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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Sixty-sixth Meeting
Montreal, 16-20 April 2012

PROJECT PROPOSAL: ALGERIA

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

Phase-out

- HCFC phase-out management plan (stage I, first tranche) UNIDO

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS

Algeria

(I) PROJECT TITLE	AGENCY
HCFC phase out plan (Stage I)	UNIDO (lead)

(II) LATEST ARTICLE 7 DATA (Annex C Group l)	Year: 2010	30.2 (ODP tonnes)

(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)								Year: 2010	
Chemical	Aerosol	Foam	Fire fighting	Refrigeration		Solvent	Process agent	Lab Use	Total sector consumption
				Manufacturing	Servicing				
HCFC-123									
HCFC-124									
HCFC-141b		2.6				1.7			4.3
HCFC-141b in Imported Pre-blended Polyol		9.4							9.4
HCFC-142b									
HCFC-22				22.6	37.0				59.6

(IV) CONSUMPTION DATA (ODP tonnes)			
2009 - 2010 baseline:	30.2	Starting point for sustained aggregate reductions:	35.57
CONSUMPTION ELIGIBLE FOR FUNDING (ODP tonnes)			
Already approved:	0.0	Remaining:	21.09

(V) BUSINESS PLAN		2012	2014	Total
UNIDO	ODS phase-out (ODP tonnes)	11.10	1.80	12.90
	Funding (US $)	1,469,095	161,250	1,630,345

(VI) PROJECT DATA			2010	2011	2012	2013	2014	2015	2016	2017	Total
Montreal Protocol consumption limits (estimate)			n/a	n/a	n/a	30.21	30.21	27.19	27.19	27.19	n/a
Maximum allowable consumption (ODP tonnes)			n/a	n/a	n/a	30.21	30.21	27.19	27.19	24.17	n/a
Project Costs requested in principle(US$)	UNIDO	Project costs	215,380	0	1,593,860	0	144,000	0	0	40,091	1,993,331
		Support costs	19,384	0	119,540	0	10,800	0	0	3,007	152,731
Total project costs requested in principle (US $)			215,380	0	1,593,860	0	144,000	0	0	40,091	1,993,331
Total support costs requested in principle (US $)			19,384	0	119,540	0	10,800	0	0	3,007	152,731
Total funds requested in principle (US $)			234,764*	0	1,713,400	0	154,800	0	0	43,098	2,146,062

*Approved at the 62nd meeting

(VII) Request for funding for the first tranche (2012)		
Agency	**Funds requested (US $)**	**Support costs (US $)**
UNIDO	1,593,860	119,540

Funding request:	Approval of funding for the first tranche (2012) as indicated above
Secretariat's recommendation:	Individual consideration

PROJECT DESCRIPTION

1. On behalf of the Government of Algeria, UNIDO, as the lead implementing agency, has submitted to the 66th meeting of the Executive Committee stage I of the HCFC phase-out management plan (HPMP) at a total cost of US $1,831,633, plus agency support costs of US $140,603 as originally submitted, to implement activities that will enable the country to comply with the Montreal Protocol's 10 per cent reduction step in HCFC consumption by 2015. These amounts include US $215,380, plus agency support costs of US $19,384 for UNIDO, for the phase-out of 21.82 metric tonnes (mt) (2.40 ODP tonnes) of HCFC-141b used in the manufacture of polyurethane rigid insulation foam for domestic refrigerators at Cristor, approved at the 62nd meeting (decision 62/30).

2. The first tranche for stage I being requested at this meeting amounts to US $1,346,600, plus agency support costs of US $100,995 for UNIDO, as originally submitted (these amounts exclude the level of funding of the foam project previously approved for UNIDO).

Background

3. Algeria, with a total population of about 35.5 million inhabitants, has ratified all the amendments to the Montreal Protocol.

ODS regulations

4. The Executive Decree 07-207 of 30 June 2007 prohibits production and export of ODS except for the export of recovered ODS for destruction; specifies that a licensing system is required for the import of ODS; prohibits import of products containing all ODS except for HCFCs; makes mandatory the recovery, recycling, reclamation and destruction of ODS subject to techniques which are environmentally acceptable; and specifies that ODS contained in equipment to be disposed of must first be collected for destruction. A licensing system for ODS, including HCFCs, is operational.

5. The Ministry of Territories and the Environment (MATE) jointly with the Ministry of Trade and the Ministry of Energy and Mines are responsible for the issuance of licenses for imports of ODS. The National Ozone Unit, under the direction of MATE, is responsible for the implementation of the Montreal Protocol.

HCFC consumption and sector distribution

6. During the preparation of the HPMP, HCFC-based manufacturing enterprises in the foam and air-conditioning sectors were surveyed and the servicing sector was thoroughly assessed. As a result, it was found that the levels of HCFC consumption in the country were much higher than those historically reported by the Government under Article 7 of the Montreal Protocol, as shown in Table 1. Based on the reported consumption under Article 7, the HCFC baseline for compliance has been established at 30.21 ODP tonnes. However, based on the data collected through the survey, the estimated baseline would be 60.63 ODP tonnes.

Table 1. HCFC consumption reported under Article 7 and under the HPMP for Algeria

HCFC	2005	2006	2007	2008	2009	2010	Baseline
HPMP survey							
Metric tonnes							
HCFC-22	578.60	638.50	758.50	860.50	972.00	1,083.50	1,027.75
HCFC-141b	9.90	10.20	11.60	13.20	35.70	39.00	37.35
Total (mt)	588.50	648.70	770.10	873.70	1,007.70	1,122.50	1,065.10
ODP tonnes							
HCFC-22	31.82	35.12	41.72	47.33	53.46	59.59	56.53
HCFC-141b	1.09	1.12	1.28	1.45	3.93	4.29	4.11

HCFC	2005	2006	2007	2008	2009	2010	Baseline
Total (ODP tonnes)	32.91	36.24	42.99	48.78	57.39	63.88	60.63
Article 7 data(*)							
Metric tonnes							
HCFC-22	120.00	120.00	120.00	120.00	446.36	446.36	446.36
HCFC-141b	-	-	50.00	60.00	51.45	51.45	51.45
Total (mt)	120.00	120.00	170.00	180.00	497.82	497.82	497.82
ODP tonnes							
HCFC-22	6.60	6.60	6.60	6.60	24.55	24.55	24.55
HCFC-141b	-	-	5.50	6.60	5.66	5.66	5.66
Total (ODP tonnes)	6.60	6.60	12.10	13.20	30.21	30.21	30.21

(*) As of 17 January 2012. The Government of Algeria had submitted a request to revise HCFC consumption data for the baseline years to the Ozone Secretariat.

7. HCFC-141b (in bulk) is used for the manufacturing of refrigeration equipment by one enterprise (Cristor) and by an additional twelve enterprises using 76.55 mt (8.42 ODP tonnes) of HCFC-141b contained in imported pre-blended polyols used for the manufacturing of insulation foam and sandwich panels (2009), as shown in Table 2.

Table 2. HCFC-141b contained in imported polyols in Algeria

HCFC-141b imported polyol	2007	2008	2009	Average (07-09)
Metric tonnes	29.18	40.55	76.55	48.76
ODP tonnes	3.21	4.46	8.42	5.36

8. Of the total consumption of HCFC-22 in 2010, about 410.90 mt (22.60 ODP tonnes) were used for assembling and charging room air conditioners by eleven manufacturers (Table 3); and 672.60 mt (36.99 ODP tonnes) for servicing refrigeration equipment, including over 3.5 million split/window air conditioners, 1,530 cold rooms used in food processing enterprises, 385,000 refrigeration equipment units and 12,700 refrigerated transport units. An additional 15.00 mt (1.65 ODP tonnes) of HCFC-141b were used for flushing refrigeration circuits. The equipment is being serviced by about 2,550 service workshops and installers.

Table 3. Distribution of HCFC-22 consumption by manufacturing enterprises in Algeria

Enterprise	Metric tonnes		ODP tonnes	
	2009	2010	2009	2010
Condor	145.00	197.30	7.98	10.85
Cristor	10.00	7.50	0.55	0.41
Allab	19.30	19.30	1.06	1.06
Cobra	20.30	20.30	1.12	1.12
Sodinco	16.00	16.00	0.88	0.88
Samha	-	80.00	-	4.40
Eniem	30.00	32.50	1.65	1.79
Others	38.00	38.00	2.09	2.09
Total	278.60	410.90	15.32	22.60

9. The current prices of HCFCs and alternative refrigerants per kilogram in the country are: US $2.54 to US $5.37 for HCFC-22; US $2.94 to US $3.31 for HCFC-141b; US $6.62 to US $11.91 for HFC-134a; US $5.50 to US $14.68 for R-404A; and US $5.84 to US $14.96 for R-407C; and US $5.75 to US $14.60 for 410A.

HCFC phase-out strategy

10. The objective of stage I of the HPMP for Algeria is to meet the Montreal Protocol's HCFC control targets, up to and including the reduction in 2015, resulting in the phase-out of 14.48 ODP tonnes

of HCFCs. In line with the overarching strategy, the Government of Algeria proposes to issue import quotas on a yearly basis in accordance with the phase-out schedule of the Montreal Protocol; ban imports of HCFC-141b in bulk, and freeze the import of HCFC-141b-based pre-blended polyols used in manufacturing of foam; prohibit venting off HCFC-22 during servicing and ban the import of new HCFC-22-based refrigeration and air-conditioning equipment.

11. Stage I of the HPMP includes conversion of one foam manufacturing enterprise (Cristor) and one assembler of air-conditioning equipment (Condor), the phase-out of HCFC-141b used for servicing refrigeration equipment, enforcement and public awareness activities. These activities are briefly discussed below.

Phase-out of HCFC-141b at Cristor

12. The project to phase-out 21.82 metric tonnes (mt) (2.40 ODP tonnes) of HCFC-141b used in the manufacture of polyurethane rigid insulation foam for domestic refrigerators at Cristor was approved at the 62nd meeting at a total amount of US $215,380. Terms of reference for the purchase of equipment and services have been agreed; the enterprise will be converted to cyclopentane technology in the second half of 2012.

Phase-out of HCFC-22 at Condor

13. The project is to phase out 150.20 mt (8.26 ODP tonnes) of HCFC-22 used in the manufacturing of split system room air conditioners for domestic and commercial applications, in two lines: one for the indoor (fan coil) unit and one for the outdoor (condensing) unit. The enterprise mainly assembles imported kits and charges them with HCFC-22 after undergoing a cleaning and a vacuuming operation. Condor, a locally-owned enterprise established in 2002, manufactures five different capacity models (Table 4). Condor has about 50 per cent of the locally manufactured units or about 35 per cent of the total market including imports of assembled units. Condor was chosen for converting to a non-HCFC technology given its market share, which will facilitate the transformation of the room air conditioner market in the country. The other local manufacturers will be converted in stage II.

Table 4. Annual production of air-conditioning units

Year	9000 Btuh	12000 Btuh	18000 Btuh	24000 Btuh	12000 tropical	Total
2008	17,500	84,800	10,000	1,034		113,334
2009	27,000	100,205	13,904	991	2,000	144,100
2010	30,000	140,230	23,410	4,406	24,000	222,046

14. The enterprise has selected HFC-410A as the replacement technology for the following reasons: lower life cycle climate performance (LCCP) than HCFC-22 resulting in a lower impact on the climate; speedy implementation to meet the 2015 reduction step considering the availability of kits; reasonable incremental capital cost mainly associated with tools and limited equipment items; affordable component and refrigerant gas prices that limit the incremental operating cost; and market acceptability as some foreign companies and governmental institutions in Algeria are already specifying HFC-410A systems.

15. Conversion to HFC-410A technology includes bulk storage tanks for HFC-410A, converting non-metal elastomeric components; replacing refrigerant piping, nitrogen generator, transfer and vacuum pumps, refrigerant charging machines, sniffers for leak detectors; replacing instruments at testing stations; a new recovery machine, tooling for the tube bending machine; testing and training. The total capital cost is estimated at US $332,252. Total incremental operating costs are estimated at US $3,916,797 consisting of the difference in costs for CKD (completely knock down) kits (US $3,196,533) and the amount of refrigerant needed for each model assembled (US $720,263). Of the total cost, the enterprise will cover US $76,912 for capital costs and US $2,970,537 for operating costs. The cost-effectiveness of the project is US $8.00/kg.

Phase-out of HCFC-141b used as a solvent

16. The project is to phase-out 14.30 mt (1.57 ODP tonnes) of HCFC-141b used for cleaning refrigeration circuits, by replacing it with HFC-based solvents, which are more effective as cleaning agents as compared to nitrogen. These solvents are used with a kit containing a recovery cylinder which allows the solvents to be re-used 20 to 25 times, without being emitted into the atmosphere. Once the solvents could no longer be recycled, given the level of impurities, they would be disposed of in an environmentally sound manner. Introduction of this technology includes procurement of four recycling kits with eight cylinders to operate with the kits; a stock of the alternative solvent for three months operation; and training for technicians. The total cost of the project is US $64,400 (at US $4.50/kg).

Activities in the refrigeration servicing sector

17. Training programmes for refrigeration technicians in good service practices during repair and maintenance operations include the proper use of recovery and recycling equipment, and eliminating venting of HCFC-22 during service practices. Workshops targeting equipment manufacturers, assemblers and technicians will be implemented to discuss alternative technologies currently available, encourage enterprises to introduce non-HCFC technologies, and establish a timetable for the complete conversion to non-HCFCs. It also includes distribution of recovery and recycling kits among service technicians. The manual on best practices (code of practice) that was introduced as part of the CFC phase-out plan will be updated and broadly distributed among the servicing sector. Pilot conversions of refrigeration (e.g., cold store or food production) and air conditioning installations from HCFC to non-ODS technologies will be implemented to demonstrate the feasibility and mechanism of such conversions, eventually reducing the bank of HCFC-22 based equipment. The total cost of the activities amounts to US $183,798, resulting in the phase-out of 40.84 mt (2.25 ODP tonnes) of HCFC-22 (US $4.50/kg).

Enforcement and project monitoring

18. This component, at a total cost of US $166,455 includes training of customs officers, enforcement of an electronic licensing system, and awareness campaign for key stakeholders. Project monitoring, verification and reporting will also be undertaken.

Cost of the HPMP

19. The total cost of implementing stage I of the HPMP to meet the Montreal Protocol's HCFC compliance targets up to and including the 10 per cent reduction by 2015 has been estimated at US $1,831,633 (Table 5), with a total cost effectiveness of US $8.06/kg.

Table 5. Total cost of stage I of the HPMP for Algeria

Activity	HCFC-141b		HCFC-22		Cost
	mt	ODP t	mt	ODP t	(US $)
Phase-out of HCFC-141b at Cristor*	21.82	2.40			215,380
Phase-out of HCFC-22 at Condor			150.20	8.26	1,201,600
Phase-out of HCFC-141b used as a solvent	14.30	1.57			64,400
Refrigeration servicing sector			40.84	2.25	183,798
Enforcement and project monitoring					166,455
Total	36.12	3.97	191.04	10.51	1,831,633

(*) Approved at the 62nd meeting.

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

20. The Secretariat reviewed the HPMP for Algeria in the context of the guidelines for the preparation of HPMPs (decision 54/39), the criteria for funding HCFC phase-out in the consumption sector agreed at the 60th Meeting (decision 60/44) and subsequent decisions on HPMPs and the 2012-2014 business plan of the Multilateral Fund. The Secretariat discussed with UNIDO technical and cost-related issues, which were addressed as summarized below.

Status of implementation of the CFC phase-out plan

21. As of December 2011, of the US $921,500 approved for the national phase-out plan (NPP), US $802,300 had been disbursed with an uncommitted balance of US $119,200. Noting that, except for a small amount of methyl bromide (1.8 ODP tonnes) and HCFCs, no other ODS were imported into Algeria in 2010, it was agreed that the remaining funding available from the NPP will be used for activities addressing HCFC consumption, including training for additional customs officers, awareness campaigns, support for enforcement of the e-licensing system and for other components of the HPMP as needs arise.

HCFC data discrepancies

22. A thorough survey for the 2003 to 2009 period was conducted for the preparation of the HPMP for Algeria. With regard to HCFC consumption, three separate and independent surveys were conducted by the National Center for Research (CENEAP), a national expert working with Customs authorities, and an international expert who worked with the air-conditioning manufacturing sector.

23. From the analysis and verification of the data collected through the surveys, it was concluded that the actual HCFC consumption in the country was double the amount reported under Article 7 of the Montreal Protocol. It was also found that all HCFC consumption in the country is related to HCFC-141b imported in bulk for the manufacture of polyurethane foam and for flushing refrigeration circuits; and to HCFC-22 used as refrigerant in the manufacturing of split air conditioners, field charging of new air-conditioning and refrigeration equipment, and servicing and maintaining refrigeration equipment. HCFC-141b contained in pre-blended polyols is also imported for the manufacturing of sandwich and insulation panels.

24. In reviewing the detailed information provided in the HPMP with regard to the levels of HCFC consumption, the foam and air-conditioning manufacturing enterprises in operation, the refrigeration and air-conditioning equipment currently in operation, the size of the population and the economic growth rate, the Secretariat concluded that the HCFC consumption reported in the HPMP is correct. However, it informed UNIDO that the HPMP was reviewed on the basis of data reported under Article 7 on which compliance with the Montreal Protocol is assessed, and not on the data reported in the HPMP.

25. It is to be noted that based on the results of the survey conducted for the preparation of the HPMP, the Government of Algeria had officially submitted to the Ozone Secretariat two requests for modifications of the HCFC consumption previously reported for the period 2006 to 2010. Subsequent to this request, the Ozone Secretariat has revised the data reported under Article 7 for the period 2006-2008 according to the data gathered through the survey. However, the change in the baseline years still needs to be approved by the Parties to the Montreal Protocol.

Starting point for aggregate reduction in HCFC consumption

26. The Government of Algeria had earlier agreed to establish as its starting point for sustained aggregate reduction in HCFC consumption the estimated baseline for compliance, when the investment

project for the phase-out of HCFC-141b at Cristor was approved at the 62nd meeting (decision 62/30(b). Accordingly, the starting point would be based on the baseline of 30.21 ODP tonnes, calculated using the consumption of 30.21 ODP tonnes and 30.21 ODP tonnes reported for 2009 and 2010, respectively, under Article 7 of the Montreal Protocol, plus 5.36 ODP tonnes of HCFC-141b contained in imported pre-blended polyol systems, resulting in 35.57 ODP tonnes.

27. In the event that the Parties to the Montreal Protocol agree to change the baseline for compliance as calculated in the HPMP, based on the recommendation by the Implementation Committee, the starting point for aggregate reduction in HCFC consumption would be 65.99 ODP tonnes (i.e., 60.63 ODP tonnes as the revised baseline for compliance plus 5.36 ODP tonnes of HCFC-141b contained in imported pre-blended polyol systems).

Phase-out of HCFC-141b in imported pre-blended polyols

28. Funding for the conversion of the foam enterprises using imported HCFC-141b-based polyols will be submitted in stage II of the HPMP. As required under decision 61/47, the HPMP for Algeria included a list with all the foam enterprises established prior to 21 September 2007 that used imported HCFC-141b-pre-blended polyols, including the amount of HCFC-141b contained therein (consumption data provided for the 2006-2010 period). It has been acknowledged that quantities of HCFC-141b in imported pre-blended polyol systems that have not been included in the overarching strategy for the HPMP will not be eligible for funding.

Issues related with the conversion of Condor

29. The HPMP provides a detailed description of several alternative technologies to HCFC-22 for air-conditioning equipment, namely HFC-410A, HFC-407C, HFC-32, HC-290 (propane) and R-744 (CO_2). The advantages and disadvantages of each technology are discussed. Given the potential higher impact to the climate associated with HFC-410A, the technical feasibility of introducing HC-290 as a replacement for the smaller units manufactured by Condor (i.e., 9,000 BTU/h), and the apparent availability of CKD kits for HC-290 from China for small split air-conditioning units, the Secretariat suggested that the project reconsider the production of small units with HC-290 and the introduction of HFC-410A for the larger units, and/or the introduction of HFC-32 technology for some or all of the models currently manufactured.

30. Elaborating further on the reasons for the choice of alternative technology, UNIDO explained that HFC technology (like HFC-410A) is still expected to dominate the air-conditioning sector and it will take years for the industry to develop and migrate to new low GWP refrigerants. Specifically for Condor, it is not practical to produce different units using different technologies. The production line for an HC-290-based unit is not the same as for an HFC-based unit due to safety considerations. While refrigerators using HC-600 are being produced and serviced in Algeria, the technical skill required to produce and service HC-290 air-conditioning units would have to be developed before it could be introduced. With regard to the introduction of HFC-32 technology, UNIDO approached once again the Government of Algeria and the enterprise in particular on whether they would be able to introduce HFC-32 technology which is superior for air-conditioning applications and more sustainable as compared to HFC-410A, with lower negative impact on the climate, noting that it is not yet mature and kits are not yet commercially available in Algeria. The enterprise was also informed of the flammability issue that had to be addressed during conversion. After a further consideration, the enterprise decided to introduce HFC-32 as the alternative refrigerant to HCFC-22.

31. Based on the decision to adopt the HFC-32 technology, UNIDO redesigned the project, including the equipment and providing additional safety related equipment to address the flammability of this substance (which is not an issue for the HFC-410A technology). The total capital cost was agreed at US $433,200, and an additional US $145,000 as counterpart funding by the enterprise. Total incremental

operating costs amounted to US $946,260 (capped at US $6.30/kg). The total cost agreed with UNIDO for the conversion of Condor amounted to US $1,379,460 with a cost-effectiveness of US $9.18/kg. Counterpart funding of US $3,115,537 will be provided by the enterprise.

32. The Government has committed to banning the import of HCFC-141b in bulk by 1 January 2016 once the conversion of the enterprise Cristor is completed and an alternative process for cleaning refrigeration circuits is implemented.

Agreed cost of the HPMP

33. The total overall cost of implementing stage I of the HPMP for Algeria has been agreed at US $1,993,331 (Table 6), including a project monitoring unit for US $150,000, with a total cost effectiveness of US $8.77/kg. An additional US $3,385,500 will be provided as counterpart funding by Cristor and Condor for the conversion to non-HCFC technologies.

Table 6. Total agreed cost of stage I of the HPMP for Algeria

Activity	HCFC-141b		HCFC-22		Cost (US $)
	mt	ODP t	mt	ODP t	
Phase-out of HCFC-141b at Cristor*	21.82	2.40			215,380
Phase-out of HCFC-22 at Condor			150.20	8.26	1,379,460
Phase-out of HCFC-141b used as a solvent	14.30	1.57			64,400
Refrigeration servicing sector			40.90	2.25	184,091
Project monitoring unit					150,000
Total	36.12	3.97	191.10	10.51	1,993,331

(*) Approved at the 62nd meeting.

34. The total amount of HCFCs to be phased out through implementation of the HPMP amounts to 14.48 ODP tonnes representing 47.9 per cent of the official HCFC baseline for compliance (or 23.9 per cent of the baseline calculated in the HPMP). Given the very high level of HCFC consumption to be phased out, implementation of stage I should assist the country in making progress toward meeting control measures beyond 2015 accordingly. On this basis UNIDO indicated that the Government of Algeria is committed to reducing its HCFC consumption by 20 per cent of its baseline by 2017 through the implementation of stage I of the HPMP, if the Parties were to approve the request by the Government for changing the baseline for compliance to 60.63 ODP tonnes.

Impact on the climate

35. Implementation of the project for the conversion of Cristor approved at the 62nd meeting would avoid the emission of 15,544 tonnes of CO_2-equivalent into the atmosphere (Table 7); while the phase-out of 14.30 mt of HCFC-141b used for flushing refrigeration circuits will avoid the emission of an additional 10,368 tonnes of CO_2 into the atmosphere.

Table 7. Calculation of the impact on the climate associated with the foam sector

Substance	GWP	Tonnes/year	CO_2-eq (tonnes/year)
Before conversion			
HCFC-141b	725	21.82	15,820
After conversion			
Cyclopentane	20	13.80	276
Net impact			(15,544)

36. The impact on the climate of the conversion of the manufacturer Condor has been calculated using the Multilateral Fund Climate Impact Indicator (MCII), by comparing the climate impact of HCFC-22 as the baseline refrigerant against three alternative refrigerants, namely HFC-32 (as selected by

the enterprise), HFC-410A (as originally proposed by the enterprise, and HC-290 (propane) (Table 8). In all cases the lifetime energy consumption and refrigerant emissions related to the air-conditioning equipment manufactured by Condor in one year are used as a basis for the calculation. From this analysis, it is noted that introducing the HFC-32 technology would avoid the emission of 229,057 tonnes of CO_2-equivalent into the atmosphere. While a somewhat higher energy consumption of HFC-32 as compared to HCFC-22 increases the indirect impact of this alternative, the lower GWP of HFC-32 as compared to HCFC-22 by far over-compensates this effect. The two other alternatives shown demonstrate further the significance of the GWP of the refrigerant in case of the situation in Algeria, based on the climatic conditions and the energy sources for electrical power generation in the country.

Table 8: Climate impact of the conversion at Condor calculated using the MCII

Input	**Generic**		
	Country	[-]	**Algeria**
	Company data (name, location)	[-]	**Condor**
	Select system type	[list]	Air conditioning - on site assembly (split air conditioner)
	General refrigeration information		
	HCFC to be replaced	[-]	HCFC-22
	Amount of refrigerant per unit	[kg]	0.94
	No. of units	[-]	159,827
	Refrigeration capacity	[kW]	3.6
	Selection of alternative with minimum environmental impact		
	Share of exports (all countries)	[%]	0
	Calculation of the climate impact		
	Alternative refrigerant (more than one possible)	[list]	HFC-32, HFC-410A, HC-290
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.			
Output	*Note: The output is calculated as the climate impact of the refrigerant systems in their life time as compared to HCFC-22, on the basis of the amount produced within one year. Additional/different outputs are possible*		
	Country		**Algeria**
	Identification of the alternative technology with minimum climate impact		
	List of alternatives for identification of the one with minimum climate impact	[Sorted list, best = top (% deviation from HCFC)]	HC-290 (-35%)
			HC-32 (-18%)
			HFC-134a (-9%)
			HFC-407C (-1%)
			HCFC-22
			HFC-410A (6%)
			HFC-404A (35%)
	Calculation of the climate impact of the conversion		
	Alternative refrigerant 1		**HFC-32**
	*Total direct impact (post conversion – baseline)**	*[t CO_2 equiv]*	*-264,176*
	*Indirect impact (country)***	*[t CO_2 equiv]*	*35,120*
	*Indirect impact (outside country)***	*[t CO_2 equiv]*	*0*
	Total indirect impact	*[t CO_2 equiv]*	*35,120*
	Total impact	**[t CO_2 equiv]**	**-229,057**
	Alternative refrigerant 2		**HFC-410A**
	*Total direct impact (post conversion – baseline)**	*[t CO_2 equiv]*	*10,695*
	*Total indirect impact (country)***	*[t CO_2 equiv]*	*55,329*
	*Total indirect impact (outside country)***	*[t CO_2 equiv]*	*0*
	*Total indirect impact***	*[t CO_2 equiv]*	*55,329*
	Total impact	**[t CO_2 equiv]**	**66,024**
	Alternative refrigerant 3		**HC-290**
	*Total direct impact (post conversion – baseline)**	*[t CO_2 equiv]*	*-393,678*
	*Total indirect impact (country)***	*[t CO_2 equiv]*	*-5,299*
	*Total indirect impact (outside country)***	*[t CO_2 equiv]*	*0*
	*Total indirect impact***	*[t CO_2 equiv]*	*-5,299*

	Total impact	**[t CO_2 equiv]**	**-398,977**
*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_2 when generating electricity.			

37. Furthermore, the proposed technical assistance activities in the HPMP, which include the enforcement of HCFC import controls and training of refrigeration technicians, will 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 approximately 1.8 CO_2-equivalent tonnes saved. A more precise forecast of the impact on the climate of the activities in the servicing sector is presently not available. The impact might be established through an assessment of implementation reports by, *inter alia,* comparing the levels of refrigerants used annually from the beginning of HPMP implementation, the reported amounts of refrigerants being recovered and recycled, the number of technicians trained and the HCFC-22-based equipment being retrofitted.

Co-financing

38. In response to decision 54/39(h) on potential financial incentives and opportunities for additional resources to maximize the environmental benefits from HPMPs pursuant to paragraph 11(b) of decision XIX/6 of the Nineteenth Meeting of the Parties, the Government of Algeria indicated that during stage I of the HPMP co-financing estimated at US $3,385,500 will be provided by the private enterprises, including Cristor (approved at the 62nd meeting) and Condor. For consecutive stages, the National Steering Committee (the entity responsible for coordinating the overall implementation of the HPMP) will establish an advisory board for the purpose of identifying additional funding sources to implement activities generating environmental benefits that are not eligible for funding from the Multilateral Fund.

2011-2014 business plan of the Multilateral Fund

39. UNIDO is requesting US $2,146,062 (including agency support costs) for the implementation of stage I of the HPMP. The total value requested for the 2012-2014 period of US $1,868,200 including support costs is above that in the business plan of US $1,630,000 requested by UNIDO. The difference is due to the fact that during discussion of the HPMP it was agreed to replace the HFC-410A technology originally proposed for Condor to HFC-32, which involves additional incremental costs to address the flammability of HFC-32.

Draft Agreement

40. A draft Agreement between the Government of Algeria and the Executive Committee for HCFC phase-out is contained in Annex I of the present document.

RECOMMENDATION

41. The Executive Committee may wish to consider:

(a) Approving, in principle, stage I of the HCFC phase-out management plan (HPMP) for Algeria for the period 2010 to 2017 to reduce HCFC consumption by 20 per cent of the baseline, at the amount of US $1,777,951, plus agency support costs of US $133,347 for UNIDO, and noting that the project to phase out 2.40 ODP tonnes of HCFC-141b used in the manufacture of polyurethane rigid insulation foam for domestic refrigerators at Cristor, at the amount of US $215,380, plus agency support costs of US $19,384 for UNIDO, had already been approved at the 62nd meeting and had subsequently been included in stage I of the HPMP;

(b) Noting that with the amounts referred to in paragraph (a) above, the total funding for stage I of the HPMP for Algeria amounts to US $1,993,331, plus agency support costs of US $152,731;

(c) Noting that the Government of Algeria had agreed to establish as its starting point for sustained aggregate reduction in HCFC consumption the baseline of 30.21 ODP tonnes, calculated using consumption of 30.21 ODP tonnes reported for each 2009 and 2010, under Article 7 of the Montreal Protocol, plus 5.36 ODP tonnes of HCFC-141b contained in imported pre-blended polyol systems, resulting in 35.57 ODP tonnes.

(d) Further noting that, in the event that the Parties to the Montreal Protocol agree to change the baseline for compliance as calculated in the HPMP, the starting point for aggregate reduction in HCFC consumption would be 65.99 ODP tonnes (i.e., 60.63 ODP tonnes as the revised baseline for compliance plus 5.36 ODP tonnes of HCFC-141b contained in imported pre-blended polyol systems);

(e) Noting the deduction of 2.40 ODP tonnes of HCFCs from the starting point for sustained aggregate reduction in HCFC consumption for the project approved at the 62nd meeting, and deducing a further 12.08 ODP tonnes of HCFCs for implementation of stage I of the HPMP;

(f) Noting the Government has committed to banning the import of HCFC-141b in bulk, by 1 January 2016 once the conversion of the enterprise Cristor is completed and an alternative process for cleaning refrigeration circuits is implemented;

(g) Noting that approval of stage I of the HPMP did not preclude Algeria from submitting, prior to 2015, a proposal to achieve a reduction in HCFCs beyond that addressed in stage I of the HPMP;

(h) Approving the draft Agreement between the Government of Algeria and the Executive Committee for the reduction in consumption of HCFCs, as contained in Annex I to the present document;

(i) Requesting the Fund Secretariat, in the event that the baseline consumption for compliance for Algeria is amended based on revised Article 7 data, to update Appendix 2-A to the Agreement to include the figures for maximum allowable consumption, and to notify the Executive Committee of the resulting change in the levels of maximum allowable consumption; and

(j) Approving the first tranche of stage I of the HPMP for Algeria, and the corresponding implementation plan, at the amount of US $1,593,860, plus agency support costs of US $119,540 for UNIDO.

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Annex I

DRAFT AGREEMENT BETWEEN THE GOVERNMENT OF ALGERIA AND THE EXECUTIVE COMMITTEE OF THE MULTILATERAL FUND FOR THE REDUCTION IN CONSUMPTION OF HYDROCHLOROFLUOROCARBONS

1. This Agreement represents the understanding of the Government of Algeria (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 24.17 ODP tonnes by 1 January 2017 in compliance with Montreal Protocol schedules, with the understanding that this figure is to be revised one single time, in the event that the baseline consumption for compliance is amended based on revised Article 7 data.

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 which 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 which exceeds the level defined in rows 4.1.3, 4.2.3 and 4.3.3 (remaining eligible consumption).

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 HCFC phase-out sector plans submitted. 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 60 days prior to the applicable Executive Committee meeting set out in the Funding Approval Schedule:

(a) That the Country has met the Targets for all relevant years. Relevant years are all years since the year in which the hydrochlorofluorocarbons phase-out management plan (HPMP) was approved. Exempt are years for which no obligation for reporting of country programme data exists at the date of the Executive Committee Meeting at which the funding request is being presented;

(b) That the meeting of these Targets has been independently verified, except if the Executive Committee decided that such verification would not be required;

(c) That the Country had submitted annual implementation reports in the form of Appendix 4-A ("Format of 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;

(d) That the Country has submitted and received approval from the Executive Committee for an annual 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; and

(e) That, for all submissions from the 68th Meeting onwards, confirmation has been received from the Government that an enforceable national system of licensing and quotas for HCFC imports and, where applicable, production and exports is in place and that the system is capable of ensuring the Country's compliance with the Montreal Protocol HCFC phase-out schedule for the duration of this Agreement.

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 annual implementation plans in accordance with their roles and responsibilities set out in Appendix 5-A. This monitoring will also be subject to independent verification as described in paragraph 4 above.

7. The Executive Committee agrees that the Country may have the flexibility to reallocate the approved funds, or part of the 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 in an annual implementation plan submitted as foreseen in sub-paragraph 5(d) above, or as a revision to an existing annual 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 annual implementation plan, or removal of an activity in the annual 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 annual implementation plan, under implementation at the time, and reported to the Executive Committee in the subsequent annual implementation report;

(c) Should the Country decide during implementation of the agreement to introduce an alternative technology other than that proposed in the approved HPMP, this would require approval by the Executive Committee as part of an Annual 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; and

(d) Any remaining funds 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, 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 bilateral and implementing agencies involved will take full account of the requirements of decisions 41/100 and 49/6 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. UNIDO 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 any of the agencies 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 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 these decisions are taken, this specific case will not be an impediment 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 information necessary to verify compliance with this Agreement.

14. The completion of the HPMP and the associated Agreement will take place at the end of the year following the last year for which a maximum allowable total consumption has been specified in Appendix 2-A. Should at that time activities be still outstanding which were foreseen in the Plan and its subsequent revisions as per sub-paragraph 5(d) and paragraph 7, the completion 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 continue until the time of the completion if not specified by the Executive Committee otherwise.

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	24.55
HCFC-141b	C	I	5.66
Sub-total			30.21
HCFC-141b in imported polyols			5.36
Total			35.57

(*) To be revised based on decision of the Meeting of the Parties on change of the baseline

APPENDIX 2-A: THE TARGETS, AND FUNDING

Row	Particulars	2010	2012	2013	2014	2015	2016	2017	Total
1.1	Montreal Protocol reduction schedule of Annex C Group I substances (ODP tonnes)	N/A	N/A	30.21	30.21	27.19	27.19	27.19	N/A
1.2	Maximum allowable total consumption of Annex C, Group I substances (ODP tonnes)	N/A	N/A	30.21	30.21	27.19	27.19	24.17	N/A
2.1	Lead IA (UNIDO) agreed funding (US $)	215,380	1,593,860	0	144,000	0	0	40,091	1,993,331
2.2	Support costs for Lead IA (US $)	19,384	119,540	0	10,800	0	0	3,007	152,731
3.1	Total agreed funding (US $)	215,380	1,593,860	0	144,000	0	0	40,091	1,993,331
3.2	Total support costs (US $)	19,384	119,540	0	10,800	0	0	3,007	152,731
3.3	Total agreed costs (US $)	234,764*	1,713,400	0	154,800	0	0	43,098	2,146,062
4.1.1	Total phase-out of HCFC-22 agreed to be achieved under this Agreement (ODP tonnes)								10.51
4.1.2	Phase-out of HCFC-22 to be achieved in previously approved projects (ODP tonnes)								0.00
4.1.3	Remaining eligible consumption for HCFC-22 (ODP tonnes)								14.04
4.2.1	Total phase-out of HCFC-141b agreed to be achieved under this Agreement (ODP tonnes)								1.57
4.2.2	Phase-out of HCFC-141b to be achieved in previously approved projects (ODP tonnes)								2.40
4.2.3	Remaining eligible consumption for HCFC-141b (ODP tonnes)								1.69
4.3.1	Total phase-out of HCFC-141b in imported pre-blended polyols agreed to be achieved under this agreement (ODP tonnes)								0.00
4.3.2	Phase-out of HCFC-141b in imported pre-blended polyols to be achieved in previously approved projects (ODP tonnes)								0.00
4.3.3	Remaining eligible consumption for HCFC-141b in imported pre-blended polyols (ODP tonnes)								5.36

(*)Approved at the 62nd meeting for the conversion of Cristor and herewith subsumed into this Agreement.

APPENDIX 3-A: FUNDING APPROVAL SCHEDULE

1. Funding for the future tranches will be considered for approval not earlier than the first meeting of the year specified in Appendix 2-A.

APPENDIX 4-A: FORMAT OF IMPLEMENTATION REPORTS AND PLANS

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

(a) A narrative report regarding the progress since the approval of the previous tranche, reflecting on 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 further highlight successes, experiences and challenges related to the different

activities included in the Plan, reflecting on changes in the circumstances in the Country, and providing other relevant information. The report should also include information about and justification for any changes vis-à-vis the previously submitted tranche plan, 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 about activities in the current year;

(b) A verification report of the HPMP results and the consumption of the Substances mentioned in Appendix 1-A, 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 the planned submission of the next tranche request, highlighting their interdependence, and taking into account experiences made and progress achieved in the implementation of earlier tranches. The description should also include a reference to the overall plan and progress achieved, as well as any possible changes to the overall plan foreseen. The description should cover the years specified in sub-paragraph 5(d) of the Agreement. The description should also specify and explain any revisions to the overall plan which were found to be necessary;

(d) A set of quantitative information for the report and plan, submitted into a database. As per the relevant decisions of the Executive Committee in respect to the format required, the data should be submitted online. 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), and will cover the same time periods and activities; it will also capture the quantitative information regarding any necessary revisions of the overall plan as per sub-paragraph 1(c) above. While the quantitative information is required only for previous and future years, the format will include the option to submit in addition information regarding the current year if desired by the Country and the Lead IA; and

(e) An Executive Summary of about five paragraphs, summarizing the information of above sub-paragraphs 1(a) to 1(d).

APPENDIX 5-A: MONITORING INSTITUTIONS AND ROLES

1. The National Ozone Unit (NOU) will appoint a national institution to monitor all activities of the HPMP. This institute will submit annual progress reports of status of implementation of the HPMP through the NOU to the Lead IA.

2. Verification of the achievement of the performance targets, specified in the Plan, will be undertaken, upon specific request of the Executive Committee, by an independent local company or independent local consultants contracted by the Lead IA.

APPENDIX 6-A: ROLE OF THE LEAD IMPLEMENTING AGENCY

1. The Lead IA will be responsible for a range of activities. These can be specified in the project document further, but include 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 Implementation Plans and subsequent reports as per Appendix 4-A;

(c) Providing verification to the Executive Committee that the Targets have been met and associated annual activities have been completed as indicated in the 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 annual implementation plans consistent with sub-paragraphs 1(c) and 1(d) of Appendix 4-A;

(e) Fulfilling the reporting requirements for the annual implementation reports, annual implementation 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 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 and the Cooperating IA, the allocation of the reductions to the different budget items and to the funding of each implementing or bilateral agency involved;

(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 organization 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 $275 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.

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