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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Eighty-second Meeting
Montreal, 3-7 December 2018

# PROJECT PROPOSALS: EGYPT

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

Foam

| | |
|---|---|
| • Conversion project for replacement of HFC-134a with HCO/HFO blend for producing discontinuous panels in Army Factory | UNDP |

Phase-out

| | |
|---|---|
| • HCFC phase-out management plan (stage I, third tranche) | UNIDO and UNDP |

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

# PROJECT EVALUATION SHEET – NON-MULTI-YEAR PROJECT

## EGYPT

| PROJECT TITLE(S) | BILATERAL/IMPLEMENTING AGENCY |
|---|---|
| (a) Conversion project for replacement of HFC-134a with HCO/HFO blend for producing discontinuous panels in Army Factory | UNDP |

| NATIONAL CO-ORDINATING AGENCY | Egyptian Environmental Affair Agency (EEAA) |
|---|---|

**LATEST REPORTED CONSUMPTION DATA FOR ODS ADDRESSED IN PROJECT**
**A: ARTICLE-7 DATA (METRIC TONNES, 2017, AS OF MAY 2018)**

| | | |
|---|---|---|
| Annex F, Group I | mt | n/a |
| | mt $CO_2$-eq. | n/a |

**B: COUNTRY PROGRAMME SECTORAL DATA (METRIC TONNES, 2017, AS OF MAY 2018)**

| | | |
|---|---|---|
| Annex F, Group I | mt | n/a |
| | mt $CO_2$-eq. | n/a |

| | | |
|---|---|---|
| **HFC consumption remaining eligible for funding** | mt | n/a |
| | mt $CO_2$-eq. | n/a |

| CURRENT YEAR BUSINESS PLAN ALLOCATIONS | | Funding US $ | Phase-out ODP tonnes |
|---|---|---|---|
| | (a) | n/a | n/a |

| PROJECT TITLE: | Army Factory | |
|---|---|---|
| HFC-134a used at enterprise: | mt | 55.5 |
| | mt $CO_2$-eq. | 79,365 |
| HFC-134a to be phased out through this project: | mt | 55.5 |
| | mt $CO_2$-eq. | 79,365 |
| HCO/HFO to be phased in: | mt | 55.5 |
| | mt $CO_2$-eq. | 117 |
| Project duration (months): | | 24 |
| Initial amount requested (US $): | | 398,900 |
| Final project costs (US $): | | |
| Incremental capital cost: | | |
| Contingency (10%): | | |
| Incremental operating cost: | | |
| Total project cost: | | |
| Local ownership (%): | | 100 |
| Export component (%): | | 0 |
| Requested grant (US $):* | | 398,900 |
| Cost-effectiveness*: | US $/kg | 7.19 |
| | US $/mt $CO_2$-eq. | 5.02 |
| Implementing agency support cost (US $):* | | 27,923 |
| Total cost of project to Multilateral Fund (US $):* | | 426,823 |
| Status of counterpart funding (Y/N): | | N |
| Project monitoring milestones included (Y/N): | | Y |
| **SECRETARIAT'S RECOMMENDATION** | For individual consideration | |

***** As submitted.

## NOTE FROM THE SECRETARIAT

Background

*Consideration of the project for Army factory at the 81st meeting*

1. On behalf of the Government of Egypt, UNDP submitted to the 81st meeting a project proposal for the phase-out of HFCs for conversion of the manufacturing of discontinuous panels at Army Factory from HFC-134a to HFO based alternatives in line with decision 78/3(g).[1] The total cost of the project was estimated at US $1,007,400, plus agency support costs of US $70,518.

2. Further to discussions with UNDP on technical and cost aspects of the proposals, the Secretariat noted that the project had limited replicability at the country/regional level as well as sectoral level, and the technology proposed using HFOs was not mature and proven. The Secretariat also noted that the costs request were higher than those in other projects approved using reduced HFO-based formulations for discontinuous panels, and proposed a total cost of US $224,694.

3. At the 81st meeting, the Executive Committee considered the proposal, but did not approve it owing to concerns raised during the discussion in the contact group established for the discussion of HFC investment projects, particularly relating to replicability, and technology maturity for conversion using HFO-based formulations.

4. As a result of the discussions, the Executive Committee decided that those HFC investment projects about which concerns had been expressed at the 81st meeting could be resubmitted in accordance with decision 79/45[2] only if those specific concerns had been addressed (decision 81/53(c)).

*Re-submission of the project for Army Factory for consideration at the 82nd meeting*

5. On behalf of the Government of Egypt, UNDP has re-submitted to the 82nd meeting the project for conversion of the manufacturing of discontinuous panels at Army Factory from HFC-134a to hydrochloroolefins (HCO)/HFO, at a reduced amount of US $398,900, plus agency support costs of US $27,923.

6. The following sections[3] comprise additional information submitted to the 82nd meeting, the Secretariat's comments including the discussion on whether the issues raised at the 81st meeting have been addressed and a recommendation. Document UNEP/OzL.Pro/ExCom/81/33 is attached to this document for ease of reference.

Additional information since the 81st meeting

7. UNDP provided the following additional information:

(a) The total consumption of HFC-134a in the enterprise was 55.5 mt (79,365 tonnes $CO_2$-eq.) in 2017;

(b) The technology for conversion has been replaced from HFOs to hydrochloroolefin (HCO)/HFOs, noting that operating with HFO alone would be financially unsustainable;

[1] At the 80th meeting, the amount of US $30,000, plus agency support costs of US $2,100, was approved for the preparation of this project.

[2] Decision 79/45 states that all submitted HFC investment projects should have broad replicability within the country, region or sector, and should take into account geographic distribution.#

[3] Information was extracted from document UNEP/OzL.Pro/ExCom/81/33 where relevant.

(c) With regard to the replicability in the country and region, and maturity of technology:

(i) The use of HFC-134a as blowing agent in discontinuous panels, should also extend to all HFCs including HFC-245fa and HFC-365mfc, which are commonly used as blowing agents;

(ii) The proposed alternative technology should be considered mature and available based on the outcomes of recently completed laboratory study in Mexico on the use of HCO/HFO pre-blended in the polyol systems, and that two systems houses in Egypt are already working on this technology while two other systems houses are considering the use of this technology; given the technical complexity in formulating polyol systems based on these blends, polyol blends need to be procured from a systems house; and

(iii) The project is to be implemented with the support from the project manager of the HCO/HFO project in Mexico; two systems houses (Dow Chemicals and Foam Supplies International (FSI)), would provide support for systems development without any financial compensation; however, no written confirmation from these intended partners were provided to support this proposal.

8. The incremental capital costs (ICC) for the project, as submitted, included compensation for the project manager from Mexico (US $30,000) and trials for four sets of blowing-agent systems (US $40,000). Incremental operating costs (IOC) based on a formulation using 10 per cent of HCO/HFO blend as a blowing agent was estimated at US $321,900. Table 1 presents the costs of conversion.

**Table 1. Costs for conversion of discontinuous panel manufacturing in Egypt**

| Particulars | Submission at the 81st meeting (US $) | Secretariat's proposal at the 81st meeting (US $) | Revised submission at the 82nd meeting (US $) |
|---|---|---|---|
| **Technology option** | **HFO** | **HFO/Water** | **HCO/HFO** |
| High pressure dispenser | 130,000 | | |
| Spare mixing head | 20,000 | | |
| Technical support | 50,000 | 15,000 | 30,000 |
| Trials | 40,000 | 15,000 | 40,000 |
| Safety Audit | 10,000 | | |
| International seminar and project completion report | 20,000 | | |
| **Sub-total** | **270,000** | **30,000** | **70,000** |
| Contingencies | 27,000 | | 7,000 |
| **ICC** | **297,000** | **30,000** | **77,000** |
| **IOC** | **710,400** | **195,000** | **321,900** |
| **Grand total** | **1,007,400** | **225,000** | **398,900** |
| **Cost-effectiveness (US $/kg)** | **18.15** | **4.05** | **7.19** |

## SECRETARIAT'S COMMENTS AND RECOMMENDATION

### COMMENTS

9. The Secretariat reviewed the proposal in light of decisions 78/3(g) and 81/53, and the project submitted to the 81st meeting; noting that the main issues identified during the review process were replicability and technology maturity.

Replicability

10. The Secretariat reiterated that in line with decision 78/3(g), the alternative technology selected should demonstrate replicability to replace the current blowing agent (i.e., HFC-134a) being used in the enterprise and not other HFCs (e.g., HFC-245fa, HFC-365mfc); there is very little consumption of HFC-134a in Egypt and in other Article 5 countries for the use in discontinuous panels. Upon request for information on replicability of use of HFC-134a as a blowing agent in discontinuous panels, UNDP indicated that an ongoing survey in the country might result in new information; at present, they can confirm that only the beneficiary enterprise is using HFC-134a as blowing agent in the country. As indicated in paragraph 17 of document UNEP/OzL.Pro/ExCom/81/33, replicability potential of this project is limited. The additional information as indicated in paragraph 7(c)(i) provided by UNDP to the 82nd meeting does not satisfactorily demonstrate replicability for this project.

Technology maturity

11. The Secretariat noted that the alternative being proposed (HCO/HFO) is based on the results of a demonstration project implemented in Mexico with support outside the Multilateral Fund. The alternative used was developed on a "laboratory scale" and commercial availability of the systems is not confirmed. Upon request for clarifications, UNDP mentioned that partnership with two system houses in Egypt, which are the suppliers, should serve as confirmation that the technology availability. UNDP also mentioned that both HCOs and HFOs were previously introduced and price offers were obtained from local system houses confirming their availability in the market in Egypt. The Secretariat noted that the commercial availability of the HCO/HFO systems in Egypt market was not demonstrated and that additional efforts are needed to make these systems commercially available to be used by the beneficiary.

12. The Secretariat further noted the limited progress in implementing the conversions of the systems houses and downstream users participating in the stage I of the HCFC phase-out management plan for Egypt; noting the remaining activities that must be undertaken under stage I, and recalling that stage I will be completed by 31 December 2018, the Secretariat was concerned that implementation of the proposed HFC phase-out project could delay the implementation of the HPMP which was one of the pre-conditions set-out in decision 81/53.

13. Based on the information provided in the resubmitted proposal and discussions with UNDP, the Secretariat concluded that the replicability of the project proposal has not been demonstrated and that technology maturity is limited in the local market.

14. Since the conditions of decision 81/53 were not met, and the concerns expressed at the 81st meeting about this project were not addressed in the resubmitted proposal, the Secretariat did not discuss the revised costs with UNDP. Where relevant, the Secretariat maintains its views on the eligible incremental cost calculations for the project as indicated in paragraphs 24 and 30 of the proposal submitted to the 81st meeting.

**RECOMMENDATION**

15. The Executive Committee may wish to consider:

(a) The project proposal for the conversion from HFC-134a to HFO in the manufacture of discontinuous panels in Army Factory, Egypt, in the context of its discussion on HFC stand-alone project submitted to the 82nd meeting in line with decision 78/3(g), as described in the document on the Overview of issues identified during project review (UNEP/OzL.Pro/ExCom/82/31); and

(b) Whether or not to approve the project proposal indicated in sub-paragraph (a) above in the amount of US $224,694, plus agency support costs of US $20,222 for UNDP, on the understanding, if the project were to be approved:

(i) That no further funding would be available until the instrument of ratification by the Government of Egypt had been received by the depositary at the Headquarters of the United Nations in New York;

(ii) That 55.5 metric tonnes (mt) (79,365 mt $CO_2$-eq) of HFC-134a would be deducted from the starting point for sustained aggregate reduction in HFC once it had been established;

(iii) That the project would be completed within 24 months of the transfer of funds to UNDP, and a comprehensive completion report would be submitted within six months of project completion with detailed information on:

a. The eligible incremental capital costs for all equipment and other components including those not funded under the project;

b. Incremental operating costs;

c. Any possible savings incurred during the conversion and relevant factors that facilitated implementation (e.g. whether any purchased and/or installed equipment or supplies had gone through a competitive quote/bidding process and the details thereof); and

(iv) That any remaining funds would be returned to the Multilateral Fund no later than one year after the date of project completion.

# PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS
## Egypt

| (I) PROJECT TITLE | AGENCY | MEETING APPROVED | CONTROL MEASURE |
|---|---|---|---|
| HCFC phase out plan (Stage I) | UNIDO (lead), UNEP | 65th | 25% by 2018 |

| (II) LATEST ARTICLE 7 DATA (Annex C Group l) | Year: 2017 | 346.46 (ODP tonnes) |
|---|---|---|

| (III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes) | | | | | | | | Year: 2017 | |
|---|---|---|---|---|---|---|---|---|---|
| Chemical | Aerosol | Foam | Fire fighting | Refrigeration | | Solvent | Process agent | Lab use | Total sector consumption |
| | | | | Manufacturing | Servicing | | | | |
| HCFC-22 | | 29.5 | | 98.4 | 118.1 | | | | 246.0 |
| HCFC-141b | | 95.8 | | | | | | | 95.8 |
| HCFC-142b | | 1.9 | | | 2.7 | | | | 4.6 |
| HCFC-141b in imported pre-blended polyol | | 9.7 | | | | | | | 9.7 |

| (IV) CONSUMPTION DATA (ODP tonnes) | | | |
|---|---|---|---|
| 2009 - 2010 baseline: | 386.3 | Starting point for sustained aggregate reductions: | 484.61 |
| CONSUMPTION ELIGIBLE FOR FUNDING (ODP tonnes) | | | |
| Already approved: | 174.00 | Remaining: | 310.61 |

| (V) BUSINESS PLAN | | 2018 |
|---|---|---|
| UNDP | ODS phase-out (ODP tonnes) | 13.86 |
| | Funding (US $) | 770,130 |
| UNIDO | ODS phase-out (ODP tonnes) | 4.5 |
| | Funding (US $) | 250,018 |

| (VI) PROJECT DATA | | | 2010* | 2011 | 2012 | 2013 | 2014 | 2015 | 2018 | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Montreal Protocol consumption limits | | | n/a | n/a | n/a | 386.27 | 386.27 | 347.64 | 347.64 | n/a |
| Maximum allowable consumption (ODP tonnes) | | | n/a | n/a | n/a | 386.27 | 386.27 | 347.64 | 289.70 | n/a |
| Agreed Funding (US $) | UNIDO | Project costs | 892,840 | 950,000 | 250,000 | 0 | 0 | 0 | 232,575 | 2,325,415 |
| | | Support costs | 66,963 | 71,250 | 18,750 | 0 | 0 | 0 | 17,443 | 174,406 |
| | UNDP | Project costs | 1,479,000 | 2,000,000 | 2,000,000 | 0 | 0 | 0 | 716,400 | 6,195,400 |
| | | Support costs | 115,463 | 150,000 | 150,000 | 0 | 0 | 0 | 53,730 | 469,193 |
| Funds approved by ExCom (US $) | | Project costs | 2,371,840 | 2,950,000 | 2,250,000 | 0 | 0 | 0 | 0 | 7,571,840 |
| | | Support costs | 182,426 | 221,250 | 168,750 | 0 | 0 | 0 | 0 | 572,426 |
| Total funds requested for approval at this meeting (US $) | | Project costs | | | | | | | 948,975 | 948,975 |
| | | Support costs | | | | | | | 71,173 | 71,173 |

* Approved at the 62nd meeting and herewith subsumed into this Agreement.

| Secretariat's recommendation: | For individual consideration |
|---|---|

## PROJECT DESCRIPTION

16. On behalf of the Government of Egypt, UNIDO as the lead implementing agency, has submitted a request for funding for the third and final tranche of stage I of the HCFC phase-out management plan (HPMP), at a total cost of US $1,020,148, consisting of US $232,575, plus agency support costs of US $17,443 for UNIDO, and US $716,400, plus agency support costs of US $53,730 for UNDP.[4] The submission includes a progress report on the implementation of the second tranche, the verification report on HCFC consumption for 2016 to 2017 and the tranche implementation plan for 2018 to 2019.

Report on HCFC consumption

17. The Government of Egypt reported a consumption of 346.46 ODP tonnes of HCFC in 2017, which is 10 per cent below the HCFC baseline for compliance. The 2013-2017 HCFC consumption is shown in Table 1.

**Table 1. HCFC consumption in Egypt (2013-2017 Article 7 data)**

| HCFC | 2013 | 2014 | 2015 | 2016 | 2017 | Baseline |
|---|---|---|---|---|---|---|
| **Metric tonnes** | | | | | | |
| HCFC-22 | 3,416.49 | 3,172.59 | 4,038.97 | 4,767.59 | 4,472.52 | 4,367.16 |
| HCFC-123 | 24.48 | 0 | 9.07 | 5.00 | 1.64 | 5.25 |
| HCFC-124 | 1.68 | 0.27 | 2.70 | 0.00 | 2.09 | 0 |
| HCFC-141b | 906.34* | 1,238.78* | 1,072.75 | 731.53 | 871.01 | 1,178.26 |
| HCFC-142b | 136.45 | 146.49 | 42.04 | 57.53 | 70.54 | 251.69 |
| Sub-total (mt) | 4,485.44 | 4,558.13 | 5,165.53 | 5,561.65 | 5,417.80 | 5,802.36 |
| HCFC-141b in imported pre-blended polyols** | 155.61 | 120.00 | 100.00 | 177.80 | 87.95 | 894.00*** |
| **Total (mt)** | **4,641.05** | **4,678.13** | **5,265.53** | **5,739.45** | **5,505.75** | **6,696.76** |
| **ODP tonnes** | | | | | | |
| HCFC-22 | 187.91 | 174.49 | 222.14 | 262.22 | 245.99 | 240.19 |
| HCFC-123 | 0.49 | 0 | 0.18 | 0.10 | 0.03 | 0.11 |
| HCFC-124 | 0.04 | 0.01 | 0.06 | 0.00 | 0.05 | 0.00 |
| HCFC-141b | 99.70* | 136.27* | 118.00 | 80.47 | 95.81 | 129.61 |
| HCFC-142b | 8.87 | 9.52 | 2.73 | 3.74 | 4.59 | 16.36 |
| Sub-total (ODP tonnes) | 297.01 | 320.29 | 343.12 | 346.53 | 346.46 | 386.27 |
| HCFC-141b in imported pre-blended polyols** | 17.12 | 13.20 | 11.00 | 19.56 | 9.67 | 98.34*** |
| **Total (ODP tonnes)** | **314.13** | **333.49** | **354.12** | **366.09** | **356.14** | **484.61** |

*Import of HCFC-141b contained in pre-blended polyols was reported as consumption under Article 7 in 2013 and 2014. The national ozone unit (NOU) will request the correction.
** Country programme data.
***Average 2007-2009 consumption.

18. The use of HCFC-22 is mainly for servicing of refrigeration and air-conditioning (RAC) equipment, the increase in the period of 2015 to 2017 is due to market recovery after the unrest in the country in 2013 and 2014. The import of HCFC-141b (pure and pre-blended in polyols) and HCFC-142b is for the use in the foam sector. The fluctuations in the consumption of HCFC-142b is market-driven. The decrease in HCFC-141b consumption is due to the phase-out activities in the foam sector. The decrease in the consumption of HCFC-141b in imported pre-blended polyol in 2017 is likely due to the announcement of its ban from 1 January 2018. There is an import of small quantities of HCFC-123 and HCFC-124 for specialized refrigeration.

[4] As per the letter of 19 September 2018 from the Ministry of Environment of Egypt to UNIDO.

*Country programme (CP) implementation report*

19. The Government of Egypt reported HCFC sector consumption data under the 2017 CP implementation report which is consistent with the data reported under Article 7 of the Montreal Protocol.

*Verification report*

20. The verification report confirmed that the Government is implementing a licensing and quota systems for HCFC import and export, and that the total consumption of HCFCs in 2016 and 2017 was 346.53 and 346.46 ODP tonnes respectively. The verification concluded that the existing licensing systems is effectively implemented by the National Ozone Unit (NOU) under the supervision of the National Ozone Committee, consisting of representatives of all concerned ministries, enforcement authorities, Chamber of Trade, Federation of Egyptian Industries, Custom Protection Agencies and non-governmental organizations.

Progress report on the implementation of the second tranche of the HPMP

*Legal framework*

21. The HCFCs licensing and quota system (except for HCFC-141b in imported pre-blended polyols) came into force in 2013. The Government has banned the import of HCFC-141b in pre-blended polyols as of 1 January 2018. The ban is implemented through the cooperation between the Egyptian Environmental Affairs Agency (EEAA) and Customs Authority whereby the customs authority checks all imports under the general Harmonized System code for polyols with the assistance of the NOU.

*Manufacturing sector*

22. All nine foam manufacturing enterprises included in stage I[5] completed conversion with the total phase-out of 92.1 ODP tonnes of HCFC-141b. One enterprise (Cairo Foam) converted to methyl formate (MF) instead of cyclopentane as planned, while the remaining enterprises chose the initially agreed technology. Details on the enterprises conversion are presented in Table 2. The balance of US $44,654 (consisting of US $2,178 for Fresh Electric Home Appliances and US $42,476 for MOG Engineering and Industry, plus agency support costs) will be returned to the 82nd meeting.

**Table 2. Details on completed foam enterprises conversion**

| No. | Enterprise | Sub-sector/ application | HCFC-141b phased out (ODP tonnes) | Alternative technology | Funding approved (US $) | Funding disbursed (US $) | Agency |
|---|---|---|---|---|---|---|---|
| 1 | Mondial Freezers Company | Refrigeration (insulation foam) | 6.6 | Cyclopentane | 436,300 | 436,080* | UNIDO |
| 2 | El-Araby Co. for Engineering Industries | Refrigeration (insulation foam) | 11 | Cyclopentane | 456,540 | 456,534* | UNIDO |
| 3 | Kiriazi Refrigerators Factory | Refrigeration (insulation foam) | 13.6 | Cyclopentane | 564,575 | 564,575 | UNIDO |
| 4 | Specialized Engineering Contracting Co. | Spray foam | 11.2 | MF | 178,000 | 178,000 | UNDP |

[5] Including six enterprises (funding for which was approved at the 62nd meeting) incorporated in stage I at the 65th meeting. The HCFC-141b phase-out project at Delta Electric Appliances, at a total cost of US $422,740 plus agency support costs was approved at the 62nd meeting; following the purchase of an enterprise by non-article 5 entity the project has been cancelled and the approved funding has been returned to the Fund at the 70th meeting.

| No. | Enterprise | Sub-sector/ application | HCFC-141b phased out (ODP tonnes) | Alternative technology | Funding approved (US $) | Funding disbursed (US $) | Agency |
|---|---|---|---|---|---|---|---|
| 5 | MOG Engineering and Industry | Panels | 13.9 | n-pentane | 790,400 | 747,924 | UNDP |
| 6 | Fresh Electric Home Appliances | Water heaters (insulation foam) | 2.4 | MF | 124,500 | 122,322 | UNDP |
| 7 | Cairo Foam | Panels | 9.9 | MF | 386,100 | 379,877 | UNDP |
| 8 | Reftruck | Trucks, panels | 11.7 | Cyclopentane | 569,500 | 559,500 | UNDP |
| 9 | Al Fateh for Engineering and General Contracting | Sandwich panels | 11.8 | Cyclopentane | 346,300 | 336,300 | UNDP |
| All enterprises | | | 92.1 | n/a | 3,852,215 | 3,781,327 | n/a |

* The balance of US $226 was returned by UNIDO to the 79th meeting.

23. The project to convert 81 small and medium enterprises (SMEs) and 350 micro users to MF or other low-global warming potential (GWP) technology (to be selected during implementation) with the support from their systems houses and distributors is expected to phase out an additional 75.74 ODP tonnes of HCFC-141b. Funding was approved for the equipment conversion at two Article 5-owned systems houses, various forms of technical assistance to all systems houses and distributors and for the conversion of SMEs. One local (Technocom) and one non-Article 5-owned (Dow) systems house converted; no funding from the Multilateral Fund for equipment conversion was provided to Dow; however, technical assistance for the introduction of alternative foam blowing agents to downstream users was funded. Both systems houses are currently developing formulations with water, HFOs, HFC-245fa, HFC-365 and HFC-227. One systems house has withdrawn from the project (Obeigi) and a memorandum of agreement (MOA)[6] with another (Baalbaki) is expected to be signed. A total of 24 downstream users were assisted. The conversion of all downstream users is expected to be completed by the end of 2019.

*Enabling activities in the RAC sector*

24. The Egyptian Programme for Promoting Low-GWP Refrigerants' Alternatives (EGYPRA) initiative was launched in 2014 to assess low-GWP alternatives in the domestic and commercial air-conditioning (AC) sector: two meetings were held with AC manufacturers and technology suppliers, components and refrigerant samples have been provided to manufacturers and domestic and commercial AC prototypes have been built, performance testing of domestic AC prototypes has been completed with a report on findings drafted and under review.

*Project implementation and monitoring unit*

25. To implement HPMP activities an HPMP Coordinating Unit has been established within the NOU (located at EEAA).

Level of fund disbursement

26. As of August 2018, of the US $5,200,000[7] approved so far, US $3,171,515 had been disbursed (US $1,151,663 for UNIDO and US $2,019,852 for UNDP) as shown in Table 3. The balance of US $2,028,485 will be disbursed in 2018 and 2019.

[6] UNDP's project implementation arrangement.

[7] In addition, US $2,371,840 plus agency support costs was approved for six investment projects at the 62nd meeting and included in stage I (excluding funding for Delta Electric Appliances that subsequently withdrew from stage I).

**Table 3. Financial report of stage I of the HPMP for Egypt (US $)**

| Agency | First tranche | | Second tranche | | Total approved | |
|---|---|---|---|---|---|---|
| | Approved | Disbursed | Approved | Disbursed | Approved | Disbursed |
| UNIDO | 950,000 | 938,494 | 250,000 | 213,169 | 1,200,000 | 1,151,663 |
| UNDP | 2,000,000 | 1,113,438 | 2,000,000 | 906,414 | 4,000,000 | 2,019,852 |
| **Total** | 2,950,000 | 2,051,932 | 2,250,000 | 1,119,583 | 5,200,000 | 3,171,515 |
| **Disbursement rate (%)** | | 70 | | 50 | | 61 |

Implementation plan for the third tranche of the HPMP

27. The following activities will be implemented between September 2018 and December 2019:

(a) The remaining systems houses will develop non-HCFC-141b pre-blended polyols and remaining 57 downstream users will be assisted (UNDP) (US $716,400);

(b) Continuation of EGYPRA initiative: testing of the commercial AC prototypes and dissemination of results and technical assistance to the domestic AC manufacturers (design optimization of the prototypes built in earlier tranches and results dissemination) (UNIDO) (US $146,000); and

(c) Continuation of project monitoring activities (e.g. visits to enterprises and developing technical specifications) (UNIDO) (US $86,575).

## SECRETARIAT'S COMMENTS AND RECOMMENDATION

### COMMENTS

Report on HCFC consumption

28. The Secretariat noted that the total HCFC consumption in 2017 (346.46 ODP tonnes) was 0.3 per cent lower that the targets established in the Agreement with the Executive Committee for that year and 20 per cent higher that the target in 2018 and enquired about the ability of the country to comply with the Agreement. UNIDO clarified that Egypt is fully committed to the implementation of the Montreal Protocol; the activities planned under the HPMP will ensure compliance with the targets established in its Agreement with the Executive Committee; HCFC import quotas for 2018 are established in accordance with the allowable HCFC consumption in the Agreement; and the pre-shipment approvals given to all importers, as of October 2018, indicate that the consumption will be less than the available quota for 2018.

Progress report on the implementation of the second tranche of the HPMP

*Legal framework*

29. The Government of Egypt has issued HCFC import quotas for 2018 at 289.7 ODP tonnes, which is at the level of the maximum allowable consumption and lower than the Montreal Protocol control targets.

*Manufacturing sector*

30. At the 62nd meeting, the Executive Committee approved US $386,100, plus agency support costs for the conversion of Cairo Foam enterprise from HCFC-141b to n-pentane[8]. The cost was calculated based on the technology chosen (n-pentane). Cairo Foam instead opted to convert to MF due to safety concerns

[8] Decision 62/32(a).

at the enterprise. While the Secretariat noted the need to change technology due to safety concerns, it recalled the provisions related to changes in technology specified in paragraph 7(c) of the Agreement.[9]

31. Based on the change of technology to MF, the following incremental costs were agreed: retrofit/acid proof of the two mixing head dispenser (US $60,000) plus contingencies (US $6,000), training (US $40,000), trials and testing (US $30,000), and incremental operating costs of US $126,900, consistent with Fresh Electric Home Appliances, the other enterprise that converted to MF under stage I. Accordingly, the total cost of the conversion was calculated at US $262,900, which results in a return of US $123,200 plus agency support costs to the 82nd meeting.

32. The Secretariat noted the substantial delay in the conversion of 81 SMEs and 350 micro users through systems houses, which had been expected to be completed by August 2013. In particular, only 24 SMEs and two systems houses were converted so far, one systems house has withdrawn from the project (Obeigi), and the MOA with another (Baalbaki) is still to be signed. Noting that the Government of Egypt banned the import of HCFC-141b in pre-blended polyols as of 1 January 2018 and committed to ban import, use and export of HCFC-141b in bulk and the export of HCFC-141b contained in pre-blended polyols by 1 January 2020; and that stage I of the HPMP is to be completed by 31 December 2019, the following was agreed:

(a) UNDP will provide to each meeting through the completion of stage I, a comprehensive progress and financial report on the status of conversion of the systems houses, and the 81 SMEs and 350 micro users in the foam sector (including the status of systems houses conversion, formulations developed and disbursement; an updated list of SMEs converted with the selected technology, disbursement and commitment for each SME; and an update on the number of micro users assisted);

(b) Stage I of the HPMP will be financially completed and all remaining balances returned by 31 December 2020; and the project completion report, including the stand-alone conversion projects approved at the 62nd meeting and incorporated in stage I, will be submitted to the first meeting in 2020; and

(c) The second tranche request of stage II could only be submitted if the following conditions have been met:

(i) MOA was signed with Baalbaki;

(ii) At least 40 SMEs included in stage I have been converted;

(iii) Of the US $929,944 committed funding for the systems houses project from the first and second tranches of stage I (as per progress report submitted) and the further US $716,400 allocated to this component under the third and final tranche, UNDP had disbursed at least an additional US $350,000 to final beneficiaries in the systems house project.

33. Two systems houses (Dow and Technocom) are developing formulations with HFC-245fa, HFC-365mfc and HFC-227ea, substances controlled under the Kigali Amendment, notwithstanding that the use of high-GWP alternatives had been expected to be temporary, and their use phased out by 2015 at the latest. The Secretariat therefore suggested that if any of the 81 SMEs assisted under stage I had not yet completed the conversion to low-GWP alternatives, as agreed, and instead still consumed HFCs after 1 January 2020 (or when the starting point is established for HFCs, whichever is earlier), that this

[9] Annex XXIV of document UNEP/OzL.Pro/ExCom/65/60.

consumption of HFCs would be deducted from the country's starting point for HFCs, and that those SMEs would not be eligible for further funding from the Multilateral Fund for the HFC phase-down.

34. UNDP confirmed that no further assistance would be requested for the downstream users that had received assistance under stage I systems houses project as they agreed to convert to low-GWP technologies. Nonetheless, the country was not in a position to agree to the Secretariat's suggestion as the country had not yet ratified the Kigali Amendment and no HFC control obligations were yet in force. The Secretariat is seeking the Executive Committee guidance on this matter.

Conclusion

35. The Government is enforcing a licensing and quota system for the import and export of HCFCs, and consumption in 2017 is below the control targets of the Montreal Protocol and those stipulated in the Agreement with the Executive Committee. The ban on the import of HCFC-141b in pre-blended polyols is in place since 1 January 2018. The overall disbursement rate is 61 per cent. The ban on the import, use and export of HCFC 141b in bulk and the export of HCFC-141b contained in pre-blended polyols is to be established by 1 January 2020. The conversion of nine enterprises in the foam manufacturing sector has been completed, one of which changed technology from n-pentane to MF, resulting in savings of US $123,200, plus agency support costs, that will be returned to the 82nd meeting. Technical assistance activities in the RAC sector are being successfully implemented with both domestic and commercial AC prototypes built. There is a five-year delay in the conversion of 81 SMEs through the support to their systems houses. Two systems houses have developed formulations with high-GWP alternatives. The Government committed to accelerate the conversions of SMEs, to complete stage I of the HPMP by 31 December 2019, and financially, with the return of any remaining balances, by 31 December 2020. The Secretariat is seeking the Executive Committee's guidance on whether to consider deducting from the country's starting point for HFCs the consumption of HFCs at SMEs that still had such consumption after 1 January 2020.

**RECOMMENDATION**

36. The Executive Committee may wish to consider:

(a) Noting:

(i) The progress report on the implementation of the second tranche of stage I of the HCFC phase-out management plan (HPMP) for Egypt;

(ii) The return of US $123,200, plus agency support costs of US $9,240 from UNDP, to the 82nd meeting associated with the savings from the change in conversion technology at the Cairo Foam enterprise (EGY/FOA/62/INV/108);

(iii) The return of US $44,654, plus agency support costs of US $3,382 from UNDP, to the 82nd meeting associated with the savings from the conversion of the two foam enterprises (Fresh Electric Home Appliances (EGY/FOA/62/INV/106) and MOG Engineering and Industry (EGY/FOA/62/INV/105));

(iv) The commitment of the Government of Egypt, to submit the project completion report for stage I of the HPMP to the first meeting in 2020; and financially complete stage I and return any remaining balances by 31 December 2020;

(b) Requesting:

(i) The Government of Egypt and UNDP to submit to each meeting through the completion of stage I, a report on the status of conversion of the systems houses, and the 81 small and medium enterprises (SMEs) and 350 micro users (including the status of systems houses conversion, formulations developed and disbursement; an updated list of SMEs converted with the selected technology, disbursement and commitment for each SME; and an update on the number of micro users assisted);

(ii) The Government of Egypt and UNIDO to submit progress reports on a yearly basis on the implementation of the work programme associated with the final tranche of stage I through the completion of the project;

(iii) UNDP to continue assisting the Government of Egypt in securing the supply of the alternative technologies selected for conversion of 81 SMEs through their system houses; and

(iv) UNDP to report to the Executive Committee on the status of use of the interim technology selected by the Government of Egypt at each meeting until a low-global warming potential (GWP) technology, as agreed, had been fully introduced, 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;

(c) Approving the third and final tranche of stage I of the HPMP for Egypt and the corresponding 2018-2019 tranche implementation plan, at the amount of US $1,020,148, consisting of US $232,575, plus agency support costs of US $17,443 for UNIDO; and US $716,400, plus agency support costs of US $53,730 for UNDP, on the understanding that the second tranche request of stage II could only be submitted if the following conditions have been met:

(i) The memorandum of agreement was signed with Baalbaki;

(ii) At least 40 SMEs included in stage I under the systems houses project have been converted;

(iii) That UNDP had disbursed at least an additional US $350,000 from the funding approved for the systems houses project to final foam beneficiaries; and

(d) Whether or not to deduct from the country's starting point for sustained aggregated reductions for the consumption of HFCs the consumption, if any, of HFCs by the 81 SMEs assisted under stage I after 1 January 2020 or when the starting point is established for HFCs, whichever is earlier, noting that those SMEs agreed to convert to low-GWP technologies.