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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Seventy-sixth Meeting
Montreal, 9-13 May 2016

PROJECT PROPOSAL: PANAMA

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

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS
Panama

(I) PROJECT TITLE	AGENCY
HCFC phase out plan (Stage II)	UNDP

(II) LATEST ARTICLE 7 DATA (Annex C Group I)	Year: 2014	19.22 (ODP tonnes)
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(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)								Year: 2015	
Chemical	Aerosol	Foam	Fire fighting	Refrigeration		Solvent	Process agent	Lab Use	Total sector consumption
				Manufacturing	Servicing				
HCFC-123					0.03				0.03
HCFC-124					0.00				0.00
HCFC-141b in imported pre-blended Polyol		16.27							16.27
HCFC-142b					0.00				0.00
HCFC-22					17.49				17.49

(IV) CONSUMPTION DATA (ODP tonnes)			
2009 - 2010 baseline:	24.80	Starting point for sustained aggregate reductions:	27.28
CONSUMPTION ELIGIBLE FOR FUNDING (ODP tonnes)			
Already approved:	4.78	Remaining:	22.50

(V) BUSINESS PLAN		2016	2017	2018	2019	2020	Total
UNDP	ODS phase-out (ODP tonnes)	7.25	0	2.25	0	2.45	11.95
	Funding (US \$)	538,127	0	189,345	0	228,895	956,367

(VI) PROJECT DATA			2016	2017	2018	2019	2020	Total
Montreal Protocol consumption limits			22.30	22.30	22.30	22.30	16.11	n/a
Maximum allowable consumption (ODP tonnes)			22.30	22.30	22.30	22.30	16.11	n/a
Project costs requested in principle (US\$)	UNDP	Project costs	265,100	0	385,800	0	72,754	723,654
		Support costs	18,557	0	27,006	0	5,093	50,656
Total project costs requested in principle (US \$)			265,100	0	385,800	0	72,754	723,654
Total support costs requested in principle (US \$)			18,557	0	27,006	0	5,093	50,656
Total funds requested in principle (US \$)			283,657	0	412,806	0	77,847	774,310

(VII) Request for funding for the first tranche (2015)		
Agency	Funds requested (US \$)	Support costs (US \$)
UNDP	265,100	18,557

Funding request:	Approval of funding for the first tranche (2016) as indicated above
Secretariat's recommendation:	For individual consideration

PROJECT DESCRIPTION

1. On behalf of the Government of Panama, UNDP, as the designated implementing agency, has submitted to the 76th meeting stage II of the HCFC phase-out management plan (HPMP) at the amount of US \$724,708 plus agency support costs of US \$50,730 for UNDP, as originally submitted. The implementation of stage II of the HPMP will phase out 7.38 ODP tonnes of HCFCs and assist Panama in meeting the Montreal Protocol compliance target of 35 per cent reduction by 2020.

2. The first tranche of stage II of the HPMP being requested amounts to US \$265,100, plus agency support costs of US \$18,557 for UNDP, as originally submitted.

Status of implementation of stage I

3. Stage I of the HPMP for Panama¹ was approved at the 65th meeting at a US \$335,545 to phase out 4.78 ODP tonnes of HCFCs used in the refrigeration and air-conditioning (RAC) servicing sector (2.48 ODP tonnes of HCFC-22 and 2.30 ODP tonnes of HCFC-141b). The Government of Panama committed to reducing 10 per cent of its HCFC baseline (2.48 ODP tonnes) in 2015.

ODS policy and regulatory framework

4. The Government of Panama has established through the Ministry of Health (MINSa) a comprehensive legal framework to control ODS, which includes an operational licensing and quota system for imports of HCFCs; guidelines to adopt non-ODS and low-GWP refrigerants in the design of new air-conditioning systems; a national technicians' certification system administered by the SPIA; and a ban on new HCFC-22-based air-conditioning installations, which entered into force on 1 January 2016.

5. MINSa has national authority over chemical substances in Panama, including the allocation of annual HCFC quotas to licensed importers. The NOU, located within MINSa, is responsible for the implementation of ODS phase-out activities and works in cooperation with the National Customs Authority (ANA) to control ODS consumption. Other key institutions involved in the implementation of the Montreal Protocol in Panama include the Ministries of Environment (MINAMBIENTE), Economy and Finance, Commerce, Education and Foreign Affairs.

Progress report on the implementation of stage I

6. An overview of the results achieved so far is included below:

- (a) *Revision of legal framework (US \$70,000)*: The HCFC licensing and quota system was established and assessed every year, and a ban on production, import, export, use or intentional emission of pure HCFC-141b entered into force on 1 January 2014. Approximately 260 custom officers were trained and; two refrigerant identifiers were provided to the customs laboratory;
- (b) *Refrigeration training programme (US \$87,645)*: Thirty trainers of the National Institute for Human Development (INADEH) and 400 technicians were trained in best servicing practices, refrigerant recovery and recycling (R&R), and conversion of HCFC-based units to low-global-warming-potential (GWP) alternatives. Certifications were provided to 106 technicians through the Panamanian Society of Engineers and Architects (SPIA), and a database of trained technicians was created. Servicing tool kits were distributed to ten training centres and good refrigeration service practices were included in INADEH's training curricula;

¹ UNEP/OzL.Pro/ExCom/65/45.

- (c) *Phase-out of HCFC-141b used for cleaning circuits during servicing (US \$93,900):* Nitrogen-based flushing kits and training on alternatives to HCFC-141b for flushing were provided to 80 refrigeration workshops;
- (d) *Refrigerant R&R programme (US \$35,000):* The functionality of the existing R&R network was reviewed and, as a result of this, additional R&R equipment will be provided to interested workshops;
- (e) *Assistance to end-users (US \$10,000):* A national inventory of HCFC-based air-conditioning units installed in public hospitals was completed and one air-conditioning unit installed in a MINSA building was converted to operate with hydrocarbon (HC) refrigerant; and
- (f) *Implementation and monitoring programme (US \$39,000):* Technical regulations for air-conditioning were updated; two HCFC consumption verification reports were produced; and project activities and introduction of HCFC alternatives were monitored and reported on periodically.

7. Activities in the RAC servicing sector approved under stage I will continue to be implemented until December 2016. As of March 2016, of the total funds of US \$335,545 approved, US \$304,477 has been disbursed. The remaining US \$31,068 will be disbursed during 2016.

Remaining eligible consumption in Panama

8. After deducting 4.78 ODP tonnes of HCFCs associated with stage I of the HPMP, the remaining consumption of HCFCs eligible for funding amounts to 15.12 ODP tonnes, as shown in Table 1.

Table 1. Overview of the remaining HCFC consumption eligible for funding in Panama

HCFC	Starting point	Reduction in stage I	Remaining consumption	Reduction in stage II	Remaining consumption
Metric tonnes (mt)					
HCFC-22	404.36	45.09	359.27	122.54	236.73
HCFC-123	2.50	-	2.50	-	2.50
HCFC-124	0.45	-	0.45	-	0.45
HCFC-141b	20.90	20.90	-	-	-
HCFC-142b	2.77	-	2.77	-	2.77
HCFC-141b (polyols)*	22.72	-	22.72	-	22.72
Total mt	453.70	65.99	387.71	122.54	265.17
ODP tonnes					
HCFC-22	22.24	2.48	19.76	6.19	13.57
HCFC-123	0.05	-	0.05	-	0.05
HCFC-124	0.01	-	0.01	-	0.01
HCFC-141b	2.30	2.30	-	-	-
HCFC-142b	0.18	-	0.18	-	0.18
HCFC-141b (polyols)*	2.50	-	2.50	1.19	1.31
Total ODP tonnes	27.28	4.78	22.50	7.38	15.12

(*) HCFC-141b contained in imported pre-blended polyols.

Stage II of the HPMP

9. During implementation of stage II of the HPMP, the Government of Panama will continue implementing activities in the refrigeration servicing initiated during stage I, with an associated phase-out of 6.19 ODP tonnes of HCFC-22 (25 per cent of the baseline), and will implement a foam sector plan to phase out 1.19 ODP tonnes of HCFC-141b contained imported pre-blended polyols, by 2020.

HCFC consumption and sector distribution

10. The Government of Panama reported consumption of 19.22 ODP tonnes of HCFC in 2014 and estimated consumption of 17.52 ODP tonnes in 2015, as shown in Table 2.

Table 2. HCFC consumption in Panama (2011-2014 Article 7 data, 2015 estimate)

HCFC	2011	2012	2013	2014	2015*	Baseline
Metric tonnes						
HCFC-22	381.14	474.48	350.76	348.60	317.96	404.36
HCFC-123	2.93	0.00	2.42	0.74	1.41	2.50
HCFC-124	0.98	0.10	0.10	0.09	0.00	0.45
HCFC-141b	25.50	60.65	18.41	0.00	0.00	20.90
HCFC-142b	0.59	0.06	0.05	0.52	0.00	2.77
Sub-total (mt)	411.14	535.29	371.74	349.95	319.37	430.67
HCFC-141b in imported pre-blended polyols*	18.09	35.85	66.43	71.15	147.88	22.72**
Total (metric tonnes)	429.23	571.14	438.17	421.26	467.25	453.39
ODP tonnes						
HCFC-22	20.96	26.10	19.30	19.18	17.49	22.24
HCFC-123	0.06	0.00	0.05	0.01	0.03	0.05
HCFC-124	0.02	0.00	0.00	0.00	0.00	0.01
HCFC-141b	2.81	6.67	2.02	0.00	0.00	2.30
HCFC-142b	0.04	0.00	0.00	0.03	0.00	0.18
Sub-total (ODP tonnes)	23.89	32.77	21.37	19.22	17.52	24.80
HCFC-141b in imported pre-blended polyols *	1.99	3.94	7.31	7.83	16.27	2.50**
Total (ODP tonnes)	25.88	36.71	28.68	27.05	33.79	27.30

*Country programme (CP) implementation report.

**Average consumption of 2007-2009.

11. In 2014, the use of HCFC-22 in the refrigeration servicing sector accounted for 99.7 per cent of the total consumption. The increase in the consumption of HCFC-22 and HCFC-141b pure in 2012 was explained by an increase in the inventory of some importers due to the entry into force of the quota system in 2013. The increase in imports of HCFC-141b contained in pre-blended polyols was due to an increase in consumption by non-eligible polyurethane (PU) foam enterprises established after the cut-off date.

HCFC consumption in the PU foam manufacturing sector

12. Panama uses exclusively HCFC-141b contained in imported pre-blended polyols for several PU small-sized rigid foam applications. As there were no low-GWP alternatives that were suitable for the replacement of HCFC-141b in these enterprises, in line with decisions 61/47 and 63/15, it was agreed that a project to phase out the use of 2.50 ODP tonnes of HCFC-141b would be submitted at a later stage.

13. The main PU rigid foam applications in Panama are continuous and discontinuous panels for construction and refrigeration applications. Several new manufacturing enterprises have been established in the last three years due to an increase in the PU rigid foam market, while others identified in stage I

have shut down their facilities (i.e., Plastifom and Equipment Container Solutions). Currently, two newly established enterprises (Hurre and Acusterm) account for 82 per cent of the total HCFC-141b consumption; the remaining foam producers are small and medium-sized enterprises (SMEs) with a strong technical dependency on the systems suppliers: Synthesia (Panama Free Trade Zone (FTZ), Química Pumex (Mexico), Espumlatex (Colombia) and China. Table 3 presents an estimate of the distribution of enterprises and the consumption of HCFC-141b in the foam sector.

Table 3. PU foam enterprises consuming HCFC-141b contained in imported pre-blended polyols

Enterprise	Year	Applications	Average 2007-2009 (mt)	Average 2013-2014 (mt)
Enterprises identified during stage I				
Plastifom	Before 2007	Spray and block foam	12.50	-
Equipment Container Solutions	Before 2007	Spray foam	1.34	-
Fibropinturas S.A.	2001	Distributor of PU systems for micro enterprises (spray, discontinuous panels)	0.43	1.85
Cangas Trucks S.A.	1983	Refrigerated trucks	4.44	1.59
Auto Servicio VIT	1997	Spray foam	0.43	1.37
Carrocerías ACT	1998	Refrigerated transportation	0.90	1.23
Disur S.A.	1998	Distributor of PU systems for micro enterprises (spray, discontinuous panels)	2.72	3.73
Refrigeracion internacional S.A.	1980	Commercial refrigeration		0.54
Refratermic S.A.	2007	Pipe insulation		0.46
Industiras Tunon	2002	Transport refrigeration and discontinuous panels		0.22
Sub-total			22.76	11.00
Newly established enterprises				
Hurre Panamá S.A.	2012	Continuous panels	-	49.20
Acusterm Panamá S.A.	2012	Spray foam	-	5.13
Cuarto Frío S.A.	2013	Discontinuous panels	-	0.47
Eco Aire S.A.	2010	Spray foam	-	0.31
Metal Industry Panacol S.A.	2012	Pipe insulation, commercial and transport refrigeration, spray foam	-	0.29
Sub-total			-	55.40
Total			22.76	66.39

14. In 2011 the Synthesia group from Spain installed a polyol formulation plant in the Colon FTZ to supply various Latin American countries. Due to the nature of the FTZ (considered foreign territory), the Government of Panama considers that the Synthesia's industrial activity does not affect the country's consumption or compliance. Under the current legal framework, Synthesia products must go through customs before they can be introduced into Panama.

Refrigeration servicing sector

15. Fifty-eight per cent of the HCFC-22 consumed in Panama is for servicing commercial air-conditioning systems, followed by the “services sector” (23 per cent) comprising servicing operations in *inter alia* the Panama Canal, the FTZ and container ports, as shown in Table 4.

Table 4. Distribution of HCFC consumption in the refrigeration servicing sector in 2014 (mt)

Sector	HCFC-22	HCFC-123	Total	Percentage
Residential air-conditioning	28	0	28	8
Commercial RAC	203	0.7	204	58
Industrial RAC	37	0	37	11
Services sector	81	0	81	23
Total	349	0.7	350	100

16. While HCFC-141b used to clean refrigeration circuits has been phased out as part of stage I, HCFC-22 and HFC-134a are currently used for this purpose, given the very high cost of nitrogen. Most frequent bad practices reported by the technicians are: faulty drainage, reported by 30 per cent of the technicians, followed by cleaning with the refrigerant, and lack of training, both reported by 15 per cent of technicians.

Fire fighting

17. The only fire extinguisher loaded with HCFC is Halotron, which contains HCFC-123, representing only one percent of total imports.

Proposed activities in stage II of the HPMP

18. The preparation of the overarching strategy of stage II of the HPMP took into consideration the high levels of HCFC consumption in the services and trade sectors; limited availability of low-GWP alternatives for all uses; energy efficiency and climate change related issues; the steady increase in the use of HFC-based RAC equipment; and climate phenomena in the region, like *El Niño*, which increase ambient temperatures.

19. An overview of the activities to be implemented in stage II to achieve the 35 per cent reduction in HCFC consumption by 2020 are summarized below.

Strengthening national capacity to control and phase out HCFCs

20. The following activities to strengthen the national capacity in Panama will be implemented:

- (a) *Strengthening of policies and legal framework to control HCFC consumption (US \$33,000)*: Including updates to the import/export licensing and quota system and the adoption of the Uniform Central American Customs Code;
- (b) *Training and strengthening of the national customs authority (US \$61,600)*: An additional 200 customs officers will be trained in controlling HCFCs and HCFC-based equipment; two refrigerant identifiers will be delivered to the customs authority, and ODS control issues will be included in the curricula of universities offering customs degrees by early 2018; and
- (c) *Awareness-raising for key stakeholders (US \$49,500)*: Four awareness campaigns aimed at end-users of HCFC-based RAC equipment and decision-makers in government

institutions will be conducted; and awareness material will be distributed at RAC equipment sales sites.

HCFC-141b phase-out in the manufacturing of rigid PU foam

21. Complete phase-out of 10.78 mt (1.19 ODP tonnes) of HCFC-141b contained in imported pre-blended polyols through a group project involving eligible SMEs in the refrigerated transport, commercial refrigeration, panels and spray applications. The project will include in-house formulation development, trial and testing (US \$26,500), and incremental operating costs (US \$97,761). HFOs have been selected as the alternative technology.

22. Based on the current availability of HFOs, the project will be implemented from 2018 onwards for completion before 1 January 2020, when a ban on the use of HCFC-141b for the national foam market will be established.

23. The total cost of the project is US \$124,261, of which US \$118,171 is being requested from the Multilateral Fund, with a cost-effectiveness of US \$10.96/ kg. A summary of the project cost is presented in Table 5.

Table 5. Total cost for the conversion of the PU foam sector (US \$)

Enterprise	Applications	mt**	ODP	ICC	IOC	Total cost
Fibropinturas S.A.*	Panels and spray foam	3.99	0.44	5,300	36,222	41,522
Disur S.A.*	Panels and spray foam	3.11	0.34	5,300	28,164	33,464
Cangas Truck S.A.	Refrigerated trucks	1.73	0.19	5,300	15,686	20,986
Refratermic S.A.	Pipe insulation	1.27	0.14	5,300	11,531	16,831
Refrigeracion internacional S.A.	Commercial refrigeration	0.68	0.07	5,300	6,158	11,458
Total		10.78	1.19	26,500	97,761	124,261
Requested						118.171

* Fibropinturas and Disur distribute PU systems to additional microenterprises.

** Average consumption of the last three years (2012-2014).

Reduction of HCFC consumption in the RAC servicing sector

24. The following activities are included:

- (a) *Assessment for the establishment of RAC technician certification (US \$55,000):* The existing certification system will be promoted, assessed and further developed to become a permanent system in the country;
- (b) *Training in good refrigeration practices and management of alternative refrigerant (US \$116,054):* Forty trainers and 500 RAC technicians will be trained; and 500 educational booklets, 2,000 awareness posters, 4,000 information brochures and 4,000 technical data sheets will be prepared and distributed to servicing workshops;
- (c) *Provision of basic RAC tools and equipment to training centres and technicians (US \$170,500):* Agreements will be signed with 20 training centres to include in their curricula the topics of the training programme provided under the HPMP. Tool kits and basic equipment will be distributed to the 20 training centres and to 125 trained technicians; and

- (d) *Options for the reduction of HCFC consumption and the use of low-GWP refrigerants in supermarkets and hotels (US \$55,000):* Eight training seminars targeted at hotels and supermarkets will be conducted; awareness material will be produced and distributed; and volunteer agreements will be sought with end-users to reduce HCFC leakage, convert to low-GWP alternatives and properly dispose of HCFC-based equipment.

Implementation and monitoring activities

25. The NOU will be responsible for the implementation and monitoring of activities under stage II, and will include *inter alia* status of adoption of alternatives, technical assistance to beneficiaries, and preparation of tranche progress reports and tranche requests, at a total cost of US \$65,883.

Total cost of stage II of the HPMP

26. The total cost of stage II of the HPMP for Panama to be funded through the Multilateral Fund has been estimated at US \$724,708, as originally submitted (excluding support costs). The proposed phase-out activities will result in the phase-out of 7.38 ODP tonnes of HCFCs with an overall cost effectiveness of US \$5.87/kg. Detailed activities and cost breakdown are shown in Table 6.

Table 6. Summary of proposed activities and cost of stage II of the HPMP for Panama

Sector	Description	Substance	mt	ODP tonnes	Cost (US \$)	Cost-effectiveness (US \$/kg)
All	Strengthening national capacity to control and phase out HCFCs	HCFC-22	30.02	1.65	144,100	4.80
PU foam	HCFC-141b phase-out in the manufacturing of rigid PU foam	HCFC-141b	10.78	1.19	118,171	10.96
RAC servicing sector	Reduction of HCFCs in the RAC servicing sector	HCFC-22	82.62	4.54	396,554	4.80
All	Implementation and monitoring	All	n.a.	n.a.	65,883	n.a.
Total			123.42	7.38	724,708	5.87

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

27. The Secretariat reviewed stage II of the HPMP for Panama in light of stage I, the policies and the 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 2016-2018 business plan of the Multilateral Fund.

Issues related to the FTZ

28. In reviewing the project proposal, the Secretariat noted that:
- No data on HCFC imported to or exported from the FTZ was available, as enterprises located in that zone are not required to report such consumption;
 - Despite of the ban on imports of pure HCFC-141b in Panama, the systems house located in the FTZ can still import HCFC-141b and export HCFC-based pre-blended polyols; and

- (c) Consumption of HCFC-141b in pre-blended polyols increased from 22 mt (average 2007-2009) to 71 mt in 2014, and the equivalent of 82 per cent was consumed by enterprises established in the last three years (one of them a distributor of the systems house in the FTZ).

29. Based on the above facts and in light of Article 7 data reporting guidelines², UNDP was requested to provide additional information on: HCFC imports and exports in the FTZ, including control measures that may have been implemented to ensure that import and export of HCFCs through the FTZ do not lead to discrepancies in Article 7 data reporting; and whether the Government intended to extend to the FTZ the existing ban on imports of HCFC-141b in bulk, or any other ODS ban. In addressing this issue, UNDP indicated that they contacted the systems house during the preparation of stage II, but could not obtain its consumption of HCFC-141b as it does not officially enter Panama.

30. Upon further consultation by the Fund Secretariat on this issue, the Ozone Secretariat indicated *inter alia* that “although the Government of Panama may consider the FTZ as “foreign” territory, in reality the territory is subject to Panama's sovereignty. Other exporting countries would consider goods destined for the FTZ to be destined for Panama, since the FTZ is not a separate sovereign state. Since the legal framework by which the FTZ operates must have been established by the Government of Panama, the Government must be playing a supervisory and monitoring role. And if need be, the legal framework can be adjusted to include a reporting requirement for certain goods passing through the FTZ, e.g. ODS, in order to avoid illegal trade and to comply with paragraph 3(d) of decision XIX/12 on Preventing illegal trade in ODS³”. Based on this, the Ozone Secretariat is of the view of extending bans on ODS to the FTZ, noting that any HCFC exports from other countries to the FTZ would register Panama as the destination country.

31. In view of the above, the Secretariat suggested that the Government of Panama considers extending the HCFC control measures to its FTZ. UNDP indicated that the Government could not commit at present to extending the bans to the FTZ; however, it would work to establish bridges with customs and the FTZ authorities to identify ways of controlling and exchanging information on ODS consumption. On this basis, it was agreed to reflect in the decision of the approval of stage II of the HPMP the commitment from the Government to undertake efforts to extend the HCFC control measures to the FTZ.

Regulatory support for stage II of the HPMP

32. The Secretariat noted that the non-eligible enterprise Plamosa consuming 7.55 mt (0.42 ODP tonnes) of HCFC-22 in the extruded polystyrene (XPS) foam manufacturing sector identified in stage I had closed and its HCFC consumption had been phased out. Following discussions on this subject, the Government of Panama agreed to:

- (a) Include a ban on new installations and on the manufacturing of XPS foam within the national territory by 1 January 2018 in order to ensure the sustainability of the phase-out, and undertake efforts to extend the measure to the FTZ; and
- (b) Deduct from the remaining eligible consumption, the 0.42 ODP tonnes phased out by the non-eligible XPS foam enterprise Plamosa.

² Request countries that have FTZs inside their territories to make a special effort to include production, import and export figures for such zones in their data reporting (UNEP/OzL.Pro.3/11, Annex XI).

³ Paragraph 3(d) states that Parties wishing to improve implementation and enforcement of their licensing systems in order to combat illegal trade more effectively may wish to consider implementing domestically, on a voluntary basis, monitoring of transit movements (trans-shipments) of ODS, including those passing through duty-free zones, for instance by identifying each shipment with a unique consignment reference number.

PU foam manufacturing sector

33. During the project review process, inconsistencies between the consumption of HCFC-141b contained in imported pre-blended polyols as indicated in the CP implementation report and in the project proposal were identified as summarized in Table 7. UNDP explained that during the preparation of stage II, it was found that the country had been underestimating its imports of HCFC-141b contained in pre-blended polyols, as it was using as a reference the concentration of HCFC-141b in the whole PU system (less than 10 per cent), rather than the concentration in the polyol itself (20.5 per cent). It was also found that some imports had not been included in the reports, as the customs code is generic for all polyols. As a result of the discussions, the Government of Panama corrected the CP implementation reports for 2011, 2012, 2013 and 2014, which are now consistent with the data reported in stage II.

Table 7. Differences in consumption of HCFC-141b contained in imported pre-blended polyols (ODP tonnes)

CP report	2011	2012	2013	2014
As originally submitted	2.66	2.73	2.18	4.09
Revised	1.99	3.94	7.31	7.83

34. Taking into account that of only 1.19 ODP tonnes of HCFC-141b contained in imported pre-blended polyols would be phased-out during implementation of stage II, a clarification was sought on how the remaining consumption not eligible for funding would be phased-out. UNDP confirmed that the ban on the import and/or use of HCFC-141b contained in pre-blended polyols will be established upon completion of the project; as a result, all the non-eligible consumption will be phased out. Accordingly, it was agreed that the entire 2.50 ODP tonnes of HCFC-141b contained in pre-blended polyols in the starting point will be deducted from the remaining consumption eligible for funding.

Technology selected

35. In providing additional details on the specific HFO suppliers for the project, and on when an adequate supply of the technology would be made available to the country in line with decision 74/20(a)(iii), UNDP reassured that HFOs have been commercially available since 2013. One large-scale production facility in the United States of America has been operating for nearly two years, and HFOs are currently shipped to end-users around the world. Furthermore, multinational systems houses that are potential suppliers of polyols in Panama have developed suitable HFO-based formulations for different applications, including spray (the prevalent type of foam application in Panama), and HFO samples are being shipped to systems houses in Brazil, Colombia and Mexico. All these countries are committed to eliminating the use of HCFC-141b within the same period and formulations to initiate field testing should be ready within the time scope of the project. It was also noted that implementation of the PU foam project will begin in 2018, providing additional time for the technology to become available in the local market.

36. However, given the limited availability of HFO in Article 5 countries, it was agreed that UNDP will continue monitoring the availability and cost of the selected technology in Panama and will report status when the second tranche of stage II is requested in 2018.

Issues on incremental cost

37. The Secretariat suggested to use the funds associated with the conversion of the foam enterprises to develop and optimize reduced HFO-based formulations, conduct production trials and train the technical staff of the enterprises, noting that there would be flexibility in the use of the funds in eligible items/activities based on evolving needs of the project. UNDP agreed with the suggestion presented by the Secretariat.

Issues related to the refrigeration servicing sector

38. Although 2.3 ODP tonnes of HCFC-141b that were used for flushing refrigeration circuits were phased out during stage I of the HPMP, HCFC-22 and HFC-134a are currently being used for the same purpose. On this basis, the Secretariat suggested additional efforts to introduce low-GWP technologies for this application and introducing a ban on the use of HCFC-22 and HFC-134a for flushing. In consultation with the Government of Panama UNDP confirmed that supplementary attention will be given in the training programme to flushing alternatives and good procedures and additional awareness activities will be implemented. It was also agreed that a ban on the use of HCFC-22 as flushing solvent in the refrigeration servicing sector will be issued by 1 January 2018.

Project implementation and monitoring unit (PMU)

39. During the project review it was noted that the amount requested for the PMU (US \$65,883) was larger than the amount approved in stage I (US \$39,000) for a similar period of time. It was also recognized that in addition to the activities in the servicing sector, the PU foam manufacturing sector has been included in stage II as well as the additional commitment to strengthen the HCFC legal framework. On this basis, it was agreed the level of funding of US \$65,000 for the PMU.

Agreed costs for stage II of the HPMP

40. The agreed overall cost of stage II of the HPMP for Panama amounts to US \$723,654 (excluding agency support cost), with an associated phase-out of 123.42 mt (7.38 ODP tonnes) of HCFCs, with an overall cost-effectiveness of US \$5.86/kg. In addition, 11.98 mt (1.31 ODP tonnes) of HCFCs not eligible for funding will be phased out, achieving a total reduction of 135.40 mt (8.70 ODP tonnes) at a cost US \$5.34/kg, as shown in Table 8.

Table 8. Agreed cost for stage II of the HPMP for Panama

Sector	Description	Substance	mt	ODP tonnes	Cost (US \$)	Cost-effectiveness (US \$/kg)
All	Strengthening national capacity to control and phase out HCFCs	HCFC-22	30.02	1.65	144,100	4.80
PU foam	Eligible enterprises	HCFC-141b	10.78	1.19	118,000	10.95
RAC servicing sector	Reduction of HCFCs in the RAC servicing sector	HCFC-22	82.62	4.54	396,554	4.80
All	Implementation and monitoring	HCFC-22	0.00	0.00	65,000	n.a.
Total stage II funded			123.42	7.38	723,654	5.86
PU foam	Non-eligible enterprises(*)	HCFC-141b	11.98	1.31		n.a.
Total stage II			135.40	8.69	723,654	5.34
Additional deductions						
XPS foam	Voluntary closure of manufacturing enterprise	HCFC-22	7.55	0.42		n.a.

(*) Current consumption of HCFC-141b contained in imported pre-blended polyols is 147.88 mt (16.27 ODP tonnes). However, only the consumption that was part of the starting point is accounted here.

41. With the approval of stage II, the Government of Panama commits to phase out HCFC by 35 per cent of the baseline in 2020. The Secretariat noted, however, that with the approval of stage II the total amount of HCFCs phase out funded under stages I and II of the HPMP represents 44.3 per cent of the HCFC consumption baseline (not including HCFC-141b contained in imported pre-blended polyols). Accordingly the Secretariat suggested that the Government considers an additional HCFC reduction commitment. UNDP indicated that the Government of Panama is open to further discuss its commitment with the Executive Committee; noting that stage II has been designed to achieve the 35 per cent reduction target.

Impact on the climate

42. The conversion of the remaining PU foam manufacturing enterprises in Panama would avoid the emission into the atmosphere of some 7,687 tonnes of CO₂ equivalent per year, as shown in Table 9.

Table 9. Impact on the climate PU foam projects

Substance	GWP	Tonnes/year	CO ₂ -eq (tonnes/year)
Before conversion			
HCFC-141b	725	10.78	7,816
Total before conversion			
After conversion			
HFO	~20	6.47	129
Impact			7,687

43. In addition, the proposed technical assistance activities in the HPMP for the servicing sector, which include training, the promotion of leakage reduction, and the adoption of low-GWP alternatives in Panama, would also reduce the amount of HCFC-22 used for refrigeration servicing. Each kilogram of HCFC-22 not emitted due to better refrigeration practices results in savings of approximately 1.8 CO₂ equivalent tonnes.

Co-financing

44. The estimated cost of the conversion of the foam sector was US \$124,261, of which US \$118,000 was requested from the Multilateral Fund, with the difference of US \$6,261 provided by the systems houses and enterprises. The Government of Panama will also explore possibilities and make necessary arrangements to access co-financing from the Global Environmental Facility (GEF) and other bilateral sources.

2016-2018 Draft Business Plan of the Multilateral Fund

45. Table 10 shows the level of funding and amounts of HCFCs to be phased out according to the 2016-2018 business plan of the Multilateral Fund. The level of funding requested for the implementation of stage II of the HPMP of US \$696,463 (including support costs), is US \$30,537 and 0.9 ODP tonnes below the amount in the business plan between 2016 and 2018.

Table 10. 2016-2018 business plan of the Multilateral Fund (US\$1,000)

Implementing agency	2016	2017	2018	2019	2020	Total
UNDP	516	0	189	0	189	895
UNEP	22	0	0	0	40	62
Total	538	0	189	0	229	957
ODP tonnes						
UNDP	7.1	0.0	2.3	0.0	2.3	12.0
UNEP	0.2	0.0	0.0	0.0	0.2	0.0
Total	7.3	0.0	2.3	0.0	2.5	12.0

Draft Agreement

46. A draft Agreement between the Government of Panama 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

47. The Executive Committee may wish to consider:

- (a) Approving, in principle, stage II of the HCFC phase-out management plan (HPMP) for Panama for the period from 2016 to 2020 to reduce HCFC consumption by 35 per cent of its baseline, in the amount of US \$723,654 plus agency support costs of US \$50,656 for UNDP;
- (b) Noting the commitment of the Government of Panama to:
 - (i) Issue a ban on the use of HCFC-22 as flushing solvent in the refrigeration servicing sector by 1 January 2018;
 - (ii) Issue a ban on imports of HCFC-141b contained in imported pre-blended polyols by 1 January 2020;
 - (iii) Issue a ban on new installations and on the manufacturing for extruded polystyrene foam by 1 January 2018; and
 - (iv) Undertake efforts to extend the bans on imports and use of HCFCs to the Free Trade Zone;
- (c) Deducting an additional 9.11 ODP tonnes (142.95 mt) of HCFCs from the remaining HCFC consumption eligible for funding in Panama;
- (d) Approving the draft Agreement between the Government of Panama 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 Panama, and the corresponding tranche implementation plan, at the amount of US \$265,100, plus agency support costs of US \$18,557 for UNDP.

Annex I

DRAFT AGREEMENT BETWEEN THE GOVERNMENT OF PANAMA 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

1. This Agreement represents the understanding of the Government of Panama (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 16.11 ODP tonnes by 1 January 2020 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, 4.5.3 and 4.6.3 (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.
5. The Executive Committee will not provide the Funding in accordance with the Funding Approval Schedule unless 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, 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.

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.

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; and
 - (iv) Provision of funding for programmes or 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;
- (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) Should the Country decide during implementation of the Agreement to introduce an alternative technology other than that proposed in the Plan, this would require approval by the Executive Committee as part of a Tranche Implementation Plan or the revision of the approved plan. Any submission of such a request for change in technology would identify the associated incremental costs, the potential impact to the climate, and any differences in ODP tonnes to be phased out if applicable. The Country agrees that potential savings in incremental costs related to the change of technology would decrease the overall funding level under this Agreement accordingly;
- (d) Any enterprise to be converted to non-HCFC technology included in the Plan and that would be found to be ineligible under the guidelines of the Multilateral Fund (i.e., due to foreign ownership or establishment post the 21 September 2007 cut-off date), will not receive assistance. This information would be reported to the Executive Committee as part of the Tranche Implementation Plan; and

- (e) 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.
8. Specific attention will be paid to the execution of the activities in the refrigeration servicing sub-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 the relevant bilateral and/or implementing agencies will take into consideration decision 72/41 during the implementation of the Plan.
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”) 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 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 Executive Committee agrees, in principle, to provide the Lead IA with the fees set out in row 2.2 of Appendix 2-A.
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 kilogram 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 not 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 decision 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, and the Lead IA to facilitate implementation of this Agreement. In particular, it will provide the Lead IA with access to the information necessary to verify compliance with this Agreement.
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.

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.

APPENDICES

APPENDIX 1-A: THE SUBSTANCES

Substance	Annex	Group	Starting point for aggregate reductions in consumption (ODP tonnes)
HCFC-22	C	I	22.24
HCFC-123	C	I	0.05
HCFC-124	C	I	0.01
HCFC-141b	C	I	2.3
HCFC-142b	C	I	0.18
Sub-total			24.78
HCFC-141b contained in imported pre-blended polyols	C	I	2.5
Total	C	I	27.28

APPENDIX 2-A: THE TARGETS, AND FUNDING

Row	Particulars	2016	2017	2018	2019	2020	Total
1.1	Montreal Protocol reduction schedule of Annex C, Group I substances (ODP tonnes)	22.30	22.30	22.30	22.30	16.11	n/a
1.2	Maximum allowable total consumption of Annex C, Group I substances (ODP tonnes)	22.30	22.30	22.30	22.30	16.11	n/a
2.1	Lead IA (UNDP) agreed funding (US \$)	265,100	0	385,800	0	72,754	723,654
2.2	Support costs for Lead IA (US \$)	18,557	0	27,006	0	5,093	50,656
3.1	Total agreed funding (US \$)	265,100	0	385,800	0	72,754	723,654
3.2	Total support costs (US \$)	18,557	0	27,006	0	5,093	50,656
3.3	Total agreed costs (US \$)	283,657	0	412,806	0	77,847	774,310
4.1.1	Total phase-out of HCFC-22 agreed to be achieved under this Agreement (ODP tonnes)						6.61
4.1.2	Phase-out of HCFC-22 to be achieved in previously approved projects (ODP tonnes)						2.48
4.1.3	Remaining eligible consumption for HCFC-22 (ODP tonnes)						13.15
4.2.1	Total phase-out of HCFC-123 agreed to be achieved under this Agreement (ODP tonnes)						0.00
4.2.2	Phase-out of HCFC-123 to be achieved in previously approved projects (ODP tonnes)						0.00
4.2.3	Remaining eligible consumption for HCFC-123 (ODP tonnes)						0.05
4.3.1	Total phase-out of HCFC-124 agreed to be achieved under this Agreement (ODP tonnes)						0.00
4.3.2	Phase-out of HCFC-124 to be achieved in previously approved projects (ODP tonnes)						0.00
4.3.3	Remaining eligible consumption for HCFC-124 (ODP tonnes)						0.01
4.4.1	Total phase-out of HCFC-141b agreed to be achieved under this Agreement (ODP tonnes)						0.00
4.4.2	Phase-out of HCFC-141b to be achieved in previously approved projects (ODP tonnes)						2.30
4.4.3	Remaining eligible consumption for HCFC-141b (ODP tonnes)						0.00
4.5.1	Total phase-out of HCFC-142b agreed to be achieved under this Agreement (ODP tonnes)						0.00
4.5.2	Phase-out of HCFC-142b to be achieved in previously approved projects (ODP tonnes)						0.00
4.5.3	Remaining eligible consumption for HCFC-142b (ODP tonnes)						0.18
4.6.1	Total phase-out of HCFC-141b contained in imported pre-blended polyols agreed to be achieved under this Agreement (ODP tonnes)						2.50
4.6.2	Phase-out of HCFC-141b contained in imported pre-blended polyols to be achieved in previously approved projects (ODP tonnes)						0.00
4.6.3	Remaining eligible consumption for HCFC-141b contained in imported pre-blended polyols (ODP tonnes)						0.00

APPENDIX 3-A: FUNDING APPROVAL SCHEDULE

1. Funding for the future tranches will be considered for approval at the first 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 calendar year, regarding the progress since the year prior to 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 ODS phase-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. The narrative report will cover all relevant years specified in sub-paragraph 5(a) of the Agreement and can in addition also include information on activities in the current year;

- (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 until and including the year of the planned submission of the next tranche request, highlighting 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 plan and progress achieved, as well as any possible changes to the overall plan that are foreseen. The description should cover the years specified in sub-paragraph 5(d) of the Agreement. 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. This quantitative information, to be submitted by calendar year with each tranche request, will be amending the narratives and description for the report (see sub-paragraph 1(a) above) and the plan (see sub-paragraph 1(c) above), the Tranche Implementation Plan and any changes to the overall plan, and will cover the same time periods and activities; 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 more than one stage 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 in a particular year, the lower HCFC consumption target will be used as reference for compliance with the HPMP Agreements and for the independent verification.

APPENDIX 5-A: MONITORING INSTITUTIONS AND ROLES

1. The higher monitoring function will be discharged by the Ministry of Health through its General Direction of Health and the Sub-direction of Environmental Health supervised by the National Ozone Unit.

2. The operational monitoring activities will be carried out within the HPMP implementation, monitoring and control project, and will include the implementation of all the projects within the HPMP; the regular monitoring of the project implementation and results; the production of periodic reports on project results in order to facilitate corrective actions; the production of timely project progress reports to the Executive Committee; and the regular monitoring of market developments and trends at the national and international levels.

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.
 - (f) Ensuring that appropriate independent technical experts carry out the technical reviews;
 - (g) Carrying out required supervision missions;
 - (h) Ensuring the presence of an operating mechanism to allow effective, transparent implementation of the Tranche Implementation Plan and accurate data reporting;
 - (i) 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, the allocation of the reductions to the different budget items and to the funding of the Lead IA and each Cooperating IA;
 - (j) Ensuring that disbursements made to the Country are based on the use of the indicators; and
 - (k) Providing assistance with policy, management and technical support when required.
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 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 \$166.55 (including non-eligible enterprises consistent with Brazil) 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. 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 related 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.
