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EXECUTIVE COMMITTEE OF  
THE MULTILATERAL FUND FOR THE  
IMPLEMENTATION OF THE MONTREAL PROTOCOL  
Eighty-first Meeting  
Montreal, 18-22 June 2018

**PROJECT PROPOSAL: BANGLADESH**

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

Phase-out

- HCFC phase-out management plan (stage II, first tranche) UNDP and UNEP

## PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS

## Bangladesh

|                                |                   |
|--------------------------------|-------------------|
| <b>(I) PROJECT TITLE</b>       | <b>AGENCY</b>     |
| HCFC phase out plan (stage II) | UNDP (lead), UNEP |

|   |            |                   |
|---|------------|-------------------|
| <b>(II) LATEST ARTICLE 7 DATA (Annex C Group I)</b> | Year: 2016 | 63.9 (ODP tonnes) |
|---|------------|-------------------|

| <b>(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)</b> |         |       |               |               |           |         |               | <b>Year: 2017</b> |                          |
|--|---------|-------|---------------|---------------|-----------|---------|---------------|-------------------|--------------------------|
| Chemical   | Aerosol | Foam  | Fire fighting | Refrigeration |           | Solvent | Process agent | Lab use           | Total sector consumption |
|  |         |       |               | Manufacturing | Servicing |         |               |                   |                          |
| HCFC-123   |         |       | 0.04          | 0.02          | 0.08      |         |               |                   | 0.14                     |
| HCFC-124   |         |       |               |               |           |         |               |                   |                          |
| HCFC-141b  |         |       |               |               |           |         |               |                   |                          |
| HCFC-141b in Imported Pre-blended Polyol                         |         | 18.92 |               |               |           |         |               |                   | 18.92                    |
| HCFC-142b  |         |       |               |               | 0.39      |         |               |                   | 0.39                     |
| HCFC-22  |         |       |               | 26.29         | 36.14     |         |               |                   | 62.43                    |

| <b>(IV) CONSUMPTION DATA (ODP tonnes)</b>            |       |  |       |
|--|-------|--|-------|
| 2009 - 2010 baseline:                                | 72.65 | Starting point for sustained aggregate reductions: | 72.65 |
| <b>CONSUMPTION ELIGIBLE FOR FUNDING (ODP tonnes)</b> |       |  |       |
| Already approved:                                    | 24.53 | Remaining:   | 48.12 |

| <b>(V) BUSINESS PLAN</b> |                            | 2018    | 2019 | 2020    | After 2020 | Total   |
|--------------------------|----------------------------|---------|------|---------|------------|---------|
| UNDP                     | ODS phase-out (ODP tonnes) | 6.8     | 0.0  | 5.4     | 1.4        | 13.6    |
|                          | Funding (US \$)            | 421,618 | 0    | 335,249 | 228,788    | 985,655 |
| UNEP                     | ODS phase-out (ODP tonnes) | 4.0     | 0.0  | 0.0     | 4.0        | 8.0     |
|                          | Funding (US \$)            | 132,793 | 0    | 0       | 350,000    | 482,793 |

| <b>(VI) PROJECT DATA</b>                     |      |               | 2018      | 2019  | 2020      | 2021  | 2022      | 2023  | 2024  | 2025   | Total     |
|--|------|---------------|-----------|-------|-----------|-------|-----------|-------|-------|--------|-----------|
| Montreal Protocol consumption limits         |      |               | 65.39     | 65.39 | 47.22     | 47.22 | 47.22     | 47.22 | 47.22 | 23.61  | n/a       |
| Maximum allowable consumption (ODP tonnes)   |      |               | 50.86     | 50.86 | 47.22     | 47.22 | 47.22     | 30.50 | 26.50 | 23.61  | n/a       |
| Project costs requested in principle (US \$) | UNDP | Project costs | 2,142,405 |       | 2,142,405 |       | 1,071,204 | 0     | 0     | 0      | 5,356,014 |
|  |      | Support costs | 149,968   | 0     | 149,968   | 0     | 74,985    | 0     | 0     | 0      | 374,921   |
|  | UNEP | Project costs | 360,000   | 0     | 0         | 0     | 120,400   | 0     | 0     | 54,280 | 534,680   |
|  |      | Support costs | 46,333    | 0     | 0         | 0     | 15,496    | 0     | 0     | 6,986  | 68,815    |
| Total project costs requested in principle   |      |               | 2,502,405 | 0     | 2,142,405 | 0     | 1,191,603 | 0     | 0     | 54,280 | 5,890,694 |
| Total support costs requested in principle   |      |               | 196,301   | 0     | 149,968   | 0     | 90,481    | 0     | 0     | 6,986  | 433,736   |
| Total funds requested in principle (US\$)    |      |               | 2,698,706 | 0     | 2,292,374 | 0     | 1,282,084 | 0     | 0     | 61,266 | 6,334,430 |

| <b>(VII) Request for funding for the first tranche (2017)</b> |   |                       |
|---|---|-----------------------|
| Agency  | Funds requested (US \$)   | Support costs (US \$) |
| UNDP  | 2,142,405   | 149,968               |
| UNEP  | 360,000   | 46,333                |
| <b>Total</b>  | <b>2,502,405</b>  | <b>196,301</b>        |
| <b>Funding request:</b>                                       | Approval of funding for the first tranche (2018) as indicated above |                       |

|                                      |                          |
|--------------------------------------|--------------------------|
| <b>Secretariat's recommendation:</b> | Individual consideration |
|--------------------------------------|--------------------------|

## PROJECT DESCRIPTION

### Background

1. On behalf of the Government of Bangladesh, UNDP as the lead implementing agency, has submitted a request for stage II of the HCFC phase-out management plan (HPMP), at a total cost of US \$10,878,861, consisting of US \$9,603,146, plus agency support costs of US \$672,220 for UNDP, and US \$534,680, plus agency support costs of US \$68,815 for UNEP, as originally submitted.<sup>1</sup> The implementation of stage II of the HPMP will phase out 35.27 ODP tonnes of HCFCs to meet the target of 67.5 per cent reduction in HCFC baseline consumption by 2025, as originally submitted.

2. The first tranche for stage II of the HPMP being requested at this meeting amounts to US \$3,231,133 consisting of US \$2,640,000, plus agency support costs of US \$184,800 for UNDP, and US \$360,000, plus agency support costs of US \$46,333 for UNEP, as originally submitted.

### Status of implementation of stage I of the HPMP

3. Stage I of the HPMP for Bangladesh was approved at the 65<sup>th</sup> meeting<sup>2</sup> to meet the 30 per cent reduction from the baseline by 2018 resulting in the phase-out of 24.53 ODP tonnes of HCFCs (i.e., 20.20 ODP tonnes of HCFC-141b, 3.48 ODP tonnes of HCFC-22, 0.57 ODP tonnes of HCFC-142b, 0.21 ODP tonnes of HCFC-123, and 0.07 ODP tonnes of HCFC-124) at the amount of US \$1,556,074 excluding agency support costs. The total phase-out of HCFC-141b in stage I for the manufacturing sector was a result of the conversion of the polyurethane (PU) foam insulation in the manufacture of domestic refrigerators at Walton Hi-Tech Industries, approved at the 62<sup>nd</sup> meeting<sup>3</sup> which had subsequently been included in stage I of the HPMP.

#### *ODS policy and regulatory framework*

4. The HCFC import licensing and quota system is operational since 2013. The Department of Environment (DoE) through the National Ozone Unit (NOU) establishes the annual import quotas for HCFCs based on the maximum allowable consumption under its Agreement with the Executive Committee. The quota is distributed based on the importers' previous imports along with their current demands. Approximately two per cent of the quotas are retained by the NOU as a buffer in case of unexpected requirements.

5. The 2004 Ozone Depleting Substances Control Rules were amended in September 2014 to include the HCFC phase-out schedule; to give legal and policy support to the implementation of the stage I of the HPMP; and the use of the updated Harmonized System (HS) customs codes concerning all ODSs including HCFC. The import of HCFC-141b in bulk has been banned as of January 2014 following the conversion of HCFC-141b to cyclopentane in PU foam at Walton Industries.

#### *Conversion of one PU foam manufacturer (UNDP)*

6. Walton Industries is the largest manufacturer of domestic refrigerators, chest freezers and compressors in Bangladesh. The consumption of bulk HCFC-141b in Bangladesh was attributed mainly to Walton Industries, which has successfully converted two manufacturing lines to cyclopentane blowing agent for insulation foam, which resulted in the phase-out of 183.64 mt (20.20 ODP tonnes) of HCFC-141b. The project was financially completed on December 2014.

<sup>1</sup>As per the letter of 12 March 2018 from the Department of Environment of Bangladesh to UNDP.

<sup>2</sup>UNEP/OzL.Pro/ExCom/65/24.

<sup>3</sup>Decision 62/31.

*Customs and enforcement training (UNEP)*

7. Four enforcement training workshops were conducted for 189 Customs and enforcement officers on monitoring and control of HCFCs; use of ODS identifiers and reporting requirements under the Montreal Protocol; 500 sets of Customs manual and other training materials were produced and distributed; two representatives from the Customs Department attended the training of trainers organized by the National Academy of Customs, Indirect Taxes and Narcotics of India (NACIN); and three Customs representatives attended the cross-border dialogue among Customs officials of Bangladesh, Bhutan, India and Nepal which highlighted the need for continued capacity building of Customs officers particularly at the borders. A Customs Quick Tool and National Policy and Regulations Handbook was prepared and copies were distributed to the Customs authorities.

*Refrigeration and air-conditioning (RAC) servicing sector (UNDP and UNEP)*

8. A total of 3,524 technicians have been trained through 63 training workshops on good servicing practices, safe use of alternative refrigerants, recovery/reclamation and re-use of HCFCs operations, with additional 700 technicians foreseen to be trained during the third tranche for completion in 2018. Three train-the-trainers workshops were conducted for 82 trainers. The activities in the servicing sector accounted for the phase-out of a total of 4.33 ODP tonnes of HCFCs (i.e., 3.48 ODP tonnes of HCFC-22, 0.57 ODP tonnes of HCFC-142b, 0.21 ODP tonnes of HCFC-123 and 0.07 ODP tonnes of HCFC-124).

9. The DoE and Directorate of Technical Education have initiated collaboration for the inclusion of good and safe practices and emerging technologies in RAC applications in the national curricula of polytechnic and vocational training institutes.

*Awareness and information outreach (UNEP)*

10. The NOU developed specialized awareness and information outreach materials, translated UNEP training manual and posters on good servicing practices, and developed a video to keep technicians and stakeholders updated on the latest installation techniques for air-conditioners using good tools and equipment. Consultations and meetings with industry associations and servicing sector were organized by the NOU.

Status of disbursements

11. As of March 2018, of the total funds of US \$1,556,074 approved so far, US \$1,141,311 had been disbursed by UNDP and US \$318,987 by UNEP. The remaining US \$95,776 will be disbursed in 2018. Stage I of the HPMP will be financially completed by 31 December 2019 and a project completion report will be submitted to the first meeting of the Executive Committee in 2019.<sup>4</sup>

**Stage II of the HPMP**

12. Through implementation of stage II of the HPMP, 35.27 ODP tonnes<sup>5</sup> of HCFCs will be phased out, consisting of 23.22 ODP tonnes of HCFC-22 (17.09 ODP tonnes used in manufacturing domestic and commercial air-conditioners and 6.13 ODP tonnes from RAC servicing), and 12.05 ODP tonnes<sup>6</sup> of HCFC-141b in imported pre-blended polyols used in PU foam manufacturing. Stage II of the HPMP is expected to phase out all HCFC-22 used in the RAC manufacturing sector.

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<sup>4</sup> Decision 80/63(b).

<sup>5</sup>Out of this amount proposed to be phased out, only 23.22 ODP tonnes of HCFC-22 is eligible for funding, in line with decision 74/50.

<sup>6</sup>The consumption of HCFC-141b in imported pre-blended polyols was not identified in stage I of the HPMP; no starting point was established; thus no consumption is eligible for funding in line with decision 61/47.

Remaining consumption eligible for funding

13. After deducting 24.53 ODP tonnes of HCFCs associated with stage I of the HPMP and the additional eligible 23.22 ODP tonnes proposed for stage II, the remaining consumption of HCFCs eligible for funding amounts to 24.90 ODP tonnes, as shown in Table 1.

**Table 1. Overview of the remaining HCFC consumption eligible for funding (ODP tonnes)**

| HCFC  | Starting point  | Reduction in stage I | Remaining after stage I | Reduction in stage II | Remaining consumption |
|---|-----------------|----------------------|-------------------------|-----------------------|-----------------------|
| HCFC-22                                     | 825.82          | 63.27                | 762.55                  | 422.18                | 340.36                |
| HCFC-123                                    | 10.50           | 10.50                | 0.00                    | 0.00                  | 0.00                  |
| HCFC-124                                    | 3.18            | 3.18                 | 0.00                    | 0.00                  | 0.00                  |
| HCFC-141b                                   | 193.00          | 183.64               | 9.36                    | 0.00                  | 9.36*                 |
| HCFC-142b                                   | 88.00           | 8.77                 | 79.23                   | 0.00                  | 79.23                 |
| <b>Sub-total (eligible for funding)</b>     | <b>1,120.50</b> | <b>269.36</b>        | <b>851.14</b>           | <b>422.18</b>         | <b>428.96</b>         |
| HCFC-141b in imported pre-blended polyols** | 0.00            | 0.00                 | 0.00                    | 109.54                | 0.00                  |
| <b>Total metric tonnes (mt)</b>             | <b>1,120.50</b> | <b>269.36</b>        | <b>851.14</b>           | <b>531.73</b>         | <b>428.96</b>         |
| HCFC-22                                     | 45.42           | 3.48                 | 41.94                   | 23.22                 | 18.72                 |
| HCFC-123                                    | 0.21            | 0.21                 | -                       | -                     | -                     |
| HCFC-124                                    | 0.07            | 0.07                 | -                       | -                     | -                     |
| HCFC-141b                                   | 21.23           | 20.20                | 1.03                    | -                     | 1.03*                 |
| HCFC-142b                                   | 5.72            | 0.57                 | 5.15                    | -                     | 5.15                  |
| <b>Sub-total (eligible for funding)</b>     | <b>72.65</b>    | <b>24.53</b>         | <b>48.12</b>            | <b>23.22</b>          | <b>24.90</b>          |
| HCFC-141b in imported pre-blended polyols** |                 |                      |                         |                       |                       |
| <b>Total (ODP tonnes)</b>                   | <b>72.65</b>    | <b>24.53</b>         | <b>48.12</b>            | <b>23.22</b>          | <b>24.90</b>          |

\* The consumption of HCFC-141b is zero as the Government has imposed a ban on the use of HCFC-141b from 2014.

\*\* Not reported in stage I of the HPMP; in line with decision 61/47, it is not eligible for funding.

HCFC consumption

14. The Government of Bangladesh reported a consumption of 63.9 ODP tonnes of HCFC under Article 7 of the Montreal Protocol in 2016, and estimated a consumption of 62.96 ODP tonnes for 2017, which was 13 per cent below the HCFC baseline for compliance. The 2013-2017 HCFC consumption is shown in Table 2.

**Table 2. HCFC consumption in Bangladesh (2013-2017 Article 7 data)**

| HCFC                             | 2013            | 2014            | 2015            | 2016            | 2017*           | Baseline        |
|----------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>Metric tonnes</b>             |                 |                 |                 |                 |                 |                 |
| HCFC-22                          | 1,044.04        | 1,047.87        | 1,156.76        | 1,150.34        | 1,135.00        | 825.86          |
| HCFC-123                         | 6.80            | 3.00            | 7.00            | 11.00           | 6.80            | 10.50           |
| HCFC-124                         | 0.00            | 0.00            | 0.00            | 0.00            | 0.00            | 3.18            |
| HCFC-141b (bulk)                 | 40.00           | 0.00            | 0.00            | 0.00            | 0.00            | 193.00          |
| HCFC-142b                        | 45.08           | 25.75           | 6.41            | 6.36            | 6.00            | 88.04           |
| <b>Total (mt)</b>                | <b>1,135.92</b> | <b>1,076.62</b> | <b>1,170.17</b> | <b>1,167.70</b> | <b>1,147.80</b> | <b>1,120.58</b> |
| HCFC-141b (pre-blended polyol)** | 50.00           | 110.00          | 140.00          | 150.00          | 172.00          | -               |
| <b>ODP tonnes</b>                |                 |                 |                 |                 |                 |                 |
| HCFC-22                          | 57.42           | 57.63           | 63.62           | 63.27           | 62.43           | 45.42           |
| HCFC-123                         | 0.14            | 0.06            | 0.14            | 0.22            | 0.14            | 0.21            |
| HCFC-124                         | 0.00            | 0.00            | 0.00            | 0.00            | 0.00            | 0.07            |
| HCFC-141b (bulk)                 | 4.40            | 0.00            | 0.00            | 0.00            | 0.00            | 21.23           |
| HCFC-142b                        | 2.93            | 1.67            | 0.42            | 0.41            | 0.39            | 5.72            |
| <b>Total (ODP tonnes)</b>        | <b>64.89</b>    | <b>59.37</b>    | <b>64.18</b>    | <b>63.90</b>    | <b>62.96</b>    | <b>72.65</b>    |

| HCFC                             | 2013 | 2014  | 2015  | 2016  | 2017* | Baseline |
|----------------------------------|------|-------|-------|-------|-------|----------|
| HCFC-141b (pre-blended polyol)** | 5.50 | 12.10 | 15.40 | 16.50 | 18.92 | -        |

\*Country Programme (CP) data for 2017.

\*\*Reported in CP data only from 2012.

15. The consumption of HCFC-22 and HCFC-123 has increased between 2013 and 2016 mainly due to continuing demand in RAC servicing and manufacturing sectors driven by economic growth; consumption of HCFC-141b is zero due to a ban in the import of bulk HCFC-141b as of January 2014; and HCFC-124 has not been imported since 2012. HCFC-141b contained in imported pre-blended polyol increased during this period due to growth in consumption by some manufacturers of PU foam.

16. Table 3 presents the sectoral distribution of HCFCs based on the survey done during the preparation of stage II.

**Table 3. Sector distribution of HCFCs in 2016**

| Sector                | Substance                               | HCFC use     |                |                 |              |
|-----------------------|---|--------------|----------------|-----------------|--------------|
|                       |   | ODP tonnes   | ODP tonnes (%) | mt              | mt (%)       |
| RAC manufacturing     | HCFC-22                                 | 25.85        | 32.30          | 470.00          | 35.9         |
|                       | HCFC-123                                | 0.04         | 0.06           | 2.00            | 0.2          |
| RAC servicing         | HCFC-22                                 | 37.18        | 46.40          | 676.00          | 51.6         |
|                       | HCFC-123                                | 0.08         | 0.10           | 4.00            | 0.3          |
|                       | HCFC-142b                               | 0.40         | 0.50           | 6.15            | 0.5          |
| PU foam manufacturing | HCFC-141b (imported pre-blended polyol) | 16.50        | 20.60          | 150.00          | 11.5         |
| Fire extinguishers    | HCFC-123                                | 0.03         | 0.04           | 1.50            | 0.1          |
| <b>Total</b>          |   | <b>80.08</b> | <b>100.0</b>   | <b>1,309.65</b> | <b>100.0</b> |

17. The servicing sector represents 47 per cent of total HCFC consumption measured in ODP tonnes in 2016, followed by the RAC manufacturing sector (32.4 per cent). The use of imported HCFC-141b pre-blended polyols in the manufacturing of PU foam products represents 20.6 per cent of the total HCFC consumption in the country.

#### *Verification report*

18. At the 80<sup>th</sup> meeting, UNDP had submitted the verification report of HCFC consumption which confirmed that the Government is implementing a licensing and quota system for HCFC imports and exports and that the total consumption of HCFCs for 2015 and 2016 was 64.18 and 63.89 ODP tonnes, respectively. The verification concluded that Bangladesh has met the targets under its Agreement with the Executive Committee, and the country continues to fulfill its commitment to reduce consumption by 30 per cent of the baseline in 2018.

#### HCFC consumption in manufacturing sectors

##### *RAC manufacturing sector*

19. Of the total 25.85 ODP tonnes of HCFC consumed in the manufacturing of RAC equipment, 17.09 ODP tonnes is attributed to six enterprises (i.e., Walton Hi-Tech Industries Ltd., Unitech Products (BD) Ltd., Supreme Air-conditioning Co., Elite Hitech, AC Bazar Industries Ltd., and Cooling Point Engineering), and the remaining 8.76 ODP tonnes are used in a number of small and medium-sized enterprises (SMEs). Five of the six enterprises manufacture air-conditioners (ACs) with capacities ranging from 0.75 tonne of refrigeration (TR) to 5 TR, with the 1.5 TR capacity units being the majority. Walton Industries is the biggest RAC manufacturer with 80 per cent share of the market. Total production of the five enterprises was estimated at 273,000 units in 2016. One enterprise (Cooling Point Engineering)

manufactures chillers with cooling capacity of 3 to 5 TR for hatchery industry, and small units for the pharmaceutical industry; in 2016, it produced 405 chiller units.

*PU foam manufacturing using imported pre-blended polyols containing HCFC-141b*

20. The survey conducted for the preparation of stage II showed that imported pre-blended polyols containing HCFC-141b were used by four PU foam manufacturers, all except one (Wattson Euro Panel Industries Ltd.) were established after the cut-off date. The imports of HCFC-141b contained in imported pre-blended polyols were not recorded prior to 2012 as this was not controlled or licensed ODS in Bangladesh.

HCFC consumption in the servicing sector

21. There are approximately 16,160 service workshops in Bangladesh (over 6,000 are located in Dhaka), that provide service largely for room ACs and refrigerators. The sector is characterised by a mixture of services provided by the manufacturers or dealers, or by technicians most of whom are not formally trained. Most equipment manufacturers provide service within the period of warranty of a product either through their own service teams or through third-party service companies. After the warranty period, these are serviced by other service workshops at lower costs. Walton as the largest manufacturer of RAC equipment has a team of 700 skilled technicians; other smaller manufacturers and service shops often employ semi-skilled technicians with limited knowledge of the equipment.

22. HCFC-123 continues to be used as a refrigerant for servicing existing chillers, however, its consumption is low. Small quantities of HCFC-123 are also used in fire-fighting equipment for servicing.

**Proposed activities in stage II of the HPMP**

23. The activities to be implemented during stage II of the HPMP include the conversions of five AC manufacturing enterprises and one chiller manufacturing enterprise to phase out HCFC-22; the conversion of one PU foam manufacturing enterprise to phase-out HCFC-141b contained in imported pre-blended polyols; technical assistance programme for the servicing sector; regulatory actions, and monitoring the implementation of the HPMP.

Regulatory actions

24. During stage II, actions will be undertaken to promote the use of alternative technologies and limit the demand for HCFCs, including changes in public procurement and building standards, setting of standards, and increasing awareness of stakeholders and the public.

Activities in the AC manufacturing sector

25. Stage II of the HPMP includes the conversion of five AC manufacturing enterprises and one chiller enterprise from HCFC-22 to R-290/HFC-32 technology. Equipment with capacity up to 1.5 TR would convert to R-290 and those with capacity of greater than 1.5 TR would convert to HFC-32. All enterprises are 100 per cent locally-owned.

26. Conversion to flammable refrigerants for the five AC enterprises includes:

- (a) Technical assistance for the modification of the system and product design and layout modifications (US \$36,000 for small enterprises; US \$200,000 for one large enterprise);
- (b) Modification of the heat exchanger production line (US \$225,000 each for three small enterprises; US \$1,200,000 for one enterprise); while the small enterprises would convert

their lines and manufacturing facilities to redesigned heat exchangers for R-290, the large enterprises would convert to microchannel heat exchangers;

- (c) Refrigerant storage and supply system (US \$77,000 for small enterprise; US \$335,000 for one large enterprise);
- (d) Refrigerant charging and assembly line modifications (US \$203,000 for small enterprises; US \$552,000 for one large enterprise);
- (e) Safety measures (between US \$75,000 and US \$200,000 per line);
- (f) Quality control and civil works for installation of new equipment (US \$35,000 to US \$300,000); and
- (g) Training and safety verification (US \$50,000 for small enterprises to US \$200,000 for large enterprises).

27. Conversion to flammable refrigerants for the chiller manufacturing enterprise includes: system and product design (US \$30,000), charging and assembly line modification (US \$114,500), quality control and testing (US \$5,000), and training and safety verification (US \$40,000).

28. Incremental operational cost (IOC) for all the six enterprises has been calculated at US \$6.30/kg. Table 4 presents the summary of the costs for the conversion of the AC and chillers manufacturing enterprises, as submitted.

**Table 4. Total cost of the conversion of the AC sector to R-290 and HFC-32 technologies as submitted**

| Enterprise                          | Units produced | 2016 consumption |              | Costs requested (US \$) |                  |                  | CE (US\$/kg) |
|-------------------------------------|----------------|------------------|--------------|-------------------------|------------------|------------------|--------------|
|                                     |                | mt               | ODP t        | ICC                     | IOC              | Total            |              |
| <b>AC manufacturers</b>             |                |                  |              |                         |                  |                  |              |
| AC Bazar Industries Ltd.            | 19,000         | 24.72            | 1.36         | 752,400                 | 157,008          | 909,408          | 36.79        |
| Elite Hi-Tech                       | 15,500         | 21.46            | 1.18         | 541,100*                | 135,204          | 676,304          | 31.51        |
| Supreme Air-conditioning Co.        | 20,000         | 24.97            | 1.37         | 504,900                 | 157,330          | 662,230          | 26.52        |
| Unitech Products                    | 14,000         | 15.13            | 0.83         | 471,600*                | 95,338           | 566,938          | 37.47        |
| Walton Hi-Tech Industries (2 lines) | 204,000        | 222.15           | 12.22        | 3,615,700               | 1,399,526        | 5,015,226        | 22.58        |
| <b>Chiller manufacturer</b>         |                |                  |              |                         |                  |                  |              |
| Cooling Point Engineering           | 405            | 2.35             | 0.13         | 108,450*                | 14,824           | 123,274          | 52.46        |
| <b>Total</b>                        | <b>272,905</b> | <b>310.78</b>    | <b>17.09</b> | <b>5,994,150</b>        | <b>1,959,230</b> | <b>7,953,380</b> | <b>25.59</b> |

\*The actual total costs, for Elite Hi-Tech (US \$741,400), Unitech Products (US \$721,600) and Cooling Point Engineering (US \$208,500), as submitted, are higher than the costs requested shown in Table 4.

#### Activities in the PU foam manufacturing sector using imported pre-blended polyols with HCFC-141b

29. Stage II also includes a request to replace 109.54 mt (12.05 ODP tonnes) of HCFC-141b contained in imported pre-blended polyols used in the manufacture of PU foam in Wattson Euro Panel Industries Ltd. to cyclopentane and HFO, and in three other smaller enterprises without any funding support for these enterprises as they were established after the cut-off date of 21 September 2007.

30. The ICC for the conversion of Wattson Euro Panel Industries Ltd. includes a new pentane storage and handling system, pre-mixing stations, polyol tanks, foam dispensing machine, and related safety



components, including testing and trials, at a total cost of US \$1,049,766 (comprising the ICC at US \$909,250, after adjustment for co-financing of US \$100,000 and IOC at US \$140,516).

#### Activities in the refrigeration servicing sector

31. Stage II includes a technical assistance component for the servicing sector with an associated phase-out of 111.39 mt (6.13 ODP tonnes) of HCFC-22, at a cost of US \$534,680. The following specific activities will be implemented:

- (a) Capacity building for Customs through training for Customs officers at various locations in the country, integration of Montreal Protocol issues into the national training programme for Customs induction courses, and training on informal Prior Informed Consent (iPic) awareness for the National Ozone Unit (NOU) (US \$39,000);
- (b) Capacity building through training on good and safe servicing practices for technicians; integration of good and safe practice training and ODS alternative technologies into the technical and vocational curriculum; training of RAC teachers of the Technical and Vocational Technical Institute (TVTI); development of codes of practice for technicians linked with the Bangladesh Standards and Testing Institute (BSTI); pilot training and certification scheme for RAC technicians; and purchase of training equipment for good and safe servicing practices (US \$328,000);
- (c) Additional activities for safe adoption of low-GWP alternatives including review and update of safety standards for flammable refrigerants by BSTI; promotion of non-ODS provisions in Green Building Codes in cooperation with the Sustainable Renewable Energy Development Association (SREDA) (through the national curriculum of architecture); promotion of low-GWP alternatives equipment in public procurement in cooperation with the Central Procurement Technical Unit (assessment, proposal development for policy change, awareness and training); and promotion of standards and labelling for non-ODS and energy-efficient appliances in cooperation with SREDA and BSTI (US \$60,000);
- (d) Procurement of refrigerant identifiers, training equipment for RAC technicians and one reclamation unit (US \$61,000); and
- (e) Awareness and outreach activities targeting key stakeholders in enforcement, industry, service sector and end-users (US \$46,680).

#### Project monitoring and implementation unit (PMU)

32. A PMU will be established under the NOU at a cost of US \$600,000. It will focus on planning and implementing activities associated with individual sub-components, coordinating with stakeholders and other technical and administrative work.

#### **Total cost of stage II of the HPMP**

33. The total cost of stage II of the HPMP for Bangladesh has been estimated at US \$10,137,826, plus agency support costs. The proposed activities will enable the country to achieve 67.5 per cent reduction in HCFC baseline consumption by 2025, and result in the phase-out of 35.27 ODP tonnes (i.e. 23.22 ODP tonnes of HCFC-22; and 12.05 ODP tonnes of HCFC-141b contained in imported pre-blended polyols) with an overall cost-effectiveness of US \$19.07/kg as summarized in Table 5.

**Table 5. Total cost of stage II of the HPMP for Bangladesh as submitted**

| Activity  | Substance                                 | HCFC phase-out |              | Cost (US \$)      | CE (US \$/kg) |
|---|---|----------------|--------------|-------------------|---------------|
|   |   | mt             | ODP tonnes   |                   |               |
| Conversion of six enterprises in the AC sector      | HCFC-22                                   | 310.78         | 17.09        | 7,953,380         | 25.59         |
| Conversion of one enterprise in the PU foam sector* | HCFC-141b in imported pre-blended polyols | 109.54         | 12.05        | 1,049,766         | 9.52          |
| Refrigeration servicing activities                  | HCFC-22                                   | 111.39         | 6.13         | 534,680           | 4.8           |
| PMU   | n/a                                       | n/a            | n/a          | 600,000           |               |
| <b>Total</b>  |   | <b>531.71</b>  | <b>35.27</b> | <b>10,137,826</b> | <b>19.07</b>  |

\*Not eligible for funding

## SECRETARIAT'S COMMENTS AND RECOMMENDATION

### COMMENTS

34. The Secretariat reviewed stage II of the HPMP in light of stage I, the policies and guidelines of the Multilateral Fund, including the criteria for funding HCFC phase-out in the consumption sector for stage II of HPMPs (decision 74/50), and the 2018-2020 business plan of the Multilateral Fund.

#### HCFC consumption

35. The Secretariat expressed concerns on the consumption trend in Bangladesh. The consumption in 2016 of 63.90 ODP tonnes and the estimated consumption in 2017 of 62.96 ODP tonnes, were almost at the same level as the allowable consumption of 65.39 ODP tonnes for those years. However, consumption in 2018 is expected at 50.86 ODP tonnes, a reduction of 22 per cent from the 2017 consumption. The Secretariat requested clarification on how the country would achieve these reduction levels. UNDP advised that the Government would implement a strong licensing and quota system in 2018 and beyond; with the implementation of the investment projects proposed under stage II, the Government would be able to achieve further permanent reductions in HCFC consumption.

36. The Secretariat further noted the increased consumption of HCFC-14b contained in imported pre-blended polyols. UNDP indicated that the Government started to record the imports of these substances from 2012; the demand will continue to increase because of the ban on import of HCFC-141b in bulk and the demand for insulation foam in the country. The Government will explore ways to reduce this consumption through consultations with the industry.

#### Eligibility of the consumption of HCFC-141b contained in imported pre-blended polyols

37. The Secretariat pointed out that consumption of HCFC-141b in imported pre-blended polyols included in stage II to be phased out was not part of the starting point for aggregate reductions in consumption, as there was no consumption of that substance. The import was only recorded from 2012. Therefore, the project component included in stage II for the phase-out of 109.54 mt (12.05 ODP tonnes) of HCFC-141b contained in imported pre-blended polyols is not eligible for funding in line with decision 61/47(c)(iii).<sup>7</sup> The Secretariat informed UNDP that this request will not be included in stage II of the HPMP.

<sup>7</sup>“also to include in their HPMPs a sector plan for the complete phase-out of the use of HCFC-141b in imported pre-blended polyol systems, covering the cost and funding schedule, taking into account that the share of imported polyol within the HPMP might need support under a schedule beyond 2015, and on the understanding that quantities

Technical and cost issues related to the AC manufacturing sector

38. The Secretariat queried why two technologies (R-290 and HFC-32) would be used by the AC manufacturing enterprises, noting the very small production levels (and associated with small amounts of HCFC-22) of some enterprises, which may not justify the investment required for conversion introducing two different technologies. Furthermore, given that the selected technologies are based on flammable refrigerants, their introduction in the local market will require the introduction of standards, codes of practice and training for service technicians on safe handling of those refrigerants. Concerns were, therefore, expressed on the sustainability of these conversions.

39. UNDP indicated that the conversion to HFC-32 for larger-size AC equipment (i.e., more than 1.5 TR) is necessary, as these cannot use R-290 because of the higher charge size, and that these products meet the demand of a higher capacity air-conditioning market segment. For the equipment with a capacity of less than 1.5 TR, R-290 is chosen as proven product designs are available internationally, and is in line with the Government policy. Further, UNDP indicated that it would work with UNEP in designing training and technical support activities for the service sector for the proper and safe handling of flammable refrigerants, and implementation of standards and codes of good servicing practices including use of flammable refrigerants. UNDP would also integrate enterprise-level initiatives on training and capacity building of technicians as part of the HPMP.

40. The Secretariat and UNDP discussed issues relating to the cost components for the conversion in the five AC manufacturing enterprises, namely, product redesign and testing, refrigerant storage and supply area modifications, refrigerant charging and assembly area modifications, quality inspection and testing and training, safety inspection and civil construction activities. An agreement was reached on the total cost for the six enterprises: for the five enterprises manufacturing domestic and commercial ACs, redesign and prototype development from US \$398,000 to US \$160,000, refrigerant storage and supply area modifications from US \$643,000 to US \$305,000, charging area modification from US \$1,364,000 to US \$652,000, quality inspection, civil works and installation tools from US \$980,000 to US \$144,000, and other training, safety inspection and civil construction from US \$400,000 to US \$274,450, as shown in Table 6. The costs of each component were adjusted based on previous approvals for enterprises with similar production capacity, products and size; for the small enterprise manufacturing chillers, the total cost of conversion including safety certification was agreed at US \$60,000, inclusive of contingency cost.

41. The Secretariat discussed the need for US \$540,000 for installation tools for servicing requested by the five AC manufacturing enterprises and considered these to be part of the servicing sector, and would be deducted at US \$4.80/kg. The request was withdrawn but will continue to be part of the HPMP implementation with funding from sources outside the Multilateral Fund.

**Table 6. Agreed ICC costs for the AC manufacturing enterprises\***

| Enterprises               | Particulars | System and product design | Storage and supply system of HC | Assembly line for charging | Quality control, civil works and installation tools | Technical assistance, installation, training and safety verification | Sub-total |
|---------------------------|-------------|---------------------------|---------------------------------|----------------------------|---|--|-----------|
| AC Bazaar Industries Ltd. | Submitted   | 54,000                    | 77,000                          | 203,000                    | 75,000  | 50,000   | 459,000   |
|                           | Agreed      | 20,000                    | 45,000                          | 80,500                     | 11,000  | 42,500   | 199,000   |
| Elite Hi-Tech             | Submitted   | 54,000                    | 77,000                          | 203,000                    | 65,000  | 50,000   | 449,000   |
|                           | Agreed      | 20,000                    | 45,000                          | 80,500                     | 11,000  | 42,500   | 199,000   |
| Supreme Air-conditioning  | Submitted   | 54,000                    | 77,000                          | 203,000                    | 75,000  | 50,000   | 459,000   |
|                           | Agreed      | 20,000                    | 45,000                          | 80,500                     | 11,000  | 42,500   | 199,000   |

of HCFC-141b in imported pre-blended polyol systems that had not been included in the overarching strategy for the HPMP would not be eligible for funding”.

| Enterprises               | Particulars      | System and product design | Storage and supply system of HC | Assembly line for charging | Quality control, civil works and installation tools | Technical assistance, installation, training and safety verification | Sub-total        |
|---------------------------|------------------|---------------------------|---------------------------------|----------------------------|---|--|------------------|
| Co.                       |                  |                           |                                 |                            |   |  |                  |
| Unitech Products          | Submitted        | 36,000                    | 77,000                          | 203,000                    | 65,000  | 50,000   | 431,000          |
|                           | Agreed           | 20,000                    | 45,000                          | 80,500                     | 11,000  | 42,500   | 199,000          |
| Walton Hi-Tech Industries | Submitted        | 200,000                   | 335,000                         | 552,000                    | 700,000   | 200,000  | 1,987,000        |
|                           | Agreed           | 80,000                    | 125,000                         | 330,000                    | 100,000   | 104,450  | 739,450          |
| Cooling Point Engineering | Submitted        | 30,000                    | -                               | 114,500                    | 5,000   | 40,000   | 189,500          |
|                           | Agreed           | -                         | -                               | 50,000                     | -   | 5,000  | 55,000           |
| <b>Total</b>              | <b>Submitted</b> | <b>428,000</b>            | <b>643,000</b>                  | <b>1,478,500</b>           | <b>985,000</b>                                      | <b>440,000</b>   | <b>3,974,500</b> |
|                           | <b>Agreed</b>    | <b>160,000</b>            | <b>305,000</b>                  | <b>702,000</b>             | <b>144,000</b>                                      | <b>279,450</b>   | <b>1,590,450</b> |

\*Excluding costs for heat exchanger conversion and 10 per cent contingency.

42. The Secretariat also noted that four out of the six enterprises have included requests for funding the conversions of their heat exchanger manufacturing facilities, in addition to the other investments required for conversion of their manufacturing operations. Of these, Walton, which is the largest consumer of HCFCs, requested funding for conversion to micro-channel heat exchangers. UNDP was informed that the change to micro-channel heat exchangers is considered a technology upgrade; therefore, cost for the modifications to Walton's heat exchanger facility would be considered based on the fin and tube redesign. The Secretariat reviewed the costs of heat-exchangers included in the submission and based on consultation with UNDP on eligible incremental costs, estimated the total costs for conversion at four enterprises with eligible capacity to manufacture fin and tube heat-exchangers at US \$1,122,000 (Table 7), which included cost of fin dies and fin press modifications, hairpin tube bending tools and tube end processing tools, expander dies and tools for headers, distributor tubes and braze ring insertion, in line with cost estimates provided in UNEP/OzL.Pro/ExCom/77/69.<sup>8</sup>

**Table 7. Agreed incremental costs for heat exchangers at four AC enterprises**

| Enterprises               | Submitted costs (US \$) | Agreed costs (US \$) |
|---------------------------|-------------------------|----------------------|
| AC Bazaar Industries Ltd. | 225,000                 | 200,000              |
| Elite Hi-Tech             | 225,000                 | 93,000               |
| Unitech Products          | 225,000                 | 200,000              |
| Walton Hi-Tech Industries | 1,300,000               | 629,000              |

\* Does not include contingency of 10 per cent.

43. The IOC was maintained at US \$6.30/kg in line with decision 74/50(c)(viii).

44. Based on the above adjustments, the agreed incremental costs for conversion of the five AC manufacturers and one chiller manufacturer amounts to US \$4,919,666 with an associated phase-out of 310.79 mt (17.09 ODP tonnes) of HCFC-22, and a cost-effectiveness of US \$15.83/kg, as shown in Table 8.

**Table 8. Total agreed cost of the conversion of the AC sector to R-290 and HFC-32 technologies**

| Enterprise                   | Consumption |       | ICC*      | IOC       | Total agreed cost (US \$) | CE (US\$/kg) |
|------------------------------|-------------|-------|-----------|-----------|---------------------------|--------------|
|                              | mt          | ODP t |           |           |                           |              |
| AC Bazar Industries Ltd.     | 24.72       | 1.36  | 434,650   | 155,749   | 590,399                   | 23.88        |
| Elite Hi-Tech                | 21.46       | 1.18  | 316,950   | 135,204   | 452,154                   | 21.07        |
| Supreme Air-conditioning Co. | 24.97       | 1.37  | 214,650   | 157,330   | 371,980                   | 14.90        |
| Unitech Products             | 15.13       | 0.83  | 434,650   | 95,338    | 529,988                   | 35.02        |
| Walton Hi-Tech Industries    | 222.15      | 12.22 | 1,500,795 | 1,399,526 | 2,900,321                 | 13.06        |

<sup>8</sup> Calculation of the level of incremental costs for the conversion of heat exchangers manufacturing lines in enterprises converting to HC-290 technology (decision 76/51).

| Enterprise                | Consumption   |              | ICC*             | IOC              | Total agreed cost (US \$) | CE (US\$/kg) |
|---------------------------|---------------|--------------|------------------|------------------|---------------------------|--------------|
|                           | mt            | ODP t        |                  |                  |                           |              |
| Cooling Point Engineering | 2.35          | 0.13         | 60,000           | 14,824           | 74,824                    | 31.80        |
| <b>Subtotal</b>           | <b>310.78</b> | <b>17.09</b> | <b>2,961,695</b> | <b>1,957,971</b> | <b>4,919,666</b>          | <b>15.83</b> |

\*Includes cost for heat exchangers.

45. The Government of Bangladesh has not given a firm commitment to establish regulations to prohibit the production of HCFC-22-based air-conditioning equipment after conversion of the beneficiary enterprises, as required under decision 79/25.<sup>9</sup> UNDP informed the Secretariat that the earliest a ban could be put in place would be in 2024. The Secretariat informed UNDP that the import ban is critical for the sustainability of the phase-out of HCFC-22 in the AC sector, and should be supported with regulations that limit or ban the import and sale of high-GWP refrigerants-based ACs. UNDP informed that Bangladesh would continue discussing this in relation to activities to be implemented under the Kigali Amendment.

#### Issues related to the refrigeration servicing sector

46. The Secretariat requested additional clarifications on the project components related to the service sector particularly the reclamation facility and the linkage of service sector activities with the conversion of the AC and chiller manufacturing enterprises. UNEP clarified that during the first tranche of stage II, the market conditions for the reclamation project will be analysed; a business model will be developed in consultation with different stakeholders. Based on the results of this feasibility study, a request for a reclamation centre will be submitted in a future tranche. UNEP also clarified that the training of technicians, capacity building of technical institutions and technicians certification would be a priority in stage II. These activities will be integrated with the phase-out plans of the manufacturing enterprises to ensure systematic, safe and sustainable introduction of flammable refrigerants in the market; pilot certification scheme for technicians (40 technicians) will also be implemented. Based on the consultations, UNEP provided a revised work plan for the servicing sector taking into account the agreed changes, at a total cost of US \$534,680, an associated phase-out of 6.92 ODP tonnes (i.e., 1.77 ODP tonnes of HCFC-22 and 5.15 ODP tonnes of HCFC-142b).

47. Stage I of the HPMP for Bangladesh did not include a request for the PMU; the activities relating to the project were managed by the NOU. UNDP explained that based on the project implementation needs in stage II, a PMU needs to be established for implementing the RAC manufacturing and servicing sector activities, over a seven-year period. On this basis, it was agreed a funding of US \$436,348 for the PMU (i.e., eight per cent of the total agreed costs).

#### Cost of the HPMP stage II

48. The agreed costs for stage II of the HPMP for Bangladesh, amounts to US \$5,890,694, to phase out 24.01 ODP tonnes as summarized in Table 9. With the approval of stage II of the HPMP, the Government commits to reducing HCFC consumption by 67.5 per cent of the baseline by 1 January 2025 noting that in stage I, the country had committed to reduce 24.53 ODP tonnes of HCFCs, which is equal to a 30 per cent reduction from its baseline.

<sup>9</sup> The Executive Committee requested bilateral and implementing agencies together with Article 5 countries, when preparing requests for funding for plans for complete HCFC phase-out in the manufacturing sector, to include the necessary regulatory measures to ensure the sustainability of complete HCFC phase-out in that specific sector, such as policies banning the import and/or the use of HCFC.

**Table 9. Agreed costs for stage II of the HPMP of Bangladesh**

| Sector/component  | Substance | Phase-out     |               | Cost<br>(US \$)  | CE<br>(US \$/kg) |
|---|-----------|---------------|---------------|------------------|------------------|
|   |           | mt            | ODP<br>tonnes |                  |                  |
| <b>RAC manufacturing</b>  |           |               |               |                  |                  |
| Conversion project for phase-out of HCFC-22 in six manufacturing enterprises                      | HCFC-22   | 310.78        | 17.09         | 4,919,666        | 15.83            |
| <b>Servicing sector</b>   |           |               |               |                  |                  |
| Training support for service sector and enforcement authorities and policy enforcement assistance | HCFC-22   | 32.16         | 1.77          | 534,680          | 4.80             |
|   | HCFC-142b | 79.23         | 5.15          |                  |                  |
| <b>Sub-total (servicing sector)</b>   |           | <b>111.39</b> | <b>6.92</b>   |                  |                  |
| PMU   |           |               |               | 436,348          |                  |
| <b>Total</b>  |           | <b>422.17</b> | <b>24.01</b>  | <b>5,890,694</b> | <b>13.95</b>     |

Activities planned for the first tranche

49. The first funding tranche of stage II, at the amount of US \$2,502,405, will be implemented until 2020. The following activities will be implemented: initiate the identification and procurement of equipment for the conversion of the five AC and one chiller manufacturing enterprises to R-290/HFC-32; Customs and enforcement capacity building; capacity building of refrigeration servicing sector; awareness and outreach; procurement of identifiers and training equipment; and establishment of PMU.

Impact on the climate

50. Table 10 presents the climate impact in the AC manufacturing sector, calculated with the revised multilateral climate impact indicator (MCII).

**Table 10. Climate impact in the air-conditioning sector**

|  |   |   |  |
|--|---|---|--|
| <b>Input</b>                                     | <i>Note: All data displayed is specific to the case investigated and is not generic information about the performance of one alternative; performance can differ significantly depending on the case.</i>                       |   |  |
|  | <b>Generic</b>  |   |  |
| Country  | [-]   | <b>Bangladesh</b>   |  |
| Company data (name, location)                    | [-]   | <b>Walton, AC Bazaar, Supreme, Elite, Unitech and Cooling Point</b> |  |
| Select system type                               | [list]  | Residential and commercial cooling                                  |  |
|  | <b>General refrigeration information</b>  |   |  |
| HCFC to be replaced                              | [-]   | HCFC-22   |  |
| Amount of refrigerant per unit                   | [kg]  | 1.09 to 5.18 per kg; average 1.14 kg                                |  |
| No. of units                                     | [-]   | 272,905   |  |
| Refrigeration capacity                           | [kW]  | 1 to 5 TR   |  |
|  | <b>Selection of alternative with minimum environmental impact</b>   |   |  |
| Share of exports (all countries)                 | [%]   | 0   |  |
|  | <b>Calculation of the climate impact</b>  |   |  |
| Alternative refrigerant (more than one possible) | [list]  | R-410A; HFC-32; HC-290  |  |
|  | <b>Output</b>   |   |  |
|  | <i>Note: The output is calculated as the climate impact of the refrigerant systems in their lifetime as compared to HCFC-22, on the basis of the amount produced within one year. Additional/different outputs are possible</i> |   |  |
|  | <b>Country</b>  |   |  |

| <b>Identification of the alternative technology with minimum climate impact</b>   |   |                  |
|---|---|------------------|
| List of alternatives for identification of the one with minimum climate impact  | [Sorted list, best = top (% deviation from HCFC)] | R-290 (-34 %)    |
|   |   | HFC-32 (-24 %)   |
|   |   | <b>HCFC-22</b>   |
|   |   | R-410A (+3%)     |
| <b>Calculation of the climate impact</b>  |   |                  |
| Per unit, over lifetime (for information only):   |   |                  |
| Energy consumption  | [kWh]   | 296,193          |
| Direct climate impact (substance)   | [kg CO <sub>2</sub> equiv]                        | 813,811          |
| Indirect climate impact (energy): In country  | [kg CO <sub>2</sub> equiv]                        | 1,773,824        |
| Indirect climate impact (energy): Global average  | [kg CO <sub>2</sub> equiv]                        | 0                |
| <b>Baseline climate impact before conversion</b>  |   | <b>2,587,635</b> |
| <b>Alternative refrigerant 1</b>  |   | <b>R-410A</b>    |
| <i>Total direct impact (post conversion – baseline)*</i>  | [t CO <sub>2</sub> equiv]                         | 40,979           |
| <i>Indirect impact (country)**</i>  | [t CO <sub>2</sub> equiv]                         | 26,096           |
| <i>Indirect impact (outside country)**</i>  | [t CO <sub>2</sub> equiv]                         | -                |
| <i>Total indirect impact</i>  | [t CO <sub>2</sub> equiv]                         | 26,096           |
| <b>Total impact</b>   | <b>[t CO<sub>2</sub> equiv]</b>                   | <b>2,654,710</b> |
| <b>Alternative refrigerant 2</b>  |   | <b>HFC-32</b>    |
| <i>Total direct impact (post conversion – baseline)*</i>  | [t CO <sub>2</sub> equiv]                         | (543,442)        |
| <i>Indirect impact (country)**</i>  | [t CO <sub>2</sub> equiv]                         | (88,020)         |
| <i>Indirect impact (outside country)**</i>  | [t CO <sub>2</sub> equiv]                         | -                |
| <i>Total indirect impact</i>  | [t CO <sub>2</sub> equiv]                         | (88,020)         |
| <b>Total impact</b>   | <b>[t CO<sub>2</sub> equiv]</b>                   | <b>1,956,173</b> |
| <b>Alternative refrigerant 3</b>  |   | <b>HC-290</b>    |
| <i>Total direct impact (post conversion – baseline)*</i>  | [t CO <sub>2</sub> equiv]                         | (812,867)        |
| <i>Total indirect impact (country)**</i>  | [t CO <sub>2</sub> equiv]                         | (54,794)         |
| <i>Total indirect impact (outside country)**</i>  | [t CO <sub>2</sub> equiv]                         | -                |
| <i>Total indirect impact**</i>  | [t CO <sub>2</sub> equiv]                         | (54,794)         |
| <b>Total impact</b>   | <b>[t CO<sub>2</sub> equiv]</b>                   | <b>1,719,975</b> |
| *Direct impact: Different impact between alternative technology and HCFC technology for the substance-related emissions.  |   |                  |
| **Indirect impact: Difference in impact between alternative technology and HCFC technology for the energy-consumption-related emissions of CO <sub>2</sub> when generating electricity. |   |                  |

51. The replacement of HCFC-22 by R-290 and HFC-32 in the AC sector will result in avoiding the emissions of 1,730,798 mt CO<sub>2</sub>-eq. (i.e. from the baseline of 2,587,635 mt CO<sub>2</sub>-eq. emissions to 856,837 mt CO<sub>2</sub>-eq.).

52. In addition, the proposed technical assistance activities in the HPMP for the servicing sector, which include the introduction of better servicing practices and enforcement of HCFC import controls, would also reduce the amount of HCFC-22 used for refrigeration servicing. Each kilogram (kg) of HCFC-22 not emitted due to better refrigeration practices results in the savings of approximately 1.8 mt CO<sub>2</sub>-eq.

## **Co-financing**

53. The six manufacturing enterprises would bear additional costs, if any, for conversion of their manufacturing facilities including heat-exchangers (i.e., such costs that are not incremental). There may be additional activities related to the adoption of low-GWP technologies from other sources of funding. At this stage, it is difficult to assess the costs of co-financing.

## **2018-2020 business plan of the Multilateral Fund**

54. UNDP is requesting US \$5,890,694, plus agency support costs for the implementation of stage II of the HPMP. The total value requested of US \$4,991,080 including agency support costs for the period 2018-2020, is US \$4,101,420 above the amount in the business plan for 2018 to 2020.

## **Draft Agreement**

55. A draft Agreement between the Government of Bangladesh and the Executive Committee for the phase out of HCFCs in stage II of the HPMP is contained in Annex I to the present document.

## **RECOMMENDATION**

56. The Executive Committee may wish to consider:

- (a) Approving, in principle, stage II of the HCFC phase-out management plan (HPMP) for the Bangladesh for the period 2018 to 2025 to reduce HCFC consumption by 67.5 per cent of the baseline in 2025, in the amount of US \$6,334,430, consisting of US \$5,356,014, plus agency support cost of US \$374,921 for UNDP, and US \$534,680, plus agency support cost of US \$68,815 for UNEP;
- (b) Noting the commitment of the Government of Bangladesh to:
  - (i) Reduce HCFC consumption by 67.5 per cent of the baseline by 2025; and
  - (ii) Issue a ban on manufacture and import of HCFC-22-based air-conditioners with cooling capacity up to 1.5 TR by 1 January 2024;
- (c) Deducting 24.01 ODP tonnes of HCFCs from the remaining HCFC consumption eligible for funding;
- (d) Approving the draft Agreement between the Government of Bangladesh and the Executive Committee for the reduction in consumption of HCFCs, in accordance with stage II of the HPMP, contained in Annex I to the present document; and
- (e) Approving the first tranche of stage II of the HPMP for Bangladesh, and the corresponding tranche implementation plan, in the amount of US \$2,698,706, consisting of US \$2,142,405, plus agency support costs of US \$149,968 for UNDP, and US \$360,000, plus agency support costs of US \$46,333 for UNEP.



## Annex I

### **DRAFT AGREEMENT BETWEEN THE GOVERNMENT OF BANGLADESH AND THE EXECUTIVE COMMITTEE OF THE MULTILATERAL FUND FOR THE REDUCTION IN CONSUMPTION OF HYDROCHLOROFLUOROCARBONS IN ACCORDANCE WITH STAGE II OF THE HCFC PHASE-OUT MANAGEMENT PLAN**

#### **Purpose**

1. This Agreement represents the understanding of the Government of Bangladesh (the “Country”) and the Executive Committee with respect to the reduction of controlled use of the ozone-depleting substances (ODS) set out in Appendix 1-A (“The Substances”) to a sustained level of 23.61 ODP tonnes by 1 January 2025 in compliance with Montreal Protocol schedule.
2. The Country agrees to meet the annual consumption limits of the Substances as set out in row 1.2 of Appendix 2-A (“The Targets, and Funding”) in this Agreement as well as in the Montreal Protocol reduction schedule for all Substances mentioned in Appendix 1-A. The Country accepts that, by its acceptance of this Agreement and performance by the Executive Committee of its funding obligations described in paragraph 3, it is precluded from applying for or receiving further funding from the Multilateral Fund in respect to any consumption of the Substances that exceeds the level defined in row 1.2 of Appendix 2-A as the final reduction step under this Agreement for all of the Substances specified in Appendix 1-A, and in respect to any consumption of each of the Substances that exceeds the level defined in rows 4.1.3, 4.2.3, 4.3.3, 4.4.3, and 4.5.3 (remaining consumption eligible for funding).
3. Subject to compliance by the Country with its obligations set out in this Agreement, the Executive Committee agrees, in principle, to provide the funding set out in row 3.1 of Appendix 2-A to the Country. The Executive Committee will, in principle, provide this funding at the Executive Committee meetings specified in Appendix 3-A (“Funding Approval Schedule”).
4. The Country agrees to implement this Agreement in accordance with the stage II of the HCFC phase-out management plan (HPMP) approved (“the Plan”). In accordance with sub-paragraph 5(b) of this Agreement, the Country will accept independent verification of the achievement of the annual consumption limits of the Substances as set out in row 1.2 of Appendix 2-A of this Agreement. The aforementioned verification will be commissioned by the relevant bilateral or implementing agency.

#### **Conditions for funding release**

5. The Executive Committee will only provide the Funding in accordance with the Funding Approval Schedule when the Country satisfies the following conditions at least eight weeks in advance of the applicable Executive Committee meeting set out in the Funding Approval Schedule:
  - (a) That the Country has met the Targets set out in row 1.2 of Appendix 2-A for all relevant years. Relevant years are all years since the year in which this Agreement was approved. Years for which there are no due country programme implementation reports at the date of the Executive Committee meeting at which the funding request is being presented are exempted;
  - (b) That the meeting of these Targets has been independently verified for all relevant years, unless the Executive Committee decided that such verification would not be required;

- (c) That the Country had submitted a Tranche Implementation Report in the form of Appendix 4-A (“Format of Tranche Implementation Reports and Plans”) covering each previous calendar year; that it had achieved a significant level of implementation of activities initiated with previously approved tranches; and that the rate of disbursement of funding available from the previously approved tranche was more than 20 per cent; and
- (d) That the Country has submitted a Tranche Implementation Plan in the form of Appendix 4-A covering each calendar year until and including the year for which the funding schedule foresees the submission of the next tranche or, in case of the final tranche, until completion of all activities foreseen.

### **Monitoring**

6. The Country will ensure that it conducts accurate monitoring of its activities under this Agreement. The institutions set out in Appendix 5-A (“Monitoring Institutions and Roles”) will monitor and report on implementation of the activities in the previous Tranche Implementation Plans in accordance with their roles and responsibilities set out in the same appendix.

### **Flexibility in the reallocation of funds**

7. The Executive Committee agrees that the Country may have the flexibility to reallocate part or all of the approved funds, according to the evolving circumstances to achieve the smoothest reduction of consumption and phase-out of the Substances specified in Appendix 1-A:

- (a) Reallocations categorized as major changes must be documented in advance either in a Tranche Implementation Plan as foreseen in sub-paragraph 5(d) above, or as a revision to an existing Tranche Implementation Plan to be submitted eight weeks prior to any meeting of the Executive Committee, for its approval. Major changes would relate to:
  - (i) Issues potentially concerning the rules and policies of the Multilateral Fund;
  - (ii) Changes which would modify any clause of this Agreement;
  - (iii) Changes in the annual levels of funding allocated to individual bilateral or implementing agencies for the different tranches;
  - (iv) Provision of funding for activities not included in the current endorsed Tranche Implementation Plan, or removal of an activity in the Tranche Implementation Plan, with a cost greater than 30 per cent of the total cost of the last approved tranche; and
  - (v) Changes in alternative technologies, on the understanding that any submission for such a request would identify the associated incremental costs, the potential impact to the climate, and any differences in ODP tonnes to be phased out if applicable, as well as confirm that the Country agrees that potential savings related to the change of technology would decrease the overall funding level under this Agreement accordingly;
- (b) Reallocations not categorized as major changes may be incorporated in the approved Tranche Implementation Plan, under implementation at the time, and reported to the Executive Committee in the subsequent Tranche Implementation Report;

- (c) Any enterprise to be converted to non-HCFC technology included in the Plan and that would be found to be ineligible under the policies of the Multilateral Fund (i.e., due to foreign ownership or establishment post the 21 September 2007 cut-off date), would not receive financial assistance. This information would be reported as part of the Tranche Implementation Plan;
- (d) The Country commits to examining the possibility of using pre-blended systems with low-global warming potential blowing agents instead of blending them in-house, for those foam enterprises covered under the Plan, should this be technically viable, economically feasible and acceptable to the enterprises;
- (e) The Country agrees, in cases where HFC technologies have been chosen as an alternative to HCFCs, and taking into account national circumstances related to health and safety: to monitor the availability of substitutes and alternatives that further minimize impacts on the climate; to consider, in the review of regulations, standards and incentives adequate provisions that encourage introduction of such alternatives; and to consider the potential for adoption of cost-effective alternatives that minimize the climate impact in the implementation of the HPMP, as appropriate, and inform the Executive Committee on the progress accordingly in tranche implementation reports; and
- (f) Any remaining funds held by the bilateral or implementing agencies or the Country under the Plan will be returned to the Multilateral Fund upon completion of the last tranche foreseen under this Agreement.

### **Considerations for the refrigeration servicing sector**

8. Specific attention will be paid to the execution of the activities in the refrigeration servicing sector included in the Plan, in particular:

- (a) The Country would use the flexibility available under this Agreement to address specific needs that might arise during project implementation; and
- (b) The Country and relevant bilateral and/or implementing agencies would take into consideration relevant decisions on the refrigeration servicing sector during the implementation of the Plan.

### **Bilateral and implementing agencies**

9. The Country agrees to assume overall responsibility for the management and implementation of this Agreement and of all activities undertaken by it or on its behalf to fulfil the obligations under this Agreement. UNDP has agreed to be the lead implementing agency (the "Lead IA") and UNEP has agreed to be the cooperating implementing agency (the "Cooperating IA") under the lead of the Lead IA in respect of the Country's activities under this Agreement. The Country agrees to evaluations, which might be carried out under the monitoring and evaluation work programmes of the Multilateral Fund or under the evaluation programme of the Lead IA and Cooperating IA taking part in this Agreement.

10. The Lead IA will be responsible for ensuring co-ordinated planning, implementation and reporting of all activities under this Agreement, including but not limited to independent verification as per sub-paragraph 5(b). The Cooperating IA will support the Lead IA by implementing the Plan under the overall co-ordination of the Lead IA. The roles of the Lead IA and Cooperating IA are contained in Appendix 6-A and Appendix 6-B, respectively. The Executive Committee agrees, in principle, to provide the Lead IA and the Cooperating IA with the fees set out in rows 2.2 and 2.4 of Appendix 2-A.

### **Non-compliance with the Agreement**

11. Should the Country, for any reason, not meet the Targets for the elimination of the Substances set out in row 1.2 of Appendix 2-A or otherwise does not comply with this Agreement, then the Country agrees that it will not be entitled to the Funding in accordance with the Funding Approval Schedule. At the discretion of the Executive Committee, funding will be reinstated according to a revised Funding Approval Schedule determined by the Executive Committee after the Country has demonstrated that it has satisfied all of its obligations that were due to be met prior to receipt of the next tranche of funding under the Funding Approval Schedule. The Country acknowledges that the Executive Committee may reduce the amount of the Funding by the amount set out in Appendix 7-A (“Reductions in Funding for Failure to Comply”) in respect of each ODP kg of reductions in consumption not achieved in any one year. The Executive Committee will discuss each specific case in which the Country did not comply with this Agreement, and take related decisions. Once decisions are taken, the specific case of non-compliance with this Agreement will not be an impediment for the provision of funding for future tranches as per paragraph 5 above.

12. The Funding of this Agreement will not be modified on the basis of any future Executive Committee decisions that may affect the funding of any other consumption sector projects or any other related activities in the Country.

13. The Country will comply with any reasonable request of the Executive Committee, UNDP the Lead IA and the Cooperating IA to facilitate implementation of this Agreement. In particular, it will provide the Lead IA and the Cooperating IA with access to the information necessary to verify compliance with this Agreement.

### **Date of completion**

14. The completion of the Plan and the associated Agreement will take place at the end of the year following the last year for which a maximum allowable total consumption level has been specified in Appendix 2-A. Should at that time there still be activities that are outstanding, and which were foreseen in the last Tranche Implementation Plan and its subsequent revisions as per sub-paragraph 5(d) and paragraph 7, the completion of the Plan will be delayed until the end of the year following the implementation of the remaining activities. The reporting requirements as per sub-paragraphs 1(a), 1(b), 1(d), and 1(e) of Appendix 4-A will continue until the time of the completion of the Plan unless otherwise specified by the Executive Committee.

### **Validity**

15. All of the conditions set out in this Agreement are undertaken solely within the context of the Montreal Protocol and as specified in this Agreement. All terms used in this Agreement have the meaning ascribed to them in the Montreal Protocol unless otherwise defined herein.

16. This Agreement may be modified or terminated only by mutual written agreement of the Country and the Executive Committee of the Multilateral Fund.

## APPENDICES

### APPENDIX 1-A: THE SUBSTANCES

| Substance | Annex | Group | Starting point for aggregate reductions in consumption (ODP tonnes) |
|-----------|-------|-------|---|
| HCFC-22   | C     | I     | 45.42   |
| HCFC-141b | C     | I     | 21.23   |
| HCFC-142b | C     | I     | 5.72  |
| HCFC-123  | C     | I     | 0.21  |
| HCFC-124  | C     | I     | 0.07  |
| Total     | C     | I     | 72.65   |

### APPENDIX 2-A: THE TARGETS, AND FUNDING

| Row   | Particulars  | 2018      | 2019  | 2020      | 2021  | 2022      | 2023  | 2024  | 2025   | Total     |
|-------|--|-----------|-------|-----------|-------|-----------|-------|-------|--------|-----------|
| 1.1   | Montreal Protocol reduction schedule of Annex C, Group I substances (ODP tonnes)     | 65.39     | 65.39 | 47.22     | 47.22 | 47.22     | 47.22 | 47.22 | 23.61  | n/a       |
| 1.2   | Maximum allowable total consumption of Annex C, Group I substances (ODP tonnes)      | 50.86     | 50.86 | 47.22     | 47.22 | 47.22     | 30.50 | 26.50 | 23.61  | n/a       |
| 2.1   | Lead IA (UNDP) agreed funding (US \$)  | 2,142,405 | 0     | 2,142,405 | 0     | 1,071,204 | 0     | 0     | 0      | 5,356,014 |
| 2.2   | Support costs for Lead IA (US \$)  | 149,968   | 0     | 149,968   | 0     | 74,985    | 0     | 0     | 0      | 374,921   |
| 2.3   | Cooperating IA (UNEP) agreed funding (US \$)   | 360,000   | 0     | 0         | 0     | 120,400   | 0     | 0     | 54,280 | 534,680   |
| 2.4   | Support costs for Cooperating IA (US \$)   | 46,333    | 0     | 0         | 0     | 15,496    | 0     | 0     | 6,986  | 68,815    |
| 3.1   | Total agreed funding (US \$)   | 2,502,405 | 0     | 2,142,405 | 0     | 1,191,603 | 0     | 0     | 54,280 | 5,890,694 |
| 3.2   | Total support costs (US \$)  | 196,301   | 0     | 149,968   | 0     | 90,481    | 0     | 0     | 6,986  | 433,736   |
| 3.3   | Total agreed costs (US \$)   | 2,698,706 | 0     | 2,292,374 | 0     | 1,282,084 | 0     | 0     | 61,266 | 6,334,430 |
| 4.1.1 | Total phase-out of HCFC-22 agreed to be achieved under this Agreement (ODP tonnes)   |           |       |           |       |           |       |       |        | 18.86     |
| 4.1.2 | Phase-out of HCFC-22 to be achieved in the previous stage (ODP tonnes)               |           |       |           |       |           |       |       |        | 3.48      |
| 4.1.3 | Remaining eligible consumption for HCFC-22 (ODP tonnes)                              |           |       |           |       |           |       |       |        | 23.08     |
| 4.2.1 | Total phase-out of HCFC-141b agreed to be achieved under this Agreement (ODP tonnes) |           |       |           |       |           |       |       |        | 0.00      |
| 4.2.2 | Phase-out of HCFC-141b to be achieved in the previous stage (ODP tonnes)             |           |       |           |       |           |       |       |        | 20.2      |
| 4.2.3 | Remaining eligible consumption for HCFC-141b (ODP tonnes)**                          |           |       |           |       |           |       |       |        | 1.03      |

| Row   | Particulars  | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | Total |
|-------|--|------|------|------|------|------|------|------|------|-------|
| 4.3.1 | Total phase-out of HCFC-142b agreed to be achieved under this Agreement (ODP tonnes) |      |      |      |      |      |      |      |      | 5.15  |
| 4.3.2 | Phase-out of HCFC-142b to be achieved in the previous stage (ODP tonnes)             |      |      |      |      |      |      |      |      | 0.57  |
| 4.3.3 | Remaining eligible consumption for HCFC-142b (ODP tonnes)                            |      |      |      |      |      |      |      |      | 0.00  |
| 4.4.1 | Total phase-out of HCFC-123 agreed to be achieved under this Agreement (ODP tonnes)  |      |      |      |      |      |      |      |      | 0.00  |
| 4.4.2 | Phase-out of HCFC-123 to be achieved in the previous stage (ODP tonnes)              |      |      |      |      |      |      |      |      | 0.21  |
| 4.4.3 | Remaining eligible consumption for HCFC-123 (ODP tonnes)                             |      |      |      |      |      |      |      |      | 0.00  |
| 4.5.1 | Total phase-out of HCFC-124 agreed to be achieved under this Agreement (ODP tonnes)  |      |      |      |      |      |      |      |      | 0.00  |
| 4.5.2 | Phase-out of HCFC-124 to be achieved in the previous stage (ODP tonnes)              |      |      |      |      |      |      |      |      | 0.07  |
| 4.5.3 | Remaining eligible consumption for HCFC-124 (ODP tonnes)                             |      |      |      |      |      |      |      |      | 0.00  |

\*Date of completion of stage I as per stage I Agreement: 1 January 2018

\*\*Consumption of HCFC-141b is nil as the Government has imposed a ban on imported bulk HCFC-141b.

### APPENDIX 3-A: FUNDING APPROVAL SCHEDULE

1. Funding for the future tranches will be considered for approval at the second meeting of the year specified in Appendix 2-A.

### APPENDIX 4-A: FORMAT OF TRANCHE IMPLEMENTATION REPORTS AND PLANS

1. The submission of the Tranche Implementation Report and Plans for each tranche request will consist of five parts:

- (a) A narrative report, with data provided by tranche, describing the progress achieved since the previous report, reflecting the situation of the Country in regard to phase out of the Substances, how the different activities contribute to it, and how they relate to each other. The report should include the amount of ODS phased out as a direct result from the implementation of activities, by substance, and the alternative technology used and the related phase-in of alternatives, to allow the Secretariat to provide to the Executive Committee information about the resulting change in climate relevant emissions. The report should further highlight successes, experiences, and challenges related to the different activities included in the Plan, reflecting any changes in the circumstances in the Country, and providing other relevant information. The report should also include information on and justification for any changes vis-à-vis the previously submitted Tranche Implementation Plan(s), such as delays, uses of the flexibility for reallocation of funds during implementation of a tranche, as provided for in paragraph 7 of this Agreement, or other changes;
- (b) An independent verification report of the Plan results and the consumption of the Substances, as per sub-paragraph 5(b) of the Agreement. If not decided otherwise by the Executive Committee, such a verification has to be provided together with each tranche request and will have to provide verification of the consumption for all relevant years as specified in sub-paragraph 5(a) of the Agreement for which a verification report has not yet been acknowledged by the Committee;
- (c) A written description of the activities to be undertaken during the period covered by the requested tranche, highlighting implementation milestones, the time of completion and the interdependence of the activities, and taking into account experiences made and progress achieved in the implementation of earlier tranches; the data in the plan will be provided by calendar year. The description should also include a reference to the overall

foreseen. The description should also specify and explain in detail such changes to the overall plan. This description of future activities can be submitted as a part of the same document as the narrative report under sub-paragraph (b) above;

- (d) A set of quantitative information for all Tranche Implementation Reports and Plans, submitted through an online database; and
  - (e) An Executive Summary of about five paragraphs, summarizing the information of the above sub-paragraphs 1(a) to 1(d).
2. In the event that in a particular year two stages of the HPMP are being implemented in parallel, the following considerations should be taken in preparing the Tranche Implementation Reports and Plans:
- (a) The Tranche Implementation Reports and Plans referred to as part of this Agreement, will exclusively refer to activities and funds covered by this Agreement; and
  - (b) If the stages under implementation have different HCFC consumption targets under Appendix 2-A of each Agreement in a particular year, the lower HCFC consumption target will be used as reference for compliance with these Agreements and will be the basis for the independent verification.

#### **APPENDIX 5-A: MONITORING INSTITUTIONS AND ROLES**

1. The overall monitoring will be the responsibility of National Ozone Unit (NOU). The consumption will be monitored on cross-checking the data collected from relevant Government departments with data collected, as required, from the relevant importers, distributors and consumers. The NOU will also be responsible for reporting and shall submit the following reports in timely manner:

- (a) Annual reports on consumption of substances to be submitted to the Ozone Secretariat;
- (b) Annual reports on the progress of implementation of this Agreement to be submitted to the Executive Committee of the Multilateral Fund; and
- (c) Project -related reports to the Lead IA.

#### **APPENDIX 6-A: ROLE OF THE LEAD IMPLEMENTING AGENCY**

1. The Lead IA will be responsible for a range of activities, including at least the following:
- (a) Ensuring performance and financial verification in accordance with this Agreement and with its specific internal procedures and requirements as set out in the Country's HPMP;
  - (b) Assisting the Country in preparation of the Tranche Implementation Reports and Plans as per Appendix 4-A;
  - (c) Providing independent verification to the Executive Committee that the Targets have been met and associated tranche activities have been completed as indicated in the Tranche Implementation Plan consistent with Appendix 4-A;

- (d) Ensuring that the experiences and progress is reflected in updates of the overall plan and in future Tranche Implementation Plans consistent with sub-paragraphs 1(c) and 1(d) of Appendix 4-A;
- (e) Fulfilling the reporting requirements for the Tranche Implementation Reports and Plans and the overall plan as specified in Appendix 4-A for submission to the Executive Committee, and should include the activities implemented by the Cooperating IA;
- (f) In the event that the last funding tranche is requested one or more years prior to the last year for which a consumption target had been established, annual tranche implementation reports and, where applicable, verification reports on the current stage of the Plan should be submitted until all activities foreseen had been completed and HCFC consumption targets had been met;
- (g) Ensuring that appropriate independent technical experts carry out the technical reviews;
- (h) Carrying out required supervision missions;
- (i) Ensuring the presence of an operating mechanism to allow effective, transparent implementation of the Tranche Implementation Plan and accurate data reporting;
- (j) Co-ordinating the activities of the Cooperating IA, and ensuring appropriate sequence of activities;
- (k) In case of reductions in funding for failure to comply in accordance with paragraph 11 of the Agreement, to determine, in consultation with the Country and the Cooperating IA, the allocation of the reductions to the different budget items and to the funding of the Lead IA and Cooperating IA;
- (l) Ensuring that disbursements made to the Country are based on the use of the indicators;
- (m) Providing assistance with policy, management and technical support when required;
- (n) Reaching consensus with the Cooperating IA on any planning, co-ordination and reporting arrangements required to facilitate the implementation of the Plan; and
- (o) Timely releasing funds to the Country/participating enterprises for completing the activities related to the project.

2. After consultation with the Country and taking into account any views expressed, the Lead IA will select and mandate an independent entity to carry out the verification of the HPMP results and the consumption of the Substances mentioned in Appendix 1-A, as per sub-paragraph 5(b) of the Agreement and sub-paragraph 1(b) of Appendix 4-A.

#### **APPENDIX 6-B: ROLE OF THE COOPERATING IMPLEMENTING AGENCIES**

1. The Cooperating IA will be responsible for a range of activities. These activities are specified in the Plan, including at least the following:



- (a) Providing assistance for policy development when required;
- (b) Assisting the Country in the implementation and assessment of the activities funded by the Cooperating IA, and refer to the Lead IA to ensure a co-ordinated sequence in the activities;
- (c) Providing reports to the Lead IA on these activities, for inclusion in the consolidated reports as per Appendix 4-A; and
- (d) Reaching consensus with the Lead IA on any planning, co-ordination and reporting arrangements required to facilitate the implementation of the Plan.

#### **APPENDIX 7-A: REDUCTIONS IN FUNDING FOR FAILURE TO COMPLY**

1. In accordance with paragraph 11 of the Agreement, the amount of funding provided may be reduced by US \$490.7 per ODP kg of consumption beyond the level defined in row 1.2 of Appendix 2-A for each year in which the target specified in row 1.2 of Appendix 2-A has not been met, on the understanding that the maximum funding reduction would not exceed the funding level of the tranche being requested. Additional measures might be considered in cases where non-compliance extends for two consecutive years.

2. In the event that the penalty needs to be applied for a year in which there are two Agreements in force (two stages of the HPMP being implemented in parallel) with different penalty levels, the application of the penalty will be determined on a case-by-case basis taking into consideration the specific sectors that lead to the non-compliance. If it is not possible to determine a sector, or both stages are addressing the same sector, the penalty level to be applied would be the largest.

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