provide a plan of action based on that additional funding. The Secretariat proposed that the additional funding would result in an additional reduction of 8.02 ODP tonnes of HCFC-22 from the country's remaining HCFC consumption eligible for funding.

Technical Assistance and the PMU

199. The Secretariat recalled that at its 76th meeting, the Executive Committee agreed to funding for TA and the PMU at a level of 8 per cent of the funding approved under stage II; no reductions from the country's remaining HCFC consumption eligible for funding were associated with that funding. The Secretariat noted that the proposal submitted by the World Bank included funding for TA and the PMU not associated with reductions in remaining HCFC consumption eligible for funding that was 16.9 per cent of the revised project funding. Noting the major adjustments made to stage II of the HPMP, which include removal of the XPS foam manufacturing sector and removal of enterprises in the PU foam, AC, and refrigeration manufacturing sectors, as well as the simplification of the implementation of the PU foam sector through blending houses rather than working directly with a large number of SMEs, it was expected that the needs for TA and the PMU also changed. To support the remaining activities until the completion of stage II in light of the decreased funding requested, the Secretariat proposed increasing the proportion of funding for TA and the PMU for which no reductions in remaining HCFC consumption eligible for funding would be considered from 8.0 to 9.5 per cent, resulting in funding of US $591,144 as shown in Table 14.

Table 14. Proposed funding for revised stage II of the HPMP for Viet Nam (US $)

Sector	Approved funding	World Bank	Secretariat
AC manufacturing	2,184,867	618,412	554,612
XPS foam manufacturing	613,568	0	0
PU foam manufacturing	5,522,397	2,529,589	2,529,589
Refrigeration manufacturing	3,636,000	1,405,292	771,366
Refrigeration servicing (Japan)	233,630	233,630	233,630

Sector	Approved funding	World Bank	Secretariat
Refrigeration servicing (World Bank)	1,369,570	2,699,570	2,069,570
TA	406,801	496,801	591,144
PMU	678,002	768,541	
Percentage TA + PMU (%)	*8.0*	*16.9*	*9.5*
Total	**14,644,834**	**8,751,834**	**6,749,911**

Draft revised Agreement

200. The Secretariat proposed that the World Bank would include in its submission to the 91st meeting a draft revised Agreement reflecting the changes proposed, including changes based on the progress in finalizing the costs of SGAs with beneficiary enterprises.

Gender policy implementation[49]

201. At the 87th meeting, the World Bank clarified that stage II of the HPMP did not include a formal results framework on gender mainstreaming as the project was designed and approved prior to decision 84/92.[50] The World Bank confirmed that since the 87th meeting, the collection of gender-related data and the incorporation of some basic monitoring measures on gender balance were incorporated into the project implementation manual.

Continued discussions on revised stage II of the HPMP

202. In responding to the Secretariat's proposal, the World Bank:

(a) Confirmed that the enterprises in the AC manufacturing sector committed to no longer importing R-410A-based AC units by the completion of the project, while noting that such a commitment was time-bound and within the existing rules of the country. Industry could choose to change its business strategy in the medium- to long-term;

(b) Agreed to the conditions for the foam sector proposal by the Secretariat with one exception. The proposal submitted by the World Bank included the estimated costs of US $500,000 to convert Darling and Tan A in the foam manufacturing sector. Subsequent to submission of the proposal, and based on additional work by the PMU, the estimated costs of those conversions were likely US $600,000. Accordingly, the World Bank proposed that Viet Nam have flexibility to provide less funding to the blending houses as needed in order to remain within the proposed funding of US $2,529,589 for the sector;

(c) For the refrigeration manufacturing sector, noted that the estimated costs of US $624,000 for the two identified enterprises contained in the proposal submitted by the World Bank may be underestimated; moreover, the World Bank did not agree to the removal of the group project to address remaining HCFC-22 consumption in manufacturing and instead proposed to maintain the group project and, in case progress was limited, return any uncommitted amount for the group project to the 91st meeting;

(d) Reiterated the need for the proposed activities in the servicing sector, including the need to reach the target of training 3,000 technicians as soon as possible given that only one and a half years remained to implement the project, noting that the training had been delayed by COVID-19; and the need to ensure sufficient technicians are adequately trained to manage,

[49] Decision 84/92(d) requested bilateral and implementing agencies to apply the operational policy on gender mainstreaming throughout the project cycle.
[50] Paragraph 24 of document UNEP/OzL.Pro/ExCom/87/40.

install and service HFC-32-based equipment given the rapid uptake of HFC-32-based AC units in the country;

(e) Reiterated that the need to increase the funding for TA and the PMU was from the decrease in funding in the manufacturing sectors despite the continued presence of SMEs that use or risk to revert to using HCFCs. Awareness-raising and outreach through TA and the PMU would be critical to addressing those SMEs. Accordingly, funding in the HPMP had shifted from direct investment support to dissemination of knowledge on alternatives, on standards and guidance material, and by facilitating networking and exchange of lessons learned and experiences in the HCFC phase-out. Moreover, the shift in modality from investment sub-projects to intermediary-based sub-projects (i.e., blending houses and a group project) increased the need for TA and the PMU. Accordingly, the World Bank did not consider the proposed 9.5 per cent funding for TA and the PMU was feasible.

203. In light of the response provided by the World Bank, and subsequent to additional discussions, the Secretariat proposed the following changes to its proposal:

(a) To include US $30,000 for the development of a national standard on safe production and installation of AC equipment with flammable refrigerant in the AC manufacturing sector, noting that such an inclusion would be within the cost-effectiveness agreed by the Executive Committee at its 76th meeting. On that basis, the funding for the AC manufacturing sector was US $584,612;

(b) That Viet Nam could have the flexibility in the PU foam sector to provide less funding to the blending houses than proposed by the Secretariat as long as the cost-effectiveness of Darling and Tan A remains within the cost-effectiveness specified in decision 74/50;

(c) For the refrigeration manufacturing sector, the Secretariat proposed funding of US $1,405,292 as proposed by the World Bank on the understanding that:

(i) The maximum funding level for the refrigeration manufacturing sector is US $1,405,292 based on the phase-out at eligible refrigeration manufacturing enterprises of 117.11 mt of HCFC-22;

(ii) The Government would have flexibility to use the approved funding for the sector to undertake TA activities to assist conversions in the sector as long as the overall cost-effectiveness of the sector remained within the US $12.00/kg approved by the Executive Committee;

(iii) The Government would submit, through the World Bank, a progress report 16 weeks in advance of the 91st meeting detailing the progress toward implementation, including the number of enterprises that had signed SGAs to participate in the project, their phase-out, and the cost of those SGAs;

(iv) Only eligible enterprises with confirmed consumption of HCFC-22 in refrigeration manufacturing (and not assembly) would be assisted and the World Bank would provide the list of those enterprises in the PCR;

(v) The enterprises assisted under this project committed to manufacture low-GWP-based refrigeration equipment and would not manufacture or import high-GWP-based refrigeration equipment; and

(vi) Based on the information on eligible costs to be submitted to the 91st meeting in line with sub-paragraphs (i), (ii), and (iii) above, the Government of Viet Nam, through the World Bank, would return to the 91st meeting the difference between the agreed maximum funding level (US $1,405,292) and the eligible costs plus 9.5 per cent associated with the PMU and possible TA. For example, if by the 91st meeting the total phase-out from enterprises that signed SGAs was 100 mt of HCFC-22 rather than the expected 117.11 mt, the Government, through the World Bank, would return US $224,795, plus agency support costs, to the 91st meeting;

(d) For the refrigeration servicing sector to be implemented by the World Bank, the Secretariat proposed funding of US $2,699,570 as proposed by the World Bank on the understanding that:

(i) The Government, through the World Bank, would submit a detailed implementation plan for the servicing sector in line with the revised funding as part of the submission to be provided 16 weeks in advance of the 91st meeting; and

(ii) The additional funding of US $1,330,000 would result in an additional reduction from the country's remaining HCFC-22 consumption eligible for funding of 277.07 mt. However, the Secretariat proposed not to deduct this value in its entirety. Between 2014 and 2021 consumption in the refrigeration manufacturing sector decreased by 341.71 mt. As noted by the World Bank, one of the challenges in the refrigeration manufacturing sector is that some of the enterprises are no longer manufacturers but instead belong to the servicing sector (i.e., assembly). Accordingly, some of that reduction of 341.71 mt of HCFC-22 consumption in the refrigeration manufacturing sector had not been phased out but had instead 'converted' to the assembly sub-sector. In the absence of data on how much of the reduction was due to that 'conversion,' and how much phased out due to the uptake of R-404A, HFC-134a, and other alternatives, and for other reasons, the Secretariat proposed to consider half of the reduction was due to 'conversion' to the assembly sub-sector, and the other half phased out due to the uptake of HFCs and for other reasons. On that basis, the additional reductions from the country's remaining consumption of HCFC-22 eligible for funding is 106.23 mt (5.84 ODP tonnes); and

(e) For TA and the PMU, the Secretariat proposed funding of US $708,006, which is equal to 9.5 per cent of the costs of the Secretariat's revised proposal, noting that the funding for TA and the PMU could be further reduced in line with sub-paragraph (c)(vi) above, and on the understanding that the Government, through the World Bank, would include in the submission to be provided 16 weeks in advance of the 91st meeting the details of how the funding for TA and the PMU will be used.

204. While the World Bank agreed to most of the Secretariat's revised proposal, it did not agree to the 16-week deadline for the submission of additional information to the 91st meeting. Instead, it was agreed that the information would be submitted by the 10-week deadline to maximize the time available to the country to implement the project and secure the necessary signed SGAs. In addition, the World Bank and the Government undertook a comprehensive review of the proposed activities under the TA and PMU components and proposed funding of US $734,463 for those components, which would represent 9.9 per cent of the proposed funding for stage II of the HPMP. In light of the challenges in implementation experienced to date, and the extensive efforts to rationalize costs by the Government and the World Bank, the Secretariat considered the revised level of funding proposed by the World Bank for TA and the PMU to be appropriate as long as the proposed activities in the refrigeration manufacturing sector could be fully implemented.

205. However, while the World Bank agreed to return funds not committed through signed SGAs for the refrigeration manufacturing sector by the 91st meeting, it did not agree to the additional 9.5 per cent return associated with TA and the PMU. The World Bank noted that such an approach would severely limit the country from responding to the continuous implementation challenges in an agile and effective manner and require the country to set aside funding for TA and the PMU in the event that planned sector-based activities do not fully use the revised funding amounts. Project budget planning was not done in this manner; instead, planning is based on what will be needed to implement the entire project and achieve overall objectives and intermediate targets. Moreover, 42 per cent of the original TA and PMU budget had already been disbursed, and substantial additional resources had been committed for carrying out the necessary functions throughout the entire project. The World Bank emphasized that if there were a return of project funds at the 91st meeting, it would then carefully review the TA and PMU components to determine if an additional return was possible.

Status of the discussions

206. Notwithstanding constructive discussions and considerable effort and flexibility by the Government of Viet Nam, an agreement on all the changes to the stage II of the HPMP could not be reached in the limited time available. In particular, the Secretariat remains concerned that the risks to the successful implementation of the conversions in the refrigeration manufacturing sector by the extended date of completion of the project are substantial and considers that a sharing of those risks through the additional return for the TA and PMU to be appropriate. Moreover, the Secretariat considers it important that the allocation of funding for TA and the PMU that do not include reductions from a country's HCFC consumption eligible for funding should be equitable across Article 5 countries. On that basis, other solutions than those proposed by the Secretariat may be possible. For example, it may be possible to approve only part of the funding for the group project in the refrigeration manufacturing sector and, based on the progress achieved by the 91st meeting, consider at that time additional funding for the group project as well as for TA and the PMU, and to further extend the date of completion of the project.

207. Noting that the World Bank and the Secretariat had agreed on the changes to stage II of the HPMP except for those related to the revised funding levels for the refrigeration manufacturing sector, TA, and PMU, and the conditions associated with those revised funding levels, the Secretariat will continue its discussions with the World Bank with the aim of finding a path forward on those outstanding issues that is agreeable to the Government of Viet Nam and consistent with Executive Committee decisions and guidelines.

Recommendation

208. The Executive Committee may wish:

(a) To note the progress report on the implementation of stage II of the HCFC phase-out management plan (HPMP) for Viet Nam, submitted by the World Bank, and contained in document UNEP/OzL.Pro/ExCom/90/9;

(b) To approve the following changes to stage II of the HPMP for Viet Nam:

(i) The revised funding for the air-conditioning manufacturing sector of US $584,612, on the understanding that the participating enterprises commit to no longer import R-410A-based air-conditioning units by the completion of the project;

(ii) The revised funding for the polyurethane foam manufacturing sector of US $2,529,589, on the understanding that:

a) The maximum level of funding for the conversion of Darling and Tan A would be US $600,000;

b) The maximum level of funding for support to up to four blending houses would be US $1,180,000, calculated based on up to US $312,500 per blending house to blend cyclopentane, up to US $36,000 for technical assistance for the blending houses, and up to US $206,500 for the blending house that wished to manufacture pre-blended (reduced) HFO systems, calculated based on the expected phase-out to be achieved from the conversion of 80 small- and medium-sized enterprises (SMEs) of 35 mt, noting that such funding could only be disbursed in line with decision 77/35, and that the World Bank would include in the submission referred to in sub-paragraph (c)(ii) below the number of SMEs that had signed letters of commitment to participate in the project to convert to pre-blended HFOs, and that the eligible level of funding would be determined by the consumption of eligible enterprises that had signed those letters and the agreed incremental operating costs of US $5.90/kg;

c) Only eligible enterprises with confirmed consumption of HCFC-141b contained in pre-blended polyols would be assisted and the World Bank would include the list of those enterprises in the project completion report;

d) The capacity converted to low-GWP alternatives in the assisted enterprises under this project would not be eligible for further funding from the Multilateral Fund;

e) Based on the information on eligible costs to be submitted to the 91st meeting, the Government of Viet Nam, through the World Bank, would return to the 91st meeting the difference between the agreed maximum funding level (US $2,529,589) and the eligible costs;

(iii) The revised funding for the refrigeration servicing sector of US $2,699,570, resulting in an additional reduction from the country's remaining HCFC-22 consumption eligible for funding of 5.84 ODP tonnes;

(iv) The revised date of completion of the project of 31 December 2023;

(c) Further to note that:

(i) The Government will issue a ban on the import of HCFC-141b contained in pre-blended polyols, and on the use of HCFC-141b contained in imported pre-blended polyols, by 1 January 2023;

(ii) The Government would submit, through the World Bank, a progress report 10 weeks in advance of the 91st meeting *inter alia* detailing the following: progress toward implementing the ban on HCFC-141b contained in pre-blended polyols; the number of blending houses that had signed sub-grant agreements (SGAs) and the cost of those SGAs; confirmation that Darling and Tan A had signed SGAs and their cost; the number of SMEs that had signed SGAs to participate in the project, their phase-out, and the cost of those SGAs; and a detailed implementation plan for the servicing sector in line with the revised level of funding specified in sub-paragraph (b)(iii) above;

(iii) The Government would submit, through the World Bank, a draft revised

Agreement *inter alia* reflecting the revised level of funding, additional reductions in consumption of HCFC-22 eligible for funding, and revised date of completion of the project 10 weeks in advance of the 91st meeting; and

(d) To request the Secretariat to provide an update on the outcome of its further discussions with the World Bank on the revised funding levels for the refrigeration manufacturing sector, technical assistance and the project implementation and management unit, and any conditions associated with that revised funding, to the 90th meeting.

Status of implementation of activities in the 16 Article 5 countries for which extension of the completion dates of stage I and stage II of their HCFC phase-out management plans beyond 31 December 2022 was requested (decision 88/29)

Background

209. At the 88th meeting, the Executive Committee decided to allow, on an exceptional basis:

(i) Continued implementation of the outstanding activities related to stage I of the HCFC phase-out management plans (HPMPs) for Barbados (UNEP), Botswana (UNEP and UNIDO), the Congo (UNEP), Côte d'Ivoire (UNEP and UNIDO), Dominica (UNEP), Grenada (UNEP), Jamaica (UNEP), Mozambique (UNEP and UNIDO), Saint Kitts and Nevis (UNEP), South Africa (UNIDO), Suriname (UNEP and UNIDO) and Zambia (UNEP and UNIDO) and to request the relevant implementing agencies to submit, at the 90th meeting, a revised implementation plan, including, as applicable, requests for the remaining tranches under stage I;

(ii) UNEP to continue implementation of the outstanding activities related to stage I of the HPMPs for Haiti, Mali and South Sudan and to submit a report on the status of their implementation at the 90th meeting, as well as a report as part of its progress report at the 91st meeting, on the understanding that no additional funding requests for implementation of HPMP and HFC project activities would be submitted before the operational completion of stage I of the HPMPs;

(iii) UNIDO to continue implementation of the outstanding activities related to stage II of the HPMP for the Bolivarian Republic of Venezuela and to submit a comprehensive plan of action at the 90th meeting (decision 88/29(b)).

Status of implementation of activities in the 16 Article 5 countries

Requests for tranches submitted to the 90th meeting

210. The tranche requests with details on the implementation of the stage I of the HPMPs for Côte d'Ivoire,[51] Grenada,[52] and Mozambique[53] have been submitted to the 90th meeting.

211. The second tranche of stage II of the HPMP for the Bolivarian Republic of Venezuela has also been submitted to the present meeting but subsequently withdrawn as additional time is required to address issues identified during the project review process; the tranche will be resubmitted to the 91st meeting.

[51] UNEP/OzL.Pro/ExCom/90/25.
[52] UNEP/OzL.Pro/ExCom/90/27.
[53] UNEP/OzL.Pro/ExCom/90/33.

Implementation delays of final tranches

212. On the outstanding activities related to the implementation of the final tranche of stage I of HPMPs, UNEP and UNIDO reported the following:

(a) Botswana: Remaining activities relating to training of customs officers and refrigeration and air-conditioning (RAC) servicing technicians would be completed by 31 December 2022; UNEP is requesting an extension of the completion date of stage I to 31 December 2022;

(b) Jamaica: Implementation of the activities relating to customs training would be completed by 30 June 2022;

(c) Zambia: All activities under the UNEP component are completed. However, the completion of activities under the UNIDO component, relating to delivery, installation and commissioning of equipment and receiving a certificate of acceptance from the beneficiaries, is delayed due to global supply chain issues, and notwithstanding those uncertainties, the delivery of equipment is scheduled for the third or fourth quarter of 2022; UNEP is requesting an extension of the completion date of stage I to 30 June 2023.

Final tranches to be submitted

213. For the remaining countries that have not submitted a request for their final tranche of stage I at this meeting, Table 15 presents a summary of the status of implementation, reasons for delays and the planned date of submission of their final tranche:

Table 15.

Country	Status of implementation/ reasons for delays in submitting the final tranche	Estimated disbursement (%)	Planned date of submission of the final tranche
Barbados	The COVID-19-related restrictions resulted in delays in conducting activities relating to importers training and finalisation of legislative policies on standards and incentives.	75	91st meeting
Congo (the)	All activities relating to the fourth tranche were completed by December 2021; due to change of the National Ozone Officer (NOO), the submission of progress and financial reports is delayed.	72	91st meeting
Dominica	The project activities were delayed due to natural disasters, disruptions related to the COVID-19 pandemic, and changes in the national ozone unit (NOU) structure; the UNEP Compliance Assistance Programme's team is working closely with the new NOO to expedite implementation.	7	92nd or 93rd meeting
Saint Kitts and Nevis	Project activities were delayed due to structural changes in the NOU and the COVID-19-related restrictions.	55	92nd or 93rd meeting
South Africa	The COVID-19-related restrictions resulted in delays in coordination and implementation of HPMP activities and delayed responses on verification report matters.	90	91st meeting
Suriname	National restrictions related to the COVID-19 pandemic delayed implementation of activities related to customs and enforcement and the servicing sector.	62	91st meeting

Projects delays in countries with specific circumstances

214. On the status of implementation of activities in Haiti, Mali and South Sudan, UNEP reported the following:

(a) Haiti: The first tranche of stage I of the HPMP is operationally and financially completed. The implementation of the second tranche is heavily delayed due to difficult political and social circumstances, changes in the Government and the NOU, as well as restrictions related to the COVID-19 pandemic. The small-scale funding agreement (SSFA) that was signed in April 2019 expired; UNEP signed an amendment to the SSFA on 26 November 2020, which the country has not yet been able to sign. A few activities (e.g., RAC training and awareness raising) were implemented and UNEP is awaiting to receive the progress and financial report from the Government to advance the next installment.

(b) Mali: Since 2012, the country has been affected by unrest; the project continues to experience delays due to the ongoing political and security situation in the country, and more recently, due to the restrictions related to the COVID-19 pandemic. Since February 2022, the Economic Community of West African States (ECOWAS) maintains sanctions over the military rulers of the country. The Government has recently initiated discussions with ECOWAS to initiate project activities.

(c) South Sudan: The project experienced delays due to prolonged political instability and challenges posed by the COVID-19 pandemic. The SSFA was signed in January 2022 and the first installment under the SSFA of US $15,000 was released to the country through the Environmental Compliance Institute in January 2022; a train-the-trainer programme for RAC technicians and customs officers is scheduled to take place in May 2022. The activities under the first tranche are expected to be completed by December 2022 and the second and third tranches are expected to be submitted to the 91st meeting.

Secretariat's comments

215. The Secretariat noted that the extension of the completion dates of stage I of the HPMPs for Botswana to 31 December 2022, and for Zambia to 30 June 2023, as explained in paragraph 212, would allow the countries to complete the remaining activities in their HPMPs, on the understanding that no further extension would be requested.

216. The Secretariat had detailed discussions with UNEP and UNIDO regarding the delays in the submission of the remaining tranches for Barbados, the Congo, Dominica, Saint Kitts and Nevis, South Africa, and Suriname, referred to in paragraph 213, highlighting that the Executive Committee had allowed continued implementation of the projects on an exceptional basis and was expecting a detailed revised implementation plan to be submitted to the 90th meeting. Based on the discussions, the following approach was agreed:

(a) The final tranches of stage I of the HPMPs for Barbados, the Congo, South Africa, and Suriname would be submitted to the 91st meeting, and the extension of completion dates would be considered by the Executive Committee based on the detailed tranche implementation plan; and

(b) Given the administrative and institutional coordination challenges faced in Dominica and Saint Kitts and Nevis, UNEP would work closely with the respective Governments to ensure the submission of their final tranche of stage I of the HPMPs no later than the last meeting of 2023, on the understanding that no additional funding requests for new stages

of HPMP and HFC project activities would be submitted until operational completion of stage I of the HPMPs.

217. The Secretariat also discussed the continued uncertainties associated with the administrative issues and the political and security situation in Haiti, Mali and South Sudan, referred to in paragraph 214, noting some progress in project implementation in South Sudan; based on the discussions, it was agreed that UNEP would continue to closely monitor implementation of outstanding activities under stage I of the HPMPs for these countries, and submit status reports on their implementation in line with decision 88/29(b)(ii).

Recommendation

218. The Executive Committee may wish:

(a) To note the report on status of implementation of activities in the 16 Article 5 countries for which extension of the completion dates of their HCFC phase-out management plans (HPMPs) beyond 31 December 2022 was requested pursuant to decision 88/29(b) and contained in document UNEP/OzL.Pro/ExCom/90/9;

(b) To further note that stage I of the HPMP for Jamaica would be completed by 30 June 2022;

(c) To allow, on an exceptional basis, continued implementation of the outstanding activities related to the HPMPs for the following countries, and to request the relevant implementing agencies to submit a detailed implementation plan with the requests for the remaining tranches:

(i) At the 91st meeting, for stage I for Barbados (UNEP), the Congo (UNEP), South Africa (UNIDO), and Suriname (UNEP and UNIDO), and for stage II for the Bolivarian Republic of Venezuela (UNIDO); and

(ii) No later than the last meeting of 2023, for stage I for Dominica (UNEP) and Saint Kitts and Nevis (UNEP), on the understanding that no additional funding requests for new stages of HPMPs and HFC project activities would be submitted until operational completion of the stage I of the HPMPs;

(d) To approve the extension, on an exceptional basis, of the completion dates of stage I of the HPMPs for the following countries, on the understanding that no further extension would be requested:

(i) Botswana (UNEP and UNIDO), to 31 December 2022, to allow for completion of the remaining activities relating to training of customs officers and refrigeration and air-conditioning servicing technicians; and

(ii) Zambia (UNEP and UNIDO), to 30 June 2023, to allow for completion of the pending activities relating to equipment procurement and delivery; and

(e) To allow, on an exceptional basis, UNEP to continue implementation of the outstanding activities related to stage I of the HPMPs for Haiti, Mali and South Sudan, and to request UNEP to submit a report on the status of their implementation as part of the UNEP progress report at the 91st meeting in line with decision 88/29(b)(ii).

B. Reports related to HFC projects

Jordan: Report on the project for the conversion from HFC to propane of the facility manufacturing large commercial unitary roof-top air-conditioning units of up to 400 kW at Petra Engineering Industries Co. (UNIDO)

Background

219. At its 81st meeting, the Executive Committee approved a project for the conversion from HFC (HFC-134a, R-407C, R-410A) to propane (R-290) of the facility manufacturing large commercial unitary roof-top air-conditioning (AC) units of up to 400 kW at Petra Engineering Industries Co. (Petra) in Jordan, in the amount of US $1,637,610, plus agency support costs for UNIDO (decision 81/62).

220. Petra is the largest manufacturer of AC units and the only manufacturer of unitary roof-top AC units in the country. The project was designed to simulate, design, test, and convert the production of unitary roof-top AC units using R-290 to replace HFC-based units of up to 400 kW (114 tonnes of refrigeration (TR)) used for commercial and industrial applications and achieve an energy efficiency ratio (EER) 10-15 per cent higher than the minimum EER in the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) 90.1 standard. Of its eight assembly lines and eight charging areas, two were to be converted to R-290. The two prototypes were planned to have a capacity of 80 kW and 185 kW, cover the whole range of unitary AC units manufactured at Petra, and include two different designs with all related safety measures.

221. The project was to be completed by July 2020 and a comprehensive completion report submitted within six months of project completion. On behalf of the Government of Jordan, UNIDO submitted a progress report on the implementation of the project.

Progress report

222. The progress report includes a list of implemented project activities; an update on training and awareness-raising activities, including training materials; a summary of results of the prototype tests; and a report on incremental capital costs (ICCs) and incremental operating costs (IOCs).

223. With the support of the project, two R-290 prototypes with a capacity of 80 kW and 185 kW were designed, built, and tested; in addition, the enterprise co-financed the design, building, and testing of a third prototype based on HFC-32.[54] The R-290 prototypes had cooling capacities between 2 and 6 per cent higher and EERs between 4 and 11 per cent higher than the baseline R-407C units. At 95°F, the R-290 prototypes showed a 2 per cent better cooling capacity and 6 per cent better EER; at 115°F, the R-290 prototypes exhibited significantly lower compressor discharge temperature and pressure than the baseline units and showed better performance in both cooling capacity by 3 per cent and EER by 8 per cent. Similarly, the HFC-32-based prototype cooling capacity was between 6 and 10 per cent higher than the R-410A-based baseline unit and had an improved EER relative to the baseline between 1 and 4 per cent in all tested conditions. At 95°F, the HFC-32 prototype exceeded the cooling capacity and EER of the baseline unit by 8 per cent and 2 per cent, respectively, and at 115°F by 9 per cent and 4 per cent.

224. The approved total cost of US $1,637,610 comprises US $899,800 in ICCs and US $747,810 in IOCs. UNIDO reported ICCs of US $1,521,120 and zero IOCs as, other than the prototypes, no R-290-based unitary roof-top AC units had been manufactured. While IOCs could not be provided, UNIDO

[54] R-290 was used as an alternative to R-407C and HFC-32 was used as an alternative to R-410A.

provided information on the costs associated with the manufacture of the prototypes that suggested IOCs between US $105/kg and US $108/kg depending on the model.

Secretariat's comments

225. At the 81st meeting, UNIDO had emphasized that the project would only convert two (out of eight) manufacturing lines, and a complete conversion to R-290 products was not realistic nor intended at that time.[55] However, the Secretariat noted that the enterprise had not manufactured any large commercial unitary roof-top AC units based on the new technology (i.e., R-290), and recalled that the project was the only project approved under decision 78/3(g) that explicitly included a provision to extend the financial completion of the project, on an exceptional basis, for one year, if necessary, for the sole purpose of allowing the disbursement of IOCs associated with the actual sale of R-290 AC units, in line with decision 77/35.[56] Accordingly, and in line with decision 81/62(b)(iv), the Secretariat did not consider the project to have been completed.

226. On that basis, the Secretariat sought to better understand the reasons why the enterprise had not been able to manufacture R-290-based units, whether the enterprise remained committed to manufacturing large commercial unitary roof-top AC units based on R-290 on the converted lines and, if so, whether UNIDO wished to request an extension of the project.

227. UNIDO noted that Petra faced a challenging business environment throughout its operations: the enterprise's HFC-based manufacturing had decreased by 42 per cent over the last three years, and sales of HFC-based units were expected to be approximately 75 per cent below those in 2021; expected sales of HFC-based units in 2022 were 85 per cent below the average 2017-2019 sales (i.e., representative of sales before the pandemic). Sales of HFC-based equipment were not expected to recover until after 2024. The enterprise attributed the substantial reduction in sales to the COVID-19 pandemic; the economic situation in the region, which may be affected by the political situation in some countries; and changes in market demand, including an increased demand for chilled water systems. Given that challenging business environment, the enterprise had been unable to introduce a new technology and considered that additional time was needed before such an introduction was possible.

228. UNIDO confirmed that the enterprise remained committed to manufacturing R-290-based large commercial unitary roof-top AC units and proposed to extend the project. The purpose of that extension was to give additional time to allow policy and regulatory changes to take place and build confidence in the technology. Expected changes to the European Union (EU) fluorinated gas (F-gas) regulation are likely to facilitate the uptake of R-290-based large commercial unitary roof-top AC units in the EU.[57] Expected changes in regulations in the state of California of the United States of America may similarly encourage an uptake of the technology in that market.[58] Such a market uptake in non-Article 5 countries would help build confidence in the technology in Article 5 countries as well. In addition, UNIDO noted that due to COVID-19, there had been a delay in the expected updates to building codes in Article 5 countries in the region that would allow the installation and use of R-290-based large commercial unitary roof-top AC units;

[55] Paragraph 24 of document UNEP/OzL.Pro/ExCom/81/40.

[56] Paragraph 29 of document UNEP/OzL.Pro/ExCom/81/40 and decision 81/62(b)(iv).

[57] On 5 April 2022, the European Commission released a proposal updating the EU F-gas regulation with measures to further reduce the use of HFCs in the EU, including *inter alia* a 1 January 2027 ban on certain AC equipment that use F-gases with a global warming potential (GWP) of 750 or greater; and measures to increase the number of engineers and technicians qualified to handle R-290.

[58] Existing regulations specify that new stationary RAC equipment with a charge greater than 22.7 kg are required to use a refrigerant with a GWP less than 150. Amendments to the regulations were submitted in February 2022 that would *inter alia* limit the GWP of HFCs sold in California after 2030 to 750 or less and would require the California Air Resources Board to develop deadlines for the adoption of AC equipment with refrigerants that have a GWP of 150 or less.

Jordan, Saudi Arabia, and United Arab Emirates were expected to update their building codes within the next two years.

229. On that basis, the Secretariat had detailed discussions with UNIDO on how remaining balances would be used, the duration of a possible extension, and additional reporting to be provided, resulting in a common understanding on the following:

(a) The remaining balances of US $113,089 will be disbursed exclusively for the manufacture of R-290-based large commercial unitary roof-top AC units, in line with decisions 81/62(b)(iv) and 77/35;

(b) Each year until the completion of the project, the enterprise would report, through UNIDO, the annual sales of R-290-based large commercial unitary roof-top AC units in Article 5 countries and (separately) in non-Article 5 countries;

(c) IOCs would only be provided based on sales of R-290-based large commercial unitary roof-top AC units in Article 5 countries;

(d) To request an extension of the project for three years, resulting in a revised date of completion of July 2025; and

(e) That UNIDO would submit, on behalf of the Government of Jordan, a final report on the project, including updated information on the IOCs incurred during the manufacture of R-290-based large commercial unitary roof-top AC units, within six months of the completion of the project.

230. Whether UNIDO would be able to fully disburse the remaining balances by the revised date of completion will depend on the uptake of R-290-based large commercial unitary roof-top AC units in Article 5 country markets; the rate of that uptake depends on a number of factors, many of which are outside the control of the enterprise and the Government of Jordan.

Report on ICCs and IOCs

231. It appeared that UNIDO had allocated virtually all the agreed IOCs for additional capital costs notwithstanding decisions 81/62(b)(iv) and 77/35. The Executive Committee may wish to provide guidance on whether that was its intent when approving the project. In particular, the purpose of the HFC stand-alone investment projects approved under decision 78/3(g) was to better understand the ICCs and IOCs that might be associated with phasing down HFCs in Article 5 countries. In its project review at the 81st meeting, the Secretariat had explicitly noted that the agreed ICCs and IOCs were its best estimates of the overall incremental costs of conversion based on the information available at the time of review; these estimates, however, might change as more information becomes available and according to the specific characteristics of the enterprises.[59] Based on the Executive Committee's limited experience in ICCs and IOCs, additional flexibility in the use of the approved funds might be appropriate. Conversely, such flexibility would result in limited information on IOCs being provided. Moreover, while the Executive Committee had taken several decisions[60] that provided Article 5 countries flexibility to allocate approved funding from IOCs to ICCs subject to certain conditions, none of those decisions applied to HFC stand-alone investment projects approved under decision 78/3(g).

[59] Paragraph 41 of document UNEP/OzL.Pro/ExCom/81/40.
[60] Decisions 20/6(b), 60/44(f)(iii), and 74/50(c)(ii).

232. The Secretariat noted that with one exception,[61] the costs of equipment procured internationally by UNIDO (which account for approximately one third of the agreed ICCs) are within 17 per cent of the agreed costs. In contrast, the costs associated with equipment and activities procured locally or by the enterprise, which accounted for the majority of the agreed ICCs, were about twice the expected costs. Notwithstanding additional information provided by UNIDO, at the time of finalization of the present document the Secretariat was not clear why that was the case nor whether those reported costs were eligible. The Secretariat will undertake a further review of the reported ICCs when the final project report is submitted.

233. Regarding the preliminary information on costs associated with the manufacture of the prototypes that would be relevant to IOCs, the Secretariat noted that some of those costs may change in the future. For example, there is no theoretical reason an R-290 expansion valve was more expensive than that for R-407C; rather, this difference is driven by economies-of-scale, which may change with additional uptake of R-290 technology. Information on IOCs incurred would be available once commercial manufacturing of R-290-based large commercial unitary roof-top AC units was implemented.

234. During the review of the project at the 81st meeting, it was noted that the approximately 45 per cent reduction in charge of refrigerant will result in savings in materials; however, such savings could not be assessed at that time. It had therefore been agreed that in the final report on ICCs and IOCs, a detailed assessment of potential savings in materials would be provided, on the understanding that any resultant savings in IOCs would be returned to the Fund. UNIDO confirmed that such information would be included in the final report.

Destruction of baseline equipment

235. The Secretariat noted that UNIDO had not destroyed or rendered unusable the baseline charging machines of the two converted lines. UNIDO did not consider that such equipment would need to be destroyed or rendered unusable as the project only converted two out of the eight manufacturing 'lines' and the enterprise was expected to continue consuming HFCs after the completion of the project; the manufacturing occurred along assembly platforms rather than clearly distinguishable manufacturing lines; and the destruction or rending unusable of the baseline equipment would not affect the implementation of the project, including the related ICCs and IOCs. However, the Secretariat was not clear how UNIDO would ensure that the baseline charging machines would not be used to increase R-407C manufacturing on the unconverted 'lines.' The Executive Committee may wish to provide guidance on this matter.

236. The Secretariat noted with appreciation the preliminary information on the implementation of the project that, once fully implemented, will both usefully inform the Executive Committee of the incremental costs associated with the HFC phase-down, and help ensure the uptake of climate- and energy-efficient equipment in the region. UNIDO was able to complete the installation of equipment required for the conversion and undertake relevant technical assistance activities notwithstanding the challenges brought about by the COVID-19 pandemic. In addition, the information on the energy efficiency and cooling capacity of the R-290-based prototypes relative to the R-407C-based baseline equipment, and of the HFC-32-based prototype relative to the R-410A-based baseline equipment, may usefully inform future technology choices of enterprises in the region and beyond.

Recommendation

237. The Executive Committee may wish:

(a) To note the progress report on the implementation of the project for the conversion from HFC to propane (R-290) of the facility manufacturing large commercial unitary roof-top

[61] The costs associated with refrigerant storage and supply were about three times the agreed costs as the enterprise decided to install an ISO tank rather than the high-capacity cylinders in the original proposal.

air-conditioning (AC) units of up to 400 kW at Petra Engineering Industries Co., submitted by UNIDO, and contained in document UNEP/OzL.Pro/ExCom/90/9;

(b) To extend the date of completion of the project referred to in sub-paragraph (a) above to 31 July 2025;

(c) Further to note that:

(i) The remaining balances of US $113,089 will be disbursed exclusively for the manufacture of large commercial unitary roof-top AC units based on R-290, in line with decisions 81/62(b)(iv) and 77/35;

(ii) The enterprise would report, through UNIDO, the annual sales of R-290-based large commercial unitary roof-top AC units in Article 5 countries and (separately) in non-Article 5 countries each year until the completion of the project;

(iii) Incremental operating costs (IOCs) would only be provided based on sales of R-290-based large commercial unitary roof-top AC units in Article 5 countries;

(iv) UNIDO would submit, on behalf of the Government of Jordan, a final report on the project, including updated information on the IOCs incurred during the manufacture of R-290-based large commercial unitary roof-top AC units, within six months of the completion of the project; and

(d) Provide guidance on whether it intended to provide flexibility to allocate approved funding from IOCs to incremental capital costs during project implementation, and whether the baseline equipment of the project at Petra Engineering Industries Co. should be destroyed.

C. Requests for extension of the completion dates of enabling activities for HFC phase-down

Background

238. UNEP, on behalf of 16 Article 5 countries, submitted requests for extension of the completion dates of the enabling activities for HFC phase-down. Table 16 provides information on the projects including the levels of disbursement of funds, the original date of completion, and the proposed revised date of completion.

Table 16. Countries which have requested for extension of the completion dates of enabling activities

Country	Code	Disbursement (%)	Date approved	Revised completion date	Requested completion date
Benin	BEN/SEV/81/TAS/01+	76	June 2018	June 2022	December 2022
Chad	CHD/SEV/81/TAS/01+	73			
Comoros (the)	COI/SEV/81/TAS/01+	90			
Côte d'Ivoire	IVC/SEV/81/TAS/01+	80			
Democratic Republic of the Congo (the)	DRC/SEV/81/TAS/01+	78			
Djibouti	DJI/SEV/81/TAS/01+	5			
Equatorial Guinea	EQG/SEV/81/TAS/01+	75			
Guinea-Bissau	GBS/SEV/81/TAS/01+	75			
Madagascar	MAG/SEV/81/TAS/01+	77			
Mali	MLI/SEV/81/TAS/01+	100			

Country	Code	Disbursement (%)	Date approved	Revised completion date	Requested completion date
Mauritania	MAU/SEV/81/TAS/01+	68			
Sao Tome and Principe	STP/SEV/81/TAS/01+	88			
Burundi	BDI/SEV/85/TAS/39	67	June 2020		
Gabon	GAB/SEV/80/TAS/01+	100	November 2017	December 2021	
Brunei Darussalam	BRU/SEV/82/TAS/01+	34	December 2018	June 2022	June 2023
Pakistan	PAK/SEV/81/TAS/97	23	June 2018		

239. UNEP indicated the remaining activities to be undertaken during the extended period as follows:

(a) Brunei Darussalam: Further stakeholder consultations, roundtables and capacity building workshops for refrigeration and air-conditioning (RAC) servicing sector, regulation amendment for management of HFC trade, awareness raising activities;

(b) Pakistan: Further stakeholder consultations and capacity building workshops for RAC servicing sector, supporting approval of drafted regulation amendment, support approval of proposed Harmonized System (HS) code, awareness raising activities;

(c) The remaining 14 countries: Assist customs and other relevant departments to adopt/develop country-specific HS codes for HFCs to facilitate and ensure proper monitoring and recording of imports/exports of individual HFCs/alternatives; and information outreach to other relevant stakeholders (e.g., importers/exporters of HFCs) on data collection, monitoring and reporting of HFCs and other relevant regulations that the national ozone unit (NOU) was not able to reach during the COVID-19 pandemic lockdown periods.

240. UNEP also mentioned that during the second half of 2022, it proposes to conduct two regional workshops for the countries in the African region to *inter alia* review the countries' national procedures used for ODS reporting for including reporting of HFC consumption; provide suggestions to the countries for improving their import/export licensing system to include HFCs (Article 4B) and other alternatives; and provide suggestions and plans to unify and change the tariff codes for the improvement of the import licensing system for HFCs, with funds available from enabling activities.

Secretariat's comments

241. The Secretariat requested additional information on the activities that would be undertaken up to December 2022 for the countries in the African region. UNEP explained that two regional project workshops (one each for Economic and Monetary Community of Central Africa (CEMAC) countries and Economic Community of West African States (ECOWAS) countries) are proposed to be undertaken to allow the countries to address a range of common issues relating to HFC controls, data collection and monitoring which have not been addressed in light of the difficulties in organizing the national meetings/workshops during the COVID-19 pandemic lockdown periods. The workshops would also cover developing and adopting the HS codes for HFCs to facilitate proper monitoring and recording of imports of individual HFCs and alternatives and sharing the experience of each country on developing national mechanisms for accurate reporting of consumption of HFCs and alternatives and the establishment and effective implementation of the national HFC licensing system. The inputs from the workshops would be useful for country level capacity building activities for the relevant customs and enforcement authorities and consultation with stakeholders on HFC import/export monitoring and reporting.

242. The Secretariat requested additional clarification on the need for extension of the enabling activities for Brunei Darussalam and Pakistan up to 30 June 2023 noting that the projects were extended at the

87th meeting with the expectation that they would be completed by June 2022. UNEP clarified the following:

(a) In the case of Brunei Darussalam, due to COVID-19 pandemic challenges and lengthy administrative procedures for the signing of the agreement for the implementation of enabling activities, the project activities were delayed; the Government has also confirmed in its letter dated 21 May 2022 that it would ensure successful completion of activities relating to stakeholder consultations, regulations development for effectively managing the trade and use of HFCs and awareness and information outreach on HFC phase-down and promoting energy efficient use of RAC equipment, by June 2023, and it would not request any further extension of the completion date beyond 30 June 2023.

(b) In the case of Pakistan, due to COVID-19 pandemic challenges and the lengthy administrative procedures, the project activities were delayed; the Government indicated in its letter dated 23 May 2022 that it would ensure successful completion of activities relating to consultations for finalising the country assessment report and the advanced draft of the Statutory Regulatory Order (regulation amendment), capacity building workshops for industry representatives including end-users and service sector on HFC phase-down and low-global-warming-potential alternatives and awareness and outreach activities relating to HFC phase-down under the Kigali Amendment for getting support from different stakeholders. The Government also confirmed in its letter that it would not request any further extension of the completion date beyond 30 June 2023.

Recommendation

243. The Executive Committee may wish:

(a) To note the updated information provided by UNEP in document UNEP/OzL.Pro/ExCom/90/9 on the status of implementation of enabling activities for HFC phase-down in 16 Article 5 countries and their requests for extension of the completion dates of the enabling activities;

(b) To approve the requests for extension, on an exceptional basis, of the completion dates of enabling activities for HFC phase-down for the following countries, on the understanding that no further extension would be requested:

(i) Benin, Burundi, Chad, the Comoros, Côte d'Ivoire, the Democratic Republic of the Congo, Djibouti, Equatorial Guinea, Gabon, Guinea-Bissau, Madagascar, Mali, Mauritania, and Sao Tome and Principe, to 31 December 2022, to allow for completion of the remaining activities relating to stakeholder consultations, policies and regulations relating to HFC phase-down and information outreach with national stakeholders on HFC phase-down;

(ii) Brunei Darussalam, to 30 June 2023, to allow for completion of stakeholder consultations, regulations development for effectively managing the trade and use of HFCs, awareness and information outreach on HFC phase-down and promoting energy efficient use of refrigeration and air-conditioning equipment; and

(iii) Pakistan, to 30 June 2023, to allow for completion of consultations for finalising the country assessment report and the advanced draft of the Statutory Regulatory Order (regulation amendment), capacity building workshops for industry representatives including end-users and service sector on HFC phase-down and low-global-warming-potential alternatives, and awareness and outreach activities

relating to HFC phase-down under the Kigali Amendment for getting support from different stakeholders.

Annex I

PROJECTS THAT ARE CLASSIFIED AS "SOME PROGRESS" AND ARE RECOMMENDED FOR CONTINUED MONITORING

Country	Code	Project title	Agency
Albania	ALB/PHA/85/INV/41	HCFC phase-out management plan (stage II, first tranche)	UNIDO
Bangladesh	BGD/PHA/81/INV/51	HCFC phase-out management plan (stage II, first tranche) (air-conditioning sector)	UNDP
Bangladesh	BGD/PHA/81/TAS/49	HCFC phase-out management plan (stage II, first tranche) (project management unit)	UNDP
Botswana	BOT/PHA/75/INV/18	HCFC phase-out management plan (stage I, first tranche)	UNIDO
Dominica	DMI/PHA/62/TAS/19	HCFC phase-out management plan (stage I, first tranche)	UNEP
Guatemala	GUA/PHA/75/TAS/50	HCFC phase-out management plan (stage I, third tranche)	UNEP
Iran (Islamic Republic of)	IRA/PHA/77/INV/224	HCFC phase-out management plan (stage II, first tranche) (foam sector)	Italy
Iran (Islamic Republic of)	IRA/PHA/77/INV/228	HCFC phase-out management plan (stage II, first tranche) (foam sector)	UNIDO
Iran (Islamic Republic of)	IRA/PHA/84/INV/237	HCFC phase-out management plan (stage II, second tranche) (foam sector)	Italy
Iran (Islamic Republic of)	IRA/PHA/84/INV/239	HCFC phase-out management plan (stage II, second tranche) (foam sector)	UNIDO
Iran (Islamic Republic of)	IRA/PHA/84/TAS/240	HCFC phase-out management plan (stage II, second tranche) (refrigeration servicing sector)	UNIDO
Iraq	IRQ/PHA/58/INV/09	National phase-out plan (first tranche)	UNIDO
Iraq	IRQ/PHA/74/INV/23	HCFC phase-out management plan (stage I, second tranche) (refrigeration servicing sector)	UNIDO
Iraq	IRQ/REF/57/INV/07	Replacement of refrigerant CFC-12 with isobutane and foam blowing agent CFC-11 with cyclopentane in the manufacture of domestic refrigerators and chest freezers at Light Industries Company	UNIDO
Jordan	JOR/PHA/77/INV/101	HCFC phase-out management plan (stage II, first tranche) (refrigeration servicing sector)	UNIDO
Mexico	MEX/PHA/73/INV/171	HCFC phase-out management plan (stage II, first tranche) (reclamation of HCFC refrigerants)	Italy
Mexico	MEX/PHA/74/INV/172	HCFC phase-out management plan (stage II, first tranche) (HC demonstration and training)	Germany
Mexico	MEX/PHA/77/INV/179	HCFC phase-out management plan (stage II, second tranche) (HC demonstration and training)	Germany
Nauru	NAU/PHA/74/TAS/10	HCFC phase-out management plan for PIC countries through regional approach (stage I, second tranche, Nauru)	UNEP
Saint Kitts and Nevis	STK/PHA/82/TAS/22	Verification report on the implementation of the HCFC phase-out management plan	UNEP
South Sudan	SSD/PHA/77/TAS/04	HCFC phase-out management plan (stage I, first tranche)	UNEP
Turkmenistan	TKM/PHA/86/INV/17	HCFC phase-out management plan (stage II, first tranche)	UNIDO
Venezuela (Bolivarian Republic of)	VEN/PHA/76/INV/134	HCFC phase-out management plan (stage II, first tranche) (technical assistance in refrigeration and air-conditioning manufacturing sector)	UNIDO
Venezuela (Bolivarian Republic of)	VEN/PHA/76/TAS/132	HCFC phase-out management plan (stage II, first tranche) (refrigeration servicing sector)	UNIDO
Zimbabwe	ZIM/REF/82/INV/56	Conversion from HFC-134a to isobutane in the manufacture of domestic refrigerators at Capri (SME Harare)	France

Annex II

PROJECTS THAT ARE CLASSIFIED AS "NO PROGRESS" AND ARE RECOMMENDED FOR CONTINUED MONITORING

Country	Code	Project title	Agency
Afghanistan	AFG/PHA/77/INV/20	HCFC phase-out management plan (stage I, second tranche)	UNIDO
Afghanistan	AFG/PHA/79/INV/22	HCFC phase-out management plan (stage I, third tranche)	UNIDO
Afghanistan	AFG/PHA/85/INV/30	HCFC phase-out management plan (stage II, first tranche)	UNIDO
Algeria	ALG/PHA/66/INV/76	HCFC phase-out management plan (stage I, first tranche) (conversion from HCFC-22 in the manufacture of room air conditioners at Condor)	UNIDO
Algeria	ALG/PHA/66/INV/77	HCFC phase-out management plan (stage I, first tranche) (activities in the refrigeration servicing sector including phase-out of HCFC-141b used for flushing, and project monitoring)	UNIDO
Haiti	HAI/PHA/76/TAS/21	HCFC phase-out management plan (stage I, second tranche)	UNEP
Mauritania	MAU/PHA/80/INV/25	HCFC phase-out management plan (stage I, first tranche)	UNDP
Mali	MLI/PHA/83/TAS/40	HCFC phase-out management plan (stage I, fourth tranche)	UNEP
Myanmar	MYA/PHA/68/TAS/14	HCFC phase-out management plan (stage I, first tranche)	UNEP
Myanmar	MYA/PHA/80/TAS/18	HCFC phase-out management plan (stage I, second tranche)	UNEP
Nepal	NEP/PHA/75/TAS/34	HCFC phase-out management plan (stage I, second tranche)	UNEP
Saint Vincent and the Grenadines	STV/PHA/75/TAS/23	HCFC phase-out management plan (stage I, second tranche)	UNEP
Suriname	SUR/PHA/81/TAS/26	HCFC phase-out management plan (stage I, third tranche)	UNEP

Annex III

PROJECTS THAT ARE CLASSIFIED AS "NO PROGRESS" AND ARE RECOMMENDED FOR LETTER OF POSSIBLE CANCELLATION

Country	Code	Project title	Agency
Congo (the)	PRC/PHA/76/TAS/30	HCFC phase-out management plan (stage I, third tranche)	UNEP
Saint Kitts and Nevis	STK/PHA/74/TAS/20	HCFC phase-out management plan (stage I, second tranche)	UNEP

Annex IV

PROJECTS FOR WHICH ADDITIONAL STATUS REPORTS ARE REQUESTED

Country	Code	Project title	Agency	Recommendation
Afghanistan	AFG/PHA/85/TAS/27	HCFC phase-out management plan (stage I, fourth tranche)	UNEP	To request UNEP to provide a status report to the 91st meeting on the national ozone unit (NOU) operations and implementation progress
Afghanistan	AFG/PHA/85/TAS/29	HCFC phase-out management plan (stage II, first tranche)	UNEP	To request UNEP to provide a status report to the 91st meeting on the NOU operations and implementation progress
Afghanistan	AFG/PHA/85/INV/28	HCFC phase-out management plan (stage I, fourth tranche)	UNIDO	To request UNIDO to provide a status report to the 91st meeting on implementation progress
Argentina	ARG/PHA/84/TAS/191	HCFC phase-out management plan (stage II, second tranche) (monitoring and reporting of HCFC-22 production)	UNIDO	To request UNIDO to provide a status report to the 91st meeting on the completion of the verification report of HCFC-22 production and disbursement level
Barbados	BAR/PHA/84/TAS/29	HCFC phase-out management plan (stage I, third tranche)	UNEP	To request UNEP to provide a status report to the 91st meeting on implementation progress
Central African Republic (the)	CAF/SEV/68/INS/23	Extension of the institutional strengthening project (phase VI: 1/2013-12/2014)	UNEP	To request UNEP to provide a status report to the 91st meeting on implementation progress
Dominica	DMI/PHA/84/TAS/25	HCFC phase-out management plan (stage I, second tranche)	UNEP	To request UNEP to provide a status report to the 91st meeting on the signature of the small-scale funding agreement and disbursement level
Dominica	DMI/PHA/86/TAS/26	Verification report on the implementation of stage I of the HCFC phase-out management plan	UNEP	To request UNEP to provide a status report to the 91st meeting on implementation progress
Haiti	HAI/SEV/75/INS/20	Extension of the institutional strengthening project (phase IV: 11/2015-10/2017)	UNEP	To request UNEP to provide a status report to the 91st meeting on implementation progress and disbursement level
Honduras	HON/PHA/86/TAS/51	HCFC phase-out management plan (stage I, fifth tranche)	UNEP	To request UNEP to provide a status report to the 91st meeting on disbursement level
Jamaica	JAM/PHA/85/TAS/42	HCFC phase-out management plan (stage I, fourth tranche)	UNEP	To request UNEP to provide a status report to the 91st meeting on implementation progress
Jordan	JOR/PHA/84/TAS/107	HCFC phase-out management plan (stage II, second tranche) (refrigeration servicing sector, project management and coordination)	UNIDO	To request UNIDO to provide a status report to the 91st meeting on implementation progress and disbursement level
Mali	MLI/PHA/84/PRP/41	Preparation of a HCFC phase-out management plan (stage II)	UNDP	To request UNDP to provide a status report to the 91st meeting on implementation progress, finalisation of stage II of the HPMP and disbursement level

Country	Code	Project title	Agency	Recommendation
Myanmar	MYA/PHA/83/PRP/20	Preparation of a HCFC phase-out management plan (stage II)	UNIDO	To request UNIDO to provide a status report to the 91st meeting on finalisation of stage II of the HPMP
Myanmar	MYA/PHA/83/PRP/21	Preparation of a HCFC phase-out management plan (stage II)	UNEP	To request UNEP to provide a status report to the 91st meeting on implementation progress and finalisation of stage II of the HPMP
Myanmar	MYA/PHA/80/INV/19	HCFC phase-out management plan (stage I, second tranche)	UNIDO	To request UNIDO to provide a status report to the 91st meeting on implementation progress with an update on resumption of activities
Myanmar	MYA/PHA/86/TAS/23	HCFC phase-out management plan (stage I, third tranche)	UNEP	To request UNEP to provide a status report to the 91st meeting on implementation progress
Myanmar	MYA/PHA/86/TAS/24	Verification report on the implementation of the HCFC phase-out management plan	UNEP	To request UNEP to provide a status report to the 91st meeting on implementation progress
Myanmar	MYA/SEV/84/INS/22	Extension of institutional strengthening project (phase V: 7/2020-6/2022)	UNEP	To request UNEP to provide a status report to the 91st meeting on implementation progress
Nauru	NAU/PHA/85/TAS/13	HCFC phase-out management plan for PIC countries through regional approach (stage I, third tranche)	UNEP	To request UNEP to provide a status report to the 91st meeting on implementation progress and disbursement level
South Sudan	SSD/PHA/84/TAS/05	Verification report on the implementation of the HCFC phase-out management plan	UNEP	To request UNEP to provide a status report to the 91st meeting on the preparation of a verification report
South Sudan	SSD/SEV/76/INS/03	Institutional strengthening project (phase I: 5/2016-4/2018)	UNEP	To request UNEP to provide a status report to the 91st meeting on implementation progress and disbursement level
Yemen	YEM/SEV/73/INS/43	Extension of the institutional strengthening project (phase VIII: 1/2015-12/2016)	UNEP	To request UNEP to provide a status report to the 91st meeting on the signing of the implementation agreement and disbursement level