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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Fifty-sixth Meeting
Doha, 8-12 November 2008

UNDP'S WORK PROGRAMME AMENDMENTS FOR 2008

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

COMMENTS AND RECOMMENDATION OF THE FUND SECRETARIAT

1. UNDP is requesting approval from the Executive Committee of US $3,183,231 for amendments to its 2008 Work Programme, plus agency support costs of US $214,217.

2. The activities proposed in UNDP's Work Programme Amendments are presented in Table 1 below:

Table 1: UNDP's Work Programme Amendments

Country	Activity/Project	Amount Requested (US $)	Amount Recommended (US $)
SECTION A: ACTIVITIES RECOMMENDED FOR BLANKET APPROVAL			
A1. Preparation of HCFC phase-out management plans			
Bangladesh	Preparation for HPMP	60,000	60,000
Cuba	Preparation for HPMP	150,000	150,000
	Subtotal for A1	210,000	210,000
A2. Additional project preparation for HCFC phase-out management plans			
Nigeria	Additional preparation for HPMP	45,000	45,000
	Subtotal for A2:	45,000	45,000
A3. Renewal of institutional strengthening projects			
China	Institutional strengthening (Phase VIII)	390,000	390,000
Ghana	Institutional strengthening (Phase VIII)	139,100	139,100
Islamic Republic of Iran	Institutional strengthening (Phase VII)	173,511	173,511
Lebanon	Institutional strengthening (Phase VI)	155,090	155,090
Uruguay	Institutional strengthening (Phase VIII)	150,800	150,800
Venezuela	Institutional strengthening (Phase IX)	285,480	285,480
	Subtotal for A3:	1,293,981	1,293,981
SECTION B: ACTIVITIES RECOMMENDED FOR INDIVIDUAL CONSIDERATION			
B1. Project preparation for HCFC demonstration projects			
China	Preparation for a demonstration project to phase out HCFCs in unitary commercial air conditioning	30,000	
China	Preparation for a demonstration project to phase out HCFCs for industrial refrigeration and air conditioning	30,000	
China	Preparation for a demonstration project to phase out HCFCs in solvents for electronic cleaning	30,000	
China	Preparation for a demonstration project for solvents used in medical equipment cleaning	30,000	
Nigeria	Preparation for validation of the cost-effective use of locally produced hydrocarbons as refrigerant in refrigeration applications	50,000	
	Subtotal for B1:	170,000	*
B2. Project preparation for HCFC investment projects			
Indonesia	Preparation in the RAC manufacturing sector in context of HPMP	150,000	
Indonesia	Preparation in the RAC servicing sectors in context of HPMP	150,000	
	Subtotal for B2:	300,000	*
B3. Preparation of HCFC phase-out management plans			
India	Preparation of an overarching HPMP strategy as well as sector plans for the aerosols, fire fighting, foam, RAC manufacturing and solvents to meet Stage 1 of the HCFC control measures.	578,750	

Islamic Republic of Iran	Preparation of an overarching HPMP strategy as well as sector plans for the aerosols, fire fighting, foam, RAC manufacturing and solvents to meet Stage 1 of the HCFC control measures.	420,500	
	Subtotal for B3:	999,250	*
B4. Technical assistance projects to validate alternatives to HCFC technology			
Global	Preparation for validation of environmental impact of optimized liquid HFC formulations in PU rigid and integral skin foam applications	50,000	
Global	Preparation for validation for low-cost options in the use of hydrocarbons as blowing agent in the manufacture of PU rigid foams.	55,000	
	Subtotal for B4:	105,000	
B5. Preparation of MDI transition strategies			
Ghana	MDI transition strategy	30,000	
Nicaragua	MDI transition strategy	30,000	
	Subtotal for B5:	60,000	*
Subtotal for sections A and B:		3,183,231	1,548,981
Agency support costs (7.5 per cent for project preparation and institutional strengthening, and for other activities over US $250,000, and 9 per cent for other activities under US $250,000):		241,217	116,173
Total:		3,424,448	1,665,154

*For individual consideration or pending

SECTION A: ACTIVITIES RECOMMENDED FOR BLANKET APPROVAL

A1. Preparation of HCFC phase out management plans:

(a)	Bangladesh	Preparation for HPMP	60,000
(b)	Cuba	Preparation for HPMP	150,000

Project description

3. UNDP submitted two new requests for the preparation of HCFC phase-out management plans. These countries have only HCFC consumption as listed in the table below:

Country	2007 HCFC consumption (ODP tonnes)		Amount requested (US $)
	HCFC-22	HCFC-141b	
Bangladesh	32.2	4.9	US 60,000
Cuba	12.96	1.46	US $150,000

Fund Secretariat's comments

4. The Secretariat notes that these requests are in line with decision 55/13, as well as with the agreement at the 55th Executive Committee Meeting that countries with HCFC use in both the consumption and manufacturing sector will receive funds for HPMP preparation of US$150,000 for stage 1 of their HPMP if most recent level of consumption is between 1-120 ODP tonnes.

5. With regards to Bangladesh, UNDP is designated as the lead agency for the HPMP preparation with UNEP as a cooperating agency. The balance of this submission of US $25,000 from the amount eligible for the country is being requested under UNEP's work programme amendments.

Fund Secretariat's recommendation

6. The Fund Secretariat recommends blanket approval of the requests for project preparation for HCFC phase-out management plans for Bangladesh and Cuba at the level of funding shown in Table 1.

A2. Additional project preparation for HCFC phase-out management plans

Nigeria: Additional project preparation funds for HCFC phase out management plan (US $45,000)

Project description

7. UNDP submitted a request for additional HCFC project preparation funds amounting to US $45,000 for Nigeria that had funds approved for HPMP preparation at the 55th Meeting of US $85,000 in line with decision 55/13 as well as with the agreement on standard HPMP preparation funding made at that meeting. The request is being submitted since Nigeria has reported Article 7 data for 2007 that shows consumption of HCFC-141b of 26.6 ODP tonnes, in addition to its HCFC-22 consumption of 69.3 ODP tonnes, which would therefore make the country eligible for US $150,000 for HPMP preparation funding.

Fund Secretariat's comments

8. The Secretariat notes that this submission is in line with discussions at the 55th Meeting where the Executive Committee agreed that countries that had only HCFC-22 consumption could submit requests for additional funding for HPMP preparation if data shows that there is consumption of HCFC-141b or other HCFCs used for manufacturing. The Article 7 data for 2007 reported by Nigeria supports this request; therefore the country is eligible for additional funding of US $65,000. It is noted that UNDP and UNIDO are working together to implement the HPMP preparation in Nigeria.

9. As UNDP is requesting US $45,000, the balance of this submission of US $20,000 from the amount eligible for the country is being submitted under UNIDO's work programme amendments.

Fund Secretariat's recommendation

10. The Fund Secretariat recommends blanket approval of the request for additional funding for the preparation of HCFC phase-out management plan for Nigeria at level of funding shown in Table 1 above.

A3. Renewal of institutional strengthening projects:

(a) China (Phase VIII): US $390,000
(b) Ghana (Phase VIII): US $139,100
(c) Islamic Republic of Iran (Phase VII): US $173,511
(d) Lebanon (Phase VI): US $155,090
(e) Uruguay (Phase VIII): US $150,800
(f) Venezuela (Phase IX): US $285,480

Project descriptions

11. The descriptions of the institutional strengthening renewal projects for the above countries are presented in Annex I to this document.

Fund Secretariat's comments and recommendations

12. The Fund Secretariat and UNDP have agreed on the level of funding for renewal of all the above institutional strengthening projects. The Executive Committee may also wish to express additional comments to the Governments concerned in Annex II to this document.

SECTION B: ACTIVITIES RECOMMENDED FOR INDIVIDUAL CONSIDERATION

B1. Project preparation for HCFC demonstration projects:

China: Project preparation for a demonstration project to phase out HCFCs in unitary commercial air conditioning: US $30,000

China: Project preparation for a demonstration project to phase out HCFCs for industrial refrigeration and air conditioning/chillers: US $30,000

China: Project preparation for a demonstration project to phase out HCFCs in solvents for electronic cleaning: US $30,000

China: Project preparation for a demonstration project for solvents used in medical equipment cleaning: US $30,000

Project Descriptions

13. UNDP is submitting the above requests for the preparation of four demonstration projects in China for the air conditioning and solvent sectors. Information provided for the above proposals is summarized below:

(a) The unitary commercial air conditioning sub-sector comprises of unitary air conditioning systems for commercial (non-residential) use, such as in offices, hotels, hospitals, and is an important source of HCFC consumption estimated at 40,000 metric tonnes in 2006, predominantly of HCFC-22. The proposed demonstration project will evaluate the technical and commercial viability of various HCFC alternatives such as R-410A, hydrocarbons, etc., in order to obtain the buy-in from stakeholders for early HCFC reductions. It will also identify prospective enterprises who could be recipients of a conversion project in future.

(b) The industrial refrigeration and air conditioning/chillers sub-sector comprises of refrigeration and air conditioning equipment for industrial applications such as food processing, chemicals and pharmaceuticals and large air conditioning installations. The equipment ranges from walk-in coolers & freezers to cold storages, process chilling applications, etc. Due to the ongoing and expected economic growth, this sub-sector is an important source of HCFC consumption. The proposed demonstration project will evaluate technical and commercial viability of various HCFC alternatives such as R-410A, hydrocarbons, etc., in order to obtain the buy-in from stakeholders for early HCFC reductions. Given that several applications exist, it may be necessary to design two or three demonstration projects to serve the main applications.

(c) The solvents sector consumed an estimated 7,000 metric tonnes of HCFCs in 2006, predominantly HCFC-141b. The sector comprises of a large number of enterprises, with low per capita consumption. Two demonstration projects are proposed, one for electronics cleaning applications and one for medical equipment cleaning applications.

Due to the emissive nature of cleaning uses, it is necessary to prioritize this sector for demonstration projects, in order to ensure confidence in technology selection and buy-in from stakeholders.

Fund Secretariat's comments

14. At the 55th Meeting, the Executive Committee, through decision 55/14, approved US $4.1 million as a package for the preparation of an HPMP for China on the condition that no further funding will be approved for the country for HPMP project preparation for Stage 1. Out of this approval, UNDP received US $604,000 to cover the industrial and commercial refrigeration and air conditioning sectors, and US $432,000 for the solvents sector, with similar conditions as the above overall approval for China (decision 55/20(b). In view of this, the Secretariat informed UNDP that these requests are not eligible and are not in line with the above decisions.

15. UNDP explained that these requests are in response to decision 55/43(f) where the Executive Committee, *inter alia*, invited the agencies to submit a limited number of demonstration projects for the conversion of HCFCs in the refrigeration and air conditioning sub-sectors and to identify all the steps required and its associated costs. According to UNDP, these requests do not fall within the purview of the Executive Committee's decisions on HPMP preparation funding taken at the 55th Meeting as they have a different purpose, and the costs for their preparation were not accounted for as part of the HPMP.

16. The Secretariat informed UNDP that indeed China may submit requests for full demonstration projects in line with decision 55/43(f), however, the requested project preparation funds for China have been fully covered under decisions 55/14 and 55/20, and therefore further project preparation funding cannot be recommended for approval.

Fund Secretariat's recommendations

17. In view of the above, the Secretariat is unable to recommend approval of the requests for project preparation for demonstration projects for China.

18. The Executive Committee may wish to consider urging UNDP and China to submit full demonstration projects for consideration of the Committee in line with decisions 55/43(e) and (f) not later than the 59th Meeting, without requesting additional project preparation funds.

Nigeria: PRP for validation of the cost-effective use of locally produced hydrocarbons as refrigerants in refrigeration applications (US $50,000)

Project description

19. UNDP is submitting a request for preparation funding for a project to validate the cost-effective use of locally produced hydrocarbons (HC) as refrigerants. The above request is submitted on behalf of the Government of Nigeria at a funding level of US $50,000 to examine the possibility of using a prototype distillation unit for LPG-based natural refrigerants which was designed by the Federal Environment Ministry. The project will attempt to look at the viability of using this prototype as a base for a commercial scale production unit that will support the availability of local and cheaper HCs, which will then contribute to the phase-out of HCFC use in the refrigeration manufacturing sector as well as its related service operations.

20. UNDP indicates that the requested funds will provide the government with an opportunity to test the prototype, so that the actual commercial plant could be built through private initiative. The project preparation grant will support the testing and validation parameters and the preparation of an MLF format project document. If successful, the production facility will be able to serve not only Nigeria but the

entire Sub-Saharan region with non-ODS/low GWP, high purity refrigerants that can replace the current use of HCFCs. Such products are generally not available in the region.

Fund Secretariat's comments

21. The Secretariat advised UNDP that this submission does not fall strictly under the definition of demonstration projects, that is, to demonstrate a new alternative technology to replace ODS, in this case HCFCs. What it aims to do is to look at the possibility of establishing HC production at a purity level required for use in many refrigeration applications. According to UNDP, this project is important because it will attempt to avoid the use of HCFCs in applications where HCs can be used instead. The agency maintained that this would, in particular, allow many countries, especially in the sub-Saharan region, to benefit because in many of their TPMP's HC based refrigeration equipment is becoming increasingly more available, but there is no availability of high grade HCs as yet. In addition, according to UNDP, with the availability of HCs, currently existing HCFC-installed equipment would be easily retrofitted to HCs.

22. UNDP also views this submission to be consistent with decision 55/43(f) where the Executive Committee, *inter alia,* invited the agencies to submit a limited number of demonstration projects for the conversion of HCFCs in the refrigeration and air conditioning sub-sectors to low GWP technologies and to identify all the steps required and their associated costs. It indicated that wide availability of HCs that are low GWP refrigerants would eventually facilitate the conversion of HCFC-using equipment in Nigeria as well as the African region.

23. While the Secretariat understands that the availability of HCs could promote the use of this low GWP refrigerant, it is not very clear whether this proposal is in line with decision 55/43 (f), as unlike paragraph (e) of that decision pertaining to the foam sector, paragraph (f) does not refer to the optimization and validation of chemical systems to replace HCFCs in refrigeration. In addition, the Executive Committee, in decision 55/13(d) requested the Secretariat, *inter alia,* to prepare for the 56th Meeting a cost structure determining funding levels for the preparation of investment and associated activities seeking input from the bilateral and implementing agencies on their experience with CFC sector plans and national phase-out plans.

24. In view of the above, this project could be considered in the context of the discussions of document 56/13 and 56/58.

Fund Secretariat's recommendation:

25. Pending discussion on agenda item 7(b)

B.2. Project preparation for HCFC investment projects

Indonesia: Preparation of a sector plan for the refrigeration and air conditioning manufacturing sector as part of the HPMP (US $150,000)

Indonesia: Preparation of a sector plan for the refrigeration and air conditioning servicing sector as part of the HPMP (US $150,000)

Project description

26. These two projects are being submitted by UNDP as lead agency for additional project preparation costs for Indonesia. The requests are for the development of two sector plans for refrigeration, one for the manufacturing sector, and one for the servicing sector for which they have been designated as the responsible agency by Indonesia. An additional request for the foam manufacturing

sector is submitted by the World Bank and discussed in document 56/18. In support of its submission, UNDP has indicated that in order for the country to meet its 2013 and 2015 commitments, it needs to start activities in the refrigeration sector as soon as possible.

27. For the servicing sector UNDP indicates that the increasing population of HCFC-based equipment in Indonesia will require recovery, recycling and reclamation programmes, as well as training activities and best practice in order to immediately reduce consumption in this sector. UNDP also indicated that to support these reductions, the necessary regulatory interventions to control HCFC use and ban equipment need to be put in place as soon as possible. The proposal for the servicing sector also shows that the requested funds will include costs for an expert to assist in developing the strategy, travel and costs for sector consultation workshops to finalise the plan as well as other coordination meetings required. The document indicates that the current consumption in the servicing sector is forty per cent of the overall HCFC consumption in the country based on its 2005 survey.

Fund Secretariat's comments

28. At the 55th Meeting, the Executive Committee approved funding amounting to US $195,000 for the preparation of an HPMP for Indonesia. Based on the agreements and discussions during the 55th Meeting, there was an understanding that the first part of the strategy, excluding the manufacturing sector which is covered under decision 55/13(d), will cover all components of the HPMP that are non-investment activities including the servicing sector. This is embodied in the HPMP guidelines approved at the 54th Meeting, which will enable the country to meet the HCFC control measures in 2013 and 2015 as Stage 1 of the HPMP. This request of UNDP would therefore fall within the amount agreed for the first part of the HPMP preparation amounting to US $195,000.

29. In discussions with UNDP, the agency reiterated the need for actions in the servicing sector as soon as possible, and did not see that these activities should explicitly be included in the HPMP preparation funding approved at the 55th Meeting. UNDP sees many challenges associated with the servicing sector in Indonesia and stresses the need for this to be considered as a separate sector that would be eligible for project preparation funds. It also confirmed that this request will cover the full requirements for Stage 1 activities for the servicing sector in the country, and no further preparation funds will be required for this in future.

30. With regards to the refrigeration manufacturing sector, the Executive Committee, through decision 55/13(d) also requested the Secretariat, *inter alia*, to prepare for the 56th Meeting a cost structure determining funding levels for the preparation of investment and associated activities, seeking input from the bilateral and implementing agencies on their experience with CFC sector plans and national phase-out plans. Paragraph (e) of this decision also requests the Secretariat to apply the cost structure to any submissions for the preparation of HCFC investment and associated activities to the 56th Meeting from the bilateral and implementing agencies.

31. The draft paper prepared by the Secretariat in response to this request by the Executive Committee will be discussed under agenda item 7(b). The Secretariat notes that the submission of the refrigeration manufacturing sector falls within the category of a project for the manufacturing sector as well as within the costs proposed, however the one for the servicing sector does not technically fall under manufacturing sector.

Fund Secretariat's recommendation

32. The Secretariat is unable to recommend UNDP's request for funding for the refrigeration servicing sector in Indonesia as these activities are already embodied in the HPMP funding received by the country at the 55th Meeting.

33. With regards to the request for preparation funding for the refrigeration manufacturing sector, this is pending discussion on agenda item 7(b).

B3. Preparation of HCFC Phase out Management Plans

India: Preparation of an overarching HPMP strategy as well as sector plans for the aerosols, fire fighting, foam, RAC manufacturing and solvents to meet Stage 1 of the HCFC control measures. (US $578,750)

Project description

34. UNDP submitted a request for funds for the preparation of an HCFC phase out management plan as a package proposal as lead agency for India. The total cost of the package is US $1,055,020. Out of this UNDP's share which is being requested in this work programme amendment is US $578,750, plus support costs of US $43,406 The rest of the funds are being requested in the individual work programme amendments for UNIDO, UNEP and Germany, and are discussed in these respective documents.

35. India's HCFC consumption for 2006 as reported under Article 7 is 637.3 ODP tonnes, 50 percent of which is attributed to HCFC-22, around 45 per cent to HCFC-141b, the rest to other HCFCs. UNDP indicated that based on an annual projected growth rate of 10 percent, it is estimated that the country needs to reduce demand by about 486 ODP tonnes to meet the 2013 and 2015 control measures. These reductions need to be done across all sectors; therefore, the submission of a package proposal will be the best way to address these.

36. UNDP is requesting these funds to cover the components listed below:

Component	Funding requested (US $)
Preparation of an overarching strategy per the 55th Meeting	173,750
Preparation of a sector plan for the aerosols sector	25,000
Preparation of a sector plan for the fire fighting sector	25,000
Preparation of a sector plan for the foams sector	125,000
Preparation of a sector strategy for the RAC manufacturing sector (except transport refrigeration)	205,000
Preparation of a sector plan for the solvents sector	25,000
TOTAL	**578,750**

37. UNDP indicates that the funding levels requested will enable the country to meet the 2013 and 2015 HCFC control measures, and that no additional project preparation funding will be sought for Stage 1 of the HPMP.

Fund Secretariat's comments

38. At the 55th Meeting, the Executive Committee agreed on standard costs for funding the preparation of HCFC phase out management plans (HPMPs). For countries with HCFC consumption between 120-1200 ODP tonnes and with a manufacturing sector such as India, the country is entitled to a funding of US $195,000 to cover the full development of an HPMP strategy excluding costs for the investment sector. UNDP's request for the overarching strategy is only amounting to US $173,750 because it applied the discount of 25 percent on the survey component in line with decision 55/13(a), since India had received funds for an HCFC survey in the past. The Secretariat notes that for this specific component, the amount proposed by UNDP is in line with existing guidelines and is therefore eligible.

39. In submitting a package proposal, UNDP is also seeking funds to prepare sector plans in the aerosol, fire fighting, foams, refrigeration manufacturing and the solvents sector for India. These requests will have to be considered in line with the decision of the Executive Committee (decision 55/13(d)) which requested the Secretariat, *inter alia*, to prepare for the 56th Meeting a cost structure determining funding levels for the preparation of investment and associated activities seeking input from the bilateral and implementing agencies on their experience with CFC sector plans and national phase-out plans. Paragraph (e) of this decision also requested the Secretariat to apply the proposed cost structure to any submissions for the preparation of HCFC investment and associated activities to the 56th Meeting from the bilateral and implementing agencies.

40. Whilst the draft paper prepared by the Secretariat in response to this request by the Executive Committee will be discussed under agenda item 7(b), the Secretariat notes that the funds requested for the sector plan preparation appear consistent with the proposed cost in the paper, except for that proposed for the refrigeration manufacturing sector which is higher.

41. In discussions with UNDP, it was explained that because of India's size and structure, the country would need to adopt a comprehensive approach to address the needs for 2013 and 2015, which is the overriding reason for submitting a package proposal to account for the different sectors and ensure that actions are taken as soon possible. UNDP emphasised that with the other sectors being submitted by the other agencies, a positive consideration of this package proposal for India will benefit the country and assist it to meet its compliance obligations.

42. UNDP also confirmed that the funding of US $578,750 requested for these sectors forming part of a package for India will cover the full requirements for Stage 1. Therefore, if the cost structure for the preparation of HPMP investment activities is agreed by the Executive Committee any funds for India should be consistent with decisions taken after discussion on Agenda item 7(b), on the condition that no further project preparation funding will be requested for Stage 1 of the country's HPMP.

Fund Secretariat's recommendation

43. In view of the above, the Executive Committee may wish to consider:

(a) Approving US $173,750 for the overarching HPMP for India; and

(b) Deciding on the requests for project preparation for the different sector plans pending discussion of Agenda item 7(b) in line with paragraph 42 above.

Islamic Republic of Iran: Preparation of an overarching HPMP strategy as well as sector plans for the aerosols, fire fighting, foam, RAC manufacturing and solvents to meet Stage 1 of the HCFC control measures. (US $420,500)

Project description

44. UNDP submitted a request for funds for the preparation of an HCFC phase-out management plan, consisting of a package proposal, as lead agency for the Islamic Republic of Iran. The total cost of the package is US $882,750. Out of this, the share being requested by UNDP in this work programme amendment is US $420,500 plus support costs of US $31,538. The rest of the funds are being requested in the individual work programme amendments for UNIDO, UNEP and Germany, and are discussed in their respective documents.

45. HCFC consumption of the Islamic Republic of Iran for 2006 based on their Article 7 data amounts to a total of 166.5 ODP tonnes. HCFC-22 accounts for 55 per cent of this, and the rest is attributed to HCFC-141b. With an estimated annual growth rate of HCFC consumption of 7.5 percent

based on the HCFC survey conducted for the country, it will need to reduce its consumption from its projected baseline by 120 ODP tonnes to meet the 2013 and 2015 control measures for HCFC. These reductions need to be done across all sectors therefore the submission of a package proposal would be the best way to address these. The 2007 HCFC consumption of the Islamic Republic of Iran is 191.4 ODP tonnes and represents almost a 20 per cent increase on its 2006 HCFC consumption.

46. UNDP is requesting these funds to cover the components listed below:

Component	**Funding requested (US $)**
Preparation of an overarching strategy per the 55th Meeting	173,750
Preparation of a sector plan for the aerosols sector	15,000
Preparation of a sector plan for the fire fighting sector	20,000
Preparation of a sector plan for the foams sector (systems houses)	25,000
Project preparation for a sector plan for rigid foams	16,750
Preparation of a sector strategy for the RAC manufacturing sector (except transport refrigeration)	155,000
Preparation of a sector plan for the solvents sector	15,000
TOTAL	**420,500**

47. The Secretariat's comments in paragraphs 38-40 above also apply to the request from the Islamic Republic of Iran.

48. UNDP explained that the country has decided to opt for a single approach to the HPMP, which includes all funding requests for the project activities required by the country to meet the needs for 2013 and 2015. UNDP emphasised that with the other sectors being submitted by the other agencies, a positive consideration of this package proposal for the Islamic Republic of Iran will benefit the country and assist in meeting the compliance obligations.

49. UNDP also confirmed that the funding of US $420,500 requested for these sectors forming part of a package for the Islamic Republic of Iran will cover the full requirements for Stage 1. Therefore, if the cost structure for the preparation of HPMP investment activities is agreed by the Executive Committee any funds for Islamic Republic of Iran should be consistent with decisions taken after discussion on Agenda item 7(b), on the condition that no further project preparation funding will be requested for Stage 1 of the country's HPMP.

Fund Secretariat's recommendations

50. In view of the above, the Secretariat may wish to consider:

(a) Approving US $173,750 for the overarching HPMP for the Islamic Republic of Iran; and

(b) Deciding on the requests for project preparation for the different sector plans pending discussion of Agenda item 7(b) in line with paragraph 49 above.

B.4 Technical assistance projects to validate alternatives to HCFC technology

Global: Validation of Environmental Impact of optimized liquid HFC Formulations in PU rigid and integral skin foam applications : US$50,000

Global: Validation of Low-Cost Options in the use of Hydrocarbons as Blowing Agent in the manufacture of PU Rigid Foams: US $55,000

Project description

51. UNDP is submitting two requests for technical assistance to validate alternatives to HCFC technology in the foam sector at the amount of US $105,000. The objectives of both requests is to conduct a desk study that will examine the environmental impact of optimised liquid HFC formulations in polyurethane rigid and integral skin applications, and at low cost options in the use of HCs as a blowing agent in the manufacture of PU rigid foam. Both studies will also look at how technologies can be applied to the foam manufacturing industry. UNDP's proposal lists the various criteria for ideal replacements to HCFC 141b in the foam sector, as well as the currently known and proposed HCFC alternatives.

52. The proposed TAS for liquid HFC formulations will assess the climate impact of the use of HFCs as foam blowing agent using the so-called "Functional Unit" approach described at the 55th Meeting in document 55/47. It would not only provide for a fair assessment of optimized HFC formulations but also demonstrate the use of the "Functional Unit" approach and facilitate the Secretariat's evaluation as requested by the Executive Committee in decision 55/43 (h).

53. The proposal to examine HCs as an alternative to HCFCs in foam blowing will also be a desk study that will attempt to respond to the decision 55/43 (e) (iv) of the Executive Committee and look at how to lower the cost of hydrocarbon projects, and therefore the cost threshold, allowing more enterprises to select this technology. In implementing this study, UNDP will pair with a foams system house to develop the methodology for low cost use of HCs.

Fund Secretariat's comments

54. The Secretariat notes that both projects are desk studies that will seek to examine and validate two specific alternatives to HCFCs in foam: HFC and HCs. In discussing these two proposals with UNDP and in responding to the Secretariat's concern on how these two studies would contribute to the phase out, UNDP clarified that the results of both studies could eventually reduce the need for project preparation costs for those projects that will use these two technologies in the conversion from HCFC applications. This is because it is envisioned that the final outputs of the study will provide information on methodology of application, as well as standard costs that may be used to develop an investment project in future.

55. The Secretariat also notes that both projects are in line with decision 55/43(e), which states, *inter alia*, to invite bilateral and implementing agencies, as a matter of urgency, to prepare and submit a limited number of time-specific project proposals involving interested systems houses and/or chemical suppliers for the development, optimization and validation of chemical systems for use with non-HCFC blowing agents.

Fund Secretariat's recommendations

56. The Executive Committee may wish to consider approving the two technical assistance projects as submitted by UNDP at the level of funding in Table 1 above, consistent with the results of the discussions on document 55/58.

B5. Preparation of MDI transition strategies

Background

57. The Executive Committee, at its 51st Meeting, agreed in decision 51/34(d) *inter alia,* "to consider on a case-by-case basis requests for transition strategies to non-CFC MDIs in Article 5 Parties that did not have MDI manufacturing facilities, in accordance with decision 45/54, when the need for a strategy had been fully demonstrated and documented through the submission of the following information for the previous three years:

(a) CFC and non-CFC MDIs and dry-powder inhalers: sold or distributed within the Party, by active ingredient, brand/manufacturer, and source;

(b) Non-CFC MDIs and dry-powder inhalers: date approved, authorized for marketing, and/or launched in the territory of the Party;

(c) CFC and non-CFC MDIs and dry-powder inhalers: estimated cost by active ingredient and source."

Ghana: MDI transition strategy (US $30,000)

Project description

58. On behalf of the Government of Ghana, UNDP is submitting a request for the preparation of an MDI transition strategy to phase-out CFC use in the MDI consumption sector. Ghana does not produce CFC-MDIs and most of its use is sourced through imports. While there is a regulation that controls the imports of ODS and ODS containing products into the country, this does not specifically include CFC-MDIs. Its main sources of CFC and non-CFC MDIs are China, India, France and the UK.

59. For the past five years (2003-2007), the average import of CFC-MDIs and HFA-MDIs was over 38,000 units for each year, while the imports for DPI based MDIs was only a total of 515 units. The available data shows that these imports are increasing, but the highest share is still with CFC-MDIs which are cheaper on the market, and are sourced cheaply from India and China.

60. In Ghana, while there is no data specifically for COPD patients, current statistics show that the number of asthma patients has increased on an annual basis by an average of 6-7 percent. While not a very large part of the country's population is really affected by asthma, many of those who are suffering from this problem are dependent on a weak medical care system.

61. In support of its submission, and based on decision 51/34, UNDP indicated that the situation with regards to the supply of MDIs and their non-CFC equivalents in Ghana can be briefly described as follows:

(a) CFC MDIs, HFA MDIs and DPIs are present on the market;

(b) CFC MDI dominate the market in Ghana with 91% of the market share;

(c) Small to moderate quantities of HFA MDIs are being supplied on the market;

(d) CFC MDIs imports throughout the period 2003-2007 were increasing

(e) HFA MDIs imports were decreasing from 2003 till 2007.

(f) DPIs have a negligible market share.

62. In addition, UNDP also provided a comprehensive table listing CFC and non-CFC MDIs and dry-powder inhalers imported, sold or distributed within the country, identifying each by active ingredient, brand/manufacturer, and source. The information also included the price of each product as well as the date of approval of each drug by national authorities. The information is summarised below:

	2003	**2004**	**2005**	**2006**	**2007**	**TOTAL units**
CFC	22,471	29823	38,118	41,229	45,110	176,751
HFA	2,930	2,765	3,296	3,240	3,230	15,461
DPI	0	0	35	330	150	515
TOTAL units	25,401	32,588	41,449	44,799	48,490	192,727

63. The document also indicates that an overriding consideration for the national authority responsible for purchasing MDIs is their price market. While there is national recognition that actions have to be taken to reduce CFC-MDI use in the country, there is so far no Government regulation that enforces compliance for importers.

Fund Secretariat's comments

64. The project preparation request is being submitted to enable the smooth transition to non-CFC MDIs in Ghana, therefore phasing out CFC consumption in the MDI sector. The Secretariat noted that there is a much higher import of CFC-MDIs in the country since 2005. UNDP responded that this was due to a cheaper import price which made it more affordable to the consumer. The Secretariat also observed that the unit prices of the CFC-MDIs sourced outside India and China were on average almost 30 percent more expensive. UNDP informed the Secretariat that there is very little understanding of the differences between CFC-based MDIs and those with market alternatives, as the unit price of each becomes the driving factor. In addition, users exhibit a more conservative behaviour towards the use of non-CFC MDIs as they have become used to the CFC based ones and are confident of their efficacy. This is one reason why the transition strategy is really needed in the country.

65. In discussing the country's plans for the preparation of the transition strategy, the Secretariat was informed that the national strategy on replacement of CFC-based MDIs with alternatives is envisaged to consider the following:

(a) Better study and analysis of current MDI market consumption, supply, sources and future trends;

(b) Analysis of availability and patronage of alternative products and their source, their effects and health benefits;

(c) Cooperation with the main importers and representatives of medical establishments towards organization and taking measures to shift to affordable alternative medications, including timeframes for the import, substitution, and individual and group agreements with suppliers and distributors;

(d) Development of multi-year national planning on imports and ensuring a smooth shift towards alternatives;

(e) Adopting a wide, informed and participatory decision-making process through training and targeted awareness activities, to increase consumer confidence and ensure acceptance

of the alternative products by the patients and by the doctors; and

(f) Extended and targeted sensitisation programmes on HFA MDIs with asthma associations and other associated identifiable groups.

Fund Secretariat's recommendation

66. In the light of the comments above, the Executive Committee may wish to consider approval of the request for preparation of an MDI transition strategy in Ghana at the funding level of US $30,000, as indicated in Table 1 above. The Committee may also wish to confirm whether the information provided is consistent with the requirements of decision 51/34.

67. In approving this project UNDP is requested to note that no further funds for the phase-out in the MDI sector in Ghana will be available.

Nicaragua: MDI transition strategy (US $30,000)

Project description

68. On behalf of the Government of Nicaragua, UNDP is submitting a request for the preparation of an MDI transition strategy to phase-out CFC use in the MDI consumption sector. Nicaragua does not produce CFC MDIs and most of its use is sourced through imports.

69. In Nicaragua, CFC-MDI use is divided between two categories: government use (government medical care) and private use. In 2007, the total consumption of MDIs in the country reached 746,071 units, where government use represented more than 75 percent, and private consumption was only 25 per cent. Out of these, CFC-free MDIs constituted only 10 percent of the government consumption and 78 per cent of private consumption. In comparison, in 2004, a hundred percent of government MDI use was CFC-based.

70. In Nicaragua, the current regulations stipulate that companies have to register to be able to supply CFC-MDIs into the country, currently, there are 9 MDI enterprises that import MDIs, out of a total of 25 that are registered. Most MDI imports are from Spain, the United Kingdom, Belgium, Germany, France, Australia, India, China and Mexico. There are also a few that are supplied from neighbouring countries like Argentina, Costa Rica and Guatemala.

71. In addition, UNDP also provided a comprehensive table listing CFC and non-CFC MDIs and dry-powder inhalers imported, sold or distributed within the country, identifying each by active ingredient, brand/manufacturer, and source. The information also included the price of each product as well as the date of approval of each drug by national authorities. The information is summarised below:

	2004	**2005**	**2006**	**2007**	**Total units**
CFC-based MDI	192,120	293,375	394,631	495,886	1,376,012
CFC free MDI	54,763	102,212	176,198	250,185	583,358
TOTAL units	246,883	395,587	570,829	746,071	1,959,370

72. The document indicates that while there is an uptake of non-CFC MDIs in the market, specific actions need to be undertaken so that awareness as well as current regulation and policy are reviewed to enable all future MDI imports to be CFC-free.

Fund Secretariat's comments

73. The project preparation request is being submitted to enable the smooth transition to non-CFC MDIs in Nicaragua, therefore phasing out CFC consumption in the MDI sector. The Secretariat noted that although there is a much higher import of CFC-MDIs in the country, there is also a high increase in the imports and consumption of non-CFC MDIs. UNDP responded that this is due to the fact that while there is recognition of the need to move to non-CFC MDIs, the current regulatory framework still does not support this. The Government of Nicaragua is therefore hopeful that with the assistance for the transition strategy, this will provide an opportunity to make changes to the present regulation and encourage the imports of non-CFC MDIs.

74. In discussing the country's plans for the preparation of the transition strategy, the Secretariat was informed that the national strategy on replacement of CFC-based MDIs with alternatives is envisaged to consider three main elements:

(a) Modification of the current legal framework that governs the import of pharmaceutical products including MDIs;

(b) Adopting a wide, informed and participatory awareness and education campaign directed to the national health system as well as COPD patients including asthma associations and other associated identifiable groups; and

(c) Monitoring the implementation of this strategy through post market surveillance, definition of procedures on how to deal with possible confiscated products containing CFCs as well as reporting on a regular basis on progress.

Fund Secretariat's recommendation

75. In the light of the comments above, the Executive Committee may wish to consider approval of the request for preparation of an MDI transition strategy in Nicaragua at the funding level of US $30,000, as indicated in Table 1 above. The Committee may also wish to confirm whether the information provided is consistent with the requirements of decision 51/34.

76. In approving this project UNDP is requested to note that no further funds for the phase-out in the MDI sector in Nicaragua will be available.

Annex I

INSTITUTIONAL STRENGTHENING PROJECT PROPOSALS

China: Renewal of institutional strengthening

Summary of the project and country profile	
Implementing Agency:	UNDP
Amounts previously approved for institutional strengthening (US $):	
Phase I: Feb-92	449,997
Phase II: Oct-96	299,999
Phase III: Nov-98	300,000
Phase IV: Dec-00	300,000
Phase V: Nov-02	390,000
Phase VI: Dec-04	390,000
Phase VII: Nov-06	390,000
Total	2,519,996
Amount requested for renewal (Phase VIII) (US $):	390,000
Amount recommended for approval for Phase VIII (US $):	390,000
Agency support costs (US $):	29,250
Total cost of institutional strengthening Phase VIII to the Multilateral Fund (US $):	419,250
Equivalent amount of CFC phase-out due to institutional strengthening Phase VIII at US $12.1/kg (ODP tonnes):	n/a
Date of approval of country programme:	Mar. 1993
ODS consumption reported in country programme (1991) (ODP tonnes):	55,048.5
Baseline consumption of controlled substances (ODP tonnes):	
(a) Annex A Group I (CFCs) (Average 1995-1997)	57,818.7
(b) Annex A Group II (Halons) (Average 1995-1997)	34,186.7
(c) Annex B Group II (Carbon tetrachloride) (Average 1998-2000)	49,142.1
(d) Annex B Group III (Methyl chloroform) (Average 1998-2000)	721.2
(e) Annex E (Methyl bromide) (Average 1995-1998)	1,102.1
Latest reported ODS consumption (2007) (ODP tonnes) as per Article 7:	
(a) Annex A Group I (CFCs)	5,832.1
(b) Annex A Group II (Halons)	594.4
(c) Annex B Group II (Carbon tetrachloride)	265.1
(d) Annex B Group III (Methyl chloroform)	251.1
(e) Annex E (Methyl bromide)	405.0
(f) Annex C Group I (HCFCs)	17,876.90
Total	25,224.6
Year of reported country programme implementation data:	2007
Amount approved for projects (US $):	748,941,404
Amount disbursed (as at October 2008) (US $):	639,916,650
ODS to be phased out (ODP tonnes):	234,709.6
ODS phased out (as at October 2008) (ODP tonnes):	214,820.8

1. Summary of activities and funds approved by the Executive Committee:

	Summary of activities	**Funds approved (US $)**
(a)	Investment projects:	724,601,648
(b)	Institutional strengthening:	2,519,996
(c)	Project preparation, technical assistance, training and other non-investment projects:	21,819,760
	Total:	748,941,404

Progress report

2. During Phase VII of the Institutional Strengthening project, the Programme Management Office (PMO) of SEPA had improved its mechanism for policy formulation and enforcement for ODS management and control with the introduction of a number of new policies. It further strengthened the capacity of its country compliance by improving its project management and financial management skills in order to ensure effective management and monitoring of its phase-out activities through the large number of sector phase-out plans. Special efforts have been deployed to enforce the control of illegal production, trade and consumption of ODS. The Project Management Office (PMO) continued its efforts of effective project management and monitoring to maintain its momentum and sustainability of its achieved phase-out. It also continued to put efforts into promoting public awareness with high level and highly publicized International Ozone Day Celebrations, publishing the Ozone Action in China, and a series of news reporting and promotion through the special website on Ozone Layer Protection. The highlight of this IS phase is the achievement of the accelerated CFC and Halon phase-out by 1 July 2007, a full two and half years ahead of the MP schedule.

Plan of action

3. The objectives of Phase VIII of the Institutional Strengthening project is to continue China's achievement in ODS phase-out in order to meet the phase-out milestone of the Montreal Protocol, especially to achieve its commitment of complete CFCs phase-out by 2010. During Phase VIII, activities will be carried out to continue the improvement of policy formulation and enforcement; of project management capacity and of staff capacity to manage and monitor the implementation of approved sector phase-out plan in a more effective manner. It will also strengthen international communications, efforts to raise public awareness on ozone layer protection, as well as actions to combat illegal ODS activities. China will also undertake efforts to initiate the preparation of action plans to address the accelerated HCFC freeze and 10 per cent reduction by 2013 and 2015.

Ghana: Renewal of institutional strengthening

Summary of the project and country profile	
Implementing Agency:	UNDP
Amounts previously approved for institutional strengthening (US $):	
Phase I: Oct-92	183,200
Phase II: Oct-96	107,000
Phase III: Nov-98	99,275
Phase IV: Dec-00	107,000
Phase V: Nov-02	139,100
Phase VI: Jul-04	139,100
Phase VII: Nov-06	139,100
Total	913,775
Amount requested for renewal (Phase VIII) (US $):	139,100
Amount recommended for approval for Phase VIII (US $):	139,100
Agency support costs (US $):	10,433
Total cost of institutional strengthening Phase VIII to the Multilateral Fund (US $):	149,533
Equivalent amount of CFC phase-out due to institutional strengthening Phase VIII at US $12.1/kg (ODP tonnes):	n/a
Date of approval of country programme:	Oct. 1992
ODS consumption reported in country programme (1991) (ODP tonnes):	101.4

Baseline consumption of controlled substances (ODP tonnes):	
(a) Annex A Group I (CFCs) (Average 1995-1997)	35.8
(b) Annex A Group II (Halons) (Average 1995-1997)	0
(c) Annex B Group II (Carbon tetrachloride) (Average 1998-2000)	0.4
(d) Annex B Group III (Methyl chloroform) (Average 1998-2000)	0
(e) Annex E (Methyl bromide) (Average 1995-1998)	0
Latest reported ODS consumption (2007) (ODP tonnes) as per Article 7:	
(a) Annex A Group I (CFCs)	4.2
(b) Annex A Group II (Halons)	0
(c) Annex B Group II (Carbon tetrachloride)	0
(d) Annex B Group III (Methyl chloroform)	0
(e) Annex E (Methyl bromide)	0
(f) Annex C Group I (HCFCs)	19.4
Total	23.6
Year of reported country programme implementation data:	2007
Amount approved for projects (US $):	2,768,180
Amount disbursed (as at October 2008) (US $):	2,365,508
ODS to be phased out (ODP tonnes):	420.2
ODS phased out (as at October 2008) (ODP tonnes):	408.0

4. Summary of activities and funds approved by the Executive Committee:

	Summary of activities	**Funds approved (US $)**
(a)	Investment projects:	636,244
(b)	Institutional strengthening:	913,775
(c)	Project preparation, technical assistance, training and other non-investment projects:	1,218,161
	Total:	2,768,180

Progress report

5. Ghana continued with the action plan it had planned for Phase VII of its institutional strengthening project. During this period, two of its main achievements include the full implementation of a licensing and permitting process for ODS imports as well as the integration of ozone issues into the environmental assessment regulations of Ghana which required all new cold stores and other buildings with installations of refrigeration equipment to submit and environmental impact assessment (EIA) prior to building. This period also showed completion of training activities for customs officers to combat illegal trade, as well as training in good practices in refrigeration. Ghana also continued its awareness raising activities during this phase to enhance information dissemination on ozone depletion and the Montreal Protocol.

Plan of action

6. For this coming phase of Ghana's institutional strengthening project, it will ensure all efforts to meet the 2010 compliance targets of the Montreal Protocol by continuing the implementation of its activities in the refrigeration and foam sector. It will also review and reorient its awareness activities to include HCFC issues in preparation for the country's implementation of the HCFC phase-out management plan. For these two years, activities related to the survey of HCFC consumption will be started, as well as consultation meetings for HPMP preparation.

Islamic Republic of Iran: Renewal of institutional strengthening

Summary of the project and country profile	
Implementing Agency:	UNDP
Amounts previously approved for institutional strengthening (US $):	
Phase I: Oct-92	200,200
Phase II: Nov-97	133,470
Phase III: Dec-00	133,445
Phase IV: Nov-02	172,104
Phase V, year 1: Dec-04	85,442
Phase V, year 2: Nov-05	86,756
Phase VI, year 1: Nov-06	86,755
Phase VI, year 2: Nov-07	86,756
Total	984,928
Amount requested for renewal (Phase VII) (US $):	173,511
Amount recommended for approval for Phase VII (US $):	173,511
Agency support costs (US $):	13,013
Total cost of institutional strengthening Phase VII to the Multilateral Fund (US $):	186,524
Equivalent amount of CFC phase-out due to institutional strengthening Phase VII at US $12.1/kg (ODP tonnes):	n/a
Date of approval of country programme:	Jun. 1993
ODS consumption reported in country programme (1991) (ODP tonnes):	1,337.0
Baseline consumption of controlled substances (ODP tonnes):	
(a) Annex A Group I (CFCs) (Average 1995-1997)	4,571.7
(b) Annex A Group II (Halons) (Average 1995-1997)	1,420.0
(c) Annex B Group II (Carbon tetrachloride) (Average 1998-2000)	77.0
(d) Annex B Group III (Methyl chloroform) (Average 1998-2000)	8.7
(e) Annex E (Methyl bromide) (Average 1995-1998)	26.7
Latest reported ODS consumption (2007) (ODP tonnes) as per Article 7:	
(a) Annex A Group I (CFCs)	549.5
(b) Annex A Group II (Halons)	0
(c) Annex B Group II (Carbon tetrachloride)	0
(d) Annex B Group III (Methyl chloroform)	0.5
(e) Annex E (Methyl bromide)	4.2
(f) Annex C Group I (HCFCs)	191.4
Total	745.6
Year of reported country programme implementation data:	2007
Amount approved for projects (US $):	59,113,525
Amount disbursed (as at October 2008) (US $):	51,823,355
ODS to be phased out (ODP tonnes):	6,823.8
ODS phased out (as at October 2008) (ODP tonnes):	991.0

7. Summary of activities and funds approved by the Executive Committee:

	Summary of activities	**Funds approved (US $)**
(a)	Investment projects:	55,744,455
(b)	Institutional strengthening:	984,928
(c)	Project preparation, technical assistance, training and other non-investment projects:	2,384,142
	Total:	59,113,525

Progress report

8. For the second year (2008) of Phase VI of its Institutional Strengthening (IS) project, the Islamic Republic of Iran has successfully coordinated and effectively managed the implementation of its National CFCs phase-out plan, achieving the phase-out targets as stipulated in the Agreement. Iran has also adopted a quota and enforced the control of the import of CFCs and solvents into the country. The establishment of a data-base management system, the implementation of the solvent sector plan and the MDI investment project are in progress. The Ozone Layer Protection Unit has also organized activities to promote public awareness including activities to celebrate the 21st Anniversary and the International Ozone Day. The OLPU continues with the attempt to strengthen the network of National Ozone Cells in order to assist in effective monitoring and enforcement efforts.

Plan of action

9. The objectives of the Phase VII of the Institutional Strengthening project will be to continue effective management of the implementation of the NPP in order to achieve complete CFC phase-out by 2010 as stipulated in the Agreement, including the complete phase-out of CTC, TCA and CFC MDI consumption. In addition, the OLPU will increase awareness of public and government organizations on ozone layer protection to ensure sustainability of the phase-out achieved. The OLPU will also facilitate full enforcement of the import and export licensing system with the Policy and Enforcement Centre that is now fully operational. It will also continue to strengthen the National Ozone Network to ensure sustainability, and to initiate actions to prepare its HPMP in 2009 so that work can commence in 2010.

Lebanon: Renewal of institutional strengthening

Summary of the project and country profile	
Implementing Agency:	UNDP
Amounts previously approved for institutional strengthening (US $):	
Phase I: May-96	178,937
Phase II: Jul-00	119,300
Phase III: Jul-02	155,090
Phase IV: Dec-04	155,090
Phase V: Nov-06	155,090
Total	763,507
Amount requested for renewal (Phase VI) (US $):	155,090
Amount recommended for approval for Phase VI (US $):	155,090
Agency support costs (US $):	11,632
Total cost of institutional strengthening Phase VI to the Multilateral Fund (US $):	166,722
Equivalent amount of CFC phase-out due to institutional strengthening Phase VI at US $12.1/kg (ODP tonnes):	n/a
Date of approval of country programme:	May 1996
ODS consumption reported in country programme (1993) (ODP tonnes):	923.1
Baseline consumption of controlled substances (ODP tonnes):	
(a) Annex A Group I (CFCs) (Average 1995-1997)	725.5
(b) Annex A Group II (Halons) (Average 1995-1997)	0
(c) Annex B Group II (Carbon tetrachloride) (Average 1998-2000)	0
(d) Annex B Group III (Methyl chloroform) (Average 1998-2000)	0
(e) Annex E (Methyl bromide) (Average 1995-1998)	236.4

Latest reported ODS consumption (2007) (ODP tonnes) as per Article 7:	
(a) Annex A Group I (CFCs)	74.5
(b) Annex A Group II (Halons)	0
(c) Annex B Group II (Carbon tetrachloride)	0
(d) Annex B Group III (Methyl chloroform)	0
(e) Annex E (Methyl bromide)	18.1
(f) Annex C Group I (HCFCs)	19.8
Total	112.4
Year of reported country programme implementation data:	2007
Amount approved for projects (US $):	12,817,127
Amount disbursed (as at October 2008) (US $):	10,102,738
ODS to be phased out (ODP tonnes):	1,616.3
ODS phased out (as at October 2008) (ODP tonnes):	699.0

10. Summary of activities and funds approved by the Executive Committee:

	Summary of activities	Funds approved (US $)
(a)	Investment projects:	10,538,077
(b)	Institutional strengthening:	763,507
(c)	Project preparation, technical assistance, training and other non-investment projects:	1,515,543
	Total:	12,817,127

Progress report

11. During the review period, despite its operation under the unexpected conflict and political situation in the country, Lebanon reported activities to strengthen its institutional capacity through timely collection and early reporting of ODS data to the Ozone and Multilateral Fund Secretariat, and timely submission of required reports and participation in meetings of the Network, Executive Committee and Meetings of the Parties. It has successfully conducted effective monitoring and management of phase-out activities of individual projects as well as the NPMP. They conducted number of awareness campaigns and training directed to key stakeholders and efforts were also put into resource mobilization. Critical activities in updating of National Legislations on ODS were prepared and are awaiting to be approved by the Council of Ministers.

Plan of action

12. Lebanon plans that during the next two years, it will intensify its efforts in areas of institutional capacity strengthening, in the review and updating of national legislation on ODS, in vigorous monitoring and management of the implementation of its NPMP phase-out activities in order to meet the targets of complete phase-out of CFCs as stipulated in its Agreement with the Executive Committee to meet the 100 per cent reduction in 2010. It will continue its efficient effort in collection and reporting of ODSs data, and strengthen its efforts to ensure sustainability of its phase–out achievements to meet its obligation under the Montreal Protocol. It will also start activities to initiate action to address the accelerated HCFC phase-out targets by 2013 and 2015.

Uruguay: Renewal of institutional strengthening

Summary of the project and country profile	
Implementing Agency:	UNDP
Amounts previously approved for institutional strengthening (US $):	
Phase I: Jun-93	202,800
Phase II: Oct-96	116,000
Phase III: Jul-98	115,981
Phase IV: Jul-00	115,804
Phase V: Jul-02	150,800
Phase VI: Jul-04	150,800
Phase VII: Jul-06	150,800
Total	1,002,985
Amount requested for renewal (Phase VIII) (US $):	150,800
Amount recommended for approval for Phase VIII (US $):	150,800
Agency support costs (US $):	11,310
Total cost of institutional strengthening Phase VIII to the Multilateral Fund (US $):	162,110
Equivalent amount of CFC phase-out due to institutional strengthening Phase VIII at US $12.1/kg (ODP tonnes):	n/a
Date of approval of country programme:	Jun. 1993
ODS consumption reported in country programme (1992) (ODP tonnes):	314.1
Baseline consumption of controlled substances (ODP tonnes):	
(a) Annex A Group I (CFCs) (Average 1995-1997)	199.1
(b) Annex A Group II (Halons) (Average 1995-1997)	0
(c) Annex B Group II (Carbon tetrachloride) (Average 1998-2000)	0.4
(d) Annex B Group III (Methyl chloroform) (Average 1998-2000)	0
(e) Annex E (Methyl bromide) (Average 1995-1998)	11.2
Latest reported ODS consumption (2007) (ODP tonnes) as per Article 7:	
(a) Annex A Group I (CFCs)	29.3
(b) Annex A Group II (Halons)	0
(c) Annex B Group II (Carbon tetrachloride)	0
(d) Annex B Group III (Methyl chloroform)	0
(e) Annex E (Methyl bromide)	8.4
(f) Annex C Group I (HCFCs)	18.0
Total	55.7
Year of reported country programme implementation data:	2007
Amount approved for projects (US $):	5,689,183
Amount disbursed (as at October 2008) (US $):	4,726,620
ODS to be phased out (ODP tonnes):	422.8
ODS phased out (as at October 2008) (ODP tonnes):	285.6

13. Summary of activities and funds approved by the Executive Committee:

	Summary of activities	**Funds approved (US $)**
(a)	Investment projects:	2,851,511
(b)	Institutional strengthening:	1,002,985
(c)	Project preparation, technical assistance, training and other non-investment projects:	1,834,687
	Total:	5,689,183

Progress report

14. During the period of its IS Phase VII, Uruguay continued to implement activities to ensure their compliance with the early phase-out of methyl bromide as part of their MB sector phase-out plan. It also continued activities related to MDIs through discussions and consultations with manufacturers, and through the finalisation of an MDI transition strategy. The NOU provided logistics and coordinative support to the various investment activities being implemented in the country. Awareness activities were also continued, in particular, the use of the ozone seal for CFC-free products has been gaining ground in the country. For this period, the NOU also targeted young people for awareness activities through the dissemination of an educational video. The NOU also continued to strengthen the enforcement of the licensing system for ODS imports. It also continued activities for its halon bank and its CFC recovery and recycling network.

Plan of action

15. For this new phase, Uruguay will work to accelerate ODS consumption phase-out with particular focus on meeting 2010 compliance. It will continue to provide supervisory and logistics support to the different projects being implemented in the country, on methyl bromide, halon banking, end-user programme for the refrigeration sector, as well as continue the work being done with the CFC recovery and recycling network. It will continue activities on HCFC issues initiated this year to enable the immediate preparation of the HPMP phase-out management plan. One main target of the NOU during this period will be to finalise the electronic approval process for ODS import licenses so that these can be implemented more efficiently.

Venezuela: Renewal of institutional strengthening

Summary of the project and country profile	
Implementing Agency:	UNDP
Amounts previously approved for institutional strengthening (US $):	
Phase I: Mar-93	329,192
Phase II: Jul-95	109,800
Phase III: Oct-96	219,600
Phase IV: Jul-98	219,600
Phase V: Jul-00	219,600
Phase VI: Jul-02	284,499
Phase VII: Jul-04	285,480
Phase VIII: Jul-06	285,480
Total	1,953,251
Amount requested for renewal (Phase IX) (US $):	285,480
Amount recommended for approval for Phase IX (US $):	285,480
Agency support costs (US $):	21,411
Total cost of institutional strengthening Phase IX to the Multilateral Fund (US $):	306,891
Equivalent amount of CFC phase-out due to institutional strengthening Phase IX at US $12.1/kg (ODP tonnes):	n/a
Date of approval of country programme:	Jul. 1995
ODS consumption reported in country programme (1994) (ODP tonnes):	3,194.2
Baseline consumption of controlled substances (ODP tonnes):	
(a) Annex A Group I (CFCs) (Average 1995-1997)	3,322.4
(b) Annex A Group II (Halons) (Average 1995-1997)	0
(c) Annex B Group II (Carbon tetrachloride) (Average 1998-2000)	1,107.2
(d) Annex B Group III (Methyl chloroform) (Average 1998-2000)	4.7
(e) Annex E (Methyl bromide) (Average 1995-1998)	10.3

Latest reported ODS consumption (2006) (ODP tonnes) as per Article 7:	
(a) Annex A Group I (CFCs)	2,641.8
(b) Annex A Group II (Halons)	0
(c) Annex B Group II (Carbon tetrachloride)	-140.3
(d) Annex B Group III (Methyl chloroform)	0
(e) Annex E (Methyl bromide)	0
(f) Annex C Group I (HCFCs)	124.9
Total	2,626.4
Year of reported country programme implementation data:	2007
Amount approved for projects (US $):	44,493,587
Amount disbursed (as at October 2008) (US $):	39,512,797
ODS to be phased out (ODP tonnes):	5,924.8
ODS phased out (as at October 2008) (ODP tonnes):	5,181.0

16. Summary of activities and funds approved by the Executive Committee:

	Summary of activities	Funds approved (US $)
(a)	Investment projects:	38,029,661
(b)	Institutional strengthening:	1,953,251
(c)	Project preparation, technical assistance, training and other non-investment projects:	4,510,675
	Total:	44,493,587

Progress report

17. During the VIII phase of its Institutional Strengthening project, the government of Venezuela has successfully continued the implementation of the Montreal Protocol through activities in mostly all the consumer sectors. In addition to the several individual projects being implemented, the programmes for improved practices and customs also took place. During the two years of execution of the 8th phase of the institutional strengthening project, the International Day of the Ozone Layer was celebrated at the Children's Museum where a permanent exhibition dedicated to the Ozone Layer was unveiled. During 2007, a prevention campaign of skin cancer began with a distribution of samples of sunscreen as well as informative pamphlets on how to prevent skin cancer. Awareness activities such as advertisement regarding the ozone layer and the programme of Good Practices were displayed on several billboards, as well as on public transportation services. In addition, two film-forums regarding the destruction of the ozone layer and global warning were shown in two Universities in Caracas.

Plan of action

18. During the next phase of the Institutional Strengthening project, Venezuela seeks to maintain 100 per cent elimination of CFC consumption, especially in the health sector where the demand could be met with reprocessed CFCs for MDIs. The NOU will continue the courses on Good Practices and the programme on recovery, recycling and regeneration of CFCs, and HFCs, to ensure that there is no wasted or leaked refrigerant. It will also continue to manage the quantities of refrigerants stored for future destruction; it will complete the inventory of HCFC consumption by application with views towards the next freeze date and continue the outreach and awareness programmes to protect the ozone layer and combat climate change, signalling the halogenated refrigerants as responsible for both phenomena and the need to phase-out their consumption.

Annex II

VIEWS EXPRESSED BY THE EXECUTIVE COMMITTEE ON RENEWALS OF INSTITUTIONAL STRENGTHENING PROJECTS SUBMITTED TO THE 56th MEETING

China

1. The Executive Committee has reviewed the report presented with the institutional strengthening project renewal request for China and notes with appreciation the fact that China has successfully achieved the early phase-out of CFC and Halon by 1 July 2007, a full two and half years ahead of MP schedule. In its submission, in addition to the successful coordination with the implementing agencies in managing and monitoring implementation of its various sectoral phase-out plans, the Executive Committee also notes that China has taken significant steps within the framework of institutional strengthening project to ensure timely and accelerated phase-out of ODS. China also reported a number of initiatives, including: strengthening capacity of country compliance, improving policy formulation and enforcement, improving project management capacity and undertaking actions to address illegal ODS activities. For the next two years, China will continue to strengthen enforcement of existing controls, replicate early phase-out actions in other cities and provinces, and continue to tackle illegal ODS production, trade and consumption. Special efforts will also be exercised to ensure successful completion of all sector phase-out plans to achieve complete phase-out by 2010. Actions will also be undertaken to address the accelerated HCFC phase-out schedule. The Executive Committee greatly appreciates the effort of China to continue its significant effort in reducing ODS consumption and accelerated phase-out. The Executive Committee expresses the expectation that in the next two years, China will continue the progress achieved, sustain and build upon its current level of CFC reductions to achieve the goal of complete phase-out by 2010, and to meet the reduction schedule in HCFC.

Ghana

2. The Executive Committee has reviewed the information presented with the institutional strengthening renewal request for Ghana. The Executive Committee takes note of the fact that Ghana's reported CFC consumption in 2007 shows it to be in compliance with the CFC-85 per cent requirement of the Montreal Protocol for CFCs. The Executive Committee also congratulates Ghana for the inclusion of ozone protection concepts into its current environmental impact assessment process thereby requiring permits for new buildings with refrigeration equipment that need to be installed. It also notes that Ghana has initiated activities related to HCFCs as a result of the decisions taken by the Nineteenth Meeting of the Parties, as well as decisions from the 55th Executive Committee meeting on HPMP preparation. The Executive Committee greatly appreciates the efforts of Ghana to reduce ODS consumption and is hopeful that in the next two years it will focus on the fulfilment of the Montreal Protocol commitments, especially in relation to the 100 per cent CFC reduction measure.

Islamic Republic of Iran

3. The Executive Committee has reviewed the information reported for the second year of the Institutional Strengthening Phase VI and the request for Phase VII renewal for the Islamic Republic of Iran and notes with appreciation the fact that the Islamic Republic of Iran has returned from non-compliance. In its submission, in addition to its successful coordination with implementing agencies in managing and monitoring implementation of phase-out activities, the Islamic Republic of Iran reported a number of initiatives, including: full enforcement of import/export licensing system on CFC and solvents and training of responsible officers from concerned ministries/organizations to facilitate enforcement. It

also notes the country's efforts to initiate actions to address the accelerated HCFC freeze and 10 per cent reduction by 2013 and 2015. The Executive Committee greatly appreciates the effort of Islamic Republic of Iran to reduce ODS consumption and expresses the expectation that in the next two years, the Islamic Republic of Iran will continue the progress achieved, sustain and build upon its current level of CFC reductions to achieve complete CFC phase-out in order to comply with the Protocol's reduction schedules and achieve its phase-out targets as stipulated in its Agreement with the Executive Committee, including efforts to prepare HPMP to address the HCFC accelerated freeze and phase-out schedule.

Lebanon

4. The Executive Committee has reviewed the report presented with the institutional strengthening project renewal request for Lebanon and notes with appreciation the fact of continuous successful actions undertaken despite the conflict and difficult situation in the country. The Executive Committee also appreciates the early data reporting actions to the Ozone Secretariat and Multilateral Fund Secretariat. It also takes note of the fact that Lebanon has met the 2006 and 2007 phase-out targets stipulated in the national phase-out management plan agreement (NPMP). The Executive Committee greatly appreciates the effort of Lebanon to reduce ODS consumption and is hopeful that in the next two years, Lebanon will continue the progress achieved, sustain and build upon its current level of CFC reductions to achieve the goal of complete CFC phase-out by 2010, complying with the Protocol's reduction schedules and achieve its phase-out targets stipulated in the NPMP.

Uruguay

5. The Executive Committee has reviewed the report presented with the institutional strengthening project renewal request for Uruguay and notes with appreciation that it has continued the implementation of the different investment projects in the country, notably on methyl bromide where an accelerated phase-out is foreseen. The Executive Committee also appreciates the activities of the country in ensuring the strict implementation of its licensing system as well as its efforts to develop a more efficient automated on-line system for permit applications. It also notes the country's efforts to initiate HCFC activities in preparation for its HCFC phase-out management plan. The Executive Committee greatly appreciates the effort of Uruguay to reduce ODS consumption and expresses the expectation that in the next two years, Uruguay will continue the progress achieved, sustain and build upon its current level of CFC reductions to achieve the goal of complete CFC phase-out by 2010, complying with the Protocol's reduction schedules and achieve its phase-out targets stipulated in the national phase-out management plan.

Venezuela

6. The Executive Committee has reviewed the terminal report presented with the institutional strengthening project renewal request for Venezuela and notes with appreciation the achievements made by Venezuela's National Ozone Unit during the implementation of the eighth phase. In particular the Executive Committee notes the progress made by Venezuela towards maintaining the 50 per cent reduction in CFC consumption achieved in 2005, achieving the 85 per cent reduction in CFC consumption in 2007 and the implementation of phase-out projects in key ODS-consuming and producing sectors, including the National CFC Phase-out Plan and the CFC production facility closure project. The Executive Committee commends the Government of Venezuela for its achievements during the current phase and expresses the expectation that, in the next two years, Venezuela will continue the implementation of its programmed activities with outstanding progress, and will sustain and build upon its current levels of reductions in CFCs.

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EXECUTIVE COMMITTEE OF THE MULTILATERAL FUND
FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL
(56th Meeting, 08 – 12 November 2008, Doha)

2008 WORK PROGRAMME AMENDMENT

UNITED NATIONS DEVELOPMENT PROGRAMME

Requests for funding for Project Preparation, Investment and Non-Investment Projects at the 56th Executive Committee Meeting

September 2008

2008 UNDP WORK PROGRAMME
56th Executive Committee Meeting (08-12 November 2008, Doha)

This Work Programme document contains all UNDP non-investment and project preparation programmes that are being requested at the 56th Meeting of the Executive Committee. These requests amount to US$ 3,183,231 plus US$ 241,218 of support cost.

1. Institutional Strengthening Renewal Requests.

The following Institutional Strengthening Renewal Requests are being submitted at the 56th meeting of the Executive Committee. They are being submitted individually and are therefore not annexed to this report:

No	COUNTRY	TITLE	BUDGET	SUPPORT COST (7.5%)	TOTAL
1	China	Institutional Strengthening Phase VIII	390,000	29,250	419,250
2	Ghana*	Institutional Strengthening	139,100	10,433	149,533
3	Iran	Institutional Strengthening Phase VII	173,511	13,013	186,524
4	Lebanon	Institutional Strengthening Phase VI	155,090	11,632	166,722
5	Uruguay	Institutional Strengthening	150,800	11,310	162,110
6	Venezuela	Institutional Strengthening	285,480	21,411	306,891
Sub-total: Institutional Strengthening			**1,293,981**	**97,049**	**1,391,030**

- Ghana IS submitted on 14 August 2008.

2. Requests for Activities in the MDI Sector.

No	COUNTRY	TITLE	BUDGET	SUPPORT COST	TOTAL	REMARKS
1	Ghana	MDI Transition Strategy	30,000	2,700	32,700	Annex 1
2	Nicaragua	MDI Transition Strategy	30,000	2,700	32,700	Annex 2
Sub-total: Activities in the MDI Sector			**60,000**	**5,400**	**65,400**	

3. Requests for Activities related to HCFCs

3.1. New Preparatory Funds for HCFC Phase-out Management Plans (HPMPs)

Nr	COUNTRY	TITLE	BUDGET	SUPPORT COST	TOTAL	REMARKS
1	Bangladesh	PRP for HPMP	60,000	4,500	64,500	UNDP Lead Agency (UNEP also requests $ 25,000). Further funding will be requested for UNDP at the 57th ExCom meeting.
2	India	PRP for HPMP	578,750	43,406	622,156	UNDP Lead Agency (See Annex 3)
3	Iran	PRP for HPMP	420,500	31,538	452,038	UNDP Lead Agency (See Annex 4)
4	Cuba	PRP for HPMP	150,000	11,250	161,250	UNDP only agency
Sub-total: New HPMP Preparation			**1,209,250**	**90,694**	**1,299,944**	

3.2. Additional Preparatory Funds for HCFC Phase-out Management Plans (HPMPs)

NO	COUNTRY	TITLE	BUDGET	SUPPORT COST (7.5%)	TOTAL	REMARKS
1	Indonesia	PRP in the RAC (Mfg) and RAC (Svcg) Sectors in context of HPMP	300,000	22,500	322,500	See Annex 5
2	Nigeria	Additional PRP for HPMP*	45,000	3,375	48,375	UNDP Lead Agency, (see Annex 6)
Sub-total: Additional HPMP Preparation			**345,000**	**25,875**	**370,875**	

* The additional request for project preparation as submitted by the Government of Nigeria is attached to this document as Annex 6 and amounts to US$ 65,000 of which US$ 45,000 is for UNDP and US$ 20,000 for UNIDO. It is based on the fact that Nigeria has an important number of manufacturing plants in both the foam, refrigeration and air conditioning sectors and that it should therefore have received US$ 150,000 rather than US$ 85000 approved at the 55th meeting of the ExCom.

3.3. Preratory Funds for Demonstration Projects for HCFC alternative technologies

NO	COUNTRY	TITLE	BUDGET	SUPPORT COST	TOTAL
1	China	PRP for demonstration project (Unitary commercial A/c)	30,000	2,250	32,250
		PRP for demonstration project (Industrial Ref & A/c chillers)	30,000	2,250	32,250
		PRP for demonstration project in Solvents electronic cleaning	30,000	2,250	32,250
		PRP for demonstration project in Solvents (medical equipment cleaning)	30,000	2,250	32,250
Sub-total: Demonstrations HCFC			**120,000**	**9,000**	**129,000**

3.4. Funding request for Pilot Projects for validation of HCFC alternatives

NO	COUNTRY / TYPE	TITLE	BUDGET	SUPPORT COST	TOTAL	REMARKS
2	Global / TAS	PRP for Validation of Environmental Impact of optimized liquid HFC Formulations in PU rigid and integral skin foam applications	50,000	4,500	54,500	see Annex 7
3	Global / TAS	PRP for Validation for Low-Cost Options in the use of Hydrocarbons as Blowing Agent in the manufacture of PU Rigid Foams.	55,000	4,950	59,950	see Annex 8
5	Nigeria / PRP	PRP for Validation of the Cost-effective Use of locally produced Hydrocarbons as Refrigerant in Refrigeration Applications **	50,000	3,750	53,750	see Annex 9
Sub-total: Pilots for HCFCs and related PRP-requests			**155,000**	**13,200**	**168,200**	

Annex 1 – Ghana MDI Transition Strategy

PROJECT COVER SHEET

COUNTRY: GHANA	**IMPLEMENTING AGENCY:** UNDP
PROJECT NAME	MDI Transition Strategy
PROJECT IN CURRENT BUSINESS PLAN	YES
SECTOR COVERED	MDI
PROJECT IMPACT	0.0 ODP tons
PROJECT DURATION	18 months
TOTAL PROJECT COST	US$ 30,000
LOCAL OWNERSHIP	100 %
EXPORT COMPONENT	N/A
REQUESTED GRANT	US$ 30,000
COST-EFFECTIVENESS	Not Applicable – TAS
AGENCY SUPPORT COSTS	2,250
STATUS OF COUNTERPART FUNDING	N/A
NAT. COORDINATING AGENCY	National Ozone Office, Environmental Protection Agency
PROJECT MONITORING MILESTONES INCLUDED	Included in Document
BENEFICIARY ENTERPRISE	Not Applicable

PROJECT SUMMARY

Through this Technical Assistance approved by the Multilateral Fund for the Implementation of the Montreal Protocol, UNDP aims to assist the Government of Ghana to implement a project in MDI sector in order to develop a sound MDI transition strategy.

Annex 1 – Ghana MDI Transition Strategy

Submission background

MDI transition strategy was not included in Ghana's TPMP Project approved at the 50th ExCom meeting and in view of the very urgent need for the country to address and sensitize the public on the need to shift from CFC based MDIs, and DPIs, and to avert critical shortages/non-availabilities of the alternatives, the Country has found it important to submit to the ExCom MDI transition strategy for consideration.

This project document is specifically developed to provide adequate information demonstrating the need for a MDI transition strategy in Ghana. This MDI transition strategy for Ghana is also prepared taking into account the MTOC Assessment Report 2006 (published in March 2007) which emphasizes the following:

"There is an urgent need for all Article 5(1) countries that have not already done so to develop effective national transition strategies in accordance with Decision XII/2. MTOC strongly recommends that these activities be made a priority to ensure a smooth transition to CFC-free alternatives by about 2010. Countries will need to set an end-date for transition that accounts for the Montreal Protocol phase-out schedule."

The following reasons to have the MDI transition strategy were considered during the compilation of this document:

- Ensure orderly transition to new products and most importantly ensure that the patients will have available equally effective alternative products at a reasonable cost (compared to CFC MDI products) and on time to guarantee that when the CFC MDI supply stops alternatives are sustainably available, registered and approved by the local regulatory entity. This includes possible contingency plans in case that registration and approval is a long process and there is a risk of a shortage of alternative products by the time CFC MDIs are out of the market.
- Facilitate the transition to new products by providing training and targeted awareness activities to all stakeholders to ensure acceptance of the alternative products.
- Update the legislation to ensure that when the transition takes place no CFC MDI products will be imported and sold.

Annex 1 – Ghana MDI Transition Strategy

Part I. Situation analysis

1. Asthma statistics and economic situation:

In general, the quantities of imported CFCs MDIs have been increasing steadily from 2003 to 2007 whereas non-CFC MDIs have been reducing during the same period. The available data indicates that 22,471 units of such medical products were in use in 2003 and this number increased to 45,110 units in 2007.

The evolution of asthma and chronic obstructive pulmonary diseases (COPD) in the country, including tuberculoses, has been increasing due to economic crisis, insufficient financing of the health sector and lack of affordable medicines.

1.1 Number of patients with asthma and COPD:

No separate statistical data is available for COPD in the Republic of Ghana. The number of patients suffering from asthma is steadily growing over the years. Compared to the base year 2003, this number of reported increased by 1278 people in 2007.

Years	Number of patients with asthma
2003	8,220
2004	8,882
2005	8,991
2006	9,218
2007	9,498

Conclusions:

- number of asthma cases is steadily growing, and the data for COPD is not separately available and needs to be further analyzed
- the country's economic situation has not improved substantially
- the medical care system is under-financed.

2. National legislation:

The Republic of Ghana does not produce ODS and ODS-containing products in MDI sector.

The national legislation that controls the activities in the sector, LI 1812 - Management of Ozone Depleting Substances and Products Regulation and the Food and Drugs Board Act, 1992 (PNDCL 305B) and relevant guidelines do not specifically regulate import/export of CFC MDI products.

During the process of data collection, NOU faced difficulties in establishing common understanding with health authorities on the issues related to MDIs and other anti-asthma medicines use as these are connected to their consumption and production worldwide as well as in the context of the Montreal Protocol.

In order to exert better control over the sector, the situation necessitates the revision and adoption of regulations which will take MDI regulatory issues into consideration.

2. Supply of anti-asthma/COPD inhalers and other medical products:

Aerosol products containing CFCs based MDI applications are being intensively imported into the country. Although some companies have already started the importation of some non-CFC-based MDIs independently, there is the need however for a coordinated and informed strategy to start and gradually phase-out imported CFC-based MDIs by taking appropriate supporting measures.

The situation with the supply of MDIs and their non-CFC equivalents in Ghana in brief can be described as follows:

- CFC MDIs, HFA MDIs and DPIs are present on the market;
- CFC MDI dominate the market in Ghana by taking around 91% of the market share;
- Small to moderate quantities of HFA MDIs are being supplied on the market;
- CFC MDIs imports throughout the period 2003-2007 were increasing
- HFA MDIs imports were decreasing from 2003 till 2007.
- DPIs take negligible market share and staggers from year to year.

Table: Market share of anti-asthma medicines in Ghana (years 2003-2007)

Market share %/years	2003	2004	2005	2006	2007
CFC %	88.46	91.51	91.96	92.03	93.02
HFA%	11.5	8.48	7.95	7.23	6.66
DPI%	0	0	0.084	0.736	0.309

Conclusions:

- Imports of CFC-based MDIs has been showing a firm increase from 2003 to 2007 and represent the majority of the market consumption in Ghana;

- Imports of HFA MDIs indicate marginal negative trend from year to year starting 2003;

- No quality and price controls of imported MDIs are performed, thus, leading to uncontrolled pricing, and an attendant negative health effects on the MDI end-users (patients).

- The cheapest prices for CFC MDIs are offered by India and China.
- The majority of CFC MDIs imported is under price of US$ 20 which constitutes 57% of the price for the cheapest HFA MDI and 24% of that of the cheapest DPI medicine (volume vs prices can be compared across the medication groups since in both cases the lowest prices are recorded for CFC MDIs with 25 mcg volume).

3. Price dynamics for anti-asthma medical products:

On the average, the price of a range of selected CFC MDIs is less expensive and thus relatively affordable to a greater proportion of the end-users coupled with the familiarity factor. This was a determining factor behind increasing demand for CFC MDIs and thus the continued imports of the latter category of medical products.

Conclusions:

- CFC MDIs are generally highly patronised
- CFC-based MDIs products, while in their majority cheaper than HFA MDIs, has a greater variety, thus, providing more flexible choices in terms of future imports planning

4. Institutional capacity to control the transition:

The health authorities as well as the Food and Drugs Board experienced problems during the compilation of the MDI consumption data, and multiple consultations from NOU were required in order to manage the process in a coordinated manner.

Institutional capabilities to knowledgeably plan the imports of MDIs and other medicines in light of future developments on the market are lacking.

When making a decision on selecting MDI supply sources, due to relatively weak economic conditions, it is traditional to consider cheaper sources, thus, adjusting the supplies to both the demand and purchasing power of the population.

Conclusions:

- the health authorities are not aware of the implications of the Montreal Protocol on the world production/supply of CFC MDIs;
- the imports planning is sensitive to cheaper CFC MDIs sources;
- taking into account future closure of more CFC MDI production lines, and the need for some producers to evacuate stocks and possible lack of CFC pharmaceutical grade, distortions on the market (in quantities, price and quality) are expected.

Part II. MDI transition strategy

The national strategy on replacement of CFC-based MDI with alternatives should include

the following:

- Better study and analysis of current MDI market consumption, supply sources and future trends;
- Analysis of availability and patronage of alternative products, their effects and health benefits;
- Cooperation with the main importers and representatives of medical establishments towards organization and taking measures to shifting to affordable alternative medications, including timeframes for the import substitution and individual and group agreements with suppliers and distributors;
- Development of a multi-year national planning on imports and ensuring a smooth shift towards alternatives;
- Adopting a wide, informed and participatory decision-making process through training and targeted awareness activities, to increase consumer confidence and ensure acceptance of the alternative products by the patients and by the doctors
- Extended and targeted sensitisation programmes on HFA MDIs with asthma associations and other associated identifiable groups.

Actions could include adjustments made to the legal framework, such as a modification of CFC Import Licensing System to include import of MDI and controlling MDI supplies under humanitarian aid.

Budget for actions:

Table: Planned expenditures

Description	**US$**
National Consultant in MDIs	8,000
Technical assistance	6,000
Promotion, printing	4,000
Workshops	10,000
Sub-Total	**28,000**
Contingency	2,000
Total	**30,000**

Monitoring Milestones

TASK	**MONTH**
(a) Project document submitted	1
(b) Project document signature	3
(c) Contracts Awarded	7
(d) Begin importers consultations efforts	9
(e) Training/Seminars	9
(f) Strategy developed	12
(g) HOP signature	18

Annex 1 – Ghana MDI Transition Strategy

Annex. Imports of CFC, non-CFC MDIs and DPIs to Ghana (units). Costs to patient are provided for 2007 (US$). The costs for 2005 and 2006 are similar to those in 2007.

	Product	Active Ingredient	Brand/Manufacturer / Country	Technology (CFC - MDI/HFA-MDI/DPI	Import per year MDI					Price to patient in 2007, US$
					2003	2004	2005	2006	2007	
1	Aerocort Inhaler	Beclomethasone dipropoinate 50mg +Salbutamole 100mg	Cipla, India	CFC-MDI	1050	1200	1500	1650	1800	7
2	Atrovent	0.2mg ipratropium bromide	Boehringer Ingelheim,UNK	CFC-MDI	2090	2650	2800	2850	3010	54
3	Becotide	Beclomethasone dipropoinate 50mg	Glaxo, UNK	CFC-MDI	800	1520	1840	2100	2335	25
4	Berotec	Fenoterol hydrobromide 0.1mg	Boehringer Ingelheim,DEU	CFC-MDI	8000	10500	11830	12598	13200	18
5	Intal Inhaler	Sodium cromoglycate 1mg	Fisons, UNK	CFC-MDI	950	1300	1664	1965	2450	70
6	Serevent	Salmeterol 25 mcg	Glaxo, France	CFC-MDI	750	1150	1485	1617	1907	54
7	Serobid	Salmeterol 25 mcg	Cipla, India	CFC-MDI	2015	3045	5056	5598	6073	15
8	Serevent aerosol 25 mcg/dose-60 dose	Salmeterol xinafoate	Laboratoires Glaxo Wellcome, France	CFC-MDI	1254	1584	1750	1954	2145	32
9	Salbutamol suspension 100 mcg/dose-200 dose	Salbutamol sulphate	Shandong Jewim Pharmaceutical Co, Ltd, China	CFC-MDI	1550	1740	2658	2987	3365	4
10	Beclomethason susp. 50 mcg/dose-200 dose	Beclometazon	Shandong Jewim Pharmaceutical Co, Ltd, China	CFC-MDI	2412	2584	3695	3890	4400	5
11	Beclomethason susp. for inhalat. presurizate 250 mcg/dose-200 dose	Beclometazon dipropionate	Shandong Jewim Pharmaceutical Co, Ltd, China	CFC-MDI	1,600	2550	3840	4020	4425	8
	Total				**22,471**	**29,823**	**38,118**	**41,229**	**45110**	
12	Seretide Diskus	Fluticasone Propionate 500.00mcg Esalmeterol 50.00mcg	Glaxosmithkline UK Limited	Non CFC (HFA 134a)	-	-	600	500	540	202
13	Flixotide	Fluticasone propionate 50.00mcg	Glaxowellcome Production (France)E	Non CFC (HFA 134a)	400	420	400	410	390	50

Annex 1 – Ghana MDI Transition Strategy

	Product	Active Ingredient	Brand/Manufacturer / Country	Technology	Import per year MDI					
				(CFC - MDI/HFA-MDI/DPI	2003	2004	2005	2006	2007	Price to patient in 2007, US$
14	Flohale	Fluticasone propionate 125.00mcg	Cipla Limited India	Non CFC (HFA 134a)	230	400	500	415	400	112
15	Pulmicort Turbuhaler	Budesonide 100.00mcg	Astrazeneca UK Limited	Non CFC (HFA 134a)	550	500	420	400	400	52
16	Flixotide	Fluticasone propionate 25.00mcg	Glaxo Smith Kline International UK	Non CFC (HFA 134a)	550	315	340	425	410	35
17	Flixotide	Fluticasone propionate 125.00mcg	Glaxowellcome Production (France)E	Non CFC (HFA 134a)	900	850	700	780	740	95
18	Flixotide	Fluticasone propionate 250.00mcg	Glaxowellcome Production (France)E	Non CFC (HFA 134a)	100	100	186	200	250	150
19	Pulmicort Turbuhaler	Budesonide 200.00mcg	Astrazeneca Limited UK	NonCFC (HFA134a)	200	180	150	110	100	80
	Total				**2,930**	**2,765**	**3,296**	**3,240**	**3230**	
20	Seretide Diskus.	Salmeterol 50mcg; Fluticasone propionate 250mcg	Glaxosmithkline UK Limited	DPI	-	-	-	150	100	202
21	Symbicort Turbuhaler	Budesonide80.00mcg Formoterol Fumarate 4.50 mcg	Astrazeneka UK	DPI	-	-	-	150	10	106
22	Seretide Discus pulb. for inhalat. 50/500 mcg-60 dose	Salmeterol xinafoate; Fluticasone propionate	Glaxo Operations UK Limited, UK	DPI	-	-	35	30	40	82
	Total				**0**	**0**	**35**	**330**	**150**	

Annex 2 – Nicaragua MDI Transition Strategy

"Transition Strategy towards CFC-free MDIs"
Nicaragua
PROJECT COVER SHEET

COUNTRY: NICARAGUA	**IMPLEMENTING AGENCY:** UNDP
PROJECT NAME	"Transition Strategy towards CFC-free MDIs"
PROJECT IN CURRENT BUSINESS PLAN	YES
SECTOR COVERED	MDI
PROJECT IMPACT	0.0 ODP tons
PROJECT DURATION	24 months
TOTAL PROJECT COST	US$ 30,000
LOCAL OWNERSHIP	100 %
EXPORT COMPONENT	N/A
REQUESTED GRANT	US$ 30,000
COST-EFFECTIVENESS	Not Applicable – TAS
AGENCY SUPPORT COSTS	2,700 (9%)
STATUS OF COUNTERPART FUNDING	N/A
NAT. COORDINATING AGENCY	National Ozone Unit: Ozone Technical Office (OTO) under the Ministry of Environment and Natural Resources of Nicaragua (MARENA) and Ministry of Health (MINSA)
PROJECT MONITORING MILESTONES INCLUDED	Included in Document
BENEFICIARY ENTERPRISE	Not Applicable

PROJECT SUMMARY

The Republic of Nicaragua is presenting a "Transition Strategy towards CFC-free MDIs", for the gradual elimination of CFC-based products, with the objective of ensuring a smooth and more expeditious transition towards the use of CFC-free MDIs in the country, avoiding any adverse effects on the health of the population, and minimizing the effects on the economy of the country.

The Action Plan for the implementation of the "Transition Strategy towards CFC-free MDIs" will be composed of the following initiatives:

1. **Modifications of the legal framework**
2. **Awareness and education campaigns**
3. **Monitoring of results**

Annex 2 – Nicaragua MDI Transition Strategy

Background

The Republic of Nicaragua is presenting a proposal for a "Transition Strategy towards CFC-free MDIs", for a total amount of US $ 30,000, for the consideration of the Executive Committee of the "Multilateral Fund for the Implementation of the Montreal Protocol", at its 56th Meeting. This proposal was first presented for consideration at the 48th Executive Committee meeting but was deferred upon the kind request from the Multilateral Fund Secretariat in order to give precedence to other more pressing priorities at the time. A series of unfortunate events out of the control of the government and UNDP prevented the presentation of this project again until now.

Nicaragua does not produce or export any CFCs, and for year 2007 reported a total consumption of 3.68 ODP tons of Annex A Group I substances, represented entirely by its imports of these substances. There is no manufacturing of products based on CFCs in the country, either.

Consequently, the country does not manufacture any CFC-based MDIs, which are all imported into the country already manufactured and, therefore, all the CFC consumption for the manufacturing of these products does not affect the level of CFC consumption of Nicaragua. Nevertheless, Nicaragua is committed to undertake a "Transition Strategy towards CFC-free MDIs", in accordance with Decision XII/2 of the Parties to the Montreal Protocol.

Sector description

There was a total consumption of 746,071 units of MDIs in the country in year 2007 (excluding donations to the government), where the public (Government) consumption was 564,000 units and represented 75.61% of the total, while private consumption was 182,071 units, or 24.39% of the total. CFC-free MDIs represented only 10% of Government MDI consumption and 78% of private MDI consumption. In contrast, back in 2004, CFC-free MDIs represented 0% of Government MDI consumption and 38% of private MDI consumption. Indeed, the transition towards CFC-free MDIs is already taking place, albeit at a much slower pace for the government consumption.

MDI consumption is increasing steadily since year 2004, together with the rate of COPD in the country, from a total of 246,883 units in 2004, to 746,071 units in 2007, but the increase is much steeper for government consumption for the national health system, probably as a response to the priority assigned to public health by the government.

Similarly, the rate of CFC-free MDIs is also increasing steadily, albeit very slowly, from 22% of the total in year 2004 to 34% in 2007. Conversely, the rate of CFC-based MDIs has gone down from 78% to 66% in the same period, but it has increased almost three-fold in absolute terms. Annex I of this document has the details.

Annex II presents the units of CFC and non-CFC MDIs sold or distributed in Nicaragua, by active ingredient, and brand/manufacturer. The amount of DPIs is negligible and is not included. ANNEX III presents the non-CFC MDIs registered in Nicaragua for marketing, and those in the process of being registered. One significant trend is that 100% of MDIs seeking sanitary registration are not based on CFC.

Finally, Annex IV presents a list of comparative prices for CFC and non-CFC MDIs, evidencing the fact that non-CFC MDIs are on average from to 2 to 56 times more expensive than CFC-MDIs, which is very probably the reason why the transition towards non-CFC MDIs has been slow, and even slower for the government than for the private sector.

The internal market for MDIs in Nicaragua was supplied in year 2007 by 9 private multinational companies, namely: Aldo Union, Astra Zeneca AB, Boehringer Ingelheim, Glaxo Wellcome, Cipla Ltd. India, Meditabs Specialties, Novartis Pharma, and Pharmachemie B.V., and Schering.

Of these companies, Aldo Union, Boehringer, and Meditab Specialties have the lead with 78.38%, 8.2% and 7.8% of the private market, respectively. Given that the Governments purchases 73% of all its MDIs to Meditabs Specialties, this makes this company dominate the internal market.

Legal framework

The legal framework that governs MDI trade in the country is formed primarily by the basic national laws that define the powers of the executive and its branches, and those regarding ODSs. In addition, there are the laws specifically related to pharmaceutical products, which are:

- **Law No 292 "Law of Medications and Pharmacies"**

This law regulates the following elements related to medications for human consumption: a) Manufacturing, distribution, import, export, storage, promotion, experimentation, commercialization, and prescription, b) Selection, evaluation, quality control, and sanitary registration, and c) Information, publicity and rational use of medications.

- **Decree No 6-99 Regulation of Law 292 "Law of Medications and Pharmacies"**

This regulation deals with the following: a) Quality control practices, b) Good practices in manufacturing of medications, c) Information and promotion of medications and similar products, d) Donations, e) Evaluation of the efficacy and toxicity of medications post marketing, and f) Public education campaigns.

- **Law No 182 "Law for the Defense of Consumers"**

The objective of this law is to guarantee to consumers the acquisition of products or services of the best quality, from public or private enterprises.

- Decree No 2187 Regulation of the Law No 182 "Law for the Defense of Consumers"

This decree establishes the quality control and prices of medications for human consumption, under the purview of the Ministry of Health, concerning the quality control, and under the Ministry of Promotion, Industry and Commerce, concerning the price control.

Previous projects

The Executive Committee has not approved any previous project for this sector in

Nicaragua, but has approved, so far, a total of 21 projects for several sectors, for a total funding of US$ 1,022,657.

MDI Transition strategy

It is estimated that if nothing is done, the present trend will continue, where the government will slowly decrease the number of CFC-based MDIs and eventually eliminate them from the government purchases, when the market no longer offers those products. Nevertheless, before that happens the market might be subject to possible dumping of CFC-based MDIs, with the inevitable increase of government purchases. The government considers essential to expedite the transition towards CFC-free MDIs by assisting the Ministry of Health in establishing new legal guidelines concerning MDIs, and supporting the process through promotion of public awareness of the problem.

The Republic of Nicaragua has then decided to adopt a "Transition Strategy towards CFC-free MDIs", through the gradual elimination of CFC-based products, with the objective of ensuring a smooth transition towards the use of CFC-free MDIs in the country, avoiding any adverse effects on the health of the population, and minimizing the effects on the economy of the country.

The Action Plan for the implementation of the "Transition Strategy towards CFC-free MDIs" will be composed of the following initiatives:

1. Modification of the legal framework

The following modifications to the existing legal framework have been identified as necessary:

- **Establish a deadline for ban of import of pharmaceutical products containing CFC.**
- **Prevent the sanitary registration of new products containing CFC.**
- **Establish a new accelerated process for sanitary registration of CFC-free alternatives to CFC-based MDIs.**
- **Establish labeling requirements for CFC-free products as per Decision VIII/10(3) of the Meeting of the Parties to the Montreal Protocol.**
- **Establish new guidelines for donations of medications to require them to be CFC-free.**
- **Establish new guidelines for Government purchases of medications, to require them to be CFC-free. This may include a careful plan to promote donations of CFC-free MDIs, since their price will be prohibitive for the limited government budget.**

This initiative not only serves as a fundamental support measure for the transition process, but also sends a clear message to the key stakeholders. It is estimated that its implementation will require the work of a legal consultant, full time during a year.

2. Awareness and education campaign

The Government strategy must contemplate an institutional campaign of general information to the medical body of the national health system, and the patients, closely coordinated with the private campaigns, which they will support, since it will reinforce the confidence of the public.

While the private campaigns will be oriented necessarily to the introduction of a new

product in particular, the government campaign must emphasize:

- **The environmental threat posed by CFC-based products.**
- **The official position regarding the imminent replacement of CFC-based MDIs, and the country's obligations as a signatory to the Montreal Protocol.**
- **The proven efficacy of CFC-free MDIs and the physical changes that must be expected (odor, taste, among others), without any implication of adverse effects for the patient.**

The government campaign must develop in three basic stages: 1) The stage of training for the medical body in all the health centers run by MINSA, most probably through talks and presentations, 2) The stage of direct information to the patient, through leaflets, and posters, among others, located in MINSA health centers, hospitals, clinics and pharmacies, and 3) The final stage of direct communication doctor-patient at the moment of consultation.

3. Monitoring of results

The monitoring of the results of the MDI Transition Strategy will include, among others:

- **Follow up and post-marketing surveillance of each new product introduced in the market, and the contingency plans if necessary.**
- **Definition of procedures for confiscation and later destruction of those CFC-based products that must be taken out of the market.**
- **Quarterly report of monitoring results, analysis of problems encountered and recommendations for corrective measures.**
- **Annual report to the Executive Committee of the Multilateral Fund.**

The implementation of the "Transition Strategy towards CFC-free MDIs" will be conditioned by the availability of resources, and the results of the studies of any possible adverse clinical reactions to the alternatives, as well as the determination of possible critical uses in the country.

The total cost of the proposed "Transition Strategy towards CFC-free MDIs" is US $ 30,000, and the "Government of Reconciliation and National Unity of the Republic of Nicaragua" has sent the corresponding transmittal letter for presentation of the project.

Annex 2 – Nicaragua MDI Transition Strategy

Appendix I: MDI consumption in Nicaragua

MDI consumption by private and public (government) sector, in units

Sector	Units Year 2004	Units Year 2005	Units Year 2006	Units Year 2007
Private MDI use	143,383	153,420	162,625	182,071
Public MDI use	103,500	242,167	408,204	564,000
Internal MDI market	246,883	395,587	570,829	746,071

MDI consumption by CFC-based and CFC-free categories, in units

Category	Year 2004	Year 2005	Year 2006	Year 2007
CFC-based	192,120	293,375	394,631	495,886
CFC-free	54,763	102,212	176,198	250,185
Internal	246,883	395,587	570,829	746,071

Percentage of MDI consumption by CFC-based and CFC-free categories

Category	Year 2004	Year 2005	Year 2006	Year 2007
CFC-based	78%	74%	69%	66%
CFC-free	22%	26%	31%	34%
Internal	100%	100%	100%	100%

Percentage of MDI consumption by CFC-based and CFC-free categories, for private and public sectors in 2004

	Private	Public	
Category	2004	2004	Total
CFC-based	62%	100%	78%
CFC-free	38%	0%	22%
Total	100%	100%	100%

Percentage of MDI consumption by CFC-based and CFC-free categories, for private and public sectors in 2007

	Private	Public	
Category	2007	2007	Total
CFC-based	22%	90%	66%
CFC-free	78%	10%	34%
Total	100%	100%	100%

Annex 2 – Nicaragua MDI Transition Strategy

Appendix II: CFC and non-CFC MDIs: sold or distributed within the Nicaragua, by active ingredient, brand/manufacturer, and source **(units)**

Nr. d/o	Product	Active Ingredient	Brand/Manufacturer/ Country	Technology/Years (CFC - MDI/HFA -MDI/DPI	Year 2005	Year 2006	Year 2007
1	Alergocrom 1 mcg/1 ml. Aerosol.	Cromoglicato disódico	Aldo Union	CFC12, 114	262	231	200
2	Atrovent CA-20. 0.02 mg /dose solución para inhalador. Frasco de 20 ml	Bromuro de ipatropio	Boehringer Ingelheim	CFC11, 12, CFC114	10,036	8,322	6,608
3	Becloasma 250. mcg /dose. Aerosol	Beclometasona dipropionato	Aldo Union	CFC11, 12	3,116	6,058	9,000
4	Beclometasona 50 mcg dose. 200 dose	Beclometasona dipropionato	Meditab Specialties	CFC11, 12	1,396	2,791	4,187
5	Butosol 0.020 g x 0.010g/10 ml. Aerosol	Salbutamol + Beclometasona dipropionato	Aldo Union	CFC12, CFC114	1,812	2,906	4,000
6	Combivent 100 mcg x 20 mcg/100 mcg suspensión aerosol	Salbutamol sulfato + ipatropio bromuro	Boehringer Ingelheim	CFC11, 12, CFC114	4,311	3,190	2,068
7	Salbutamol Aerosol	Salbutamol	Cipla Ltd. India	CFC11, 12	16,200	32,400	48,600
8	Salbutamol sulfato 100mcg dose	Salbutamol sulfato	Meditab Specialties	CFC11, 12	140,408	280,815	421,223
9	Becotide 50 mcg /dose suspension en aerosol, Inhaler.	Beclomethasone Dipropionate	Glaxo Wellcome	CFC11, 12	2,773	1,387	0
10	Flucotide 50 mcg /dose Inhaler aerosol.	Fluticasone propionate	Glaxo Wellcome	CFC11, 12	1,840	920	0
11	Salbutamol Aerosol	Salbutamol	Wockhardt Limited	CFC11, 12	6,667	3,333	0
12	Salbutamol aerosol Bottle 10 ml	Salbutamol	Medicuba (IUMED)	CFC11, 12	102,268	51,134	0
13	Ventide 0.1176g x0.0588g/100ml suspension aerosol.	Salbutamol + Beclomethasone Dipropionate	Glaxo Wellcome	CFC11, 12	2,287	1,143	0
Total					**293,376**	**394,630**	**495,886**
1	Aldopulmin 0.04% Via inhalatoria oral, 10ml de aerosol	Bromuro de ipatropio	Aldo Unión	CFC-free	1,333	2,667	4,000
2	Atrovent CA-10 ml (14 g) 20 mcg suspensión aerosol	Bromuro de ipatropio	Boehringer Ingelheim	Gas Nitrógeno	6,184	4,377	2,570
3	Becloasma 0.1% (50 mcg /dose). Aerosol. Caja con envase de aluminio y válvula dosificadora	Beclometasona dipropionato	Aldo Union	HFC134a	50,000	100,000	150,000
4	Budena 200mcg	Budenosida	Aldo Unión	CFC-free	233	467	700
5	Budena 50mcg	Budenosida	Aldo Unión	CFC-free	1,000	2,000	3,000
6	Butoasma 0.2% (100 mcg /dose). Aerosol	Salbutamol	Aldo Union	HFC134a	36,670	58,335	80,000
7	Combivent 0.5 mg x 3mg/2.5 ml solución monodose para nebulización. Caja con 10 ampollas de plástico de 2.5 ml de solución c /u	Salbutamol sulfato + Ipatropio bromuro	Boehringer Ingelheim	CFC-free	4,678	4,128	3,577
8	Foradil 12 mcg cápsulas con polvo seco para inhalación. Caja con 30 cápsulas con inhalador plástico	Formoterol fumarato	Novartis Pharma	CFC-free	75	150	225
9	Salbutamol Sulfato Albuterol. Solución p/Nebulizador 5mg/ ml. 0.5 %. Frasco 20 ml	Salbutamol sulfato	Unipharm de Nicaragua	CFC-free	2,000	4,000	6,000
10	Spiriva 18mcg para inhalación de polvo seco	Bromuro de Tiotropio	Boehringer Ingelheim	CFC-free	38	75	113
Total					**102,211**	**176,199**	**250,185**

Annex 2 – Nicaragua MDI Transition Strategy

Appendix III: Non-CFC MDIs: date approved, authorized for marketing, and/or launched in the territory of Nicaragua;

CFC-free MDIs registered in Nicaragua

Product name	Propellant	Company	Active ingredient	Category
Beclazone 50 mcg/dose. Aerosol	HFA	Norton Ireland	Beclomethasone Dipropionate	B
Berotec PA 100 mcg/dose. Aerosol suspension	HFA134 a	Boehringer-Ingelheim Pharma KG	Fenoterol Bromhydrate	A
Berodual PA 0.02 mgx0.05 mg/dose Aerosol suspension.	HFA134 a	Boehringer-Ingelheim Pharma KG	Fenoterol y Ipatropium bromide	B
Flixotide 50 mcg/dose. Aerosol suspension.	HFA134 a	Glaxo Wellcome Operation UK	Propionate de Fluticasone	F (B+E)
Atrovent PA 20 mcg/dose Aerosol suspension.	HFA134 a	Boehringer-Ingelheim Pharma KG	Ipatropium bromide	D
Beclazone 100 mcg/dose Aerosol solution	HFA	Norton Ireland	Beclomethasone	D
Beclazone 250 mcg/dose Aerosol solution	HFA	Norton Ireland	Beclomethasone	D
Seretide Evohaler 25 mcg x 50 mcg/dose Aerosol suspension	HFA134 a	Glaxo Wellcome Production France for Glaxo SmithKline A.G	Salmeterol Dipropionate de Fluticasone	B y E
Seretide Evohaler 25 mcg x 250 mcg/dose Aerosol suspension	HFA134 a	Glaxo Wellcome Production France for Glaxo SmithKline A.G	Salmeterol Dipropionate de Fluticasone	B y E

Source: "Dirección de acreditación y regulación de medicinas y alimentos", MINSA. 2007

CFC-free MDIS being registered in Nicaragua

GENERIC NAME	PROPELLANT	MANUFACTURER
Beclometasona	HFA-134ª	Cipla Ltd
Bromuro de Ipratropio	HFA-227	Cipla Ltd
Budesonida	HFA – 134ª	Astra Zeneca
Budesonida, fumarato de formoterol	HFA – 227	Astra Zeneca

SOURCE: "Dirección de acreditación y regulación de medicinas y alimentos", MINSA. 2007

Annex 2 – Nicaragua MDI Transition Strategy

Appendix IV: CFC and non-CFC MDIs: estimated cost by active ingredient and source, in Nicaragua."

PRODUCT	INGREDIENT	MANUFACTURER	PROPELENT	PRICE IN US$	PRICE COMPARISON (1)
Becloasma 0.1% (50 mcg /dose). Aerosol.	Beclometasona dipropionato	Aldo Union	HFC134a	U$ 10.87	56
Butoasma 0.2% (100 mcg /dose). Aerosol	Salbutamol	Aldo Union	HFC134a	U$ 6.79	4.11
Albuterol. Salbutamol sulfato 100 mcg dose	Salbutamol sulfato	Unipharm de Nicaragua	CFC-free	U$ 6.27	3.52
Aldopulmin 0.04% Via inhalatoria oral, (Frasco de 10ml)	Bromuro de ipatropio	Aldo Unión	CFC-free	U$10.43	1.93

PRODUCT	INGREDIENT	MANUFACTURER	PROPELENT	PRICE IN US$
Becloasma (250 mcg /dose) Aerosol	Beclometasona dipropionato	Aldo Union	CFC11, CFC12	U$10.45
Salbutamol Aerosol (100 mcg /dose).	Salbutamol	Cipla Ltd. India	CFC11, CFC12	U$ 1.65
Salbutamol sulfato 100 mcg dose	Salbutamol sulfato	Meditab Specialties	CFC11, CFC12	U$ 1.78
Atrovent CA-20. 0.02 mg /dose (Frasco de 20 ml)	Bromuro de ipatropio	Boehringer Ingelheim	CFC11, CFC12, CFC114	U$10.76

(1) Price comparison with equivalent CFC-based product

INDIA

FUNDING REQUEST FOR PREPARATION OF HCFC PHASE-OUT MANAGEMENT PLAN (HPMP – STAGE 1)

Submitted on behalf of

OZONE CELL, MINISTRY OF ENVIRONMENT & FORESTS
GOVERNMENT OF INDIA

By

United Nations Development Programme (UNDP)
Lead Agency for HPMP

In consultation with:

UNEP, UNIDO, GERMANY
Cooperating Agencies

Annex 3 – PRP Request for HPMP for India

INDIA -- REQUEST FOR FUNDING FOR PREPARATION OF HPMP (STAGE-1)

1. Introduction

Subsequent to Decision XIX/6 of the Meeting of the Parties and Decisions 53/37 and 54/39 of the Executive Committee, UNDP had included in its 2008 Work Programme Amendment, a request for funding for preparation of HPMP for India (along with many other countries).

UNDP's initial submission of this request was based on a single-step approach to meet all the requirements of Decision 54/39 to deliver a comprehensive HPMP (first stage) document, containing a proposed national action plan and funding proposals, enabling India to comply with the first control targets for HCFCs, i.e., the 2013 freeze and 2015 reductions in one step, without having to return to the Executive Committee for additional requests for preparation funding.

During the process of evaluation of this funding request, the MLF Secretariat proposed a two-step approach for preparation of HPMPs. The first step, for which a proposed a maximum funding level of US$ 195,000 was recommended (for countries with 2005/6 HCFC consumption between 120 and 1,200 ODP tonnes), to meet the cost of preparation of a HPMP strategy, consisting of the necessary components for policy development, data collection and strategy development. The second and/or simultaneous step, would involve preparation of individual, group or sector-level investment projects, funding for preparation of which, may be requested after obtaining additional knowledge of enterprise-level and sector-level baselines. The funding level for the second step is as yet undetermined.

Taking into account the implications of both the above-mentioned approaches and upon consultations with UNDP (Lead Agency), MLF Secretariat and cooperating agencies, MOEF indicated its preference to pursue a single-step approach for HPMP preparation. Accordingly, a revised request for preparation funding for a comprehensive HPMP document for 2013 and 2015 compliance is being submitted.

2. Background

In 2005, India consumed slightly over 11,000 metric tonnes of HCFCs, of which, about 8,900 metric tonnes were of HCFC-22, about 2,200 metric tonnes of HCFC-141b and minor quantities of other HCFCs. Additionally, India has facilities for production of HCFC-22 at five producers. In 2005, the total production of HCFC-22 for controlled (non-feedstock) use was estimated at about 25,000 metric tonnes. As established during the HCFC survey carried out in 2005-2006, the HCFC consuming sectors are experiencing significant growth over the past few years and are projected to do so in the future, at about 10-15% annually.

Considering this trend, and considering that the first two control targets for HCFC consumption start from 2013, there would be net of only 4 years beginning 2009, to design and implement appropriate actions for reducing demand and/or effecting reductions in HCFC consumption. **Based on a projected annual growth rate in consumption of 10%, it is estimated that India may have to reduce HCFC demand by over 7,300 metric tonnes (about 486 ODP tonnes) to comply with the 2013 freeze and 2015 reduction targets (See Annex-I).** These reductions may not be available through one sector/substance; therefore multiple sectors/substances will need to be addressed.

3. Roles of Implementing/Bilateral Agencies in the HPMP process

India is a large, highly populated, geographically diverse country, with an established manufacturing base in a variety of industrial sectors. It has a large and growing middle class. Typically, any industrial sector comprises of a large number of SMEs, spread widely throughout the country. The HCFC consuming sectors are not an exception to this profile. In implementing its Montreal Protocol commitments pertaining to phase-out of CFCs, India has been assisted by several multilateral and bilateral implementing agencies.

Given the size and extent of the challenges involved in complying with the adjusted control targets for HCFCs and drawing from its experience in successfully implementing CFC phase-out activities under such dispensation, India believes in the involvement of multiple implementing agencies, taking advantage of their specific capabilities and comparative advantages. Accordingly, the Empowered Steering Committee of the Ministry of Environment and Forests, in its XXXIVth Meeting decided to allocate the tasks involved in preparation and implementation of India's HPMP for complying with the 2013 and 2015 targets, to various agencies as below:

UNDP: Lead Agency and
All consumption sectors (except Transport Refrigeration & Air Conditioning Sub-sector)

UNEP: Non-investment activities such as information exchange/outreach, customs and enforcement training, trade monitoring and control, etc.

UNIDO: Transport Refrigeration & Air Conditioning Sub-sector

Germany: Refrigeration and Air Conditioning Servicing Sector

World Bank: HCFC Production Sector

4. Reduction Analysis for 2013/2015 compliance

Based on 2005 data (which was also used as a reference for the HCFC survey carried out in India during 2005-2007), the broad distribution of HCFC consumption in various sectors and the corresponding reductions needed for 2013/2015 compliance is as below:

Sector	HCFC Consumption in 2005 (ODP tonnes)	Projected consumption at Baseline (ODP tonnes)	Estimated reductions for 2013/2015 compliance (ODP tonnes)
Aerosols	8	12	5
Firefighting	*	*	*
Foams	178	274	118
Refrigeration & Air Conditioning			
- Manufacturing	422	654	280
- Servicing	`124	187	82
Solvents	~1	~1	~1

Total	**733**	**1,127**	**486**

The above analysis is based on an average projected annual growth rate of 10%. The actual projected growth rates as established in the HCFC survey were different in various sectors/sub-sectors ranging from 10% to 15%. For ease of calculations, a uniform growth rate of 10% is used for determining the broad requirements of reductions needed for compliance with the 2013/2015 targets. More detailed sector/sub-sector level information is presented in Appendix-A.

From the above analysis, the estimated reductions in HCFC consumption required for 2013/2015 compliance are 486 ODP tonnes (about 7,300 metric tonnes of HCFC-141b and HCFC-22). It is evident that the Foams and Refrigeration & Air Conditioning (Manufacturing) Sectors would provide the bulk (398 ODP tonnes) out of the total reductions needed (486 ODP tonnes) for 2013 and 2015 compliance. It follows that these two sectors would need to be prioritized for actions.

Since the Refrigeration & Air Conditioning (Servicing) Sector would also need to reduce about 1,500 metric tonnes (about 82 ODP tonnes), and given the increased demand for HCFCs in servicing due to increase in population of HCFC-based equipment, this sector would also need to receive adequate focus in designing 2013/2015 compliance actions.

To support actions for HCFC reductions, it would be necessary to design appropriate regulatory interventions for controlling HCFC use sustainably. In addition, to sensitize the stakeholders on impending controls on HCFC use, it would be necessary to design appropriate information exchange, outreach and capacity-building measures.

Thus, based on the above, India would need to adopt a comprehensive approach to address the needs for 2013/2015 compliance. Given the limited time available, and the scale of the challenges involved (reductions of over 7,300 metric tonnes over about 4 years), India has chosen a single-step HPMP process, covering all the preparation funding needs for 2013/2015 compliance. This would facilitate the development of an HPMP incorporating fundable HCFC phase-out proposals at the earliest, allowing adequate time for implementing compliance actions.

5. HPMP Preparation Funding

In their respective Work Programme Amendments, the agencies submitted funding requests to the 55th Meeting of the Executive Committee for HPMP preparation for India. These requests were based on a single-step approach, *with a full-fledged HPMP document inclusive of funding requests for project activities for complying with the 2013/2015 targets as a deliverable.* Further to the evaluation of the HPMP preparation funding requests by MLF Secretariat and discussions held at the 55th Meeting of the Executive Committee, it was suggested that this funding request should be translated into cost categories as proposed by the MLF Secretariat, with additional justifications for sector/sub-sector level preparation funding.

It was decided that for countries with 2005 (or 2006) HCFC consumption between 120 and 1,200 ODP tonnes (India is classified in this category), an amount of US$ 195,000 would be eligible for preparation of an overarching HPMP, comprising of data collection/survey (US$ 85,000), strategy development (US$ 80,000) and policy assistance (US$ 30,000). For those countries in which an HCFC survey was funded by ExCom earlier (India is classified in this category), 25% of the data collection/survey costs, amounting to US$ 21,250 would be deducted. Thus, in case of India, a net amount of US$ 173,750 would be eligible for HPMP preparation, excluding funding for preparation of HCFC phase-out projects/activities.

Based on the above, the revised HPMP preparation funding request for India is summarized below:

Agency	Sector/Sub-sector	Funding* Request (US$)
UNDP (Lead Agency)	Overarching HPMP strategy including policy support, data collection and analysis and strategy development	173,750
	Project preparation for Aerosols Sector	25,000
	Project preparation for Firefighting Sector	25,000
	Project preparation for Foams Sector	125,000
	Project preparation for the Refrigeration and Air Conditioning (Mfg) Sector (except Transport Refrigeration & Air Conditioning sub-sector)	205,000
	Project preparation for Solvents Sector	25,000
	Sub-total (UNDP)	**578,750**
UNEP	Preparation of information exchange and outreach strategy	50,000
	Preparation of HCFC trade monitoring and control strategy	50,000
	Preparation of training strategy for enforcement	45,000
	Sub-total (UNEP)	**145,000**
UNIDO	Transport Refrigeration and Air Conditioning (Mfg)	120,000
	Sub-total (UNIDO)	**120,000**
Germany	Preparation of Refrigeration & Air Conditioning Servicing Sector Plan	211,270
	Sub-total (Germany)	**211,270**
World Bank	Preparation of HCFC production sector plan	**
	Sub-total (World Bank)	****
Total		**1,055,020**

*The funding request presumes that the deliverable would be a comprehensive and fundable HPMP (First Stage) document focusing on compliance with the 2013 and 2015 control targets for consumption. India would not request any further funding for project preparation activities for 2013/2015 compliance. It is also understood that India will retain the flexibility in allocation or reallocation of approved funding or parts of that funding to sectors/sub-sectors as required by evolving circumstances to achieve the objective of preparing a comprehensive HPMP (First Stage) proposal focusing on 2013/2015 compliance.

**The proposal for project preparation for the HCFC Production Sector will be submitted by World Bank in the 57th ExCom meeting.

The detailed breakdown of project preparation funding requests for the sectors assigned to UNDP is attached as Appendix-B. The detailed breakdown of project preparation funding requests from other agencies for their respective sectors/sub-sectors will be included in their respective work programme amendments.

Annex 3 – PRP Request for HPMP for India

APPENDIX-A

INDIA
HCFC Reductions Analysis for 2013/2015 Compliance

Country:	**INDIA**	**Baseline Year:**	**Average of 2009 and 2010**
Projected annual growth rate (%):	**10.00**	**Reference Year:**	**2005**

Sector	Sub-sector	Consumption in Reference Year					Projected consumption in Baseline Year	Projected unconstrained consumption at 2013	Estimated reductions for 2015 compliance
		HCFC-141b	HCFC-22	HCFC-123	Other	Total			
AEROSOLS	Aerosols (All)	71	0	0	0	71	109	145	47
FOAMS	Rigid Foams (Dom/Com Ref)	585	0	0	0	585	899	1,197	388
	Rigid Foam (General)	963	0	0	0	963	1,480	1,970	638
	Integral Skin Foam	72	0	0	0	72	111	147	48
RAC (MANUFACTURING)	Commercial & Industrial Ref	415	1,270	0	0	1,685	2,590	3,448	1,116
	Residential & Comm. AC	0	4,510	0	0	4,510	6,933	9,228	2,988
	Transport Ref and AC	50	390	0	0	440	676	900	292
	Industrial AC and Chillers	0	470	0	0	470	723	962	311
RAC (SERVICING)	Refrigeration Servicing	0	2,214	0	0	2,214	3,404	4,530	1,467
SOLVENTS	Solvents (all)	0	0	17	0	17	26	35	11
FIREFIGHTING	Firefighting (all)	0	0	0	0	0	0	0	0
TOTAL (Metric tonnes)		**2,156**	**8,854**	**17**	**0**	**11,027**	**16,952**	**22,563**	**7,306**
TOTAL (ODP tonnes)		**237**	**496**	**0**	**0**	**733**	**1,127**	**1,501**	**486**

Notes:

1. Breakdown of consumption in sectors/sub-sectors are estimated figures based on findings of the HCFC survey during 2005-2007.
2. Zero consumption in a sector/sub-sector indicates that adequate information was not available or that consumption was in trace quantities. The actual figures will be established after a detailed data collection exercise as part the HPMP process.
3. The projected annual growth rate of 10% has been uniformly applied across sectors/sub-sectors in the above table. The findings from the HCFC survey indicate variable growth rates up to 15%.

APPENDIX-B

INDIA
Breakdown of sector/sub-sector level project preparation funding requests (UNDP)

Overarching HPMP	
Policy assistance	30,000
Data collection and analysis	63,750
Strategy development	80,000
Total (A)	**173,750**

Aerosols Sector	
International expert costs (10 work-days X US$ 500)	5,000
National expert costs (25 work-days X US$ 200)	5,000
Travel and other expenses for experts	10,000
Industry interaction meetings/workshop	5,000
Total (B)	**25,000**

Firefighting Sector	
International expert costs (10 work-days X US$ 500)	5,000
National expert costs (25 work-days X US$ 200)	5,000
Travel and other expenses for experts	10,000
Industry interaction meetings/workshop	5,000
Total (C)	**25,000**

Foams Sector	
International expert costs (50 work-days X US$ 500)	25,000
National expert costs (150 work-days X US$ 200)	30,000
Travel and other expenses for experts	45,000
Industry interaction meetings/workshops	20,000
Documentation and reporting	5,000
Total (D)	**125,000**

Refrigeration & Air Conditioning (Manufacturing) Sector	
International expert costs (25 work-days/expert X 4 X US$ 500)	50,000
National expert costs (75 work-days/expert X 4 X US$ 200)	60,000
Travel and other expenses for experts	60,000
Industry interaction meetings/workshops	30,000
Documentation and reporting	5,000
Total (E)	**205,000**

Solvents Sector	
International expert costs (10 work-days X US$ 500)	5,000
National expert costs (25 work-days X US$ 200)	5,000
Travel and other expenses for experts	10,000
Industry interaction meetings/workshop	5,000
Total (F)	**25,000**

Grand Total (A+B+C+D+E+F)	**578,750**

ISLAMIC REPUBLIC OF IRAN

FUNDING REQUEST FOR PREPARATION OF HCFC PHASE-OUT MANAGEMENT PLAN (HPMP – STAGE 1)

Submitted on behalf of

OZONE LAYER PROTECTION UNIT
DEPARTMENT OF ENVIRONMENT
GOVERNMENT OF IRAN

By

United Nations Development Programme (UNDP)
Lead Agency for HPMP

In consultation with:

UNEP, UNIDO, GERMANY
Cooperating Agencies

Annex 4 – Iran PRP Request for HPMP

Islamic Republic of Iran

FUNDING REQUEST FOR PREPARATION OF HCFC PHASE-OUT MANAGEMENT PLAN (HPMP - FIRST STAGE)

1. Introduction

Subsequent to Decision XIX/6 of the Meeting of the Parties and Decisions 53/37 and 54/39 of the Executive Committee, UNDP had included in its 2008 Work Programme Amendment, a request for funding for preparation of HPMP for Iran along with many other countries.

UNDP's (and other cooperating agencies') initial submission of the funding request was based on a single-step approach to meet all the requirements of Decision 54/39 to deliver a comprehensive HPMP (first stage) document, containing a proposed national action plan and funding proposals for enabling Iran to comply with the first control targets for HCFCs, i.e., the 2013 freeze and 2015 reductions in one step, without having to return to the Executive Committee for additional requests for preparation funding.

During the process of evaluation of this funding request, the MLF Secretariat proposed a two-step approach for preparation of HPMPs. The first step, for which a proposed a maximum funding level of US$ 195,000 was recommended (for countries with 2005/6 HCFC consumption between 120 and 1,200 ODP tonnes), to meet the cost of preparation of a HPMP strategy, consisting of the necessary components for policy assistance, data collection and strategy development in compliance with Decision 54/39. The second and/or simultaneous step, would involve preparation of individual, group or sector-level investment projects, funding for preparation of which, may be requested after obtaining additional knowledge of enterprise-level and sector-level baselines, before the overall HPMP was completed. The funding level for the second step remains undetermined at this time.

Taking into account the implications of both the above-mentioned approaches and upon consultations with UNDP (Lead Agency) and cooperating agencies, Iran indicated its preference to pursue a single-step approach for HPMP preparation.

Accordingly, a revised request for preparation funding for a comprehensive HPMP document for 2013 and 2015 compliance is being submitted, for consideration at the 56th Meeting of the Executive Committee.

2. Background

Iran's HCFC consumption, as reported under Article-7F for 2005 and 2006, was as below:

Consumption/ Year	ODS metric tonnes			ODP tonnes		
	HCFC-22	HCFC-141b	Total	HCFC-22	HCFC-141b	Total
2005	1,597	661	**2,258**	87.84	72.75	**160.59**
2006	1,721	719	**2,440**	94.66	79.11	**173.77**

The HCFC survey carried out in Iran by UNDP in 2005-2006 established that the HCFC consumption in Iran increased rapidly at about 24% annually from 1995 to 2005. The unconstrained demand until 2010 was projected to grow by least 10% annually and by 7.5% annually until 2015.

Based on these growth rates, Iran's HCFC consumption would reach about 3,247 metric tonnes by 2009 and 3,571 metric tonnes by 2010. Thus, Iran's projected baseline (average of 2009 and 2010) is expected to be 3,419 metric tonnes. Similarly, from 2010 onwards at an unconstrained growth rate of 7.5% annually, Iran's consumption would reach 4,247 metric tonnes in 2013 and 4,909 metric tonnes in 2015. **From this preliminary analysis, Iran would need to reduce its demand for HCFCs by about 1,500 metric tonnes (or about 100 -120 ODP tonnes) from its projected baseline, in order to comply with the 2013 and 2015 control targets.** If the actual growth rates are higher than those projected in the survey, then the reductions in demand would need to be higher.

Considering the HCFC consumption profiles in different sectors/sub-sectors, as delineated in the HCFC survey carried out in Iran during 2005-2006, the reductions in demand needed for compliance with the 2013 and 2015 control targets would not be available by implementing actions in one single sector. Therefore, actions for compliance would need to focus on all sectors where reductions could be possible. There would be in effect, a net of about 4 years available for designing and implementing actions for compliance with the 2013 and 2015 control targets. The average period needed for achieving reductions in MLF funded projects is about three years. Therefore, it is evident there are significant time constraints. In addition, currently there are constraints on availability of acceptable and cost-effective alternative technologies. Given these constraints, Iran would face significant challenges for compliance and would need to focus on all HCFC consuming sectors for possible reductions, in order to comply with the 2013 and 2015 control targets.

Iran has therefore decided to pursue a single-step HPMP preparation process focusing on all HCFC consuming sectors.

3. Proposed Funding for HPMP Preparation

Iran is a large and geographically diverse country, with an established manufacturing base in a variety of industrial sectors. It has a large and growing middle class. Typically, any industrial sector comprises of a large number of SMEs, spread widely throughout the country. The HCFC consuming sectors are not an exception to this profile. To facilitate addressing this challenging industrial profile, Iran was assisted by several multilateral and bilateral implementing agencies for implementing its Montreal Protocol commitments pertaining to phase-out of CFCs.

Given the challenges involved in complying with the adjusted control targets for HCFCs and drawing from its experience in successfully implementing CFC phase-out activities under such dispensation, Iran has decided to assign multiple implementing agencies for the HPMP process, taking into account their specific capabilities and comparative advantages.

Accordingly, the Iran Department of Environment and National Ozone Committee have decided to allocate the tasks involved in preparation and implementation of Iran's HPMP for complying with the 2013 and 2015 targets, to various agencies as below:

Agency roles

UNDP has been assigned the role of the lead implementing agency for Iran's HPMP in view of the following:

- The early and pioneering work done by UNDP in HCFCs in several countries and the resultant accumulated experience and expertise with UNDP for specific technical and policy issues pertaining to HCFCs;
- The initial HCFC survey in Iran was carried out by UNDP;
- UNDP is the implementing agency for the Montreal Protocol institutional strengthening project for Iran through which it provides technical and policy assistance on an ongoing basis

Germany, UNEP and UNIDO will be the cooperating agencies.

Allocation of work

The allocation of work among the different agencies would be as below:

Sector/Activity	Sub-sectors	Activities	Agency
Overall HPMP Lead Agency	National	Strategy development, policy review and assistance, HPMP formulation, management & coordination, reporting interaction with MLF, etc.	UNDP
Non-investment activities	Policy assistance, awareness, and capacity-building	Stakeholder and public awareness at national level, customs & enforcement training/capacity-building, support for import and export controls and regulations	UNEP
Aerosols	All	Individual projects, group projects, sector plan, technical assistance	UNDP
Firefighting	All	Individual projects, group projects, sector plan, technical assistance	UNDP
Foams	Systems houses	Pilot/demonstration, investment and technical assistance projects	UNDP
	Rigid foams	Individual projects, group projects, sub-sector plan, technical assistance	Germany (Main)
			UNDP (Coop)
	Integral skin foams	Individual projects, group projects, sub-sector plan, technical assistance	Germany
	XPS/XPE foams	Individual projects, group projects, sub-sector plan, technical assistance	Germany
Refrigeration and Air Conditioning	Compressors manufacturing	Pilot/demonstration, investment and technical assistance projects	UNIDO
	Domestic, commercial and industrial refrigeration	Individual and/or group projects, sub-sector plan, technical assistance	UNDP
	Residential air conditioning	Individual and/or group projects, sub-sector plan, technical assistance	UNIDO
	Commercial and industrial air conditioning	Individual and/or group projects, sub-sector plan, technical assistance	UNDP
	Transport refrigeration and air conditioning	Individual and/or group projects, sub-sector plan, technical assistance	UNDP
	Servicing	Investment activities, including R&R, technical assistance and retrofit	Germany (Main)
		Good practices training	UNEP (Coop)
Solvents	All	Individual projects, group projects, sub-sector plan, technical assistance	UNDP

Annex 4 – Iran PRP Request for HPMP

Approach

Iran has decided to opt for a single-step approach for HPMP preparation, ***with a full-fledged HPMP (first stage) document inclusive of funding requests for project activities for complying with the 2013/2015 targets, as a deliverable.*** The submission of the HPMP (first stage) document is targeted for either the 59th or 60th ExCom meetings.

Consolidated funding request for HPMP preparation

The consolidated funding request for preparation of HPMP (first stage) for Iran, not including agency support costs) is as below:

Agency	Sector/Sub-Sector	Activity	Funding Request (US$)
UNDP (Lead Agency)	Overarching HPMP	Policy support, data collection and analysis and strategy development (adjusted for discounting of earlier HCFC survey)	173,750
	Aerosols	Project preparation	15,000
	Firefighting	Project preparation	20,000
	Foams (Systems houses)	Project preparation	25,000
	Foams *Cooperating agency*	Project preparation for the Rigid Foams sub-sector (SMEs)	16,750
	Refrigeration and Air Conditioning (Manufacturing) *Main agency*	Project preparation for domestic, commercial and industrial refrigeration sub-sectors	95,000
		Project preparation for commercial and industrial air conditioning	35,000
		Project preparation for transport refrigeration and air conditioning	25,000
	Solvents	Project preparation	15,000
	Sub-total (UNDP)		**420,500**
UNEP	Non-investment activities	Preparation of awareness strategy	25,000
		Preparation of training strategy for enforcement officers and strengthening import/export control policy	50,000
	Refrigeration and Air Conditioning (Servicing) *Cooperating agency*	Preparation of good practices training programme	25,000
	Sub-total (UNEP)		**100,000**
UNIDO	Compressor Manufacturing	Project preparation	40,000
	Refrigeration and Air Conditioning (Mfg) *Cooperating agency*	Project preparation for residential air conditioning	64,000
	Sub-total (UNIDO)		**104,000**
Germany	Foams Sector *Main Agency*	Project preparation for rigid and integral skin PU foam and XPS/XPE foams	133,250
	Refrigeration and Air Conditioning (Servicing) *Main agency*	Project preparation for Servicing Sector activities including R&R, retrofit and technical assistance	125,000
	Sub-total (Germany)		**258,250**
Total			**882,750**

Annex 4 – Iran PRP Request for HPMP

The funding request presumes that the deliverable would be a comprehensive and fundable HPMP (First Stage) document focusing on compliance with the 2013 and 2015 control targets for consumption. It is understood that Iran would not request any further funding for project preparation activities for 2013/2015 compliance. It is also understood that Iran will retain the flexibility in allocation or reallocation of approved funding or parts of that funding to sectors/sub-sectors as required by evolving circumstances to achieve the objective of preparing a comprehensive HPMP (Stage 1) proposal focusing on 2013/2015 compliance.

The detailed breakdown of project preparation funding requests for the sectors assigned to UNDP is attached as Appendix-A. The detailed breakdown of project preparation funding requests from other agencies for their respective sectors/sub-sectors will be included in their respective work programme amendments.

APPENDIX-A

IRAN

Breakdown of sector/sub-sector level project preparation funding requests (UNDP)

Overarching HPMP	
Policy assistance	30,000
Data collection and analysis	63,750
Strategy development	80,000
Total (A)	**173,750**

Aerosols Sector	
International expert costs (6 work-days X US$ 500)	3,000
National expert costs (15 work-days X US$ 200)	3,000
Travel and other expenses for experts	4,000
Industry interaction meetings/workshop	5,000
Total (B)	**15,000**

Firefighting Sector	
International expert costs (8 work-days X US$ 500)	4,000
National expert costs (20 work-days X US$ 200)	4,000
Travel and other expenses for experts	7,000
Industry interaction meetings/workshop	5,000
Total (C)	**20,000**

Foams Sector (Systems Houses)	
International expert costs (10 work-days X US$ 500)	5,000
National expert costs (25 work-days X US$ 200)	5,000
Travel and other expenses for experts	10,000
Industry interaction meetings	5,000
Total (D)	**25,000**

Foams Sector (Rigid Foams – SMEs)	
International expert costs (6 work-days X US$ 500)	3,000
National expert costs (15 work-days X US$ 200)	3,000
Travel and other expenses for experts	5,750
Industry interaction meetings/workshop	5,000
Total (E)	**16,750**

Refrigeration & Air Conditioning (Manufacturing) Sector – Domestic, Commercial & Industrial Refrig.	
International expert costs (12 work-days/expert X 3 X US$ 500)	18,000
National expert costs (30 work-days/expert X 3 X US$ 200)	18,000
Travel and other expenses for experts	34,000
Industry interaction meetings/workshops	20,000
Documentation and reporting	5,000
Total (F)	**95,000**

Refrigeration & Air Conditioning (Manufacturing) Sector – Commercial & Industrial Air Conditioning	
International expert costs (8 work-days/expert X 2 X US$ 500)	8,000
National expert costs (20 work-days/expert X 2 X US$ 200)	8,000
Travel and other expenses for experts	9,000
Industry interaction meetings/workshops	10,000
Total (G)	**35,000**

Annex 4 – Iran PRP Request for HPMP

Appendix-A (Cont'd)

Refrigeration & Air Conditioning (Manufacturing) Sector – Transport Refrigeration & Air Conditioning	
International expert costs (10 work-days X US$ 500)	5,000
National expert costs (25 work-days X US$ 200)	5,000
Travel and other expenses for experts	10,000
Industry interaction meetings	5,000
Total (H)	**25,000**

Solvents Sector	
International expert costs (6 work-days X US$ 500)	3,000
National expert costs (15 work-days X US$ 200)	3,000
Travel and other expenses for experts	4,000
Industry interaction meetings/workshop	5,000
Total (I)	**15,000**

Grand Total (A+B+C+D+E+F+G+H+I)	**420,500**

ANNEX 5

INDONESIA

FUNDING REQUEST FOR PREPARATION OF HCFC PHASE-OUT MANAGEMENT PLAN (HPMP – STAGE 1)

(Refrigeration & Air Conditioning – Manufacturing and Servicing Sectors)

Submitted on behalf of

KEMENTRIAN NEGARA LINGKUNGAN HIDUP (KLH)
STATE MINISTRY OF NATURAL ENVIRONMENT
GOVERNMENT OF INDONESIA

By

United Nations Development Programme (UNDP)
Lead Agency for HPMP

In consultation with:

WORLD BANK, UNIDO
Cooperating Agencies

Annex 5 – Indonesia PRP Request for HPMP

Indonesia
REQUEST FOR FUNDING FOR PREPARATION OF HPMP (STAGE-1)
(Refrigeration & Air Conditioning Manufacturing & Servicing Sectors)

1. Introduction

Subsequent to Decision XIX/6 of the Meeting of the Parties and Decisions 53/37 and 54/39 of the Executive Committee, UNDP had included in its 2008 Work Programme Amendment submitted to the 55th ExCom meeting, a request for funding for preparation of HPMP for Indonesia (along with many other countries).

UNDP's initial submission of this request was based on a single-step approach to meet all the requirements of Decision 54/39 to deliver a comprehensive HPMP (first stage) document, containing a proposed national action plan and funding proposals, enabling Indonesia to comply with the first control targets for HCFCs, i.e., the 2013 freeze and 2015 reductions in one step, without having to return to the Executive Committee for additional requests for PRP funding.

During the process of evaluation of this funding request, the MLF Secretariat proposed a two-step approach for preparation of HPMPs. The first step, for which a proposed a maximum funding level of US$ 195,000 was recommended (for countries with 2005/6 HCFC consumption between 120 and 1,200 ODP tonnes), to meet the cost of preparation of the overarching HPMP, consisting of the necessary components for policy assistance, data collection and strategy development. The second and/or simultaneous step, would involve preparation of individual, group or sector-level investment projects, funding for preparation of which, may be requested after obtaining additional knowledge of enterprise-level and sector-level baselines. The funding level for the second step was as undetermined as of the 55th ExCom meeting.

At the 55th ExCom meeting Indonesia opted for the proposed 2-step approach. Subsequently, upon a more detailed analysis of the HCFC consumption situation in Indonesia and upon consultations with UNDP, World Bank and UNIDO, KLH decided that it would be advisable to move ahead at the earliest with requests for preparation funding targeting HCFC reductions in major HCFC consuming sectors for compliance with the 2013 and 2015 control milestones.

2. Roles of Implementing/Bilateral Agencies in the HPMP process

Indonesia is a large, highly populated, geographically diverse country, with an established manufacturing base in a variety of industrial sectors. It has a large and growing middle class. Typically, HCFC consuming sectors comprise of a large number of SMEs, spread widely throughout the country. In implementing its Montreal Protocol commitments pertaining to phase-out of CFCs, Indonesia has been assisted by several implementing agencies.

Given the size and extent of the challenges involved in complying with the adjusted control targets for HCFCs and drawing from its experience in successfully implementing CFC phase-out activities, Indonesia believes in the involvement of multiple implementing agencies, taking advantage of their specific capabilities and comparative advantages.

Accordingly, Indonesia decided to allocate the tasks involved in preparation and implementation of Indonesia's HPMP for complying with the 2013 & 2015 targets, to various agencies as below:

- UNDP: Lead Agency and all consumption sectors, except Foams & Solvents Sectors
- UNIDO: Solvents Sector
- World Bank: Foams Sector

3. Reductions Analysis for 2013/2015 compliance

Based on 2005 data (which was also used as a reference for the HCFC survey carried out in Indonesia during 2005-2007), Indonesia consumed 3,976 metric tonnes of HCFCs, of which, about 2,340 metric tonnes were of HCFC-22 and about 1,636 metric tonnes of HCFC-141b and minor quantities of other HCFCs. As established during the HCFC survey carried out in 2005-2006, the HCFC consuming sectors were experiencing significant growth over the past few years and are projected to do so in the future, at around 10% annually until 2010. Thus, the projected baseline (average of 2009 and 2010 consumption levels) is estimated at around 6,500 metric tonnes (about 460 ODP tonnes).

Based on the above it is estimated that Indonesia would need to reduce HCFC demand by over 2,700 metric tonnes (about 200 ODP tonnes) to comply with the 2013 and 2015 control targets. Considering this trend, and considering that the first two control targets for HCFC consumption start from 2013, there would be net of only 4 years beginning 2009, to design and implement appropriate actions for reducing demand and/or effecting reductions in HCFC consumption. These reductions may not be available through one sector/substance; therefore multiple sectors/substances will need to be addressed.

The Foams and Refrigeration & Air Conditioning (Manufacturing) Sectors, together represented about 56% of the overall HCFC consumption in Indonesia in 2005. Thus, it is evident that actions directed towards these two sectors would provide the bulk of the total reductions needed for 2013 and 2015 compliance. It follows therefore that these two sectors would need to be prioritized for actions.

Given the increased demand for HCFCs in servicing due to increase in population of HCFC-based equipment, the Refrigeration & Air Conditioning (Servicing) Sector (which contributed to about 40% of the overall HCFC consumption in Indonesia in 2005) would also need to receive adequate focus in designing 2013/2015 compliance actions. In this sector, particularly in air conditioning servicing where the main HCFC-22 consumption is concentrated, recovery, recycling and reclamation programs, best practices, training, retrofitting would need to be instituted and supported. To support actions for HCFC reductions, it would also be necessary to design appropriate regulatory interventions for controlling HCFC use sustainably. In addition, to sensitize the stakeholders on impending controls on HCFC use, it would be necessary to design appropriate awareness, information dissemination and capacity-building measures.

Thus, based on the above, given the limited time available and the scale of the challenges involved (reductions of over 2,700 metric tonnes over about 4 years), Indonesia has decided to move ahead with requests for project preparation funding in the Foams, Refrigeration (Manufacturing) and Refrigeration (Servicing) Sectors. This would facilitate development of an HPMP incorporating fundable HCFC phase-out proposals at the earliest, allowing adequate time for implementing compliance actions.

4. HPMP Preparation Funding

At the 55th ExCom meeting it was agreed that for countries with 2005 (or 2006) HCFC consumption between 120 and 1,200 ODP tonnes (Indonesia is classified in this category), an amount of US$ 195,000 would be eligible for preparation of an overarching HPMP, comprising of data collection/survey (US$ 85,000), strategy development (US$ 80,000) and policy assistance (US$ 30,000). For those countries in which an HCFC survey was funded by ExCom earlier (Indonesia is classified in this category), 25% of the data collection/survey costs, amounting to US$ 21,250 would be deducted. Thus, in case of Indonesia, a net amount of US$ 173,750 would be eligible for HPMP preparation, excluding funding for preparation of HCFC phase-out projects/activities. The target schedule for submission of Indonesia's HPMP (Stage 1) is for submission to the 59th or 60th ExCom meeting.

In addition to the above, the project preparation funding requests from UNDP for consideration at the 56th ExCom meeting for Indonesia are summarized below:

Refrigeration & Air Conditioning (Manufacturing) Sector Plan	
International expert costs (20 work-days/expert X 4 X US$ 500)	40,000
National expert costs (50 work-days/expert X 4 X US$ 200)	40,000
Travel and other expenses for experts	35,000
Industry interaction meetings/workshops (3)	30,000
Documentation and reporting	5,000
Total (A)	**150,000**

Refrigeration & Air Conditioning (Servicing) Sector Plan	
International expert costs (20 work-days/expert X 4 X US$ 500)	40,000
National expert costs (50 work-days/expert X 4 X US$ 200)	40,000
Travel and other expenses for experts	35,000
Industry interaction meetings/workshops (3)	30,000
Documentation and reporting	5,000
Total (B)	**150,000**

Total (A+B)	**300,000**

The preparation of the above-mentioned sector plans would be timed in such a way, that they inform the finalization of HPMP (Stage 1). It is understood that Indonesia would not request any further funding for preparation of projects/activities in these two sectors, for 2013/2015 compliance. It is also understood that Indonesia will retain the flexibility in allocation or reallocation of approved funding or parts of that funding to sectors/sub-sectors as required by evolving circumstances to achieve the objective of preparing a comprehensive HPMP (Stage 1) proposal focusing on 2013/2015 compliance.

The project preparation request for the Foams Sector would be separately submitted by World Bank. The project preparation request for the Solvents Sector would be separately submitted by UNIDO.

Annex 6 - Letter from Nigeria for PRP requests at 56th ExCom

FEDERAL MINISTRY OF ENVIRONMENT, HOUSING AND URBAN DEVELOPMENT

Headquarters Mabushi, Abuja.

Department of Pollution Control

Ref no: FMENV/PC/NOO/Xi **Date**: 02 September, 08

Dr. Suely Carvalho
Chief, Montreal Protocol Unit
UNDP-BDP-EEG
New York, U.S.A.

Subject: Request to increase the Project Preparation grant for HPMP in Nigeria

Please recall the project preparation grants that were approved at the 55th meeting of the Executive Committee and that Nigeria was allocated US$ 85,000. We wish to thank you for having initiated these activities at an early date by sending a mission to Abuja in August 2008.

2.0 We would like to point out however that the decision on the available level of funding for this PRP was based on the fact that Nigeria didn't split out its HCFC consumption between the various HCFCs involved and that as such, all consumption was reported under the HCFC-22 category. As a result, a false impression may have been given that Nigeria did not have any HCFC-consumption in the manufacturing sector.

3.0 The following non exhaustive list covering HCFC-consuming manufacturing industries will no doubt prove to be useful in redressing this erroneous impression:

Sector	Industry
A/C Manufacturing	Nigeria Engineering Works
A/C Manufacturing	P.Z. Haier/Thermocool
A/C Manufacturing	Kohington
A/C Manufacturing	Debo
A/C Manufacturing	Frigoglass
A/C Manufacturing	United Technologies
Commercial Refrigeration	Austin-Laz and Co., Ltd.
Commercial Refrigeration	Bosmak Nigeria Ltd.
Commercial Refrigeration	Coldcare Nigeria Ltd.
Commercial Refrigeration	Akocen Nigeria Ltd.
Commercial Refrigeration	Ristian
Commercial Refrigeration	Polade

Annex 6 – Letter from Nigeria for PRP requests at 56th ExCom

Domestic Refrigeration	Onward Electrical Industry Ltd.
Domestic Refrigeration	Soesons Ltd.
Domestic Refrigeration	United Technologies Ltd.
Domestic Refrigeration	De Johnson Ltd.
PUF Spray Insulation	Polyurethane Manufacturers Ltd. (Polyma)
Rigid PUF	Celplas Industries Limited
Rigid PUF	Adig Plastics Ltd.
Rigid PUF	Agric Services (Nig.), Ltd.
Rigid PUF	Ondo Plastics
Rigid PUF	Vita Foams
Rigid PUF in Thermoware	Eleganza Industries
Rigid PUF in Thermoware	Eleganza Cooler and Household Industries, Eleganza Ceramics and Cooler Industries
Rigid PUF Insulation Products	Aluminum Manufacturing Company of Nigeria Plc (Alumaco)

4.0 Therefore, considering the reality in Nigeria, that a manufacturing sector exists, as shown in the above-mentioned list, I have been directed to request you to apply for a supplementary PRP amount of US$ 60,000 at the 56th meeting of the Executive Committee. This would correspond to the difference between the US$ 85,000 and the US$ 145,000 category applicable to countries as categorized in Bangkok in July 2008. We would also suggest that the Executive Committee be requested to split this additional amount between UNDP (US$ 40,000) and UNIDO (US$ 20,000) in order to allow the latter to participate at this early stage in some initial work in the refrigeration manufacturing sector.

5.0 In addition to the above, I also wish to use this opportunity to request you to submit the request for project preparation for a pilot project to remove barriers for producing refrigeration-grade hydrocarbons in Nigeria, which was discussed with your experts during their August 2008 visit.

6.0 Accept the assurance of our highest regards, please

A.K. Bayero
National Ozone Officer,
For: Hon. Minister

PROJECT TECHNICAL ASSISTANCE REQUEST
- TECHNOLOGY VALIDATION PROJECT -

Country	Global Technical Assistance
Implementing Agency	United Nations Development Programme (UNDP)
Project title	Validation of Environmental Impact of optimized liquid HFC Formulations in PU rigid and integral skin foam applications
Sector, Sub-Sector(s)	Foams
Project Duration	6 Months
Project Costs	US$ 50,000
IA Support Costs	US$ 4,500 (9%)
Total Cost to the MLF	US$ 54,500
Monitoring Milestones	Not included

Summary

Funds are requested for a project that would evaluate the global environmental impact of liquid HFC-containing foam formulations. Such formulations have been modified to reduce costs and to improve the global warming impact. The "Functional Unit" approach as presented in UNEP/Ozl.Pro/ExCom/55/47, Annex V would be used in the evaluation, allowing practical experience in the application of this model. If the outcome would justify this, a pilot project for the validation of such formulations in an A5 context could be formulated.

1.0 OBJECTIVE

The objective of this grant is to conduct a desk study that would evaluate the environmental impact of PU systems that contain liquid HFCs using the so-called "Functional Unit" approach. A pilot project for the validation of such formulations in an A5 context could be formulated.

2.0 BACKGROUND

The XIXth Meeting of the Parties to the Montreal Protocol in September 2007, through Decision XIX/6, adopted an accelerated phase-out schedule for HCFCs. The Decision includes following statements:

> "To encourage Parties to promote the selection of alternatives to HCFCs that ***minimize environmental impacts, in particular impacts on climate, as well as meeting other health, safety and economic considerations"***
>
> "To agree that the Executive Committee, when developing and applying funding criteria for projects and programmes, and taking into account paragraph 6, give priority to cost-effective projects and programmes which focus on, inter alia:
>
> (a) Phasing-out first those HCFCs with higher ozone-depleting potential, taking into account national circumstances;
>
> ***(b) Substitutes and alternatives that minimize other impacts on the environment, including on the climate, taking into account global-warming potential, energy use and other relevant factors;***

(c) Small and medium-size enterprises;"

There are currently no guidelines how to implement this stipulation for projects funded by the MLF. With the rather urgent need to prepare and implement projects allowing Article 5 countries to meet the 2012 freeze, this creates uncertainty in what technologies are acceptable.

The MLF Secretariat has examined options on the possibility to prioritize projects and programs that would match cost-effectiveness with minimized impact on the environment—in particular with respect to clima change, including both GWP and energy use. One option stood out: the "Functional Unit" approach, which was in some detail described in document UNEP/Ozl.Pro/ExCom/55/47 Annex V. The approach is claimed to be simpler and less data intensive than the Life Cycle Climate performance methodology. At the same time it addresses Decision XIX.9 concerns better than the GWP method because it includes energy performance. The method, so it is stated, needs further development and evaluation across a wider range of sectors.

This study aims at applying the method to assess its application in the foams industry.

3.0 HCFC PHASEOUT TECHNOLOGIES FOR FOAMS

3.1 TECHNOLOGY OVERVIEW

HCFCs are used as blowing agents in polyurethane (PU) foams (predominantly rigid and integral skin) and extruded polystyrene (XPS) boardstock foams. To replace these HCFCs, following criteria would ideally apply:

- A suitable boiling point with 25^0C being the target,
- Low thermal conductivity in the vapor phase,
- Non flammable,
- Low toxicity,
- Zero ODP,
- Low GWP,
- Chemically/physically stable,
- Soluble in the formulation,
- Low diffusion rate,
- Based on validated technology,
- Commercially available,
- Acceptable in processing, and
- Economically viable.

Not all technologies that are currently available meet these criteria. Compromises are needed.

Recently, a flood of new technologies to replace HCFC-141b in PU foams have been proposed. Table 1 includes all currently available or proposed HCFC replacements for PU foams.

However, to conform to MOP decision XIX/6, the environmental impact of potential HCFC

replacements will be important. That put into question in particular the use of HFCs.

Using GWP and molecular data as provided by the FTOC (2006), following indicative GWP changes are to be expected for the replacement of HCFC-141b in PU foam applications:

Table-1: Available HCFC- Phaseout Technologies and their Global Warming Impact

SUBSTANCE	GWP	MOLECULAR WEIGHT	INCREMENTAL GWP	COMMENTS
HCFC-141b	713	117	Baseline	
HFC-245fa	1,020	134	455	See comment [5]
HFC-365mfc	782	148	276	See comment [5]
HFC-134a	1,410	102	516	
Cyclopentane	11	70	-710	Extremely flammable
Ecomate®	0[1]	60	-713	97.5% pure (supplier information)
CO_2[2]	1	44	-712	Used direct/indirect (from water)
FEA-1100[3]	5	n/k	~ -700-710 (expected)	Under development
HBA-1[4]	6	<115	~ -700-710 (expected)	Under development
HBA-2[6]	n/k	n/k	n/k	Under development
AFA-L1[7]	<15	<134	>-699	Underdevelopment

[1]Zero GWP is not possible but, with the USEPA's comment that the methyl formate GWP is negligible, the number it is factually acceptable
[2]Chemically generated from water and isocyanate. When used directly (mostly as liquid, or LCD) and derived from natural sources such as gas field emissions, the GWP is zero and the incremental effect -713
[3]A new development by DuPont as reported, with few details, in UT 6/7, 2008 and at the 2008 CPI Conference. GWP provided by supplier
[4]This is a new development from Honeywell, initially aimed to be used as a refrigerant in MAC but now also considered for OCF
[5]It should be noted that the incremental GWP is the effect expected based on 100% HCFC 141b replacement by just one alternative on an equimolecular base. In practice this will not always be the case. Formulators may increase water, reducing in this way the GWP impact—but also decreasing the foam quality—or use a blend of physical blowing agents. In addition, replacements are not always equimolecular as solvent effects, volatility and even froth effect (HFC-134a and to a lesser extent HFC-245fa) may impact the blowing efficiency. The table therefore provides a guideline rather than an absolute assessment
[6]A new development by Honeywell. Toxicity study is in its initial phase
7A new development by Arkema. Toxicity study is in its initial phase

The conclusion might be drawn that, with so many options available, there are sufficient zero ODP/low GWP technologies available. However, before concluding so one should consider that:

- Most are not (yet) validated, one carries high investment costs and one is an under-performer in insulation value;
- HFCs are used in abundance in A2 countries that do care about their environments;
- Most HFCs are co-blended with increased water and/or with other auxiliary blowing agents for cost as well as environmental reasons. They will perform environmentally better than the table shows.

In conclusion, the foam industry does not lack in HCFC alternatives.

It lacks evaluating these technologies in commercial settings with optimized formulations and a generally acceptable climate proofing

3.2 VALIDATION RATIONALE

The above shown environmental comparison is a simplified approach. It:

- considers only GWP,
- is not based on optimized formulations and
- ignores energy considerations as decision XIX requires.

While several of these technologies are still in development or already subject to a validation program, no action so far is proposed for HFCs. To be even-handed, an environmental validation using optimized HFC formulations and an assessment approach that includes energy considerations is needed.

3.3 PROJECT JUSTIFICATION

This proposed TAS will assess the climate impact of the use of HFCs as foam blowing agent using the so-called "Functional Unit" approach. This approach has been described in some detail in UNEP/Ozl.Pro/ExCom/55/47. It is robust enough to meet Decision XIX requirements—addressing both energy and GWP—but does not require the individualized approach of full life cycle analyses. It would not only provide for a fair assessment of optimized HFC formulations but also demonstrate the use of the "Functional Unit" approach and facilitate the Secretariat's evaluation as requested by the ExCom in decision 55/43 (h).

The assessment is a desk study. It has not to be tied to a specific country and is universally (globally) applicable. The choice has therefore been made to propose this as a global TAS project.

Tying the proposal to an individual country would not be constructive. The project does not phaseout HCFCs and has not automatically a follow-up phase through demonstration projects as its outcome may be that the use of HFCs is not advisable.

4.0 PROPOSED ACTIVITIES

Proposed is a validation project for the use of HFCs in PU foam applications. Such a project should be divided into three phases:

1. A desk study to assess the environmental impact of optimized HFC formulations using the functional unit" approach;
2. If the ExCom deems the outcome worth further evaluation, a pilot project could follow based on a systems house and a limited number of downstream foam manufacturers;
3. A technology dissemination seminar for other systems houses and large foam manufacturers;

At this time, only funding for the desk study is requested.

5.0 PROJECT COSTS AND FUNDING REQUEST

Following are the tentative costs for the actual desk study, validation and dissemination project:

#	ACTIVITY	BUDGET (US$)	REMARKS

Annex 7 – Global 1 – TAS to Validate Liquid HFC Formulations

1	Feasibility study	40,000	
2	Pilot Project Design	10,000	
TOTAL		**50,000**	

PROJECT TECHNICAL ASSISTANCE REQUEST
- TECHNOLOGY VALIDATION PROJECT -

Country	Global Technical Assistance
Implementing Agency	United Nations Development Programme (UNDP)
Title	Validation of Low Cost Options in the Use of Hydrocarbons (HCs) as Blowing Agent in the Manufacture of PU Rigid Foams
Project in Business Plan	n/a
Sector, Sub-Sector(s)	Foams
Project Duration	7 Months
Project Grant	US$ 55,000
IA Support Costs	US$ 4,950 (9%)
Total Cost to the MLF	US$ 59,950
Monitoring Milestones	Not included at this point

Summary

These fund are requested to evaluate cost reduction options in the use of hydrocarbons to replace HCFC-141b in foam applications in cooperation with a globally operating system house and equipment manufacturer. A pilot proposal will also be formulated in a country still to be determined.

6.0 OBJECTIVE

The objective of this grant is to finance the development of a technical assistance project for the design and evaluation of low-cost approaches to the use of hydrocarbons in the manufacture of PU rigid insulation foams. A pilot proposal will also be formulated in a country still to be determined.

7.0 BACKGROUND

The XIXth Meeting of the Parties to the Montreal Protocol in September 2007, through its Decision XIX/6, adopted an accelerated phase-out schedule for HCFCs. The first control is the freeze on production and consumption of HCFCs which would be from 01 January 2013, at the Baseline Levels (average of 2009 and 2010). The second control step is the reduction of 10% from the Baseline Levels as of 1 January 2015. The decision also directed the Executive Committee of the Multilateral Fund to assist the Parties in preparation of HCFC phase-out Management Plans.

The 54th Meeting of the Executive Committee (ExCom) in April 2008, through Decision 54/39, adopted guidelines for preparation of HCFC phase-out management plans. These guidelines provide indicative outline and contents of the HCFC phase-out management plans, which are essentially based on earlier guidelines developed and followed for the Terminal Phase-out Management Plan (TPMP) (RMPs/TPMPs/ SPPs/ NPPs). The decision has the following key elements:

a) Adoption of a staged approach to implementation of the HCFC phase-out management plans within the context of an overall national strategy. The first stage would focus on compliance with the 2013 freeze and 2015 reduction targets. The second stage would focus on HCFC phase-out in compliance with the future reduction control targets
b) Commitments to achieve the 2013/2015 control milestones through performance-based agreements

The preparation of HCFC phaseout projects requires proper validation of available technologies. This project is one of several UNDP validation projects aimed at such validation.

8.0 TECHNOLOGY TO BE VALIDATED

8.1 TECHNOLOGY DESCRIPTION

Hydrocarbons—mostly pentanes—are used commercially in many countries around the world as blowing agent in the manufacture of foams. Pentanes do not mix easily with polyols. Consequently, polyol/pentane blends are emulsions and generally restricted in lifetime. Pentanes are flammable and require safety considerations that limit the use to facilities that can be adapted to meet those requirements and can be trusted to maintain the subsequent operation in a safe way. The MLF has developed standards for the safe use of pentane in MLF projects (UNEP/OzL. Pro/ExCom/25/54). There have been many MLF-supported CFC-phaseout projects in refrigeration and in panel applications. The minimum economic size has been typically ~50 ODPt/US$ 400,000. Smaller projects have been discouraged. Consequently, there is no use of HCs in SMEs. In addition, the technology was deemed unsafe for a multiple of applications such as spray and in situ foams. Generally, cyclopentane has been used for refrigeration and n-pentane for panels. Fine-tuning through HC blends (cyclo/iso pentane or cyclopentane/isobutane), which is now standard in non A5 countries, is not widely spread in A5's. Consequently, the investment costs are the same as when phasing out CFCs and the technology will continue to be too expensive for SMEs and restricted to the same applications as before. HCs have not been used in spray and PIP applications.

8.2 VALIDATION RATIONALE

There are unexplored options to fine-tune HC-based project costs and investigate other applications:

- The introduction of HC blends that will allow lower densities (lower IOCs)
- Direct injection (lower investment)
- Low-pressure/direct injection (lower investment)
- Centralized preblending by system houses (lower investment)
- Application-specific dispensing equipment (lower investment)
- Investigation of the use of HCs in other applications (broader use of technology)

Such options need to be evaluated and validated. This TAS is aimed at that.

3.3 PROJECT JUSTIFICATION

The need to validate HCFC phaseout technologies in an A5 context was recognized through ExCom Decision 55/43 which noted the

> *"… limited introduction of several of the HCFC alternative technologies available to date in Article 5 countries, the need to validate them and optimize their use in the light of the local conditions prevailing in Article 5 countries, and the wide variation in costs of replacement equipment and raw materials …"*

and decided

> *To invite bilateral and implementing agencies to prepare and submit project proposals to the Secretariat for those HCFC uses addressed in paragraphs (c), (d), (e) and (f) below so that the Executive Committee could choose those projects that best demonstrated alternative technologies and facilitated the collection of accurate data on incremental capital cost and incremental operating costs or savings, as well as other data relevant to the application of the technologies, on the understanding that the quantity of HCFC to be phased out under those projects needed to be deducted from the starting point for sustained aggregate reductions in eligible consumption as set by the HCFC phase-out management plan (HPMP);*

The ExCom mentioned hydrocarbons specifically as follows (55/43 (iv)):

> *Bilateral and implementing agencies and relevant collaborating systems houses were encouraged to address the technological issues surrounding preparation and distribution of premixed polyols containing hydrocarbon blowing agents;*

The last mentioned part of Decision 55/43 clearly seeks to lower the cost of hydrocarbon projects and therefore the cost threshold, allowing more enterprises to select this technology. However, there are more options to lower HC projects costs and its use has also been restricted to a few applications. This Technical Assistance Project seeks therefore to address this specific decision as well as other potential cost reduction in HC projects and a potential wider use without jeopardizing safety.

While this project, seeking to address technological issues surrounding HCs is justified through Decision 55/43 (iv), one could question the need to address this through a global TAS project rather than through a national project. There are several rationales for this:

- Because any outcome would be applicable in all A5 countries, the project has a global nature while subsequent demonstration projects that would show actual application will be national projects
- Global dissemination would be problematic through national projects
- Having one country bearing the cost—and the related deduction from its aggregate consumption—of a technology dissemination would be unfair

9.0 PROPOSED ACTIVITIES

UNDP would team up with a system house and an equipment manufacturer To conduct the feasibility studies for each option as mentioned, validation procedures would be formulated for nationally submitted demonstration projects

After completion of this preliminary study, the feasibility of demonstration projects can be assessed. The funds being requested at present would cover the feasibility study and the formulation of a pilot project document.

10.0 PROJECT COSTS AND FUNDING REQUEST

Following are the tentative costs for the actual pilot, validation and dissemination project:

#	ACTIVITY	BUDGET (US$)	REMARKS
1	Feasibility study	45,000	
2	Pilot Project Design	10,000	
TOTAL		**55,000**	

Annex 9 – Nigeria – Pilot to Validate HC as Refrigerant

PROJECT PREPARATION REQUEST
- TECHNOLOGY VALIDATION PROJECT -

Country	Federal Republic of Nigeria
Implementing Agency	United Nations Development Programme (UNDP)
Lead Agency	United Nations Development Programme (UNDP)
Project title	Validation of the Cost-effective Use of locally produced Hydrocarbons as Refrigerant in Refrigeration Applications
Project in Business Plan	n/a
Sector, Sub-Sector(s)	Refrigeration & Air Conditioning (RAC)
HCFC Use in the country (t/y)	35.8 t ODP (2006)
Project Duration	12 Months
Project Costs (preliminary forecast)	US$ 1,420,000 (includes US$ 1,000,000 counterpart funding)
Project Preparation Grant	US$ 50,000
IA Support Costs	US$ 3,750
Total Cost to the MLF	US$ 53,750
Monitoring Milestones	Not included at this time
National Coordinating Agency	Federal Ministry of Environment and Housing (FMEnvH&UD)

SUMMARY

At the initiative of the FMEnvH&UD, a prototype distillation unit for LPG-based natural refrigerants (C_3 thru C_4) was designed. If proven viable, it will be the base of a commercial scale production unit that will support phaseout of the use of HCFCs in Refrigeration Manufacturing applications and related service operations. This project is designed to test viability, and to conduct quality testing and validation in actual production and service scenarios. The actual commercial plant will be built through private initiative. The project preparation grant will serve the actual development of the project, including the testing and validation parameters and the preparation of an MLF format project document. If successful, the production facility will be able to serve not only Nigeria but the entire Sub-Saharan region with non-ODS/low GWP, high purity refrigerants that can replace the current use of HCFCs. Such products are generally not available in the region.

11.0 OBJECTIVE

The objective of this grant is to finance the development of a pilot project for the prototype production of hydrocarbons for refrigerant applications as well as to validate the resulting refrigerants in the replacement of HCFCs.

12.0 BACKGROUND

The Federal Republic of Nigeria became a Party to the Vienna Convention and Montreal Protocol on 31st October 1988, which came into force on January 1, 1989. Nigeria also ratified the London, Copenhagen, Montreal and Beijing Amendments.

The XIXth Meeting of the Parties to the Montreal Protocol in September 2007, through its Decision XIX/6, adopted an accelerated phase-out schedule for HCFCs. The first control is the freeze on production and consumption of HCFCs which would be from 01 January 2013, at the Baseline Levels (average of 2009 and 2010). The second control step is the reduction of 10% from the Baseline Levels as of 1 January 2015. The decision also directed the Executive Committee of the Multilateral Fund to assist the Parties in preparation of HCFC phase-out Management Plans.
The 54th Meeting of the Executive Committee in April 2008, through Decision 54/39, adopted guidelines for preparation of HCFC phase-out management plans. These guidelines provide indicative outline and contents of the HCFC phase-out management plans, which are essentially based on earlier guidelines developed and followed for the Terminal Phase-out Management Plan (TPMP) (RMPs/TPMPs/ SPPs/ NPPs). The decision has the following key elements:

c) Adoption of a staged approach to implementation of the HCFC phase-out management plans within the context of an overall national strategy. The first stage would focus on compliance with the 2013 freeze and 2015 reduction targets. The second stage would focus on HCFC phase-out in compliance with the future reduction control targets.
d) Commitments to achieving the 2013 and 2015 control milestones through performance-based agreements

In Nigeria, UNDP will be the Lead Agency designated to coordinate the overall development of the HCFC phase-out management plans, while UNIDO will play the role of Cooperating Agency covering the RAC Manufacturing, Aerosol and Solvent sectors.

13.0 TECHNOLOGY TO BE VALIDATED

13.1 TECHNOLOGY OVERVIEW

Most HCFC applications in the refrigeration sector will involve the replacement of HCFC-22 or HCFC based blends. The sector can be sub-divided into several sub-sectors: i) air condition equipment manufacture that covers small units (room and split air conditioning products), medium size systems (air-to-air systems used on the roof of larger commercial buildings and HCFC-22 chillers under 500 kW), and large-size specialty air conditioning systems; ii) commercial equipment manufacture (diverse products such as display and storage units for food and frozen goods, water coolers and cold rooms) iii) domestic refrigeration manufacturing (domestic refrigerators and mini-bars); iv) industrial equipment manufacture; and v) the refrigeration service sector including all types of domestic, commercial and industrial equipment.

Hydrocarbon (HC) replacements are available as are various HFCs, principally HFC-134a and various HFC blends (R-404A, R-407C, R-410A, R-507A, R-744) for most common applications where HCFC-22 is used. This includes more recently introduced HFC and HFC/HC blends that to varying degrees may be effective drop-in replacements in existing equipment, although currently at increased refrigerant cost. In some larger scale applications ammonia is a viable technology.

MOP decision XIX requires the consideration of environmental concerns to be a part of the technology selection when replacing HCFCs. This will increase the interest in the use of hydrocarbons

13.2 VALIDATION RATIONALE

Because it deemed local technical capacity insufficient, the Nigerian Government has actively promoted capacity building activities such as local production and service capacity of foam, recovery and recycling equipment as well as the local production of refrigerants. Such activities need validation, which has been provided by UNDP as a courtesy for the mentioned equipment. However, the production and use of high purity, natural refrigerants, derived from Nigerian LPG sources and capable of supplying the entire Sub-Saharan region requires a much more extensive validation process which will be achieved through a pilot project for which a project preparation request is herewith submitted.

It is important to note that the amounts of HC produced would *avoid* new HCFC-use to occur in *future years*, rather than phasing out HCFCs from existing HCFC-using equipment. Indeed, future imports of refrigeration systems and cold rooms would include HC-technology if adequate HC of the required purity is available in the local (and regional) market. If such HCs are not available (as is the case today), then people will continue to import/install HCFC-based refrigeration systems. This is the rationale of the project.

In other words, instead of letting the HCFC-market grow unabatedly, we can now make this effort to avoid coming to that growth situation. As such we can *avoid today* having to phase out such future consumption later on at a much higher price. However, it is clear that Nigeria would not be willing to deduct the amount of HCFC consumption which this programme would *avoid* against an eligible consumption-level for funding purposes (the latter being based on already existing HCFC installations). The right terminology for this project is indeed "*HCFC-tons avoided*" rather than "*HCFC-tons consumption phased out*".

Having said so, we hereby provide some estimates on pure HCs that could be obtained from this project. The pilot plant can produce around one ton of mixed refrigerants per day (= 250-300 t/y). The capacity of the commercial operation will be a multiple of this, as it is intended to use a multiple of the prototype 8-inch columns. Based on a very preliminary assumption of a 25% conversion to hydrocarbons in the Sub-Sahara, we can expect an overall future market for HC of 1,800 t/y. This would thus require 6-7 columns in case of sole source. Please note however that these figures are preliminary and do not include far-away countries like South Africa. They will be revisited during the project preparation phase.

14.0 PROPOSED ACTIVITIES

The tentative pilot and validation activities are as follows:

- Building of a pilot plant at an existing side to validate the proposed process to built a commercial scale multi-pass fractional distillation batch process for locally supplied LPG to produce components for natural, hydrocarbon based refrigerants in the C_3 thru C_4 range;
- Validation of the refrigerants in representative refrigeration manufacturing applications
- Validation of the refrigerants in refrigeration service operations
- Design of low-cost retrofit units to facilitate conversions from HCFCs to natural compounds in refrigeration manufacturing and service operations
- Validate proper functioning in actual production/service operations

These tentative goals have to be detailed in the project preparation phase in design, costs and proposed implementation procedure and time table.

15.0 PROJECT COSTS AND FUNDING REQUEST

Following are the tentative costs for the actual pilot and validation project:

#	ACTIVITY	BUDGET (US$)	REMARKS
	PHASE I		
1	Project preparation	50,000	
	PHASE II		
2	Construction of a pilot facility	300,000	
3	Validation of the product quality	10,000	
4	Validation of the product in actual production	20,000	
5	Validation of the product in service operations	20,000	
6	Design conversion kits for manufacturing operations	5,000	
7	Design conversion kits for service operations	5,000	
	Total Phase II	**370,000**	
	PHASE III		
8	Construction of a commercial production facility	1,000,000	**This part will be privately funded**

As mentioned, at this time project preparation costs are requested to the amount of

US$ 50,000