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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Fifty-ninth Meeting
Port Ghalib, Egypt, 10-14 November 2009

UNIDO'S WORK PROGRAMME AMENDMENTS FOR 2009

COMMENTS AND RECOMMENDATION OF THE FUND SECRETARIAT

1. UNIDO is requesting approval from the Executive Committee of US $1,898,031 for amendments to its 2009 Work Programme, plus agency support costs of US $142,352.

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

Table 1: UNIDO's Work Programme Amendments

Country	Activity/Project	Amount Requested (US $)	Amount Recommended (US $)
SECTION A: ACTIVITIES RECOMMENDED FOR BLANKET APPROVAL			
A1. Renewal of institutional strengthening projects:			
Libyan Arab Jamahiriya (the)	Institutional Strengthening (Phase II)	73,702	73,702
Serbia	Institutional Strengthening (Phase III)	71,121	71,121
	Subtotal for A1:	144,823	144,823
A2. Additional Project preparation for HCFC phase-out management plans (HPMP):			
Ecuador	Additional funding for HCFC phase-out management plans	75,000	75,000[1]
Iraq	Additional funding for HCFC phase-out management plans	65,000	65,000
Pakistan	Additional funding for HCFC phase-out management plans	45,000	45,000
Sudan	Additional funding for HCFC phase-out management plans	120,000	120,000
	Subtotal for A2:	305,000	305,000
A3. Project preparation for HPMP (investment component):			
Algeria	Project preparation for investment activities in the air-conditioning manufacturing and foam sectors	100,000	100,000
Pakistan	Project preparation for investment activities in the refrigeration and foam sectors	200,000	200,000
Philippines	Project preparation for investment activities in the foam sector	70,000	70,000
South Africa	Project preparation for investment activities in the foam sector	150,000	150,000
Sudan	Project preparation for investment activities in the air conditioning manufacturing and foam sectors	100,000	100,000
	Subtotal for A3:	620,000	620,000
SECTION B: ACTIVITIES RECOMMENDED FOR INDIVIDUAL CONSIDERATION			
B.1 Renewal of institutional strengthening projects:			
Qatar	Institutional Strengthening (Phase III)	48,208	*
	Subtotal for B1:	48,208	
B.2 Project preparation for HCFC demonstration projects			
China	Technology demonstration project for HC blowing agent in the XPS sector	30,000	[2]
	Subtotal for B2:	30,000	
B3. Project preparation for pilot ODS disposal projects:			
Algeria	Project preparation for pilot ODS disposal projects	85,000	*
Cameroon	Project preparation for pilot ODS disposal projects	40,000	[2]
China	Project preparation for pilot ODS disposal projects	85,000	*
Egypt	Project preparation for pilot ODS disposal projects	60,000	[2]
Iran	Project preparation for pilot ODS disposal projects	60,000	[2]
Nigeria	Project preparation for pilot ODS disposal projects	60,000	[2]
Syrian Arab Republic	Project preparation for pilot ODS disposal projects	60,000	[2]
	Subtotal for B3:	450,000	

B4. Technical assistance:			
Global	Resource mobilization to address climate co-benefits in HCFC phase-out	300,000	*
	Subtotal for B4	300,000	
Subtotal for sections A and B:		1,898,031	1,069,823
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):		142,352	80,236
Total:		2,040,383	1,150,059

*Project for individual consideration or pending
[1] Considered under Document UNEP/OzL.Pro/ExCom/59/4
[2] Considered under Document UNEP/OzL.Pro/ExCom/59/11

SECTION A: ACTIVITIES RECOMMENDED FOR BLANKET APPROVAL

A1. Renewal of institutional strengthening projects:

(a) Libyan Arab Jamahiriya (the) (Phase II): US $73,702
(b) Serbia (Phase III): US $71,121

Project description

3. UNIDO submitted the requests for the renewal of the institutional strengthening (IS) projects for the two countries listed above. The descriptions of these countries'requests are presented in Annex I to this document.

Secretariat's comments

4. The Fund Secretariat reviewed the IS terminal reports and action plans submitted by the agency on behalf of the above countries to support the renewal requests and finds that the reports are in order and consistent with requirements.

5. In reviewing these projects, the Secretariat took into account decision 57/36(b) where the Committee decided to "continue to fund requests for the renewal of IS projects up to the end of December 2010 at current levels pending final resolution of the matter by the Executive Committee at its 58th Meeting". This was reiterated by the Executive Committee at the 58th Meeting in decision 58/16 where it was decided "to approve institutional strengthening renewals up to 31 December 2010". In view of these decisions, the funding recommended for the IS renewals was calculated on a pro rata basis up to December 2010 only.

Secretariat's recommendations

6. The Fund Secretariat recommends blanket approval for the IS renewal requests for the Libyan Arab Jamahiriya and Serbia at the level of funding indicated in Table 1 of this document. The Executive Committee may wish to express to the Governments of these countries the comments which appear in Annex II to this document.

A2. Additional funding for HCFC phase-out management plans preparation (HPMP):

Iraq: Additional funding for HPMP preparation: US $65,000
Pakistan: Additional funding for HPMP preparation: US $45,000
Sudan: Additional funding for HPMP preparation: US $120,000

Project description

7. UNIDO submitted requests for additional project preparation funds amounting to US $65,000 for Iraq, US $45,000 for Pakistan and US $120,000 for Sudan that had funds approved for HPMP preparation at the 55th Meeting. The requests are being submitted since these three countries reported Article 7 data for 2007 indicating a level of HCFC consumption that makes them eligible for additional project preparation funds for the HPMP under decision 56/16.

Secretariat's comments

8. The Secretariat notes that these submissions are in line with decision 56/16 where countries are eligible for HPMP preparation funding based on their official Article 7 data for 2007. In the case of Sudan and Iraq, both countries received US $30,000 at the 55th Meeting as they had not yet submitted official HCFC data at the time of the meeting, therefore these fell under the category of countries with zero HCFC data. Their 2007 HCFC Article 7 consumption data indicate that they are eligible for additional funding under decision 56/16.

9. In the case of Pakistan, the country received funding for US $150,000 at the 55th Meeting based on its HCFC consumption. Pakistan has since revised its 2007 data, and is requesting for an additional US $45,000 as the reported HCFC data places the country in a category eligible for additional funds under decision 56/16. The Article 7 data for 2007 reported by these three countries as presented below supports these requests:

Country	Article 7 HCFC consumption (2007) (ODP tonnes)		
	HCFC-22	HCFC-141b	Total
Iraq	106.6	2.8	109.4
Pakistan	116.25	67.43	183.7
Sudan	2.64	6.16	8.8

Secretariat's recommendation

10. The Fund Secretariat recommends blanket approval of the requests for additional funding for the preparation of HCFC phase-out management plans for Iraq, Pakistan and Sudan at the level of funding shown in Table 1 above.

A3. Project preparation for the HPMP investment component

Algeria	Project preparation for investment activities in the AC manufacturing and foam sectors	100,000
Pakistan	Project preparation for investment activities in the AC manufacturing and foam sectors	200,000
Philippines	Project preparation for investment activities in the foam sector	70,000
South Africa	Project preparation for investment activities in the foam sector	150,000
Sudan	Project preparation for investment activities in the AC manufacturing and foam sectors	100,000

Project description

11. UNIDO requested additional funds for the preparation of investment activities for the five countries listed above that have already had approved HPMP preparation funding. In its submission, UNIDO provided basic information about the country's HCFC consumption and sectors where HCFCs

are used, and how these sector plans will link to a comprehensive HPMP in particular for countries where implementation is being shared by more than one agency. The information supporting each of the requests is presented in UNIDO's work programme amendments attached to this document.

Secretariat's comments

12. The Secretariat reviewed UNIDO's submissions in detail and sought clarification where necessary. In its review, the Secretariat found that the information submitted by UNIDO for each of the countries listed above, and the funding requested, is consistent with that required in decision 56/16. It also notes in particular that UNIDO has consulted with other agencies for those countries where they are collaborating in the HPMP preparation process, and that there is a clear understanding on the division of responsibilities for each agency.

13. In the case of the Philippines, the Secretariat has the same comments as those made under UNDP's request, and has concluded that this request may be submitted for approval since the country is eligible for the funds under decision 56/16.

Secretariat's recommendation

14. The Secretariat recommends blanket approval for the requests for the preparation of the investment activities for the HPMP in Algeria, Pakistan, Philippines, South Africa and Sudan, at the level of funding indicated in Table 1 of this document.

SECTION B: ACTIVITIES RECOMMENDED FOR INDIVIDUAL CONSIDERATION

B1. Renewal of institutional strengthening projects:

(a) Qatar (Phase III): US $48,208

Project description

15. UNIDO submitted the request for the renewal of the IS project for Qatar. The description of this request is presented in Annex I to this document.

Secretariat's comments

16. The Fund Secretariat reviewed the IS terminal report and action plan submitted by the agency on behalf of Qatar to support the renewal request and finds that the report is in order and consistent with requirements for such project.

17. In reviewing this project, the Secretariat took into account decision 57/36(b) where the Committee decided to "continue to fund requests for the renewal of IS projects up to the end of December 2010 at current levels pending final resolution of the matter by the Executive Committee at its 58th Meeting". This was reiterated by the Executive Committee at the 58th Meeting in decision 58/16 where it was decided "to approve institutional strengthening renewals up to 31 December 2010". In view of these decisions, the funding recommended for the IS renewals were calculated on a pro rata basis up to December 2010 only.

18. The Secretariat however notes that Qatar has not yet submitted its country programme data for 2008 which was due on 1 May 2009. Decision 52/5(f) notes that "country programme implementation data had to be submitted in advance of the last meeting of the year and subsequent meetings as a precondition for the approval and release of funding for projects". In view of the lack of data from Qatar, the request is put forward for individual consideration by the Executive Committee.

Secretariat's recommendation

19. The Executive Committee may wish to consider this request in view of decision 52/5(f) and approve the request for IS renewal for Qatar in the event that its CP data for 2008 is officially submitted to the Multilateral Fund Secretariat by the 59th Meeting. If approved, the Executive Committee may also wish to express to the Government of Qatar the comments which appear in Annex I to this document.

B2. Project Preparation for HCFC demonstration projects:

China: Project preparation for a demonstration project to replace HCFCs with hydrocarbons in the XPS foam sector (US $30,000)

Secretariat Comments and Recommendation:

20. UNIDO, on behalf of the Government of China submitted a request for project preparation for a demonstration project to replace HCFCs with hydrocarbons in the XPS foam sector. The Secretariat informed UNIDO that this project was not in the list of demonstration projects agreed by the Executive Committee in decision 57/6, neither is it in their business plan for 2009. The Secretariat requested UNIDO to withdraw this project in view of the decision. UNIDO informed the Secretariat that it was not possible for it to be withdrawn as it was an official request from China.

21. The Secretariat has addressed this issue in UNEP/OzL.Pro/ExCom/59/11 Overview of issues identified during project review. The Executive Committee may wish to consider the project preparation for a demonstration project to replace HCFCs with hydrocarbons in the XPS foam sector in China in the context of the information presented in that document.

B3. Project preparation for pilot ODS Disposal projects

Algeria: Project preparation for pilot ODS disposal projects: US $85,000
Cameroon: Project preparation for pilot ODS disposal projects: US $40,000
China: Project preparation for pilot ODS disposal projects: US $85,000
Egypt: Project preparation for pilot ODS disposal projects: US $60,000
Iran: Project preparation for pilot ODS disposal projects: US $60,000
Nigeria: Project preparation for pilot ODS disposal projects: US $60,000
Syrian Arab Republic: Project preparation for pilot ODS disposal projects: US $60,000

Background

22. The Executive Committee, at its 58th Meeting, approved a set of interim guidelines for the funding of demonstration projects for the disposal of ODS in accordance with paragraph 2 of decision XX/7 of the Meeting of the Parties. In decision 58/19, it also agreed "that the Multilateral Fund will fund a limited number of demonstration projects under specific conditions" set out in the same decision.

23. In the case of the requests for project preparation funding, submissions are expected to include the following information:

(a) An indication of the categories of activities for the disposal of ODS (collection, transport, storage, destruction), which will be included in the project proposal;

(b) An indication whether disposal programmes for chemicals related to other multilateral environmental agreements are presently ongoing in the country or planned for the near future, and whether synergies would be possible;

(c) An estimate of the amount of each ODS that is meant to be handled within the project;

(d) The basis for the estimate of the amount of ODS; this estimate should be based on known existing stocks already collected, or collection efforts already at a very advanced and well-documented stage of being set up;

(e) For collection activities, information regarding existing or near-future, credible collection efforts and programmes that are at an advanced stage of being set up and to which activities under this project would relate; and

(f) For activities that focus at least partially on CTC or halon, an explanation of how this project might have an important demonstration value;

24. UNIDO submitted requests for project preparation of ODS disposal projects in seven countries. Out of these seven, only Algeria and China have met the minimum information requirements set out in decision 58/19(a)(iv) and therefore are the only ones described in the paragraphs below.

25. The Secretariat noted that none of these seven requests are included in the list of priority pilot ODS disposal projects that the Executive Committee agreed to in decision 57/6, but are reflected in Annex III of the Report of the 57th Meeting of the Executive Committee which lists all pilot ODS disposal projects removed from the agencies' business plans for 2009, except for Algeria. The Secretariat has addressed the issue concerning the information requirements of decision 58/19 for five of the seven submissions for pilot ODS disposal projects as a policy issues under UNEP/OzL.Pro/ExCom/59/11, Overview of issues identified during project review. The Executive Committee may wish to consider this in the context of the information presented in that document.

Algeria: project preparation for an ODS disposal project (US $85,000)

Project description

26. The proposed pilot ODS disposal project for the Government of Algeria will consider an approach for the destruction of 150 ODP tonnes of unwanted ODS in the country. This consists of a combination of CFC-11 and CFC-12 collected from the recovery and recycling programmes implemented in the country. According to the proposal, this figure represents 13 per cent of the total volume of ODS available for destruction, the collection of which is being undertaken by the Government of Algeria.

27. In its request for project preparation, UNIDO indicates that this will provide the country with comprehensive experience on best technologies, policies and strategies for transportation, and destruction of ODS in the country. It will also explore co-financing possibilities through carbon finance.

28. The proposal does not specify a technology that will be demonstrated but will examine cost-effective options available to the country, including export for destruction, as well as existing facilities that could be converted into a destruction facility locally. The project will cover transportation, storage and destruction (or export for destruction) of the amount of ODS identified. UNIDO indicates that the Government of Italy has expressed interest in the possibility of working together on this project, at both the preparation and implementation stage as part of their bilateral programme.

29. Detailed information for the request is presented in Annex I of UNIDO's work programme attached to this document.

Secretariat's comments

30. The Secretariat reviewed this project in the light of the information required in decision 58/19. UNIDO's initial submission lacked data and information as required by the decision and the Secretariat sought clarification from UNIDO on how collection activities were considered in the project preparation request. UNIDO explained that the entire collection scheme will be financed by the Government of

Algeria under national funds set aside for the introduction of energy efficient equipment in the country. Elements that may add to the efficiency of the collection scheme, as it relates to the proposed pilot disposal project, will be examined during the preparation exercise. The Secretariat also noted that the proposal lists clear regulatory and legislative measures that are in place to support the collection of ODS in banks in Algeria.

31. UNIDO also informed the Secretariat that discussions are ongoing with the Government of Italy who expressed interest in possibly co-financing the project through bilateral assistance. UNIDO said that the project preparation exercise will allow Algeria to look at the necessary elements related to technology, emission control, verification of the specific amounts of ODS destroyed, etc.

32. In view of these responses and discussions, UNIDO submitted a revised proposal that took into account the comments and views of the Secretariat vis-à-vis decision 58/19. The revised proposal is attached as Annex III to this document for the Committee's perusal. The Secretariat further notes that the amount for project preparation being requested is reasonable and consistent with earlier approvals for preparation funds for a project of this type.

Secretariat's recommendation

33. The Executive Committee may wish to consider the request for project preparation of a pilot ODS disposal project in Algeria in the light of the information presented above, and approving it in line with decision 58/19.

China: project preparation for an ODS disposal project (US $85,000)

Project description

34. The proposed project preparation for China consists of a pilot project that will enable the destruction of 150 ODP tonnes of ODS waste in Shandong province. These unwanted ODS are collected by New World, a government appointed recycling and recovery centre for discarded appliances. The collection and transport of these old appliances is jointly funded by this central facility and the local authority, as stipulated in a regulation that will come into effect in January 2011 mandating the recovery and disposal of waste household appliances. Despite the regulation not being in place at this time, active collection of such waste is ongoing.

35. The pilot ODS disposal project will also look at improving the operations of a gas-fired rotary kiln in New World which has been used to destroy non-hazardous wastes collected by this central facility, and where initial trials have also demonstrated its capability to destroy CFC-11 and CFC-12. The preparation exercise will provide a detailed analysis of the ODS destruction facility of New World company to determine whether an upgrade could ensure destruction of CFCs in old equipment according to current acceptable destruction standards. It will also look at detailed management criteria to regulate the process of ODS waste collection and transportation as well as destruction, including monitoring, inspection and verification procedures. In addition, it will also examine the possibility of destroying unwanted CFCs in foam without extraction, but rather by incinerating the foam itself.

36. In their request for project preparation, UNIDO indicated that this pilot project will address all the aspects of a complete ODS waste management system in the Shandong province, using the New World company as a pilot. Based on the results of the pilot, it may be possible to develop a larger scale destruction process that may assist in addressing ODS wastes in China where there is a large bank of unwanted ODS in equipment.

37. The project preparation exercise will also look at alternative funding mechanisms as well as a financial operating model for the sustainability of ODS destruction in the country. Detailed information for the request is presented in Annex III of UNIDO's work programme attached to this document.

Secretariat's comments

38. The Secretariat reviewed this project in the light of the information required in decision 58/19. It sought clarification from UNIDO on the operations of New World, and a description of the current disposal approach that is being used. It also sought an explanation from UNIDO on the process of incinerating foam to destroy CFCs. UNIDO clarified that the existing rotary kiln in New World is mainly for the treatment of other solid waste and that this is currently running at maximum capacity. As this equipment could be used for ODS disposal as well, the pilot project will explore an efficient way of doing this. UNIDO also mentioned the fact that this company is also responsible for the collection of unwanted equipment, and therefore the current rotary kiln can be used for CFC disposal, which would be treated as a priority.

39. UNIDO also informed the Secretariat that while it is possible to incinerate the foam as a whole, this is neither an energy nor cost-efficient method, therefore more effective means will be explored. It also added that the Government of Japan is interested in collaborating with this project as they have wide experience in destruction of ODS waste. The Secretariat further notes that the amount for project preparation being requested is reasonable and consistent with earlier approvals for preparation funds for a project of this type.

Secretariat's recommendation

40. The Executive Committee may wish to consider the request for project preparation of a pilot ODS disposal project in China in the light of the information presented above, and approving it in line with decision 58/19.

B4. Technical assistance

Global: Resource mobilization for HCFC phase-out and climate co-benefits: US $300,000

Project description

41. UNIDO submitted a request to the 57th and 58th Meetings for a technical assistance project for mobilizing resources to maximize climate benefits of HCFC phase-out, at a funding level of US $300,000. This request is being resubmitted by UNIDO for the consideration of this meeting. The proposal includes a concept note describing the objectives, activities, as well as expected results of this project. The proposal was resubmitted without any changes to that provided at the 58th meeting.

42. According to the proposal, the project will develop concepts and methodologies to calculate the additional costs to be borne by the Multilateral Fund, which may correspond to the introduction of alternatives or practices that generate climate co-benefits. Such additional costs may be mostly related to the improvements in energy performance during manufacturing and subsequently bring about a higher energy efficiency of equipment during operation. The study will explore how these additional costs may be covered by, for instance, the Global Environment Facility (GEF) through a special facility within the Multilateral Fund to allow for more approvals of phase-out projects with climate co-benefits without jeopardizing the limited funds available under the current replenishment.

43. The expected outputs from this technical assistance will include: (a) methodology to calculate the additional cost to be borne if the climate benefits of a specific technology are fully taken into consideration in selecting alternatives to HCFCs, and (b) a methodology that will look into calculation of climate co-benefits resulting from proper management and destruction of unwanted ODS. UNIDO also plans to apply these methodologies to two of its pilot projects in Jordan and to one of the proposed demonstration project on ODS destruction.

44. The table below provides a breakdown of the US $300,000 as requested by UNIDO:

International Consultants	72,000
National Consultants	48,000
Travel	30,000
Equipment	100,000
Management, monitoring and training	50,000
Total	**300,000**

Secretariat's comments

45. The guidelines for HPMP preparation agreed in decision 54/39 included the provision for Article 5 countries to consider financial incentives and opportunities for co-financing in their final HPMPs, which could be relevant for ensuring that HCFC phase-out results in benefits in accordance with paragraph 11(b) of decision XIX/6 of the Parties.

46. The Secretariat notes that the results of the study proposed by UNIDO may assist countries in examining their options for co-financing at this time when HPMP preparation is taking place in more than a hundred Article 5 countries. In addition, it also notes that there is as yet no guidance from the Executive Committee on how climate benefits of HCFC phase-out are to be calculated, and whether these costs could be considered as incremental costs under the Multilateral Fund. The Secretariat also notes that UNIDO's proposal describes the development of methodologies for getting possible co-financing from the GEF.

47. In reviewing the costs proposed for the project, the Secretariat noted that UNIDO included US $100,000 for equipment in their budget. In clarifying the addition of an equipment component, UNIDO informed the Secretariat that the proposal includes pilot implementation in one or two enterprises to demonstrate the methodologies that will be developed, and such equipment will be required during this pilot phase. The Secretariat has some doubts about the equipment requirement in the context of this resource mobilization project.

48. The Executive Committee at its 57th Meeting, discussed a facility for additional income from loans and other sources (document UNEP/OzL.Pro/ExCom/57/64), and agreed in decision 57/37 that the Secretariat should provide further analysis of this facility for consideration by the Committee at its 58th Meeting.

49. At the 58th Meeting, the Executive Committee took decision 58/37 which included deferring consideration of this and another similar proposals to a future meeting. This proposal was therefore not discussed at the 58th Meeting. The Secretariat notes that the resubmission of this proposal to the 59th Meeting is for consideration by the Executive Committee in line with discussions under Agenda item 11 for this meeting on a "Further concept paper for a special funding, facility for additional income from loans and other sources".

Secretariat's recommendation

50. The Executive Committee may wish to consider the request for technical assistance for mobilizing resources for HCFC phase-out and climate co-benefits, in light of the information presented above, and in the discussion under Agenda item 11, Further concept paper for a special funding facility for additional income from loans and other sources.

Annex I

INSTITUTIONAL STRENGTHENING PROJECT PROPOSALS

Qatar: Renewal of institutional strengthening

Summary of the project and country profile	
Implementing Agency:	UNIDO
Amounts previously approved for institutional strengthening (US $):	
Phase I: Mar-99	64,171
Phase II (year 1): Dec-03	43,285
Phase II (year 2): Jul-06	44,500
Total	151,956
Amount requested for renewal (Phase III) (US $):	48,208
Amount recommended for approval for Phase III (US $):	48,208
Agency support costs (US $):	3,616
Total cost of institutional strengthening Phase III to the Multilateral Fund (US $):	51,824
Equivalent amount of CFC phase-out due to institutional strengthening Phase III at US $12.1/kg (ODP tonnes):	n/a
Date of approval of country programme:	1999
ODS consumption reported in country programme (1999) (ODP tonnes):	0
Baseline consumption of controlled substances (ODP tonnes):	
(a) Annex A Group I (CFCs) (Average 1995-1997)	101.4
(b) Annex A Group II (Halons) (Average 1995-1997)	10.7
(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)	0
Latest reported ODS consumption (2007) (ODP tonnes) as per Article 7:	
(a) Annex A Group I (CFCs)	13
(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)	23.5
Total	36.5
Year of reported country programme implementation data:	2007
Amount approved for projects (US $):	1,112,453
Amount disbursed (as at September 2009) (US $):	709,962
ODS to be phased out (ODP tonnes):	89.2
ODS phased out (as at September 2009) (ODP tonnes):	86.3

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

	Summary of activities	**Funds approved (US $)**
(a)	Investment projects:	242,500
(b)	Institutional strengthening:	151,956
(c)	Project preparation, technical assistance, training and other non-investment projects:	717,997
	Total:	1,112,453

Progress report

2. The programme of activities relating to the institutional strengthening (IS) forms part of Qatar's commitment to phase out the consumption of ODS in a controlled and cost-effective manner. During the last phase of the IS, particular efforts were put into monitoring of imports and consumption of ozone depleting substances (ODS) through the quota system, the licensing system and the import permits as well as in the implementation of the terminal phase-out management plan (TPMP) certification scheme. The country has also progressed in the implementation of its TPMP. The National Ozone Unit (NOU) also conducted a number of awareness campaigns directed to decision makers, customs officials, investors, workers and the general public.

Plan of action

3. For the coming phase, the NOU will strictly enforce monitoring of the quota and the licensing system in order to monitor ODS imports. The country is committed to maintain the momentum by the year 2010 and to comply with the coming HCFCs phase-out targets by initiating the preparation of the HCFC phase-out management plan (HPMP).

Serbia: Renewal of institutional strengthening

Summary of the project and country profile	
Implementing Agency:	UNIDO
Amounts previously approved for institutional strengthening (US $):	
Phase I: Jul-98	151,500
Phase II: Dec-04	131,300
Total	282,800
Amount requested for renewal (Phase III) (US $):	71,121
Amount recommended for approval for Phase III (US $):	71,121
Agency support costs (US $):	5,334
Total cost of institutional strengthening Phase III to the Multilateral Fund (US $):	76,645
Equivalent amount of CFC phase-out due to institutional strengthening Phase III at US $12.1/kg (ODP tonnes):	n/a
Date of approval of country programme:	1998
ODS consumption reported in country programme (1998) (ODP tonnes):	0
Baseline consumption of controlled substances (ODP tonnes):	
(a) Annex A Group I (CFCs) (Average 1995-1997)	849.2
(b) Annex A Group II (Halons) (Average 1995-1997)	3.8
(c) Annex B Group II (Carbon tetrachloride) (Average 1998-2000)	18.8
(d) Annex B Group III (Methyl chloroform) (Average 1998-2000)	0
(e) Annex E (Methyl bromide) (Average 1995-1998)	8.3
Latest reported ODS consumption (2008) (ODP tonnes) as per Article 7:	
(a) Annex A Group I (CFCs)	76.7
(b) Annex A Group II (Halons)	1.8
(c) Annex B Group II (Carbon tetrachloride)	2.1
(d) Annex B Group III (Methyl chloroform)	0
(e) Annex E (Methyl bromide)	0
(f) Annex C Group I (HCFCs)	7.4
Total	88
Year of reported country programme implementation data:	2008
Amount approved for projects (US $):	7,488,430
Amount disbursed (as at September 2009) (US $):	5,152,349
ODS to be phased out (ODP tonnes):	848
ODS phased out (as at September 2009) (ODP tonnes):	773.4

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

Summary of activities		Funds approved (US $)
(a)	Investment projects:	5,947,831
(b)	Institutional strengthening:	282,800
(c)	Project preparation, technical assistance, training and other non-investment projects:	1,257,799
	Total:	7,488,430

Progress report

5. Two phases of IS support have been approved for Serbia. The NOU has been supervising and coordinating the conversion and phase-out programme all over the country in all sectors covered by the Montreal Protocol. For the last two phases, the NOU put particular efforts are put into monitoring of imports and consumption of ODSs by strict enforcement of the quota system and the country's licensing system. The NOU also has conducted a number of awareness campaigns directed to decision makers, customs officials, investors, workers and the general public. The country's consumption of CFC in 2008 shows that it is in compliance with Montreal Protocol targets.

Plan of action

6. The NOU is located within the Air Protection Unit of Ministry of Environment and Spatial Planning. The activities described in the IS project are included in the government and ministry national plans, through which the projects and activities are aligned to the central objectives of the Ministry of Environment and Spatial Planning and its Air Protection Department. The country is committed to maintain the momentum by the year 2010 and to comply with the coming HCFCs phase-out targets by initiating the preparation of the HPMP.

The Socialist People's Libyan Arab Jamahiriya: Renewal of institutional strengthening

Summary of the project and country profile	
Implementing Agency:	UNIDO
Amounts previously approved for institutional strengthening (US $):	
Phase I: Dec-00	157,000
Total	157,000
Amount requested for renewal (Phase II) (US $):	73,702
Amount recommended for approval for Phase II(US $):	73,702
Agency support costs (US $):	5,528
Total cost of institutional strengthening Phase II to the Multilateral Fund (US $):	79,230
Equivalent amount of CFC phase-out due to institutional strengthening Phase II at US $12.1/kg (ODP tonnes):	n/a
Date of approval of country programme:	2000
ODS consumption reported in country programme (2000) (ODP tonnes):	1052.4
Baseline consumption of controlled substances (ODP tonnes):	
(a) Annex A Group I (CFCs) (Average 1995-1997)	716.7
(b) Annex A Group II (Halons) (Average 1995-1997)	633.1
(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)	94.1
Latest reported ODS consumption (2007) (ODP tonnes) as per Article 7:	
(a) Annex A Group I (CFCs)	57.5
(b) Annex A Group II (Halons)	291.5
(c) Annex B Group II (Carbon tetrachloride)	0
(d) Annex B Group III (Methyl chloroform)	0
(e) Annex E (Methyl bromide)	67.6

(f) Annex C Group I (HCFCs)	36.5
Total	453.1
Year of reported country programme implementation data:	2008
Amount approved for projects (US $):	6,511,080
Amount disbursed (as at September 2009) (US $):	4,136,312
ODS to be phased out (ODP tonnes):	1,567.3
ODS phased out (as at September 2009) (ODP tonnes)n	667.4

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

	Summary of activities	Funds approved (US $)
(a)	Investment projects:	5,668,241
(b)	Institutional strengthening:	157,000
(c)	Project preparation, technical assistance, training and other non-investment projects:	685,839
	Total:	6,511,080

Progress report

8. The programme of activities relating to the IS forms part of the Socialist People's Libyan Arab Jamahiriya's commitment to phase out the consumption of ozone depleting substances (ODS) in a controlled and cost-effective manner. The NOU is responsible for the execution of the national policies for the protection of the Ozone Layer, in compliance with the Montreal Protocol. Its responsibility is to officially respond to individuals, companies and institutions concerning the control of ODS. Particular efforts are put into monitoring of imports and consumption of ODS. The NOU has conducted a number of awareness campaigns directed to decision makers, customs officials, investors, workers and the general public. On the regional level, the Libyan Arab Jamahiriya is an active member of the regional Network. In spite of personnel fluctuation, the NOU continued to function and to have a clear mandate in coordinating the national measures on ODS phase-out programme. In case of specific needs and technical advices, the NOU has involved staff and professional consultants from 2006, with the aim of assisting the NOU in its operation.

Plan of action

9. The NOU is the nucleus of the ODS management structure. It is integrated within Environmental General Authority and has direct access to the Director General and the Minister. For this new phase, the country is planning to achieve the ratification of all Amendments by 2010, to reduce the CFCs consumption and to initiate active measures in regard of controlling and phasing out the HCFCs.

Annex II

VIEWS EXPRESSED BY THE EXECUTIVE COMMITTEE ON RENEWALS OF INSTITUTIONAL STRENGTHEING PROJECTS SUBMITTED TO THE 59th MEETING

Qatar

1. The Executive Committee has reviewed the report presented with the institutional strengthening (IS) project renewal request for Qatar and notes with appreciation its compliance to Montreal Protocol provisions. The Executive Committee also notes that within the framework of the IS project, Qatar has taken significant steps to phase out its ozone depleting substances (ODS) consumption; specifically, implementation of strategies in different sectors of ODS phase-out as well as continued regulatory efforts through the licensing and quota system. The Executive Committee greatly supports the efforts of Qatar to reduce the consumption of CFCs, and encourages the country to initiate control of HCFC consumption by preparing the HCFC phase-out management plan (HPMP).

Serbia

2. The Executive Committee has reviewed the report presented with the institutional strengthening (IS) project renewal request for Serbia and notes with appreciation that Serbia is complying to the phase-out schedule and to its reporting obligations as under Article 4 and Article 7 of the Montreal Protocol. The Executive Committee also notes that within the framework of the IS project, Serbia has taken significant steps in terms of capacity building, as well as to phase out its ozone depleting substances (ODS) consumption; specifically with the implementation of strategies in different sectors of ODS phase-out and continued regulatory efforts through the licensing and quota system. The Executive Committee is therefore hopeful that Serbia will continue with the implementation of its country programme and the national phase-out management plan (NPP) activities with outstanding success.

The Socialist People's Libyan Arab Jamahiriya

3. The Executive Committee has reviewed the report presented with the institutional strengthening (IS) project renewal request for the Socialist People's Libyan Arab Jamahiriya and notes with appreciation the compliance to its reporting obligations to the Ozone Secretariat as well as to the Multilateral Fund Secretariat in regard of the Article 7 and the country programme progress implementation data for the year 2008. The Executive Committee also notes that within the framework of the IS project, the Socialist People's Libyan Arab Jamahiriya has taken significant steps to strengthen the National Ozone Unit (NOU) office. The Executive Committee supports the efforts of the Socialist People's Libyan Arab Jamahiriya to achieve the ratification of the Beijing and Montreal Amendments to the Montreal Protocol and to reduce the consumption of CFCs.

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

59th Executive Committee of the
Multilateral Fund for the Implementation
of the Montreal Protocol

UNIDO Work Programme

59th ExCom

UNIDO

Work Programme – 59th ExCom
Revision 1 (18 September 2009)

Introduction

The UNIDO Work Programme for the consideration of the 59th ExCom of the Multilateral Fund has been prepared based on the ongoing and planned activities and following receipt of government requests. The Work Programme will support the implementation of UNIDO's three year Rolling Business Plan 2009-2011.

Focus has been put on preparatory activities for the phase-out of HCFCs in Article 5 countries as well as on the preparation of ODS disposal demonstration projects following the criteria set by ExCom Decision 58/19.

The renewal of institutional strengthening support will be required for Libya, Qatar and Serbia, in line with the UNIDO Rolling Business Plan 2009 - 2011. As per the decision taken at the 58th ExCom Meeting, these requests are for the period until end 2010.

Following the established practice, UNIDO is listing in the work programme its Core Unit Funding request for 2010 amounting to US$ 1,913,365. However, the complete submission of the Core Unit Funding request is submitted to the Multilateral Fund Secretariat separately.

The document comprises the following sections:

Section 1

Gives in a tabulated form by project types and country a consolidated list of activities foreseen for HCFC, ODS disposal and institutional strengthening.

Funding is requested as follows:

- Institutional strengthening: US$ 207,509 including 7.5% A.S.C.;
- Project preparation (ODS disposal and HCFC related activities): US$ 1,510,375 including 7.5% A.S.C.;
- Global Project on resource mobilization: US$ 322,750 incl. 7.5 % ASC
- Core Unit Funding for 2010: US$ 1,913,365
- Total: **US $ 3,953,748** including A.S.C.

Section 2

Provides the corresponding project concepts indicating some details and funding requirements.

UNIDO

Work Programme – 59th ExCom
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Section 1

Consolidated table giving project preparation and non-investment projects in all countries and sectors

Country	Type	Subs-tance	Title of Project	Requested amount USD	A.S.C USD	Total (incl ASC) USD	A.S.C. %	P. D.	Remarks
Institutional Strengthening									
Libya	INS	All	Institutional Strengthening, Renewal.	73,702	5,527	79,230	7.5	13	07/09 to 12/10
Qatar	INS	All	Institutional Strengthening, Renewal.	48,208	3,615	51,824	7.5	13	07/09 to 12/10
Serbia	INS	All	Institutional Strengthening, Renewal.	71,121	5,334	76,455	7.5	13	07/09 to 12/10
			Institutional Strengthening Total	**193,031**	**14,476**	**207,509**			
Project preparation for ODS disposal demonstration projects									
Algeria	PRP	CFC11/ 12	ODS destruction demo project	85,000	6,375	91,375	7.5	18	
Cameroon	PRP	CFC12	ODS destruction demo project	40,000	3,000	43,000	7.5	12	
China	PRP	CFC11/ 12	ODS destruction demo project	85,000	6,375	91,375	7.5	18	
Egypt	PRP	CFC11/ 12 Halons	ODS destruction pilot project	60,000	4,500	64,500	7.5	12	
Iran	PRP	CFC11/ 12 Halons	ODS destruction pilot project	60,000	4,500	64,500	7.5	12	
Nigeria	PRP	CFC12/ Halons	ODS destruction demo project	60,000	4,500	64,500	7.5	12	
Syria	PRP	CFC11/ 12 Halons	ODS destruction pilot project	60,000	4,500	64,500	7.5	12	
			ODS DISPOSAL - TOTAL	**450,000**	**33,750**	**483,750**			
Project preparation for HCFC phase-out investment and demonstration projects									
Algeria	PRP	HCFC	Refrigeration and A/C manufacturing sectors	60,000	4,500	64,500	7.5	12	
Algeria	PRP	HCFC	PU foam sector	40,000	3,000	43,000	7.5	12	
China	PRP	HCFC	Technology demonstration project for HC blowing agent in the XPS sector	30,000	2,250	32,250	7.5	18	
Pakistan	PRP	HCFC	Refrigeration and A/C manufacturing sectors	120,000	9,000	129,000	7.5	12	
Pakistan	PRP	HCFC	PU foam sector	80,000	6,000	86,000	7.5	12	
South Africa	PRP	HCFC	PU foam sector	150,000	11,250	161,250	7.5	12	
Sudan	PRP	HCFC	Refrigeration manufacturing sector	60,000	4,500	64,500	7.5	12	
Sudan	PRP	HCFC	PU foam sector	40,465	3,035	43,500	7.5	12	
			HCFC INV-PRP TOTAL	**580,000**	**43,500**	**623,500**			

Additional funding for HPMP preparation (HPMP)									
Ecuador	PRP	HCFC	HPMP preparation	75,000	5,625	80,625	7.5	12	
Iraq	PRP	HCFC	Additional funding HPMP preparation	65,000	4,875	69,875	7.5	12	
Pakistan	PRP	HCFC	Additional funding HPMP preparation	45,000	3,375	48,375	7.5	12	
Philippines	PRP	HCFC	HPMP preparation -foam sector plan	70,000	5,250	75,250	7.5	12	
Sudan	PRP	HCFC	Additional funding HPMP preparation	120,000	9,000	129,000	7.5	12	
			Additional funding for HPMP - Total	**375,000**	**28,125**	**403,125**			
Technical assistance for funds mobilization									
Global	TAS	SEV	Funds mobilization	300,000	22,750	322,750	7.5	12	
Core Unit Funding for 2010									
Global	TAS	SEV	Core Unit Funding - 2010	0	1,913,365	1,913,365			

UNIDO

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Section 2

Project concepts

Project Concept

Country:	**Libya**
Title:	Extension of Institutional Strengthening Project for the Montreal Protocol related activities (Phase II)
Project Duration:	18 months
Project Budget:	126,581 (including US$ 8,831 representing 7.5% Agency Support Costs)
Implementing Agency:	UNIDO
Coordinating Agency:	NOU/ Ministry of Environment

Project Summary

UNIDO received the official Government request from the Ministry of Environment / NOU in Libya for the renewal of the institutional strengthening support.

The project objective aims to improve capacity of government structures responsible for Ozone Depleting Substances Phase-out with a specific view to achieve compliance in HCFCs phase-out.

The NOU will monitor all the project activities as per the Country Programme, including the collection of consumption data and reporting as required, with a specific view to HCFCs phase-out schedule for Article 5 countries.

Project Concept

Country:	**Qatar**
Title:	Extension of Institutional Strengthening for the implementation of Montreal Protocol in State of Qatar (phase III)
Project Duration:	18 months
Project Budget:	37,625 (including US% 2,625 representing 7.5% Agency Support Costs)
Implementing Agency:	UNIDO
Coordinating Agency:	Ozone Unit/ Ministry of Environment

Project Summary

The project aims at institutional strengthening and capacity building of the Ministry of Environment / Ozone Unit and will ensure helping the Government meet its obligations under the Montreal Protocol on the substances that deplete the ozone layer.

In this context, the National Ozone Office will be assisted in monitoring and identifying ozone-depleting substances consumption and up-dating the needed national policies and regulations, with a focus on HCFCs consumption.

The NOU will monitor all the project activities as per the Country Programme, including the collection of consumption data and reporting as required, with a specific view to HCFCs phase-out schedule for Article 5 countries.

Project Concept

Country:	**Serbia**
Title:	Renewal of Institutional Strengthening Support, Phase III, (in line with decision 58/16 approving institutional strengthening renewals up to 31 December 2010)
Project Duration:	18 months
Project Budget:	106,667 (including US% 7,442 representing 7.5% Agency Support Costs)
Implementing Agency:	UNIDO
Coordinating Agency:	National Ozone Unit, Ministry of Environment and Spatial Planning

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Project Summary

The project aims at institutional strengthening and capacity building of the National Ozone Unit, Ministry of Environment and Spatial Planning and will ensure helping the Government meet its obligations under the Montreal Protocol on the substances that deplete the ozone layer.

In this context, the National Ozone Office will be assisted in monitoring and identifying ozone-depleting substances consumption and up-dating the needed national policies and regulations, with a focus on HCFCs consumption.

The NOU will monitor all the project activities as per the Country Programme, including the collection of consumption data and reporting as required, with a specific view to HCFCs phase-out schedule for Article 5 countries.

Project Concept

Country:	Algeria
Title:	Preparation ODS disposal pilot projects
Project Duration:	12 months
Project Budget:	US$ 85,000 plus US$ 6,375 agency support cost
Implementing Agency:	UNIDO
Coordinating Agency:	National Ozone Bureau - Ministère de l'Aménagement du Territoire de l'Environnement

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Project Background

Following Decision XX/7 of the Meeting of the Parties the Executive Committee decided at its 58th Meeting in July 2009 (Dec. 58/19) to fund a limited number of demonstration projects for the disposal of ODSs.
Despite the number of demonstration project approved by the Executive Committee at its 57th meeting, there are no projects as such financed in North-African Countries. The objective of this project proposal is to gain experiences on destruction of ODSs, which could be beneficial to all other countries in the region.

UNIDO received a government request from Algeria to prepare a demonstration project for the collection, transportation, storage and destruction of unwanted or obsolete ODSs.

This project will be implemented with the assistance of the Government of Italy, which has expressed the interest to finance bilateral project.

This paper sets out a proposal for project preparation for an ODS destruction demonstration project in Algeria and includes information on existing stock of unwanted ODSs destroyed as well as estimation of amount of ODSs that could be easily collected to be destroyed.

Amount of ODSs available in Algeria for destruction

Algeria is a large populated country with 35 million people. The industrialization trend in Algeria has been positive over the past

years with an average of 4% and the social wellness is growing fast as well.

A recent survey conducted has highlighted that the amount of ODSs easily available to be destroyed in Algeria is huge. This is due to the fact that there are still many equipment and installation (mainly refrigeration and air conditioning systems) relying on CFC 12 as refrigerant and having CFC11 contained in the foam.
Some of the installations are in limited number and have high capacities in terms CFC12 charge, such as the "Chalets", the "Big Cold Chambers" and big buildings (e.g. hospitals, public buildings, etc). The access to these amounts is estimated to be very easy and the collection should require limited efforts.
However, the largest amount of CFC12 and CFC11 to be collected and destroyed is contained in household refrigerators and freezers. The collection of ODSs from these appliances should be designed properly in order to ensure the highest rate of recovery.
Finally, the survey identified stocks of unwanted ODSs available for destruction. Indeed, manufacturing companies assisted in the reconversion from CFCs to non-CFCs technologies (in particular in the foam sector), have still cylinders of ODSs that should be destroyed.

The table below shows the results of the preliminary survey indicating the amount of CFC11 and CFC12, which could be easily collected and destroyed.
For each sector, a coefficient of recovery of the total amount of ODS in the country has been estimated. This coefficient takes into account various parameter, including the accessibility and the difficulties in the logistic arrangements for the recovery.

Application	**Number**	**CFC12 (Kg)**	**CFC11 (Kg)**	**Total ODSs (Kg)**	**Co-efficient for recovery**	**ODS expected (Kg)**
Domestic Refrigerators						
	2100000	0.25	0.6	1785000	0.5	892,500
Commercial refrigerators						
	8250	1.5	0	12375	0.75	9,281
Cold Chambers						
	100	200	0	20000	0.8	16,000
MAC						
	10000	2.5	0	25000	0.2	5,000
Chalets						
	200	500	0	100000	0.9	90,000
Buildings						
	20000	10	0	200000	0.5	100,000
Existing stocks						
	1	0	300	300	1	300

Total	**2,142,675**		**1,113,081**

Legislation in place and existing experiences in the sector

Algeria has a strong legislation with regard to the use of ODSs in manufacturing sectors.
The main regulations and decrees in the refrigeration and AC sectors are the following:

- Décret exécutif N°2000-73 du 1er avril 2000, complétant le décret exécutif n°93-165 du 10 juillet 1993 réglementant les émissions atmosphériques de fumées, gaz, poussière, odeurs et particules solides des installations fixes
- Décret exécutif N°06-104 du 28 février 2006 fixant la nomenclature des déchets, y compris les déchets dangereux
- Décret exécutif N°07-144 du 19 mai 2007 fixant la nomenclature es installations classées pour la protection de l'environnement
- Décret exécutif N°07-207 du 30 juin 2007 réglementant l'usage des substances qui appauvrissent la couche d'ozone, de leurs mélanges et des produits qui en contiennent

There are also national programmes in place for the development an adoption of energy efficient technology in Algeria. The main national legislation in this regard is the "Loi sur la maîtrise de l'énergie ; No. 99 -09 de 1999" and its various executive decrees such as the "Décret exécutif du 11 Janvier 2005 relatif à l'efficacité énergétique" and the "Arrêté interministériel du 29 Novembre 2008 relatif à la classification énergétique des réfrigérateurs et climatiseurs".

Furthermore, a national funds on Energy Efficiency (Fonds National pour la Maîtrise de l'Energie - FNME).
L'Agence Nationale pour la Promotion et la Rationalisation de l'Utilisation de l'Energie (APRUE) has recently developed a programme financed by the FNME for the introduction of energy-efficient technologies in different sectors, including Air conditioning and refrigeration sectors.

Collection scheme

Due to the very large territory of Algeria, five recovery centers will be established, mainly in the northern part of the country where the most important industrial and civil centers are located. Four centers will act as regional centers for the local collection of ODS while one center will be in charge of the centralized final storage of the ODSs as well as of the destruction procedure.
The location of the centers will be as follows:

- Center 1: located in Algiers (North)

- Center 2: located in Constantine (East)
- Center 3: located between Hassi R´Mel and Hassi Messaoud (South)
- Center 4: located in Oran (West)
- National center: located in the Haut Plateaux (center)

The centralized center is expected to:

- receive cylinders of ODSs already collected in the four regional centers (see below);
- treat the end-of-life equipment;
- treat the foams received from the regional centers;
- store the store the cylinders with ODSs;
- arrange for the shipment to the destruction facility.

The center will be fully equipped for the full dismantling of the end-of-life appliances, including extraction of ODSs from the foams.
The plants for the recovery of the end-of-life electrical and electronic equipment (e.g. domestic and commercial fridges, air condition systems, chillers, washing machines) represents an advanced environmental solutions for the recovery of HCFCs and CFCs which are both substances that deplete the ozone layer and greenhouses gases with a negative impact on climate. The treatment of the end-of-life electrical and electronic equipment provides also the opportunity to recover other raw materials such as polyurethane, plastics, glass, ferrous metals and non ferrous metals as aluminum and copper. In addition the recovery of those substances has a positive impact in terms of the minor quantities of generated waste.

The regional recovery centers will be in charge for the collection of ODSs in liquid and gas forms and to put them in safe and thigh cylinders in order to prevent any leakages.
The centers will be in charge of collecting the refrigerants fluids from existing appliances identified above (i.e. industrial refrigerators, cold chambers, chalets, buildings, MAC, remaining stocks). Furthermore, the centers will collect refrigeration fluids from domestic refrigerators as well as recovery and extract foams (from appliances and other sources) to be send to the centralized center for treatment.

The transport of the cylinder containing ODSs as well as foam and equipment to the regional centers and from them to the centralized center and to the destruction facility will be done in strict observation of the existing laws regulating the transport of liquefied compressed gases and in accordance to all the safety procedures applicable to high pressure gas cylinders.

Selection of destruction technology

During the project preparation, additional information will be collected in order to select the most promising alternative for the destruction of the collected ODSs.
The selection of the technology will include the following consideration:

- Evaluation of cost-efficiency for the shipment to destruction facility in EU;
- Presence of existing plants in Algeria that could be converted or used for ODSs treatment;
- Break even point in terms of quantity of ODSs necessary to ensure sustainability to the project;
- Monitoring, inspection and verification procedures;
- Analysis of the financial operating model and the commercial viability of similar schemes;
- Confirmation of impact of regulatory and policy measures;
- Analysis of alternative funding schemes including carbon financing (see below for more details);
- Synergies with other environmental plans and strategies for the disposal of hazardous wastes.

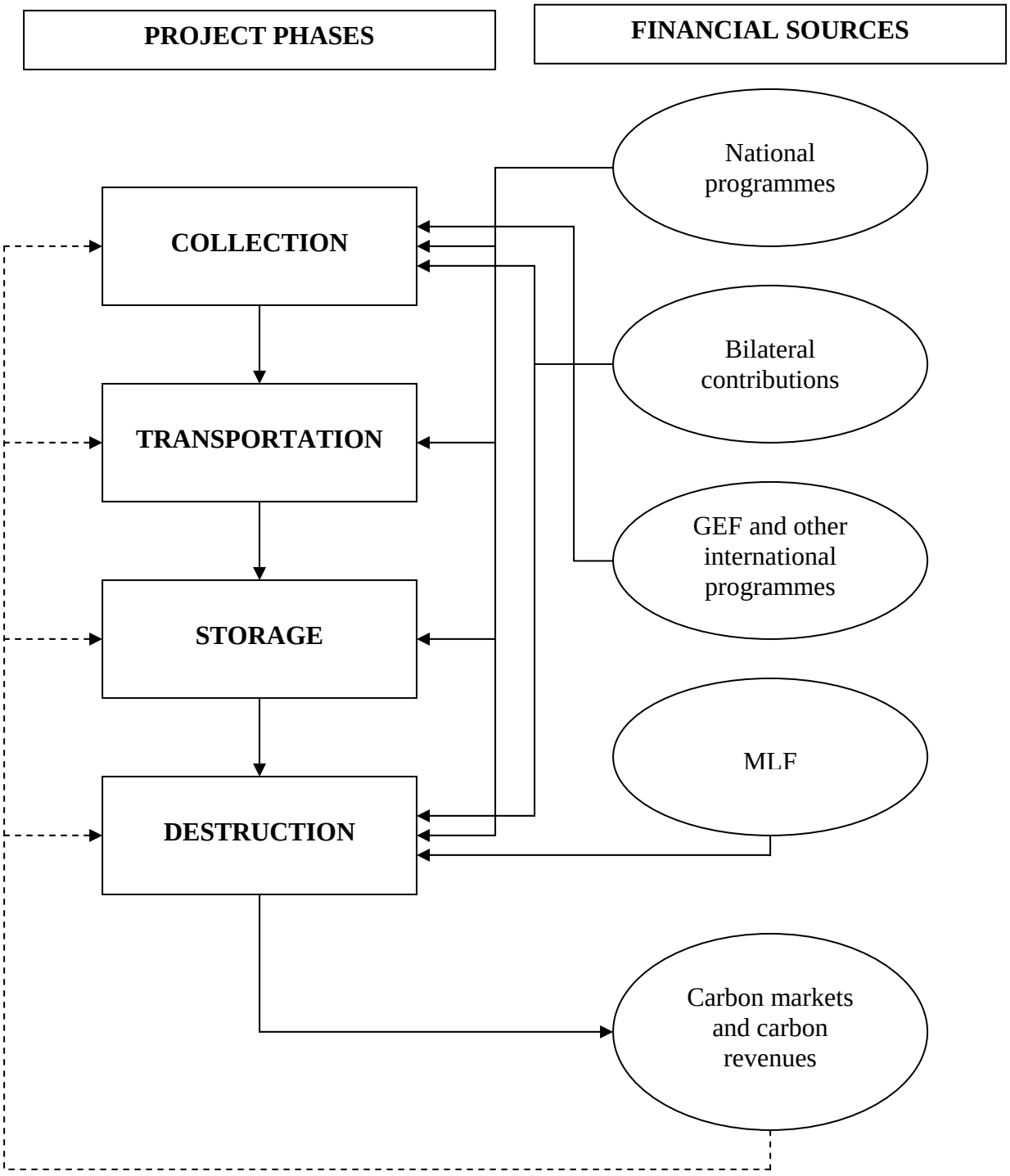
Funds mobilization

The project for the recovery, transportation and destruction of ODSs in Algeria will be designed in strict coordination with the HPMP preparation.
Indeed, the HPMP activities would involve servicing operations on existing equipment, which would be supported by the MLF.

Furthermore, the demonstration project will explore possibility to mobilize national sources as well as sources from international programmes, both multilateral and bilateral.

Finally, main attention will be put in the selection of the best opportunity to mobilize funds from the monetization of the climate benefits generated under this activity.

Overview of funds mobilization scheme



Project Concept

Country:	**The Republic of Cameroon**
Title:	Preparation of an ODS disposal pilot project
Project Duration:	12 months
ODS to be destructed (estimate):	27.35 tonnes
Project Budget:	US$ 40,000 plus US$ 3,000 agency support cost
Implementing Agency:	UNIDO
Coordinating Agency:	Ministry of Environment and Protection of Nature (MEPN)

Project Summary

Following Decision XX/7 of the Meeting of the Parties, the Executive Committee decided at its 58th Meeting in July 2009 (Dec. 58/19) to fund a limited number of demonstration projects for the disposal of ODSs.

UNIDO received a government request from Cameroon to prepare a demonstration project for the disposal of ODSs.

This paper sets out a proposal for project preparation for an ODS destruction demonstration project in Cameroon.

The two major sectors of the ODS destruction project, i.e. refrigerant servicing, end-of-life fridges and ACs de-manufacturing contribute to the 27.35 MT of ODSs, which will be destructed annually within the frame of the subject disposal project.

I. Background

Cameroon's baseline average consumption of Annex A, Group I substances amounted to 257 ODP tonnes. Halons' baseline consumption is 2.4 ODP tonnes. Cameroon has no CFC production.

In the past, the ODS consumption (CFC-11, CFC-12 and HCFC-22) occurred mainly in the flexible foam sub-sector and in the maintenance and repair of domestic and commercial refrigeration and stationery air-conditioning equipment.

Refrigerant servicing sector

Out of 257 ODP tonnes in the foam and refrigeration servicing sectors, the amount of 137 MT was consumed in 1999 and 2000 in the refrigeration servicing sector.

According to the RMP, 60% of CFCs recovered can be recycled and the annual quantity of recycled CFC-12 would be up to 28 tonnes per year when the RMP is fully operation (Source: Terminal CFC/TCA phase out plan for Cameroon). Assuming that 10% of this amount would be destructed, 2.8 MT can be destructed annually.

In 2001 in the commercial servicing refrigeration sector, the amount of 16.5 MT was used, MACs service and repair – 4.2 MT of CFCs and in the industrial refrigeration sector – 12.2 MT of CFCs. (Source: Terminal CFC/TCA phase out plan for Cameroon). Assuming that 10% of the amount of CFCs used for servicing purposes, we shall receive the amount of 3.3 ODP tonnes. Therefore, the total for the refrigeration and MAC servicing sector can be considered as **6.1** ODP tonnes.

Consumption of CFC-12 in domestic refrigeration (end-of-life refrigerators)

The total number of domestic refrigerators and freezers in Cameroon is estimated to be more than 2.000.000 units. No information is available on the number of Air Conditioning units.

If we take that the duration of life time of a refrigerator is 15-20 years we could assume that 100,000 refrigerators were to be annually disposed of. During the first year of the project implementation UNIDO wanted to introduce a Producer Responsibility Program in Cameroon dealing with the increase of the cost of imported or produced refrigerators in Cameroon to get funds for destruction of old fridges and ACs at the end of their operation. It would be easy to initiate the collection of at least 50,000 old refrigerators securing a slow increase in fridges collection up to 100,000. If we take into consideration 70-300g of CFC R-12 available in the cooling circuit and compressor (pre-treatment) and 200-800g CFC R-11 in the polyurethane foam insulation (final treatment) we could agree that after the recovery, one refrigerator could provide 230-1100g of CFCs, an average of about 850g. From 50,000 refrigerators we could recover 42.5 MT of CFCs bearing in mind that the technology available from SEG, Germany would allow us a recovery up to 98% of CFC-12. We have also to accept that only 50% of these refrigerators could have a full charge. As a result up to **21.25** MT of CFCs can be recovered per year. This figure could be higher in the first year of the project implementation and lower in

the consequent years.

We assume that the quantity of Halons from fire protection equipment will be minimal. The quantity of ACs is not known, therefore, the project will concentrate on the two major sectors, i.e. domestic refrigeration and commercial refrigeration's servicing sectors and CFC recovery and destruction from end-of-life domestic refrigerators.

Overall CFC quantities for annual destruction

The overall CFC quantities for annual destruction in refrigeration, MACs/ACs servicing sub-sectors and in end-of-life refrigeration/ACs sectors in Cameroon is as follows:

End-of-life refrigerators/ACs	21.25	MT
Servicing sector		
ACs/MACs and domestic/commercial refrigeration	6.1	MT
Total	**27.35**	**MT**

Project Concept

Country:	**The People's Republic of China**
Title:	Preparation of a CFC destruction pilot project for Shandong Province in China
Project Duration:	18 months
Project Budget:	US$ 85,000 plus US$ 6,375 agency support cost
Implementing Agency:	UNIDO
Coordinating Agency:	Ministry of Environmental Protection MEP)

Project Summary

Following Decision XX/7 of the Meeting of the Parties the Executive Committee decided at its 58th Meeting in July 2009 (Dec. 58/19) to fund a limited number demonstration projects for the disposal of ODSs.

UNIDO received a government request from China to prepare a demonstration project for the disposal of ODSs.

This paper sets out a proposal for project preparation for an ODS destruction demonstration project in Shandong Province China.

Background

Legal Framework

On 15 February 2009, the State Council of China issued the Regulation on the Recovery and Disposal of Waste Household Appliances and Electronic Equipment, which will come into effect on 1 January 2011.

The regulation sets out the requirements of the bill and the obligations of the central and local government and enterprises involved in disposal. The Ministry of Environmental Protection (MEP) is responsible for implementing the regulations, including the management and monitoring of the disposal of discarded appliances. It is stipulated that only authorized enterprises can conduct the disposal of waste appliances. Enterprises dealing with the disposal of household appliances must report the disposal data

to the local Environment Protection Bureaus (EPBs).

In addition to this, the State Council of China issued the Notice of Used Domestic Appliances and Automobiles Replacement on 1 June 2009. This bill aims to encourage the purchase of new domestic environmentally friendly appliances by providing financial incentive for consumers when purchasing new appliance or automobile if they recycle their old one. The regulation stipulates that discarded appliances and automobiles should be treated only by authorized enterprises in an environmentally friendly manner meeting the requirements of the respective regulations.

The scheme has been initiated in pilot provinces and cities as follows: Beijing, Shanghai, Shandong, Tianjin, Jiangsu, Zhejiang, Guangdong, Fuzhou and Changsha.

The regulations establish a legal framework and consumer incentive to dispose domestic electrical appliances in an approved manner. The collection and transport of the discarded household appliances, which meet the demands stipulated in the regulations, will be jointly funded by the central and the local government to cover part of the costs. ODS used in refrigeration appliances are required to be recovered and disposed of in accordance with the environmental protection requirements.

Shandong Province collection and destruction scheme

Established in 1994, Qingdao New World specializes in waste water and flue gas emissions control and diversified into solid waste disposal and hazardous waste treatment.
With government support, New World has established the Shandong Solid Waste Information Exchange and a collection and distribution network, which allows customers to trade used products and scrap materials.

In 2008, a specialized recycling plant was built in Qingdao to dismantle a range of discarded products including computers, televisions and domestic appliances, such as refrigerators, freezers and room air conditioners. Goods are dismantled on a number of processing lines and recyclable materials are recovered and sold. Non-hazardous waste is disposed of in landfill sites operated by the company and hazardous waste is disposed of in a new gas fired rotary kiln, which was installed in August 2008 and commissioned in 2009. Initial trials, which altogether destructed 25kg gaseous CFC-12 indicated that the kiln is capable of destroying CFC-11 and CFC-12.

The new dismantling plant is now on line and the collection network is beginning to feed significant numbers of appliances to the dismantling plant. According to a detailed survey carried out by

the Shandong Government and New World, the total number of refrigerators in use in whole Shandong province adds up to 19,500,000 units, among which about 3,510,000 are CFC-based. In view of the aging CFC refrigerators stock as well as the incentives introduced by the Government, a large portion of CFC-based refrigerators will be discarded in the coming 5-7 years. For this reason, it is necessary to take immediate actions to destroy the ODS contained in the appliances being discarded. The experience shows that the average CFC content of the discarded refrigerators amounts to 70g CFC-12 and 650g of CFC-11. In light of the above and taking into consideration a very conservative collection rate of 30% the destruction facility will need to be able to handle at least 150 tonnes of CFC-11 and CFC-12 per year.

New World is the only company appointed as recycling center for the discarded household appliances in Shandong Province. The majority of the required infrastructure for ODS destruction in Shandong province has been put in place including the legislative framework, rural and regional collection network and a central dismantling facility with a line specifically designed to deal with refrigerators, freezers and air conditioners.

The recycling enterprise is also generating revenue through the sale of recovered material. However, it is of tremendous difficulty for New World to cover all the costs related to requirements for the environment protection by the revenue. New World is very encouraged by the new incentives provided by the government for the collection of discarded appliances. This will ensure constant flow of disposed refrigerators, which constitutes a solid basis for the long-term sustainability of the project.

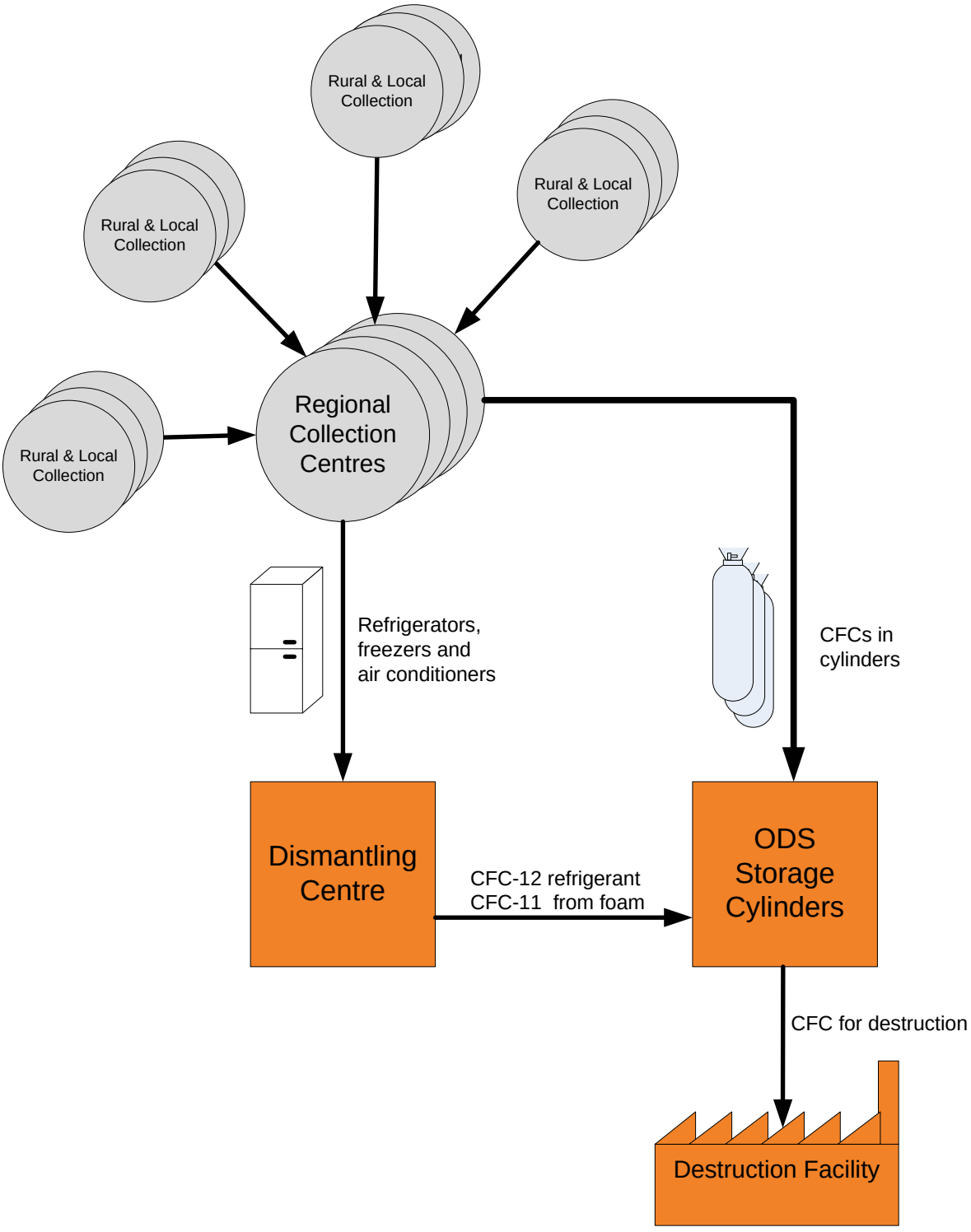
However, the current facility of New World is not able to withdraw CFC-11 from polyurethane insulation foam of the refrigerators. Tests have indicated that it is possible to destroy the foam as a whole in the existing kiln, however, the existing capacity is not sufficient to deal with all the wastes and ODSs being collected. Thus, New World also intends to upgrade its facilities to dispose CFC-11 contained in the insulation foam.

The Government of China is therefore keen to demonstrate an operating model of ODS destruction, which can benefit the environment to the possible largest extent by taking into full consideration the technical and financial conditions.

Project preparation funding is therefore sought to prepare a detailed demonstration project to make a full technical and economical analysis of the Shandong Provincial collection and destruction scheme and to prepare detailed proposals for:

- Detailed analysis of the ODS destruction capability of New World company;
- Upgrading of the existing facility at New World in a cost-effective way to ensure destruction of CFCs contained in refrigerators being discarded in Shandong Province;
- Development of detailed management criteria in order to regulate the process of ODS collection, transportation and destruction, including monitoring, inspection and verification procedures;
- Analysis of the financial operating model and the sustainability of ODS destruction;
- Analysis of alternative funding mechanisms including carbon financing.

Overview of collection, transport, storage and destruction scheme:



Project Concept

Country:	**The Republic of Egypt**
Title:	Preparation of an ODS disposal pilot project
Project Duration:	12 months
ODS to be destructed (estimate):	95.7 tonnes
Project Budget:	US$ 60,000 plus US$ 4,500 agency support cost
Implementing Agency:	UNIDO
Coordinating Agency:	Egyptian Environmental Affairs Agency (EEAA)

Project Summary

Following Decision XX/7 of the Meeting of the Parties, the Executive Committee decided at its 58th Meeting in July 2009 (Dec. 58/19) to fund a limited number demonstration projects for the disposal of ODSs.

UNIDO received a government request from Egypt to prepare a demonstration project for the disposal of ODS, and is discussing possible bilateral cooperation with Japan for its implementation.

This paper sets out a proposal for project preparation for an ODS destruction demonstration project in Egypt.

The three major sectors of the ODS destruction project, i.e. refrigerant servicing, end-of-life fridges and MAC de-manufacturing and halons servicing sector contribute to the 95.7MT of ODSs, which will be destructed annually within the frame of the subject disposal project.

I. Background

There are no specific laws regarding the collection of refrigerators and air conditioners in some areas in Egypt. The Egyptian legislation is very general, (http://www.eeaa.gov.eg/English/main/law4.asp, Art. 29-33 Law 4 and Art. 25-33 Regulations). However, since household appliances and electronic equipment have some hazardous waste, the hazardous streams are the ones which fall under the above articles in the

Law. Additionally, as stated in the Law, every Ministry should publish their own lists of hazardous wastes. For example, Ministerial Decree No. 176 of 2002 issued on 5/9/2002 by the Ministry of Industry specifically mentions electronic appliances and any hazardous streams from it. It covers the items which are related to appliances wastes:

15) Unclassified batteries;
16) Waste resulting from electric or electronic assembly processes or scrap containing elements of banned batteries and the switches with mercury conductors and glass tubes constructed by cathode rays and others activated glass and PCB condensers or condensers which are polluted by any of the hazardous elements with concentrations showing its hazardous properties;
21) Asbestos waste;
49) ***Waste containing or composing of CFCs.***

Egypt's baseline average consumption of Annex A, substances for the period from 1995 to 1997 amounted to 1,668 ODP tones. The country has always been in compliance with the Montreal Protocol control measures for CFCs since 1999.

Refrigerant servicing sector

Egypt has phased out all use of CFCs in the production of domestic refrigerators and freezers through 24 conversion projects implementing non-ozone depleting refrigerants and foam blowing agents. The biggest continuing use of CFCs was in the refrigeration service sector, which consumed approximately 704.0 tonnes including refrigerator manufacturing in 2004.

The refrigeration servicing sector in 2007 included commercial refrigeration in service shops consuming in 2004 215.7 MT of CFC-12, domestic refrigeration in service shop – 221.1 MT, refrigerated transportation - 45 MT, industrial refrigerators – 49.9 MT, chillers – 210.0 MT and MAC – 56.0 MT totaling 713.6 of CFC-12 in 2004 (source: the NPP in Egypt).

If the ODS disposal project is well organized with introduction of some incentives for the staff of the centralized ODS recovery facilities and bearing in mind that 5% of the whole annual demand would be destructed every year, the total estimate for destruction could be 713.6 x 0.05=**35.7** MT of CFC-12 in all sub-sectors. In the first year of the ODS disposal project a system for CFC-12 recovery and recycling needs to be established that would allow the collection of unwanted CFC-12 on the regular basis.

End-of-life fridges and MAC de-manufacturing sector

It is estimated that as of 2004 there were around 8 million CFC-based domestic refrigerators in operation. The proportion of non-CFC refrigerators was increasing rapidly due to the conversion of the manufacturing base, but approximately 800,000 to a million repairs to CFC-based units were carried out in 2004 (source: the NPP in Egypt).

If we take that the duration of life time of a refrigerator is 15-20 years we could assume that 400,000 refrigerators were annually disposed of. During the first year of the Project implementation, UNIDO wanted to introduce a Producer Responsibility Program in Egypt dealing with the increase of the cost of imported or produced refrigerators in Egypt to get funds for the destruction of old fridges at the end of their operation. It is easy to initiate the collection of at least 100,000 of old refrigerators, securing a slow increase in the collection of fridges up to 400,000.

If we take into consideration 70-300g of CFC R-12 available in the cooling circuit and compressor (pre-treatment) and 200-800g of CFC R-11 in the polyurethane foam insulation (final treatment) we can agree that the recovery of one refrigerator could yield 230-1100g of CFCs, an average of about 850g. From 100,000 refrigerators we could recovery 85 MT of CFCs bearing in mind that the technology available from SEG, Germany, would allow us a recovery up to 98% of CFC-12. We also have to accept that only 50% of these refrigerators could have a full charge. As a result, we could recover up to **42.5** MT of CFCs. This figure could be higher in the first year of the project implementation and lower in the consequent years.

Based on data provided by the transportation authorities in Egypt, there were 325,000 licensed vehicles with CFC air-conditioning in operation in 2004.

The average charge for a passenger car is between 0.9 and 1.5 kg. The NPP survey confirms that in 2004 about 60 tonnes of CFC-12 was used in servicing MAC systems only. Bearing in mind the life time span for MAC as 20 years we could assume that 325,000 : 20 = 16,250 MAC need to be destroyed every year, if one MAC has 50% charge we would have about **8.0** MT of CFC-12 to be recovered for destruction.

The total end-of-life fridges and MAC de-manufacturing_sector would provide about **50 MT** of CFCs per year for further destruction.

The European Directives on the Recovery and Disposal of Waste Household Appliances and Electronic Equipment would be used to develop similar ODS recovery and destruction procedures in Egypt. The regulation will set out the requirements of the bill and the obligations of the central and local governments and enterprises

involved in disposal of ODS-containing equipment. The Egyptian Environmental Affairs Agency (EEAA) Ministry of Environmental Protection (MEP) will be responsible for implementing the regulations, including the management and monitoring of the disposal of the waste appliance and only the authorized enterprises can conduct the disposal of the waste appliances. Enterprises dealing with the disposal of household appliances must report the data to local Environment Protection Bureaus (EPBs).

Halons servicing sector

The Halons baseline consumption in Egypt is 705 ODP MT of two Halons 1211 and 1301 or 120 ODS tonnes. We could consider the installed capacity of halons in Egypt as 120 ODS MT. According to the Danish Military Halons Centre 8-12% of the installed capacity could be considered for annual destruction. In our case **10.0** ODS MT could be considered for disposal of on the annual basis.

The project will deal with the destruction in the three sectors. They are:

1. Refrigerant servicing sector – 35.7 MT
2. End-of-life fridges and MAC de-manufacturing sector – 50 MT
3. Halons servicing sector -10 MT

Total – 95.7 MT of ODSs

II. Project scope

1. The future project for ODS destruction in Egypt will include the following chapters:
a) Unwanted ODS inventory
b) Status of Regulations on ODS Disposal
c) Assessment of ODS quantities for destruction in different sectors
d) Screened-in technologies and selection of destruction methods for ODS destruction
e) Training programme
f) Project cost analyses including the climate benefit component.

2. Unwanted ODS inventory

Surveys will be conducted on unwanted ODS in the specific use sectors (refrigerants and halons). Destruction of foams can be considered later on after collecting data on landfills. As a result of the surveys the project defines number of tonnes of unwanted ODS as per use sector excluding the foam sector. The

Central Halon Banking and Refrigerant Banking (RMP) facilities will be analyzed to define the quantities of ODS for destruction.

3. Status of Regulations on ODS Disposal

Sector-wise regulations (refrigerants, foams, halons, solvents, unwanted ODS, hazardous waste regulations and ODS destruction regulations). Destruction standards will be developed at the time of the ODS destruction project implementation.

4. Assessment of ODS quantities for destruction in different sectors

Each sector will be carefully studied and the European Directives on the Recovery and Disposal of Waste Household Appliances and Electronic Equipment would be used to develop similar ODS recovery and destruction procedures in Egypt. Finally a carbon trading mechanism would be applied to generate possible funds for project implementation, for which precise quantities of ODS need to be determined after the introduction of local legislation on the disposal of ODS-containing equipment.

5. Screened-in technologies and selection of destruction methods for ODS destruction

The selection of destruction equipment is based on its internal destruction capacity and the required number of tonnes to be destructed.

6. Training programme

A training programme needs to be developed, which brings all the elements of local ODS destruction, new local regulations on ODS destruction developed during the time of this project, and destruction methods.

7. Project cost analyses

The project costs include the costs of all the above components and equipment, whose destruction capacity will proportionally meet the ODS quantities (halons, CFC-11 and CFC-12) available in Egypt.

Project Concept

Country:	**The Islamic Republic of Iran**
Title:	Preparation of an ODS disposal pilot project
Project Duration:	12 months
ODS to be destructed (estimate)	97.45 tonnes
Project Budget:	US$ 60,000 plus US$ 4,500 agency support cost
Implementing Agency:	UNIDO
Coordinating Agency:	Department of Environment (DoE)

Project Summary

Following Decision XX/7 of the Meeting of the Parties, the Executive Committee decided at its 58th Meeting in July 2009 (Dec. 58/19) to fund a limited number demonstration projects for the disposal of ODSs.

UNIDO received a government request from the Islamic Republic of Iran to prepare a demonstration project for the disposal of ODSs.

This paper sets out a proposal for project preparation for an ODS destruction demonstration project in Iran.

The three major sectors of the ODS destruction project, i.e. refrigerant servicing , end-of-life fridges and MAC de-manufacturing and halons servicing sector contribute to the 97.45 MT of ODSs, which will be destructed annually within the frame of the subject disposal project.

I. Background

1. Refrigerant servicing sector

The national survey carried out within the preparation of the National CFC Phase out Plan for Iran, has estimated the CFC consumption in the refrigeration servicing sub-sectors as shown in the table below:

CFC consumption in the refrigeration servicing sectors in 2002, by sub-sector (Metric tonnes)

Sub-sector	Servicing
Mobile Air Conditioning	350.00
Commercial: Heavy duty commercial equipment, e.g., cold rooms, condensing units And light duty commercial equipment, e.g., show cases, freezers	135.00
Domestic: Domestic refrigerators and freezers	450.00
Total	935.00

Source: Iran's National CFC Phase-out Plan

The total number of commercial refrigerators in Iran need to be repaired is estimated to be 2 million units, 5% of which still run on CFC-12, with an average of 1.35 kg of CFC-12 per service. 135 MT of CFC-12 is required for servicing purposes and can be destructed. We can estimate that 5% of this quantity, **6.75** MT, needs to be destructed.

The CFC consumption in the servicing sector in 2002 was reported as 935.00, 450 tonnes were in the domestic refrigeration sector excluding MAC units. The fleets of CFC-based refrigeration equipment that are currently in use and are serviced on an annual basis consist of: (i) 1.6 million domestic refrigerators or about 8% of all units, requiring an average 250g CFC per service; (ii) 80,000 commercial -refrigerator units, or 20% of the total number would require about 1,000 g per unit; and (iii) all 1,500 industrial and large cold store units in the country, charged **twice** a year with an average of 100 kg per charge. Furthermore, there are an estimated 2,000 lorries and trucks that are equipped with cold rooms for carrying frozen foods, of which 20% have the CFC-12 refrigerant. These vehicles are charged **twice** a year with an average charge of 5.0 kg per unit.

The total number of domestic refrigerators in Iran is estimated to be 22 million, of which 25% (5,500,000) still run on CFC-12. The annual CFC consumption in the domestic servicing sector is 450 MT. Upon request from UNIDO the Department of Environment has confirmed that the total number of CFC-12 based domestic refrigerators in Iran needed to be repaired is estimated to be 825,000 units per year, and they likely require service with an average of 250g of CFC-12 per service. This results in total requirements of 206 metric tonnes of CFC-12 for servicing in the domestic refrigeration sub-sector. We could assume that 10% (about **20** MT) of this annual CFC consumption needs to be destructed.

In the MAC sector we have 700,000 mobile air conditioning units which still run on CFC-12. Assuming that the average amount of CFC used for each servicing procedure is 1.0 kg and that each car requires servicing every year, the total estimated amount of refrigerant needed for MAC servicing is estimated in 7.0 metric tonnes of CFC-12. And 10% of this amount, **0.7** MT would be destructed.

2. End-of-life fridges and MAC de-manufacturing sector

Assuming that the average amount of CFC used for each servicing procedure is 1.0 kg and that the life time span for cars could be accepted as 20 years we would have 35,000 pieces of MACs to be destructed every year. From 35,000 MACs we could recover 35 MT of CFCs bearing in mind that the technology available from SEG, Germany would allow us a recovery up to 98% of CFC-12. We do accept that only 50% of these MACs could have a full charge. As a result we could get up to **17.5** MT of CFCs to be recovered. This figure could be higher in the first year of the project implementation and lower in the consequent years.

As mentioned earlier, the total number of domestic refrigerators in Iran is estimated to be 22 million, of which 25% (5,500,000) still run on CFC-12. If we take that the duration of life time of a refrigerator is 15-20 years we could assume that 275,000 refrigerators were annually disposed of. During the first year of the project implementation UNIDO will introduce a Producer Responsibility Program in Iran dealing with the increase of the cost of imported or produced refrigerators in Iran to get funds for the destruction of old fridges at the end of their life. It would be easy to initiate the collection of at least 100,000 old refrigerators, securing a slow increase in the collection of fridges up to 275,000 within the frame of the project implementation.

If we take into consideration of 70-300g of CFC R-12, which are available in the cooling circuit and compressor (pre-treatment) and 200-800g CFC R-11 in the polyurethane foam insulation (final treatment) we could agree that after the recovery from one refrigerator, the yield could be around 230-1100g of CFCs, an average of about 850g. From 100,000 refrigerators we could recovery 85 MT of CFCs bearing in mind that the technology available from SEG, Germany would allow us a recovery up to 98% of CFC-12. We also have to accept that only 50% of these refrigerators could have a full charge. As a result we could recover up to **42.5 MT** of CFCs. This figure could higher be in the first year of the project implementation and lower in the consequent years.

The Department of Environment of Iran confirmed that at least about 660,000 of old refrigerators need to be de-manufactured on the annul basis. After introduction of the Producer Responsibility Program in Iran it would be possible to make final calculations on the quantity of old fridges to be destructed. However, it is understandable that UNIDO is considering more than 100,000 units based on the calculations above. However, the level of CFCs available in old fridges on average is not known so far. This can only be confirmed within one month's time of the pilot destruction project after the first batches have been destructed. Therefore, UNIDO considered the most conservative figure of 42.5 MT of CFCs for the destruction of 100,000 units in the end-of-life fridges de-manufacturing sector.

3. Halons servicing sector

Iran reported a consumption of zero ODP tonnes of halons in year 2008.
The consumption of halons in the I.R. of Iran was reported as 1,420 ODP tonnes in 2001. The consumption of 1,420 ODP tonnes, which is in line with the baseline, consists of 120 ODP tonnes of halon-1211, and 1,300 ODP tonnes of halon-1301. The Executive Committee approved at its 28th Meeting, in July 1999, the "National Halon Management Programme (NHMP) and the phase-out impact of the project was estimated at 2,434 ODP tonnes".

According to Iran's Country Programme Update (CPU) approved in 2003, approximately one third of halon consumption in the I.R. of Iran is for the Defense Department, and the rest is in large and commercial buildings. The critical users of halon in the I.R. of Iran are defense, civil aviation, shipping, power supply, oil and gas industry and telecommunication. There are also some charging and servicing centers, which are responsible for manufacturing and servicing fire extinguishers.

According to Iran's Halon Banking Center, about 30%-50% of the annual halon consumption of halons for refilling the fire protection units or systems can be considered for destruction purposes. The same figure of 30%-50% was confirmed to UNIDO by other Halon Banking Centers. If the total installed capacity in Iran is 2.55 tonnes of Halon 1211 in 2007 and 21.54 tonnes of Halon 1301, about **7.0-10.0** ODS MT can be considered every year for destruction as figures confirmed by the Halon Banking Center in Iran.

The project will deal with the destruction in the three sectors. They are:
1. Refrigerant servicing sector (Domestic refrigeration) – 20.0 MT

2. Refrigerant servicing sector (Commercial refrigeration) – 6.75 MT
3. MAC servicing sector – 0.7 MT
4. End-of-life fridges de-manufacturing sector – 42.5 MT
5. MAC de-manufacturing sector – 17.5 MT
6. Halons servicing sector – 10.0 MT

Total – **97.45 MT** of ODSs

II. Project strategy

The future project for ODS destruction in Iran will include the following chapters:
a) Unwanted ODS inventory
b) Status of Regulations on ODS Disposal
c) Assessment of ODS quantities for destruction in different sectors
d) Screened-in technologies and selection of destruction methods for ODS destruction
e) Training programme
f) Project cost analyses including the climate benefit component.

2. Unwanted ODS inventory

Surveys will be conducted on unwanted ODS in the specific use sectors (refrigerants and halons). Destruction of foams can be considered later on after collecting data on landfills. As a result of the surveys the project defines number of tonnes of unwanted ODS as per use sector excluding the foam sector. The Central Halon Banking and Refrigerant Banking (RMP) facilities will be analyzed to define the quantities of ODS for destruction.

3. Status of Regulations on ODS Disposal

Sector-wise regulations (refrigerants, foams, halons, solvents, unwanted ODS, hazardous waste regulations and ODS destruction regulations). Destruction standards will be developed at the time of the ODS destruction project implementation.

4. Assessment of ODS quantities for destruction in different sectors

Each sector will be carefully studied and the European Directives on the Recovery and Disposal of Waste Household Appliances and Electronic Equipment would be used to develop similar ODS recovery and destruction procedures in Iran. Finally a carbon trading mechanism would be applied to generate possible funds for project implementation, for which precise quantities of ODS need to be determined after the introduction of local legislation on the disposal of ODS-containing equipment.

5. Screened-in technologies and selection of destruction methods for ODS destruction

The selection of destruction equipment is based on its internal destruction capacity and the required number of tonnes to be destructed.

6. Training programme

A training programme needs to be developed, which brings all the elements of local ODS destruction, new local regulations on ODS destruction just developed during the time of this project, and destruction methods.

7. Project cost analyses

The project costs will include the costs of all the above components and equipment, whose destruction capacity will proportionally meet the ODS quantities (halons, CFC-11 and CFC-12) available in Iran.

Project Concept

Country:	**Nigeria**
Title:	Preparation of ODS disposal demonstration project
Project Duration:	12 months
Project Budget:	US$ 60,000 plus US$ 4,500 agency support cost
Implementing Agency:	UNIDO
Coordinating Agency:	**NOO,** Ministry of Environment

Project Summary

Following Decision XX/7 of the Meeting of the Parties, the Executive Committee decided at its 58th Meeting in July 2009 (Dec. 58/19) to fund a limited number of demonstration projects for the disposal of ODSs.

UNIDO received a government request from Nigeria to prepare a demonstration project for the disposal of ODSs.

This paper sets out a proposal for project preparation for an ODS destruction demonstration project in Nigeria.

Background

In line with the Criteria and Guidelines for the selection of ODS disposal projects and provisions for the requests on project preparation funding set up by the ExCom Decision 58/19, paragraph (iv) the Government has submitted the following information and data.

It has been anticipated that the ODS disposal demonstration project to be developed will include activities related to ODS collection, transportation, storage and delivery to the destruction facility.

For the time being there is the Africa Stockpile Program (ASP) funded by CIDA. The program has a three-year span and is designed to identify Nigeria's needs on obsolete chemicals disposal to prevent further accumulation of obsolete pesticides in the country. There is also a UNDP project proposal on Energy Efficiency and Climate Change pending approval and funding by GEF. A similar

project in Ghana has an ODS disposal component. A synergy with ASP and the GEF project would be possible.

There are two main ODSs, which are suggested to be handled under the ODS disposal demonstration project, namely: CFC-12 refrigerant and halons.

The main source of CFC-12 is located in the refrigeration installations of the oil industry. A pilot project implemented at one of the oil companies had identified an installed stock of about 15 MT of CFC-12 from which 500 kg have been already recovered and stored for the subsequent destruction. There are another 5 similar oil companies with the estimated stock of 80 MT of CFC-12. It has to be noted that all installations in the oil industry have been converted to non-ODS technology. Thus, for the time being about 95 MT of CFC-12 is available for recovery, storage, transportation and destruction.

It is expected that additional quantities of CFCs for destruction can be collected from the refrigeration servicing sector after the completion of the on-going RMP project, which is providing the respective training to the refrigeration service technicians followed by distribution of R&R equipment among the national Refrigeration Associations.

The survey carried out in 2003/2004 identified a significant stock of halons installed in the fire fighting equipment. The established halon bank is designed for recovery/recycling of halon-1301 for essential use. According to the established inventory there is an installed stock of 200 MT of halon-1301. The respective TEAP's report estimates that about 80% of halons in the African region are too contaminated for recycling. Thus, at least 150 MT of halon-1301 are expected to be handled under the ODS disposal project.

The halon bank does not process halon-1211. However, the cylinders charged with halon-1211 are collected and stored for the subsequent destruction. Based on the findings of the survey mentioned above, the installed stock of halon-1211 is about 300 MT.

Project Strategy

The project will deal with the destruction in the following sectors:

1. Oil industry – 95 MT
2. Refrigeration, air-conditioning and MAC servicing sector – **to be determined**
3. Halon servicing sector - 450 MT

Total – about **545 MT** of ODSs.

The future project for ODS destruction in Nigeria will include the following chapters:

a) Unwanted ODS inventory
b) Status of Regulations on ODS Disposal
c) Assessment of ODS quantities for destruction in different sectors
d) Screened-in technologies and selection of destruction methods for ODS destruction
e) Training program
f) Project cost analyses including the climate benefit component.

Project Concept

Country:	**The Syrian Arab Republic**
Title:	Preparation of an ODS disposal pilot project
Project Duration:	12 months
ODS to be destructed (estimate)	81.55 tonnes
Project Budget:	US$ 60,000 plus US$ 4,500 agency support cost
Implementing Agency:	UNIDO
Coordinating Agency:	Ministry of Local Administration and Environment (MLAE)

Project Summary

Following Decision XX/7 of the Meeting of the Parties the Executive Committee decided at its 58th Meeting in July 2009(Dec. 58/19) to fund a limited number of demonstration projects for the disposal of ODSs.

UNIDO received a government request from Syria to prepare a demonstration project for the disposal of ODSs.

This paper sets out a proposal for project preparation for an ODS destruction demonstration project in Syria.

The three major sectors of the ODS destruction project, i.e. refrigerant servicing, end-of-life fridges and MAC de-manufacturing and halons servicing sector contribute to the 81.55 MT of ODSs, which will be destructed annually within the frame of the subject disposal project.

I. Background

Syria's baseline average consumption of Annex A, Group I substances for the period from 1995 to 1997 amounted to 2,224.65 ODS tonnes.

Refrigerant servicing sector

The estimation regarding existing CFC-based equipment in operation in 2004 throughout the country has provided following results:

- *domestic refrigerators and freezers; 4,000,000 units*
- *commercial refrigeration units ; 300,000 units*
- *air conditioners; 150,000 units*
- *transport refrigeration units; 3,000 units,*
- *industrial refrigerators and chillers with CFC; 800 units (200 units with CFC-12),*
- *MAC with CFC-12; 300,000 units (total number of vehicles; 600,000)*

a. Consumption of CFC-12 in domestic refrigeration (end-of-life refrigerators): The total number of domestic refrigerators and freezers is more than 4.000.000 units. Assuming that approximately 15 percent of these units require service annually, and that each unit consumes about 300g of CFC-12 in the process of recharging, the total CFC-12 consumption in domestic refrigeration servicing is 180 tonnes. Assuming that 10% will be destructed annually, that amounts to **18.0 MT**.

If we take that the duration of life time of a refrigerator is 15-20 years we could assume that 200,000 refrigerators were annually disposed of. During the first year of the Project implementation UNIDO wanted to introduce a Producer Responsibility Program in Syria dealing with the increase of the cost of imported or produced refrigerators in Syria to get funds for the destruction of old fridges at the end of their operation. It is easy to initiate the collection of at least 100,000 of old refrigerators, securing a slow increase in fridges collection up to 200,000.

If we take into consideration of 70-300g CFC R-12 which are available in the cooling circuit and compressor (pre-treatment) and 200-800g CFC R-11 in the polyurethane foam insulation (final treatment) we can agree that the recovery of one refrigerator could yield 230-1100g of CFCs, an average of about 850g. From 100,000 refrigerators we could recovery 85 MT of CFCs bearing in mind that the technology available from SEG, Germany, would allow us a recovery up to 98% of CFC-12. We have also to accept that only 50% of these refrigerators could have a full charge. As a result we could get up to **42.5** MT of CFCs to be recovered. This figure could be higher in the first year of the project implementation and lower in the consequent years.

b. Consumption of CFC-12 in commercial and transport refrigeration: This sub-sector includes the use of CFCs as refrigerant in display cabinets, food storage equipment, transport refrigeration (containers) and commercial cold storage facilities. Commercial refrigeration is crucial to Syria since it is primarily used for food storage and transport. The total number of 300,000 food stores, chest freezers, display cabinets, cold rooms and other commercial refrigeration units are in operation. Assuming that 10 percent of the total is to be serviced annually, each unit requiring an average 0.75 kg of CFC-12 in the process of recharging, the total amount of CFC-12 consumed annually in the commercial sub sector is 22.5 tonnes. Also assuming that 10% of this annual consumption needs to be destructed, the final amount is **2.25** MT.

c. Consumption of CFC in industrial refrigeration sub-sector: Chillers and industrial refrigerators are providing large centralized cooling services, and are usually used for cooling for industrial processes. They are also used for air conditioning in larger buildings, installed in different industries, hospitals, hotels, commerce buildings and others. The majority of these units are between 15 and 20 years old and most of them are expected to reach the end of their operational lifetimes beyond 2010. Due to poor maintenance, these units could be a source of leaks and may need special attention in future NPP. The survey estimated that about 200 industrial refrigerators and 21 chillers with CFC-12 are in use in Syria, with overall annual consumption of about 40 tonnes of CFC-12 for maintenance and servicing. The estimated CFC consumption for industrial service including chillers is 40 ODP tonnes and 10% will be considered for destruction, **4.0** MT.

d. Consumption of CFC-12 in mobile air-conditioning (MAC) sub-sector: Based on data provided by the transportation department, there were approximately 600,000 registered vehicles in Syria in 2004. It is estimated that half of this number is equipped with air conditioner using CFC-12 and require annual service. Knowing that each unit requires 1.3 kg of CFC-12 for recharging service, the annual consumption of CFC-12 in this sub-sector is around 78 tonnes. As 10% is estimated for destruction, that amounts to **7.8** MT. Almost all vehicles with MAC and MAC for local assembly after 1999 are using HFC-134a.

Halons servicing sector

Syria has already phased out the consumption of Halons with assistance from the Multilateral Fund through establishing a Halon bank. The Halons baseline consumption in Syria was about 420 ODP MT of two Halons 1211 and 1301, 40 ODS tonnes of Halon 1211 and 30 ODS tonnes of Halon 1301, respectively. We could consider the installed capacity of halons in Syria as 70 ODS MT. According to the Danish Military Halons Centre 8-12% of the installed capacity could be considered for annual destruction. In our case **7.0** ODS MT could be considered for disposal of on the annual basis.

Overall CFC quantities for annual destruction

The overall CFC quantities for annual destruction in refrigeration, AC/Mac and halon servicing sub-sectors and in end-of-life refrigeration sector in Syria could be confirmed as:

End-of-life refrigerators	42.5 MT
Servicing sector	
Domestic refrigeration	18.0 MT
Commercial and transportation refrigeration	2.25 MT
Industrial refrigeration	4.0 MT
Mac sector	7.8 MT
Halon servicing	7.0 MT
Total	**81.55 MT**

II. Project scope

The future project for ODS destruction in Syria will include the following chapters:

a) Unwanted ODS inventory
b) Status of Regulations on ODS Disposal
c) Assessment of ODS quantities for destruction in different sectors
d) Screened-in technologies and selection of destruction methods for ODS destruction
e) Training programme
f) Project cost analyses including the climate benefit component.

2. Unwanted ODS inventory

Surveys will be conducted on unwanted ODS in the specific use sectors (refrigerants and halons). Destruction of foams can be considered later on after collecting data on landfills. As a result of the surveys the project defines number of tonnes of unwanted ODS as per use sector excluding the foam sector. The Central Halon Banking and Refrigerant Banking (RMP) facilities will be analyzed to define the quantities of ODS for destruction.

3. Status of Regulations on ODS Disposal

Sector-wise regulations (refrigerants, foams, halons, solvents unwanted ODS, hazardous waste regulations and ODS destruction regulations). Destruction standards will be developed at the time of the ODS destruction project implementation.

4. Assessment of ODS quantities for destruction in different sectors

Each sector will be carefully studied and the European Directives on the Recovery and Disposal of Waste Household Appliances and Electronic Equipment would be used to develop similar ODS recovery and destruction procedures in Syria. Finally a carbon trading mechanism would be applied to generate possible funds for project implementation, for which precise quantities of ODS need to be determined after the introduction of local legislation on the disposal of ODS-containing equipment.

5. Screened –in technologies and selection of a destruction methods for ODS destruction

The selection of destruction equipment is based on its internal destruction capacity and the required number of tonnes to be destructed.

6. Training programme

A training programme needs to be developed, which brings all the elements of local ODS destruction, new local regulations on ODS destruction developed in the time of this project, and destruction methods.

7. Project cost analyses

The project costs include the costs of all the above components and equipment, whose destruction capacity will proportionally meet the ODS quantities (halons, CFC-11 and CFC-12) available in Syria.

Project Concept

Country:	**Algeria**
Title:	Preparation of investment projects for the phase-out of HCFCs in the refrigeration, A/C and foam manufacturing sectors
Project Duration:	12 months
Project Budget 1:	64,500 (including 7.5% Agency Support Costs) for the refrigeration and Air-to-Air AC sectors
Project Budget 2:	43,000 (including 7.5% Agency Support Costs) for the foam sector
Implementing Agency:	UNIDO
Coordinating Agency:	National Ozone Bureau - Ministère de l'Aménagement du Territoire de l'Environnement

Project Summary

Algeria's reported HCFCs consumption for the year 2007 was 12.1 ODP tonnes including consumption of HCFC-22 and HCFC-141b. Algeria is therefore eligible for receiving up to US$ 100,000 for the preparation of investment projects for the phase out of HCFCs in the manufacturing sector.

Algeria has not yet received funds for the preparation of investment projects for the HCFC phase out and it was agreed with the Government that all the eligible funds would be allocated to address the refrigeration, air-conditioning and foam manufacturing sectors under UNIDO's responsibility.

A recent survey confirmed that the HCFC consumption in the manufacturing sectors is for the production of HCFC based equipment in the AC, commercial and domestic refrigeration sectors as well as producing foam. The survey confirmed indeed that there are several companies involved in the mentioned manufacturing sectors. Although the HCFC survey has not yet been completed and it will be finalized during the preparation of the HCFC phase-out management plan, the Government estimated significant HCFC consumption in all the mentioned sectors.

Funding will be used to prepare investment activities addressing the refrigeration, air-conditioning and foam manufacturing sectors, which is in line with the HPMP under development. Investment projects will be prepared to help Algeria to achieve the 2013 and 2015 reduction targets in line with the priorities established in the HPMP.

Project Concept

Country:	**The People's Republic of China**
Title:	Technology demonstration project for HC blowing agent in the XPS sector
Project Duration:	18 months
Project Budget:	US$ 30,000 plus US$ 2,250 agency support cost
Implementing Agency:	UNIDO
Coordinating Agency:	Ministry of Environmental Protection (MEP)

Project Summary

The extruded polystyrene board (XPS) sector is experiencing a rapid development in China. It is estimated that there are currently about 500 XPS enterprises with about 800 production lines. The XPS production capacity amounts to approximately 8 million cubic meters consuming thirty thousands tons of HCFC. The products are used for building insulation.

The recent survey carried out in the framework of the preparation of the HPMP and the ensuing technical workshop held in Beijing in September revealed the following problems encountered by the industry in China:

1. The enterprises consider CO_2 technology, which is used in many developed countries;

2. The advantage of CO_2 technology is the very low GWP of the foaming agent, thus it is a long term solution;

3. However, the CO_2 technology is very complex and requires extended technical skills and expensive new equipment to accommodate the high pressure of CO_2 blowing agent. Furthermore, the thermal insulation of the CO_2 blown foam does not reach the one of the HCFC-22/HCFC-142b blown foams and there is a significant aging of insulation and strength after a short period of time. It is also very difficult to produce board with thicknesses above 60 mm;

4. Most of the XPS enterprises in China use high ratio of recycled materials of sometimes poor quality for XPS

production. The CO_2 technology seems to be sensitive in this respect.

5. In contrast to the practice of many developing countries, Japan elaborated a hydrocarbon (HC) technology and the entire XPS board sector in Japan has been converted to hydrocarbon (isobutane) many years ago;

6. The hydrocarbon technology is also a final solution; the GWP of isobutane is 4. The Japanese experience shows that the insulation properties of HC blown XPS foam boards are 10% better than the same of the CO_2 blown ones; ageing is negligible and thicker boards can be produced as well. The equipment itself is not much different from the current one;

7. However, isobutane is a flammable material, which requires appropriate precautions and safety modifications and equipment in the storage, transportation, handling and processing of the blowing agent.

8. A further problem is the flammability of the product, which however can be controlled by appropriate fire retardant additives (similar ones need to be used for CO_2 blown foams as well, due to the methanol used as co-blowing agent).

9. The fire safety regulations of China are quite stringent, which might constitute an additional problem.

10. Selected and controlled recycled materials are used in Japan or XPS production.

11. XPS manufacturers in China don’t use hydrocarbon-related mixtures, especially hydrocarbon alone as blowing agents.

12. In view of the diversity of producers in China, which include large but also many small and medium scale enterprises operating in various conditions, it is reasonable to investigate the advantages and adaptability of HC technology in the XPS board production sector.

In view of the above, a demonstration project is proposed to help in the selection of appropriate technology for the phase out of HCFCs in the sector.

The said project is aimed to demonstrate the application of hydrocarbon or hydrocarbon mixture as substitutes of HCFCs blowing agents.

An existing XPS manufacturer will be selected to implement this

project.

UNIDO will approach Japanese industry to assist in the technological and fire safety issues, including streamlining of standards and regulations.

The project activities/cost will consist of the following:

- Technology development and validation;
- Installation of hydrocarbon storage tank and handling equipment;
- Retrofitting and/or replacing parts of existing foaming equipment for the use of hydrocarbon;
- Installation of safety equipment;
- Technical assistance and training;
- Trial production, testing, field trials.

Information of the candidate enterprise:
Name: Shanghai Xinzhao Co.Ltd.
Location: Shanghai
Year of establishment: 2002

Project Concept

Country:	**Pakistan**
Title:	Preparation of investment activities for the phase-out of HCFCs in the PU Foam and Refrigeration manufacturing sectors
Project Duration:	12 months
Project Budget 1:	US$ 129,000 (incl. 7.5% Agency Support Costs) for the refrigeration manufacturing and A/C sectors
Project Budget 2:	US$ 86,000 (incl. 7.5% Agency Support Costs) for the Foam sector
Implementing Agency:	UNIDO
Coordinating Agency:	Ministry of Environment of Pakistan - National Ozone Cell

Project Summary

Pakistan's 2007 consumption of HCFCs according to Article 7 report amounted to 183.7 ODP tonnes. With this, Pakistan is a country with an annual consumption higher than 100 ODP tonnes.

Pakistan received U$ 150,000, split between UNIDO and UNEP, for HPMP preparation. Preliminary results of the survey confirmed that there is high consumption of HCFC 141b in the foam and refrigeration manufacturing sectors and HCFC 22 in the refrigeration (air conditioning) manufacturing sector.

19 companies were so far identified consuming HCFC 141b and HCFC 22 in the refrigeration manufacturing sectors (domestic and commercial refrigeration, air conditioning). Twenty companies have been identified in the PU insulation foam manufacturing sector, consuming HCFC 141b.

Visited manufacturing companies, Haier, Varioline, Shadman Electronics, Pakistan insulation – Eagle Star were found eligible for funding and hence immediately nominated to be potential project beneficiaries under HPMP. Total consumption of HCFC 141b only at these initially verified production facilities has been estimated at the level of 110, 5 MT of HCFC 141b.

Based on the 2007 Country Programme data the following sector HCFC-

consumption (in metric Tonnes) is reported.

	Manufacturing Foam sector	Manufacturing Refrigeration sector	Refrigeration servicing sector	Total
Annex C Group I				
HCFC-22	-	1,831.6	282.2	2,113.8
HCFC-141b	613	-		613
HCFC-123				
HCFCs Total Consumption	613	1,831.6	282.2	**2,726.8**

Based on the reported consumption and the above facts, Pakistan is eligible for funding for the preparation of investment projects for the phase out of HCFCs in the manufacturing sectors.

In order to ensure that Pakistan meets the 2013 and 2015 HCFC reduction targets urgent actions are required in the manufacturing sectors.

The Government of Pakistan requested UNIDO to submit funding requests for the preparation of sector plans for the following sectors:

- PU Foam sector
- Refrigeration manufacturing sector

Sector strategies and investment projects will be prepared by UNIDO in cooperation with the government institutes to enable Pakistan to achieve the 2013 freeze as well as the 2015 reduction target.

Project Concept

Country:	**South Africa**
Title:	Preparation for the phase out the use of HCFC- 22 and HCFC- 141b in the polyurethane foam sector
Project Duration:	12 months
Project Budget:	US $150,000 plus US $11,250 agency support cost
Implementing Agency:	UNIDO
Coordinating Agency:	Department of Environmental Affairs

Background

In September 2007 the Parties to the Montreal Protocol at their Nineteenth Meeting agreed to accelerate the phase-out of production and consumption of HCFCs by 10 years as per Decision XIX/6. The September 2007 adjustments to the Montreal Protocol oblige countries to take action as soon as possible to freeze their base line HCFC production and consumption levels (average of the years 2009-2010) in 2013, and reduce by 10 percent their production and consumption of HCFCs by 2015.

The Executive Committee, in its decision 54/39, established clear guidance on how to proceed with investment projects addressing HCFC phase out;

For countries that chose to implement investment projects in advance of completion of the HPMP:

(i) The approval of each project should result in a phase-out of HCFCs to count against the consumption identified in the HPMP and no such projects could be approved after 2010 unless they were part of the HPMP;

(ii) If the individual project approach was used, the submission of the first project should provide an indication of how the demonstration projects related to the HPMP and an indication of when the HPMP would be submitted;

The Government of South Africa is currently finalizing the HPMP, however in order to meet the 2013 freeze and 2015 reduction steps it will be necessary to take urgent action to curtail HCFC consumption. In this respect UNIDO has received a government

request from the Republic of South Africa to identify potential projects which will form part of the HPMP currently being formulated that can be initiated ahead of the approval of the HPMP. This paper sets out a proposal for project preparation for HCFC phase out projects in the foam sector

Project Summary

The project aims to identify a number of suitable projects in the polyurethane foam production sector that will allow South Africa to meet its Montreal Protocol phase out obligations in respect of HCFCs; the 2013 freeze target and the and 2015 first reduction target.

An initial assessment of the sector has identified 17 potential project counterparts (Table 1) in the foam production sector manufacturing a range of products including

- Rigid insulation panels
- Domestic appliance insulation
- Rigid polyurethane slab stock
- Display cabinets
- Integral skin foams
- Rigid moulded foam components
- Buoyancy aids
- Systems house.

The total HCFC consumption (in 2008) of the enterprises identified was approximately 1,300 metric tonnes of HCFC-141b and 1,230 tonnes of HCFC-22.

The project proposes a fully integrated approach to the assessment of HCFC alternatives for ODS phase out with the use of low-GWP alternatives for the investment component. This will require detailed life cycle climate impact analysis of technical alternatives particularly in refrigeration and air conditioning, taking into account the potential climate benefits of the adoption of more energy efficient technology.

The technology being considered includes hydrocarbon and methyl formate and blends.

Project preparation funds are requested to make a detailed assessment of each of the potential counterpart enterprises with the aim of identifying a number of projects which will phase out HCFC-141b and HCFC-22 in the foam sector, thereby ensuring compliance with Montreal Protocol targets.

Table 1 Initial Assessment of Polyurethane Foam production Sector in South Africa

	Name of Company	Location	Description of Products and Services	Consumption in 2008/ MT		Type of foaming machines in use
				HCFC-141b consumption 2008 /MT	HCFC-22 consumption 2008 /MT	
1	Industrial Urethanes	Kempton Park, Johannesburg	Rigid Insulation	200	600	HP, LP
2	CHC Elastogran	Elandsfontein, Johannesburg	polyurethanes	40	200	HP
3	Owen Corning	Johannesburg		30	0	HP
4	Aerothane Applications	Cape Town		50	0	HP
5	Iso Foam	Cape Town		80	0	HP
6	I.U.	Durban	System House	480	200	Blenders
7	Whirlpool	Durban	Appliance	150	70	HP
8	Zero	JHB	Appliance	5	0	HP
9	Defy	Durban	Appliance	160	80	HP
10	Just	Durban	Panel	20	10	LP
11	Kwikspace	Johannesburg	Panel	20	10	LP
12	Insulated	Johannesburg	Panel	18	10	LP
13	Concorde	Durban	Display	10	5	LP
14	Harveys	Port Elizabeth	Gen. Moulding	10	5	LP
15	J. Maserow	Johannesburg	Simulated Wood	10	5	LP
16	Europlastifoam	Pretoria	Integral Skin	5	0	LP
17	Bumbo Limited	Rosslyn, Gauteng	Integral Skin	20	5	HP
			Total	1308	1200	

Project Concept

Country:	Sudan
Title:	Preparation of investment activities for the phase-out of HCFCs in the PU Foam sector and Refrigeration manufacturing sector
Project Duration:	12 months
Project Budget 1:	US$ 43,000(incl. 7.5% Agency Support Costs) for the PU Foam sector
Project Budget 2:	US$ 64,500 (incl. 7.5% Agency Support Costs) for the Refrigeration manufacturing sector
Implementing Agency:	UNIDO
Coordinating Agency:	Ministry of Industry of Sudan - National Ozone Unit

Project Summary

Sudan's 2007 consumption of HCFCs according to Article 7 report amounted to 8.6 ODP tonnes.

Sudan is one of the countries, which had not been reporting HCFC consumption before 2007. Thus according to the Decision 56/16 c) the country received only US$ 30,000 to prepare an HPMP. UNIDO initiated the preparation of the HPMP subsequently. The preliminary results of the survey are indicating that there is a significant consumption of HCFC 141b in the foam and refrigeration production sectors and HCFC 22 in refrigeration servicing sector.

UNIDO fact finding visits were organized to domestic refrigerators & freezers producing companies and also to rigid PUR sandwich panels manufacturing companies.
Three production lines of Amin Factories for Insulation Panels and two production companies operating in the sector of domestic refrigeration, Modern Refrigeration Company and Coldair Engineering Company were found eligible for funding and hence immediately nominated to be potential project beneficiaries under the HPMP. Total consumption of HCFC 141b only at these initially identified production facilities has been estimated at the level of 150 MT of HCFC 141b.

In order to ensure that Sudan meets the 2013 and 2015 HCFC reduction targets urgent actions are required in all manufacturing sectors.

The Government of Sudan requested UNIDO to submit funding requests for the preparation of investment projects in the following sectors:

- PU Foam sector
- Refrigeration manufacturing sector

Based on the reported consumption, according to the Decision 56/16 d), Sudan is eligible for investment preparation funding in total amount of U$ 100,000 for the preparation of investment projects to phase out HCFCs from the manufacturing sectors, to achieve the 2013 and 2015 control targets.

An assessment of the country consumption data shows that 90% of the HCFCs consumption in Sudan is used for the production of insulating material in the refrigeration and PU insulation panels manufacturing sectors and for this reason, a sector strategic approach is critical in achieving the consumption reduction steps.

Sector strategies and investment projects will be prepared by UNIDO in cooperation with the Governmental institutions support, to enable Sudan to achieve the 2013 freeze as well as 2015 reduction target, in line with the priorities of the HPMP.

Project concept

Additional funding for HPMP preparation

Country: Ecuador, Iraq, Pakistan, Philippines and Sudan

Title: Additional funding for HPMP preparation

Project Duration: 12 months

1) Project budget Ecuador: US$ 80,625 (including 7.5% Agency Support Costs of US$ 5,625)

2) Project Budget Iraq: US$ 69,875 (including 7.5% Agency Support Costs of US$ 4,875)

3) Project Budget Pakistan: US$ 48,375 (including 7.5% Agency Support Costs of US$ 3,375)

4) Project Budget Philippines: US$ 75,250 (including 7.5% Agency Support Costs of US$ 5,250)

5) Project Budget Sudan: US$ 129,000 (including 7.5% Agency Support Costs of US$ 9,000)

Implementing Agency: UNIDO

Coordinating Agency: National Ozone Units

Project Summary

In response to Decision 56/16 UNIDO is submitting three requests for additional funds for the HPMP preparation in Iraq, Pakistan and Sudan. In addition, the Government of Ecuador decided that it wished to change the implementing agency for HPMP implementation to UNIDO and UNEP.

1) Ecuador received US$ 150,000 through the World Bank for HPMP preparation at the 55th ExCom Meeting. On 8 September 2009, the Government of Ecuador has informed the MLF Secretariat about its decision to changes the implementing agency to UNEP and UNIDO. In light of the above, UNIDO is requesting US$ 75,000 for the preparation of the HPMP in Ecuador. UNEP is requesting the same amount of funding.

2) Iraq received US$ 30,000 through UNIDO for HPMP preparation at the 55th ExCom Meeting based on zero HCFC consumption reported at that time. Iraq has completed its country programme preparation including HCFC consumption. Based on the reported consumption of over 100 ODP tonnes, Iraq is eligible for additional US$ 165,000 for HPMP preparation in line with ExCom Decision 56/16. It has been agreed with the Government of Iraq and UNEP that UNIDO would request at the 59th ExCom Meeting US$ 65,000, while UNEP would request the remaining US$ 100,000.

In light of the above, UNIDO is requesting US$ 65,000 plus support cost as additional HPMP preparation funding for Iraq.

3) Pakistan's 2007 consumption of HCFCs according to Article 7 report amounted to 183.7 ODP tonnes. With this, Pakistan is a country with annual consumption higher than 100 ODP tonnes. As per Decision 56/16, Pakistan is eligible for HPMP preparation funding amounting to US$ 195,000. Pakistan received in total U$ 150,000, split between two implementing agencies (UNIDO and UNEP), for HPMP preparation.

In light of the above, US$ 48,375 including US$ 3,375 support cost is requested as additional HPMP preparation funding for Pakistan.

4) The Philippines reported an HCFC consumption of 180.2 ODP tonnes in 2007 and received $195,000 at the 55th ExCom Meeting through the World Bank for the preparation of an HPMP. The Government has requested to designate the preparation of a foam sector plan to UNIDO.

In light of the above, UNIDO is requesting US$ 70,000 for the preparation of a foam sector plan in the phase-out of HCFCs.

5) Sudan's 2007 consumption of HCFCs according to Article 7 report amounted to 8.6 ODP tonnes. With this, Sudan is a country with medium consumption between 6 and 100 ODP tonnes a year according to classification as stipulated in the Decision 56/16 c.

Sudan received U$ 30,000, to prepare HPMP. The preparation of the Plan was initiated subsequently and the preliminary consumption figures at the enterprise level indicate that there is quite extensive use of HCFCs in the country, mostly in the manufacturing of insulating materials in the refrigeration and foam sectors.

In light of the above US$ 120,000 plus support cost is requested as additional HPMP preparation funding for Sudan.

Project Concept

Country: **Global**

Title: Mobilizing additional funds through the special facility under the MLF to count for the climate co benefits of the HCFCs phase out projects

Project Duration: 12 months

Project Budget: 322,750 (including 7.5% Agency Support Costs)

Implementing Agency: UNIDO

Project Summary

Reference: the MLF facility for resource mobilization funding

This proposal has reference to the resource mobilization funding that UNIDO included in its business plan.

The proposal takes into account the discussions about the issue held in Montreal during the coordination meeting on 26-27 Jan. 09. Furthermore, the below considerations have been taken into account in developing this proposal:

- GEF provides funding for projects in the thematic areas of interest, such as those relating to the UNFCCC, UNBDC and UNDCC. Projects aiming at energy saving and increase the energy efficiency are usually funded.
- GEF operates through national Focal Points (NFP) within governments and in most cases the projects proponents or counterparts are governmental entities (Energy Ministry, Agricultural Ministry, transportation Ministry, etc).
- GEF has limited access/experience in working with individual companies in the private sector especially if they are SMEs.
- GEF confounding requirements made more complex for developing countries to fully benefit from the GEF. And this is more apparent when SMEs were concerned.
- MLF has the mandate to provide funding and assistance for covering the incremental costs relating to the ODS phase out.

- MLF and IAs have a long history of successful cooperation with A5 countries conversion projects at national and enterprise level (over than 5000) projects have been implemented so far). MLF has been successful in building partnership with A5 countries and in developing a good system to deal with big number of national and individual projects in a very smooth and cost effective manner.
- MLF has been successful in achieving remarkable results in the reduction of GHG emissions as a by-product of ODSs phase out projects. However, the generation of climate benefits is not mandated by the MP and therefore associated costs are not covered by MLF.
- Partnership between the GEF and MLF would serve the purposes of both bodies and make use of the strength of each other specifically in the HCFCs phase out era, taking into account the decisions of the MOP and ExCom to adopt alternatives that generate climate and environment co benefits where applicable.

Proposal:

To develop a concept and methodology to calculate the additional costs to be born by the MLF corresponding to the introduction of alternatives or practices that generate climate co benefits. Such additional costs are mostly related to the improvements of the energy performance during manufacturing and subsequently increased energy efficiency of equipments during operation. This is due to the fact that in the refrigeration and A/C equipment, the indirect emissions are dominant in most cases.
Such additional costs could be then covered by the GEF through a special facility at the MLF to allow for more approvals of phase out projects with co climate befits without jeopardizing the limited funds under the current replenishment.

It is needless to mention that such additional costs will be definitely less compared to costs to be paid by GEF to achieve the same results through their current way of business to implement stand alone projects with the objective to increase the energy efficiency of production and equipments at a designated manufacturing facility (estimated at 15- 20% of the total project).
A conversion project funded by the MLF covers usually the remaining costs relating to activities that are required any way to enable manufacturing enterprises to improve their energy performance.

One should consider that in most developing countries, equipments manufacturers are not required to improve the energy efficiency of their products if it means additional

costs to be born by them either due to modification of process or materials costs. As savings generated due to increased energy efficiency would be usually beneficial to end-users and subsequently to developing countries governments due to reducing of required investments in power generation to meet the national growing demands.

UNIDO is therefore requesting 300,000 US$ to workout the methodology and concept in collaboration with GEF and apply it to one of its pilot projects at PETRA Co. in Jordan.

The idea is to avoid the very complicated and lengthy procedure relating to the calculation of Co2 emission reductions and validating of CERs. The anticipated methodology should enable both UNIDO and GEF calculate the climate co benefits in an easy and straightforward manner and agree on the contribution to the special facility.

Similarly, UNIDO plans to use part of the above requested funds for developing a methodology for the calculation of climate co benefits (maybe in CERs form) resulted from the implementation of one of its pilot projects on proper environmental management and destruction of unwanted ODSs in A5 countries. The concept shall also streamline MLF funds with available funding from other institutions for similar activities (FAO funds for the proper management of unwanted chemicals: insecticides and pesticides).

The concepts and methodologies to be developed could be then used as model for replication with other similar activities and projects.

The application of the methodologies in two of UNIDO pilot projects is planned to apply in our HCFCs phase out project at Petra Co. in Jordan and on one of the management and destruction projects.

Cost breakdown (in US$):

International Consultants	72,000
National Consultants	48,000
Travel	30,000
Equipment (for demonstration)	100,000
Management, monitoring and training	50,000
Total	**300,000**