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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

# UNDP'S WORK PROGRAMME AMENDMENTS FOR 2009

## COMMENTS AND RECOMMENDATION OF THE FUND SECRETARIAT

1. UNDP is requesting approval from the Executive Committee of US $1,006,197 for amendments to its 2009 Work Programme, plus agency support costs of US $75,464.

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

Table 1: UNDP's Work Programme Amendments

| Country | Activity/Project | Amount Requested (US $) | Amount Recommended (US $) |
|---|---|---|---|
| **SECTION A: ACTIVITIES RECOMMENDED FOR BLANKET APPROVAL** | | | |
| **A1. Renewal of institutional strengthening projects:** | | | |
| Argentina | Renewal of institutional strengthening project (Phase VI) | 155,784 | 155,784 |
| Costa Rica | Renewal of institutional strengthening project (Phase VIII) | 70,257 | 70,257 |
| Cuba | Renewal of institutional strengthening project (Phase VII) | 74,533 | 74,533 |
| Indonesia | Renewal of institutional strengthening project (Phase VII) | 135,623 | 135,623 |
| Trinidad & Tobago | Renewal of institutional strengthening project (Phase VI) | 30,000 | 30,000 |
| | Subtotal for A1: | 466,197 | 466,197 |
| **A2. Additional HPMP preparation requests for the investment activities** | | | |
| Philippines | Preparation for HCFC phase-out investment activities (refrigeration and air-conditioning sectors) | 65,000 | 65,000 |
| | Subtotal for A2: | 65,000 | 65,000 |
| **A3. Additional Project preparation for HCFC phase-out management plans (HPMP):** | | | |
| Trinidad & Tobago | Preparation for a HCFC phase-out management plan (additional funding) | 65,000 | 65,000 |
| | Subtotal for A3: | 65,000 | 65,000 |
| **SECTION B: ACTIVITIES RECOMMENDED FOR INDIVIDUAL CONSIDERATION** | | | |
| **B1. Demonstration projects for disposal of ODS** | | | |
| Colombia | Project preparation for an ODS disposal project | 40,000 | * |
| Cuba | Project preparation for an ODS disposal project | 40,000 | * |
| India | Project preparation for an ODS disposal project | 80,000 | * |
| | Subtotal for B1: | 160,000 | |
| **B2. Technical assistance** | | | |
| Global | Resource mobilization for climate co-benefits | 250,000 | ***** |
| | Subtotal for B2: | 250,000 | |
| **B3. Project preparation for HCFC demonstrations projects** | | | |
| China | 3 Project preparation requests for HCFC demonstration project (foam and solvent sectors) | 0 | [1] |
| | Subtotal for B3: | 0 | |
| Subtotal for sections A and B: | | 1,006,197 | 596,197 |
| 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): | | 75,464 | 44,714 |
| | Total: | 1,081,661 | 640,911 |

* Project for individual consideration or pending.

[1] Considered under Document UNEP/OzL.Pro/ExCom/59/11

## SECTION A: ACTIVITIES RECOMMENDED FOR BLANKET APPROVAL

### A1. Renewal of institutional strengthening projects:

(a) Argentina (Phase VI): US $155,784
(b) Costa Rica (Phase VIII): US $70,257
(c) Cuba (Phase VII): US $74,533
(d) Indonesia (Phase VII): US $135,623
(e) Trinidad and Tobago (Phase VI): US $30,000

**Project description**

3. UNDP submitted the requests for the renewal of the institutional strengthening (IS) projects for the five countries listed above. The descriptions of the requests for these countries 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", which 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.

**Secretariat's recommendations**

6. The Fund Secretariat recommends blanket approval of the IS renewal requests for Argentina, Costa Rica, Cuba, Indonesia and Trinidad and Tobago 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 HPMP preparation requests for investment activities:

Philippines: Preparation for HPMP investment activities: US $65,000

**Project description**

7. UNDP requested additional funds for the preparation of investment activities for the Philippines. The Philippines received HCFC phase-out management plan (HPMP) preparation funding approved at the 55th Meeting. In its submissions, UNDP provided basic information about the country's HCFC consumption and sectors where HCFC is used, and how these sector plans will link to a comprehensive HPMP, in particular for the country where implementation is being shared by more than one agency.

**Secretariat's Comments**

8. The Secretariat reviewed the submission in detail, and finds that the information provided and the funding requested is consistent with decision 56/16(d).

9. The Secretariat noted that this activity is not included in the 2009 business plan of UNDP approved at the 57th Meeting. It sought clarification on this issue, and was informed that this was a specific request from the country where, in line with decision 56/16 and based on the Philippines 2007 consumption of 180.2 ODP tonnes, the country is entitled to no more than US $200,000 for project preparation for the investment component of the HPMP. The Secretariat also noted that this request is in addition to what is being sought by UNIDO and the World Bank for other HCFC manufacturing sectors. The total funding requested for this country is within the limits set by decision 56/16(d). The Secretariat also noted that consultations have been held among the agencies concerned and that there is a clear understanding on the division of responsibilities for each agency for the Philippines. The Secretariat also considered that despite this request not being in the agency's business plan, it could be considered by the Executive Committee as there is no policy issue associated with it and it is consistent with decision 56/16.

**Secretariat's recommendation**

10. The Secretariat recommends blanket approval for project preparation of the investment activities for the refrigeration and air-conditioning sector as part of the HPMP for the Philippines at a level of US $65,000.

**A3. Additional funding for HCFC phase-out management plans preparation (HPMP):**

Trinidad and Tobago: Preparation for HPMP (additional funding): US $65,000

**Project description**

11. UNDP submitted a request for additional project preparation funds amounting to US $65,000 for Trinidad and Tobago, that had funds approved for HPMP preparation at the 55th Meeting. The request is being submitted since the country has reported Article 7 data for 2007 that shows consumption of HCFC that makes it eligible for additional project preparation funds under decision 56/16.

**Secretariat's comments**

12. The Secretariat notes that the submission is in line with decision 56/16 where countries are eligible for HPMP preparation at funding levels that are based on their official Article 7 data for 2007. In the case of Trinidad and Tobago, it received US $85,000 at the 55th Meeting as it had reported consumption of HCFC-22 for servicing only. UNDP indicated in its submission that the country has HCFC-142b consumption for the foam manufacturing sector, therefore it requested an additional US $65,000 for the HPMP preparation for Trinidad and Tobago. The 2007 HCFC consumption of Trinidad and Tobago is 45.4 ODP tonnes, (HCFC-22 is 44.1 ODP tonnes and HCFC-142b is 1.34 ODP tonnes), data taken from the country's Article 7 and country programme implementation report.

**Secretariat's recommendation**

13. The Fund Secretariat recommends blanket approval of the request for additional funding for the preparation of the HPMP for Trinidad and Tobago at the level of US $65,000.

## SECTION B: ACTIVITIES RECOMMENDED FOR INDIVIDUAL CONSIDERATION

### B1. Demonstration projects for disposal of ODS

Colombia: Project preparation for an ODS disposal project: US $40,000
Cuba: Project preparation for an ODS disposal project: US $40,000
India: Project preparation for an ODS disposal project: US $80,000

**Background**

14. 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.

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

(a) An indication of the category or 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;

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

16. UNDP submitted four requests for project preparation of ODS disposal projects in four countries. Out of these four, only three (Colombia, Cuba and India) have met the minimum information requirements set out in decision 58/19(a)(iv) and are the only ones considered under this work programme amendment. A description of each submission is provided below.

17. The Secretariat noted that none of these countries 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.

Colombia: project preparation for an ODS disposal project: US $40,000.

**Project description**

18. UNDP submitted a request for the project preparation of a pilot ODS disposal project in Colombia. The project will define a pilot approach for the destruction of 11 ODP tonnes of CFC-12 that are currently stored in containers and are available for destruction. These were collected from servicing operations by the recovery and recycling centres in Colombia.

19. In its proposal, UNDP indicates that collection of unwanted ODS from banks is already being undertaken in the country, as a self-funded activity initiated and sustained by the equipment manufacturers through an early retirement programme. Future unwanted ODS that may be collected and require destruction will benefit from the pilot project being designed. The proposed amount of ODS for destruction does not come from this programme for early retirement of equipment.

20. UNDP indicates that the pilot project will examine two options: (1) the logistics and cost of transport of the unwanted ODS either to local waste management companies for export to a country with commercial destruction facilities, or (2) explore the use of plasma technology for small quantities of ODS, in mobile destruction equipment. It will cover transport, storage and destruction (or export for destruction) of ODS already in cylinders. Detailed information on the request is presented in Annex I of UNDP's work programme attached to this document.

**Secretariat's comments**

21. The Secretariat reviewed this project in the light of the information required in decision 58/19. It sought clarification from UNDP whether the project would include collection, as the proposal described a scale up of the equipment retirement programme in the country. UNDP clarified that they have revised the proposal and confirmed that the project will not include the scale up of the programme, neither will it include collection.

22. UNDP further explained that because the equipment retirement programme is being received quite well in Colombia, they expected that the pilot project will also examine the options for the destruction of about 102 ODP tonnes of CFC-11 in foam by looking at the possibility of incinerating the whole foam without having to extract the CFC from it. This amount is estimated from equipment that has already been collected and that may have this much CFC-11 in the foam.

23. The Secretariat also sought more details on synergies with the programme on destruction of polychlorinated biphenyls (PCB) which was mentioned in the proposal. UNDP explained that the pilot project will identify the best possible alternative for destruction in the country by comparing investments required for the options identified above as well as looking at the synergies with a possible project that the country has submitted for funding to the GEF on environmentally sound management and disposal of PCBs, which includes the analysis of PCB destruction technologies.

24. The Secretariat notes that UNDP strongly believes that if solutions to these issues on destruction can be identified through the pilot project, the Government will be able to implement this on a large scale, and develop a complete ODS waste management system that will cover all aspects, including possible co-finance in the future. 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**

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

Cuba: project preparation for an ODS disposal project (US $40,000)

**Project description**

26. The pilot ODS disposal project for the Government of Cuba will look at an approach for the destruction of 133 ODP tonnes of unwanted ODS in the country. This consist of a combination of CFCs and HCFC-22 collected from the recovery and recycling programmes established under Cuba's national phase out plan.

27. In its request for project preparation, UNDP indicates that this pilot project will address all the aspects of a complete ODS waste management system in a small island developing state. The collection of unwanted ODS from banks is already being undertaken in the country, through an ongoing replacement programme for domestic refrigeration and air-conditioning equipment. The chiller replacement programme and the commercial refrigeration retrofit programme also collect unwanted ODS. These unwanted ODS that may be collected and require destruction will benefit from the pilot project being designed.

28. UNDP indicates that the pilot project will demonstrate the feasibility of a destruction technology developed in Japan for cement kilns that has not been previously tested in the region. The proposal has also identified a candidate cement kiln in one of the provinces in Cuba where the technology will be demonstrated. Detailed information on the request is presented in Annex I of UNDP's work programme attached to this document.

**Secretariat's comments**

29. The Secretariat reviewed this project in the light of the information required in decision 58/19. It sought clarification from UNDP on the Japanese technology proposed in the project. UNDP confirmed that discussions are ongoing with the Government of Japan about the cement kiln technology for destruction, which led to the identification of one specific cement kiln in Cuba that would be suitable for this purpose. UNDP said that the project preparation exercise will allow UNDP and Cuba to look at the necessary elements related to the transfer of technology from Japan including cost, emission control, and verification of the specific amounts of ODS destroyed, etc.

30. In view of these responses and the discussions with UNDP, the Secretariat noted that this project preparation request meets the information requirements of decision 58/19 for project preparation as embodied in the guidelines for ODS disposal projects for the following reasons:

(a) It clearly states that the project is for destruction and will explore the use of a cement kiln in the country using a Japanese technology;

(b) There is an identified amount of waste/unwanted ODS already collected from an ongoing recovery and recycling programme in the country;

(c) There is a pilot aspect to the project in that once this technology is demonstrated in Cuba it can be replicated in other countries in the region with small quantities of unwanted ODS to be disposed of; and

(d) There is an operational approach for substitution of domestic refrigeration appliances and collection of waste ODS contained in this equipment under the National CFC plan and the chillers programme.

31. The Secretariat notes that UNDP further explained that Cuba has already developed other elements such as collection, transport and storage of unwanted ODS in the country, and the demonstration of a specific destruction technology is the missing element that requires attention, upon which the request for these funds is being justified. UNDP also indicated that there are currently no ongoing disposal programmes linked to other multilateral environmental agreements (MEAs) in the country. 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**

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

India: project preparation for an ODS disposal project (US $80,000)

**Project description**

33. On behalf of the Government of India, UNDP submitted a request for project preparation for a pilot demonstration project for disposal of CTC and other ODS in the country at the level of US $80,000. According to the supporting documents submitted, the project will establish facilities for disposal of a variety of ODS using innovative organisational, operational and financial mechanisms that would ensure sustainability. The proposed project preparation exercise will specifically target the excess production of CTC which is a significant by-product of chloromethane production, an important industry in the country. The proposal indicates that a minimum estimated amount of 3,500 mt or 3,850 ODP tonnes of CTC excess production as a by product will be available for destruction annually. In addition, it will also target other ODS collected from ODS-containing appliances and other equipment.

34. In its request for project preparation, UNDP provides an approach to the preparation exercise and has indicated that this will cover the analysis of potential ODS banks, an analysis of CTC use in Dichloro vinyl Acid (DVAC), identify quantities for disposal, and define a process for collection as well as technical parameters for a multi-product ODS destruction facility. UNDP also emphasises that as this facility is expected to operate through possible carbon financing therefore the technical standards of operation will be defined to conform to the CDM, CCX or other VCM market standards. Detailed information for the request is presented in Annex I of UNDP's work programme attached to this document.

**Secretariat's comments**

35. The Secretariat reviewed this project in the light of the information required in decision 58/19. In its comments to UNDP, the Secretariat's main observation was the fact that the pilot project will look at the destruction of excess production of CTC as a priority, in relation to the phase-out of CTC production in India funded by the Multilateral Fund. While the quantity of excess CTC is known and may need to be destroyed, the Secretariat expressed concern on the possibility that this will constitute double funding since that the phase out of CTC production has already been funded.

36. According to the CTC production phase-out agreement, the Multilateral Fund funded the CTC production and consumption phase-out, with an associated funding level of US $52 million. This agreement was taken on the mutual understanding that India might have significant quantities of inadvertent CTC co-production when producing chlorinated methane products such as chloroform. With this agreement, India has committed to ensure that there is no production for controlled uses beyond the consumption limits stipulated in the agreement. Further, at India's discretion, the inadvertent production can be reduced by for instance, reducing the overall volume of the production of chlorinated methanes through upgrade of facilities whereby the fraction of CTC being co-produced is lower, by using CTC for non-controlled uses such as feedstock, or by destroying CTC. UNDP informed the Secretariat that the Indian manufacturers chose to reduce their CTC production for controlled uses by using CTC for feedstock, in particular for manufacturing DVAC. UNDP however indicated that the future demand for CTC for feedstock applications in India is projected to decrease and therefore may result in excess CTC. UNDP emphasised that this excess CTC needs to be safely disposed of otherwise it may enter the consumption market and possibly place India in non-compliance.

37. In view of the above, the Secretariat has the following reservations about the proposal as it relates to destruction of CTC:

(a) In the understanding of the Secretariat, the agreement between the Government of India and the Executive Committee compels India to ensure that any CTC produced is not used for controlled uses beyond the level specified in the agreement. The means to achieve this objective are up to India to decide, and consist of a number of options including, *inter alia*, feedstock and destruction. Consequently, it is the understanding of the Secretariat that any funding needs from the Multilateral Fund have been covered by the CTC sector Agreement for India approved at the 38th Meeting, and that the proposed activity appears to constitute double funding.

(b) The change in market conditions and economic viability for any of the options to avoid controlled uses for co-produced CTC does not appear to have any consequences for the validity of the agreement. In addition, it should be noted that it has been demonstrated by producers of chloromethane both in Article 5 as well as non-Article 5 countries that production of significant quantities of chloromethane can go hand-in-hand with avoiding excess CTC entering the consumption market;

(c) Given the obligation for complete phase-out of controlled uses of CTC by 2010 both under the Montreal Protocol as well as under the Agreement with the Executive Committee, the Secretariat doubts if it will be possible for India to demonstrate the additionality required for any carbon funded activity, i.e. to demonstrate that without the funding such destruction would not take place.

38. The Secretariat also sought clarification on other aspects of the proposal which would clearly look at collection of ODS other than CTC from ODS banks in the country in existing equipment. The Secretariat noted that there is no approach for systematically collecting old equipment and extracting the ODS from it for destruction, and reminded UNDP that collection cannot be funded under the pilot project unless part of an already existing effort in the country. UNDP responded that there are pilot schemes for appliance replacements from the private sector, and that one output of the proposal will be to make these schemes more viable and comprehensive by developing partnerships with such initiatives to enhance sustainability.

39. UNDP further explained that the current proposal will address the development of a business model for ODS destruction where the destruction facility may be funded partly from the Multilateral Fund, partly by private enterprises and possibly partially from carbon credits from destruction. Collection

costs are expected to be borne by the host entity, and transport, regulatory compliance and monitoring will be part of the project submitted for funding from the Multilateral Fund.

40. The Secretariat 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.

41. In view of clarifications provided and the discussions with UNDP, the Secretariat suggests that the Executive Committee considers whether the project, as submitted, which will explore options for destruction of excess CTC production qualifies as a pilot project, or whether it constitutes double counting in view of the funding already provided for the CTC production phase out.

**Secretariat's recommendation**

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

**B2. Technical assistance**

Global: Resource mobilization to address climate co-benefits in HCFC phase-out: US $250,000

**Project description**

43. UNDP 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 $250,000. UNDP is resubmitting an amended proposal for the consideration of this meeting. The project description is included in UNDP's Work Programme Amendments for this meeting.

44. The proposal was amended to take into account the recent developments in various meetings, as well as to allow UNDP to proceed with activities in parallel with the ongoing work on the possible Facility for Additional Income. The project will still continue to examine potential activities that may require co-financing of incremental climate benefits, but will focus on two areas: (1) bank management of ODS disposal projects particularly related to end-of-life management of appliances; and (2) co-financing opportunities in HCFC phase-out.

45. The amended proposal now looks at implementing the activities in two phases. Phase I could commence immediately and will provide concrete, learning-by-doing case studies from four distinct pilot proposals. Phase II on the other hand may start at a later stage and will involve the analysis of these case studies in the context of any mechanism for resource mobilisation that may be decided by the Executive Committee.

46. The table below provides a breakdown of the US $250,000 requested by the UNDP:

| Cost Head | Phase-I | Phase-II | Total |
|---|---|---|---|
| International Consultant for technical coordination | 45,000 | 0 | 45,000 |
| Four technical experts for analysis/methodologies | 169,000 | 0 | 169,000 |
| Travel and overhead costs | 36,000 | 0 | 36,000 |
| Cost recovery for inputs from UNDP | 150,000 | 100,000 | 250,000 |
| **Total** | **$400,000** | **$100,000** | **$500,000** |
| Matching in-kind co-financing from UNDP | (150,000) | (100,000) | (250,000) |
| **Net MLF Funding Requirement** | **$250,000** | **0** | **$250,000** |

**Secretariat's comments**

47. Decision XIX/6 paragraph 11(b) of the Nineteenth Meeting of the Parties provided guidance to the Executive Committee to give priority to, *inter alia*, "substitutes and alternatives that minimize other impacts on the environment, including on the climate, taking into account global warming potential, energy use and other relevant factors", when looking at HCFC phase-out projects. The Executive Committee at its 54th Meeting agreed on a set of guidelines for the preparation of HCFC phase-out management plans (HPMP) and, at the 55th and 56th Meetings, approved funds for 115 countries for HPMP preparation.

48. 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 mentioned above.

49. The Secretariat noted that the results of this amended proposal by UNDP may assist in examining options for co-financing not just for climate benefits of HCFC phase-out, but also for ODS disposal projects. As in the original submission, UNDP will still review emerging methodologies for assessing CO2 emission reductions, but these will now be done in the context of the four different scenarios proposed in Phase I.

50. 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 decided in decision 57/37 to request the Secretariat to provide a further analysis of this facility for consideration of the Committee at its 58th Meeting.

51. 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 for consideration by the Executive Committee at this meeting in line with discussions under Agenda item 11, Further concept paper for a special funding, facility for additional income from loans and other sources.

**Secretariat's recommendation**

52. The Executive Committee may wish to consider the request for technical assistance for mobilizing resources to maximize climate benefits of HCFC phase-out, in light of the information presented above, and in the discussion on 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

### Argentina: Renewal of institutional strengthening

| **Summary of the project and country profile** | |
|---|---|
| Implementing Agency: | UNDP |
| Amounts previously approved for institutional strengthening (US $): | |
| Phase I: Jul-94 | 359,500 |
| Phase II: Nov-99 | 239,700 |
| Phase III: Nov-02 | 311,413 |
| Phase IV: Jul-05 | 311,567 |
| Phase V: Nov-07 | 311,567 |
| Total | 1,533,747 |
| Amount requested for renewal (Phase VI ) (US $): | 155,784 |
| Amount recommended for approval for Phase VI (US $): | 155,784 |
| Agency support costs (US $): | 11,684 |
| Total cost of institutional strengthening Phase VI to the Multilateral Fund (US $): | 167,468 |
| Equivalent amount of CFC phase-out due to institutional strengthening Phase VI at US $12.1/kg (ODP tonnes): | n/a |
| Date of approval of country programme: | 1994 |
| ODS consumption reported in country programme (1994) (ODP tonnes): | 3,407.8 |
| Baseline consumption of controlled substances (ODP tonnes): | |
| (a) Annex A Group I (CFCs) (Average 1995-1997) | 4,697.2 |
| (b) Annex A Group II (Halons) (Average 1995-1997) | 167.8 |
| (c) Annex B Group II (Carbon tetrachloride) (Average 1998-2000) | 187.2 |
| (d) Annex B Group III (Methyl chloroform) (Average 1998-2000) | 65.7 |
| (e) Annex E (Methyl bromide) (Average 1995-1998) | 411.3 |
| Latest reported ODS consumption (2008) (ODP tonnes) as per Article 7: | |
| (a) Annex A Group I (CFCs) | 50.9 |
| (b) Annex A Group II (Halons) | 0 |
| (c) Annex B Group II (Carbon tetrachloride) | -52.8 |
| (d) Annex B Group III (Methyl chloroform) | 17.4 |
| (e) Annex E (Methyl bromide) | 282.4 |
| (f) Annex C Group I (HCFCs) | 356.9 |
| Total | 654.8 |
| Year of reported country programme implementation data: | 2008 |
| Amount approved for projects (US $): | 63,555,025 |
| Amount disbursed (as at September 2009 ) (US $): | 53,778,793 |
| ODS to be phased out (ODP tonnes): | 7,111.4 |
| ODS phased out (as at September 2009) (ODP tonnes): | 6,061.8 |

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

| | **Summary of activities** | **Funds approved (US $)** |
|---|---|---|
| (a) | Investment projects: | 56,935,605 |
| (b) | Institutional strengthening: | 1,533,747 |
| (c) | Project preparation, technical assistance, training and other non-investment projects: | 5,085,673 |
| | Total: | 63,555,025 |

Progress report

2. During phase V of the Institutional Strengthening (IS) project in Argentina, several different objectives were reached. Among these objectives, public awareness campaigns were done on priority. Through these campaigns a number of different awareness material which included the printing booklets and posters were disseminated. A Workshop to launch the HCFC phase-out management plan (HPMP) project preparation in Argentina was held in December 2008, with the participation of UNIDO and UNDP representatives, private sector and industrial chambers.

Plan of action

3. The main objectives phase VI of the IS project are to continue planning, organizing, implementing and coordinating all the actions required from the Argentinean Government. During this next phase, the ozone unit will have the following specific objectives: strengthen the national focal point and liaison of country authorities with the Fund and the Ozone Secretariats and Montreal Protocol Implementating Agencies, coordinate and monitor the activities among different public and private stakeholders directly involved to achieve the complete elimination of CFC and carbon tetrachloride (CTC) consumption by 1 January 2010, and concurrently with the prevention of illegal trafficking, to enforce the necessary control measures for the country's compliance with admissible consumption levels for methyl bromide (MB) and methyl chloroform, the determination of the HCFC national consumption baseline, and management of process for the preparation and implementation of country strategy for the first stage of HCFCs elimination in agreement with the provisions adopted during the 19th Meeting of the Meeting of the Parties to the Montreal Protocol.

**Costa Rica: Renewal of institutional strengthening**

| **Summary of the project and country profile** | |
|---|---|
| Implementing Agency: | UNDP |
| Amounts previously approved for institutional strengthening (US $): | |
| Phase I: Oct-92 | 213,160 |
| Phase II: Feb-97 | 108,087 |
| Phase III: Mar-99 | 105,568 |
| Phase IV: Dec-01 | 104,224 |
| Phase V: Dec-03 | 139,737 |
| Phase VI: Nov-05 | 140,513 |
| Phase VII: Nov-07 | 140,513 |
| Total | 951,802 |
| Amount requested for renewal (Phase VIII) (US $): | 70,257 |
| Amount recommended for approval for Phase VIII (US $): | 70,257 |
| Agency support costs (US $): | 5,269 |
| Total cost of institutional strengthening Phase VIII to the Multilateral Fund (US $): | 75,526 |
| Equivalent amount of CFC phase-out due to institutional strengthening Phase VIII at US $12.1/kg (ODP tonnes): | n/a |
| Date of approval of country programme: | 1992 |
| ODS consumption reported in country programme (1992) (ODP tonnes): | 647.6 |
| Baseline consumption of controlled substances (ODP tonnes): | |
| (a) Annex A Group I (CFCs) (Average 1995-1997) | 250.2 |
| (b) Annex A Group II (Halons) (Average 1995-1997) | 0 |
| (c) Annex B Group II (Carbon tetrachloride) (Average 1998-2000) | 0 |
| (d) Annex B Group III (Methyl chloroform) (Average 1998-2000) | 0 |
| (e) Annex E (Methyl bromide) (Average 1995-1998) | 342.5 |

| | |
|---|---|
| Latest reported ODS consumption (2008) (ODP tonnes) as per Article 7: | |
| (a) Annex A Group I (CFCs) | 13.9 |
| (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) | 212.4 |
| (f) Annex C Group I (HCFCs) | 10.7 |
| Total | 236.69 |
| Year of reported country programme implementation data: | 2008 |
| Amount approved for projects (US $): | 8,671,702 |
| Amount disbursed (as at September 2009 ) (US $): | 7,444,911 |
| ODS to be phased out (ODP tonnes): | 616.5 |
| ODS phased out (as at September 2009) (ODP tonnes): | 505.4 |

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

| | **Summary of activities** | **Funds approved (US $)** |
|---|---|---|
| (a) | Investment projects: | 5,697,868 |
| (b) | Institutional strengthening: | 951,802 |
| (c) | Project preparation, technical assistance, training and other non-investment projects: | 2,022,032 |
| | Total: | 8,671,702 |

Progress report

5. The Ozone Technical Office (Oficina Tecnica de Ozono- OTO) continued to work on the planning, organizing, directing and coordination of activities for the implementation of the national phase-out strategy in all areas related to the reduction and subsequent phase out of ozone-depleting substances (ODS) to meet compliance under the Montreal Protocol. During phase VII of the IS project in Costa Rica, it implemented the improved licensing system for the imports of ODS, which imposed stricter controls on ODS consumption. Awareness and education support programs were set up to provide guidance to the Ministry of Education on issues that relate to the ozone layer. Documents were published for teachers dealing with ozone layer preservation. A project also began in collaboration with the National University (Universidad Nacional) and the National Meteorological Institute with the objective of measuring UV radiation and the elaboration of a UV index.

Plan of action

6. In the next phase, Costa Rica will continue the implementation of the licensing system for substances regulated by the Montreal Protocol, including HCFC in equipment and other products. The import of methyl bromide for quarantine and pre-shipment (QPS) will also be monitored closely. Work will also continue with the General Customs Directorate to detect illicit trade in ODS, along with public awareness about preservation of the ozone layer, given the relevance of this theme. The HCFC phase-out management plan (HPMP) will also be initiated in order to complete the development of the first stage of the HPMP and meet the control measures for 2013 and 2015.

**Cuba: Renewal of institutional strengthening**

| **Summary of the project and country profile** | |
|---|---|
| Implementing Agency: | UNDP |
| Amounts previously approved for institutional strengthening (US $): | |
| Phase I: Jun-93 | 171,995 |
| Phase II: Nov-98 | 114,666 |
| Phase III: Jul-01 | 114,666 |
| Phase IV: Jul-03 | 149,066 |
| Phase V: Nov-05 | 149,066 |
| Phase VI: Nov-07 | 149,066 |
| Total | 848,525 |
| Amount requested for renewal (Phase VI) (US $): | 74,533 |
| Amount recommended for approval for Phase VI (US $): | 74,533 |
| Agency support costs (US $): | 5,590 |
| Total cost of institutional strengthening Phase VI to the Multilateral Fund (US $): | 80,123 |
| Equivalent amount of CFC phase-out due to institutional strengthening Phase VI at US $12.1/kg (ODP tonnes): | n/a |
| Date of approval of country programme: | 1993 |
| ODS consumption reported in country programme (1993) (ODP tonnes): | 564.5 |
| Baseline consumption of controlled substances (ODP tonnes): | |
| (a) Annex A Group I (CFCs) (Average 1995-1997) | 625.1 |
| (b) Annex A Group II (Halons) (Average 1995-1997) | 0 |
| (c) Annex B Group II (Carbon tetrachloride) (Average 1998-2000) | 2.7 |
| (d) Annex B Group III (Methyl chloroform) (Average 1998-2000) | 0 |
| (e) Annex E (Methyl bromide) (Average 1995-1998) | 50.5 |
| Latest reported ODS consumption (2008) (ODP tonnes) as per Article 7: | |
| (a) Annex A Group I (CFCs) | 74.4 |
| (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) | 13.3 |
| Total | 87.7 |
| Year of reported country programme implementation data: | 2008 |
| Amount approved for projects (US $): | 13,178,242 |
| Amount disbursed (as at September 2009 ) (US $): | 9,461,444 |
| ODS to be phased out (ODP tonnes): | 587.8 |
| ODS phased out (as at September 2009) (ODP tonnes): | 413.5 |

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

| | **Summary of activities** | **Funds approved (US $)** |
|---|---|---|
| (a) | Investment projects: | 9,870,660 |
| (b) | Institutional strengthening: | 848,525 |
| (c) | Project preparation, technical assistance, training and other non-investment projects: | 2,459,057 |
| | Total: | 13,178,242 |

Progress report

8. During the sixth phase of the IS project for the years 2008-2009, the Government of Cuba achieved several objectives, among them the implementation of the project on the elimination of CFC 11 and 12 and in the production of metered dose inhalers (MDI) for medical and pharmaceutical

use through the conversion of the MDI plant "Reinaldo Gutierrez". The recovery and recycling programme has been quite successful and have retrofitted a large number of domestic refrigerators, and recovered the refrigerant. More than 5,000 technicians and refrigeration mechanics have been trained in good refrigeration practices and have achieved a great impact in the national economy and the refrigeration sector. The demonstration project aimed at the substitution of air-conditioning systems chillers that use CFC-11 has been signed between UNDP and the Cuban Government and it is currently under execution. 4 new chillers systems were installed and 5 additional chillers sites are under preparation.

Plan of action

9. The extension of the IS project for the seventh phase is aimed at contributing significantly towards the efforts undertaken by the Government of Cuba in order to comply with the ODS phase-out targets agreed under the Montreal Protocol. The main objective of this project to is to assist in creating the necessary conditions to sustain the 100 per cent reduction of the base consumption for CFC, MB and CTC, and the 70 per cent reduction of methyl chloroform in 2009. These are all targets for 2010. During this period, the development of the HPMP will commence including the establishment of the baseline of HCFC consumption.

**Indonesia: Renewal of institutional strengthening**

| **Summary of the project and country profile** | |
|---|---|
| Implementing Agency: | UNDP |
| Amounts previously approved for institutional strengthening (US $): | |
| Phase I: Jun-93 | 314,780 |
| Phase II: Nov-97 | 208,385 |
| Phase III: Dec-00 | 208,564 |
| Phase IV: Dec-03 | 271,245 |
| Phase V: Nov-05 | 271,245 |
| Phase VI: Nov-07 | 271,245 |
| Total | 1,545,464 |
| Amount requested for renewal (Phase VII) (US $): | 135,623 |
| Amount recommended for approval for Phase VII (US $): | 135,623 |
| Agency support costs (US $): | 10,172 |
| Total cost of institutional strengthening Phase VII to the Multilateral Fund (US $): | 145,795 |
| Equivalent amount of CFC phase-out due to institutional strengthening Phase VII | n/a |
| Date of approval of country programme: | 1994 |
| ODS consumption reported in country programme (1994) (ODP tonnes): | 5,557.2 |
| Baseline consumption of controlled substances (ODP tonnes): | |
| (a) Annex A Group I (CFCs) (Average 1995-1997) | 8,332.7 |
| (b) Annex A Group II (Halons) (Average 1995-1997) | 354 |
| (c) Annex B Group II (Carbon tetrachloride) (Average 1998-2000) | 0 |
| (d) Annex B Group III (Methyl chloroform) (Average 1998-2000) | 13.3 |
| (e) Annex E (Methyl bromide) (Average 1995-1998) | 40.7 |
| Latest reported ODS consumption (2008) (ODP tonnes) as per Article 7: | |
| (a) Annex A Group I (CFCs) | 0 |
| (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) | 299.9 |
| Total | 299.9 |
| Year of reported country programme implementation data: | 2008 |
| Amount approved for projects (US $): | 55,618,429 |
| Amount disbursed (as at September 2009 ) (US $): | 52,512,081 |

| | |
|---|---|
| ODS to be phased out (ODP tonnes): | 11,211.4 |
| ODS phased out (as at September 2009) (ODP tonnes): | 10,710.8 |

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

| Summary of activities | | Funds approved (US $) |
|---|---|---|
| (a) | Investment projects: | 47,977,390 |
| (b) | Institutional strengthening: | 1,545,464 |
| (c) | Project preparation, technical assistance, training and other non-investment projects: | 6,095,575 |
| | Total: | 55,618,429 |

Progress report

11. The key objectives and results of the IS phase VI were to continue implementing the ODS regulation by improving the enforcement of existing controls on the import bans on non-QPS MB and CFCs, through training and capacity-building of enforcement officials; to improve the systems and to increase the support to local governments for their involvement in monitoring and enforcement**.** Standard Operating Procedures (SOP) for ODS monitoring were formulated, disseminated and implemented; interaction and coordination with enforcement agencies was increased; additional ODS detection equipment was procured and distributed to customs entry points and also to local governments; several training workshops for local governments in three provinces (about 60 regencies) were carried out to promote awareness among public as well as government stakeholder institutions to support implementation of the ODS phase-out programme. Performance appraisal of completed investment projects continued to facilitate preparation for the HPMP through early involvement of stakeholders**.** National HPMP Inception workshop was held with wide participation.

Plan of action

12. The key elements of the IS phase VII are to continue enforcement of ODS regulations, particularly focusing on decentralized monitoring through enhanced involvement of local governments, strengthening enforcement and monitoring capacity and to improve quality of monitoring and evaluation; to sustain the phase-out of CFCs through introduction of registration system of refrigeration workshops and implementing the regulation for certification of technicians to institutionalize UV/Ozone observation by setting up an observation network; to effectively mobilize for preparation of Indonesia's HPMP; to continue and strengthen targeted awareness actions both for general public and for industry and government stakeholders.

**Trinidad and Tobago: Renewal of institutional strengthening**

| **Summary of the project and country profile** | |
|---|---|
| Implementing Agency: | UNDP |
| Amounts previously approved for institutional strengthening (US $): | |
| Phase I: Oct-96 | 60,777 |
| Phase II: Dec-00 | 44,000 |
| Phase III: Nov-02 | 57,200 |
| Phase IV: Dec-04 | 60,000 |
| Phase V: Nov-06 | 60,000 |
| Total | 281,977 |
| Amount requested for renewal (Phase VI) (US $): | 30,000 |
| Amount recommended for approval for Phase VI and VI (US $): | 30,000 |
| Agency support costs (US $): | 2,250 |

| | |
|---|---|
| Total cost of institutional strengthening Phase VI to the Multilateral Fund (US $): | 32,250 |
| Equivalent amount of CFC phase-out due to institutional strengthening Phase VI at US $12.1/kg (ODP tonnes): | n/a |
| Date of approval of country programme: | 1996 |
| ODS consumption reported in country programme (1996) (ODP tonnes): | 120.4 |
| Baseline consumption of controlled substances (ODP tonnes): | |
| (a) Annex A Group I (CFCs) (Average 1995-1997) | 120 |
| (b) Annex A Group II (Halons) (Average 1995-1997) | 46.6 |
| (c) Annex B Group II (Carbon tetrachloride) (Average 1998-2000) | 0 |
| (d) Annex B Group III (Methyl chloroform) (Average 1998-2000) | 0.7 |
| (e) Annex E (Methyl bromide) (Average 1995-1998) | 1.7 |
| Latest reported ODS consumption (2008) (ODP tonnes) as per Article 7: | |
| (a) Annex A Group I (CFCs) | 0 |
| (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) | 0.4 |
| (f) Annex C Group I (HCFCs) | 56.4 |
| Total | 56.8 |
| Year of reported country programme implementation data: | 2008 |
| Amount approved for projects (US $): | 1,502,022 |
| Amount disbursed (as at September 2009 ) (US $): | 1,222,468 |
| ODS to be phased out (ODP tonnes): | 123.6 |
| ODS phased out (as at September 2009) (ODP tonnes): | 113.5 |

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

| | Summary of activities | Funds approved (US $) |
|---|---|---|
| (a) | Investment projects: | 579,570 |
| (b) | Institutional strengthening: | 281,977 |
| (c) | Project preparation, technical assistance, training and other non-investment projects: | 640,475 |
| | Total: | 1,502,022 |

Progress report

14. The main objectives of phase V of the IS project was to maintain the zero CFC imports to meet its compliance targets under the Montreal Protocol for the complete phasing out of ODS. During phase V of the IS project a number of activities took place. Among these activities was a refresher course that was conducted for customs officers through the customs training school, this leads to an increased number of officers capacitated. The country also experienced an increase in consumers using CFC alternative technology which is reducing the demand for CFCs. Major public awareness activities also took place and these included the celebration of World Ozone Day, television and radio appearances, placements of advertisements and consumer information in newspapers and science fairs.

Plan of action

15. The main objective of the sixth phase of the IS project in Trinidad & Tobago is the consolidation of the objectives outlined in the project in its previous phases. Some of the objectives of the next phase are to strengthen the system used by customs officers in the monitoring and control of ODS and ODS-dependent technologies with the objective of identifying the gaps and upgrading the present system to ensure the country's ability to deter illegal ODS trade. Other objectives include managing the country's import of HCFCs to ensure the smooth phase-out of HCFC consumption. It

will also continue work to reduce imports of MB by formulating more stringent policies and legislation for the retail, wholesale, and use of MB specifically for QPS. These objectives also include increasing the institutional capacity of the NOU and increasing public awareness with respect to HCFCs and its alternatives. Follow-up review of MB usage and assistance to the preparation of the HPMP were provided in Trinidad and Tobago.

**Annex II**

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

**Argentina**

1. The Executive Committee has reviewed the report presented with the institutional strengthening (IS) project renewal request for Argentina and notes with appreciation that Argentina is well on its way to meeting the targets of the Montreal Protocol. The Executive Committee greatly supports the efforts of Argentina for this new phase and notes that priority will be to sustain CFC phase-out, as well as initiate the preparation of the HCFC phase-out management plan (HPMP) and subsequently the preparation and implementation of investment and non-investment activities in order to comply with the 2013 freeze and 2015 10 per cent reduction targets for HCFC. The Executive Committee is therefore hopeful that Argentina will continue with the implementation of its country programme and national phase-out activities with outstanding success in the reduction of current ODS consumption levels.

**Costa Rica**

2. The Executive Committee has reviewed the report presented with the institutional strengthening (IS) project renewal request for Costa Rica and notes with appreciation that it is well on its way to meeting the targets of the Montreal Protocol. The Executive Committee also notes the very well structured ozone unit established within the Ministry of Environment, Energy and Telecommunications (MINAET) which is instrumental in leading the country to meet compliance under the Montreal Protocol. It supports the efforts of the country, and notes that the next two years will be of utmost importance for the future of the Montreal Protocol programme in Costa Rica especially the inclusion of HCFC in its licensing system and the activities that need to be implemented to complete the HCFC phase-out management plant (HPMP) to ensure sustainable long-term results. The Executive Committee is therefore hopeful that Costa Rica will continue with the implementation of its country programme and national phase-out activities with outstanding success in the reduction of current ODS consumption levels.

**Cuba**

3. The Executive Committee has reviewed the report presented with the institutional strengthening (IS) project renewal request for Cuba and notes with appreciation that it is well on its way to meeting the targets of the Montreal Protocol. The Executive Committee also notes that Cuba will face very important challenges in the next two years, as it sustains the phase-out of the consumption of CFCs, and establishes the HCFC baseline based on 2009 and 2010 consumption. It is encouraged by the fact that there is a strong ozone unit during this crucial period and supports the extension of the IS project to maintain this momentum. The Executive Committee is therefore hopeful that Cuba will continue with the implementation of its country programme and national phase-out activities with outstanding success in the reduction of current ODS consumption levels.

**Indonesia**

4. The Executive Committee has reviewed the report presented with the institutional strengthening (IS) project renewal request for Indonesia and notes with appreciation that it is well on its way to meeting the targets of the Montreal Protocol. The Executive Committee notes with appreciation the various policy and regulatory initiatives by Government of Indonesia for effective monitoring and control of ODS. The

Executive Committee also notes that Indonesia will continue to decentralize the monitoring and enforcement, through strengthening of local government entities, to ensure sustainability of ODS phase-out. The Committee also expresses the expectation that Indonesia will successfully complete the implementation of its programmed activities with outstanding progress, sustain and build upon its success in controlling ODS in meeting its obligations under the Montreal Protocol.

**Trinidad and Tobago**

5. The Executive Committee has reviewed the report presented with the institutional strengthening (IS) project renewal request for Trinidad and Tobago and notes with appreciation that it is well on its way to meeting the targets of the Montreal Protocol. The Executive Committee notes that current HCFC consumption in the country is high for a country the size of Trinidad and Tobago, and encourages the country to use these IS funds to build a strong ozone unit that can take the lead in the process of preparing a national HCFC strategy, in order to comply with the 2013 freeze target. The Committee also expresses the expectation that Trinidad and Tobago will successfully complete the implementation of its programmed activities with outstanding progress, sustain and build upon its success in controlling ODS in meeting its obligations under the Montreal Protocol.

United Nations Development Programme
Montreal Protocol & Chemicals Unit

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

*(10 - 14 November, Port Ghalib, Egypt)*

# AMENDMENT TO THE 2009 WORK PROGRAMME

**16 September 2009**
**(Final 07 October 2009)**

# UNDP
## AMENDMENT TO THE 2009 WORK PROGRAMME

## I. INTRODUCTION

UNDP's 2009-2011 Business Plan and the 2009 Work Programme were approved at the 57th Meeting of the Executive Committee in March 2009. This document represents an Amendment to the 2009 approved Work Programme and is being submitted for consideration at the 59th Meeting of the Executive Committee, to be held in November 2009. The funding requests submitted as part of this Amendment, after review by the MLF Secretariat, are presented in the document under item II. Section III presents the Policy Issues. Relevant documents are in the Annexes to this WPA.

## II. FUNDING REQUESTS

### Institutional Strengthening Extensions

The requests for funding for extensions of Institutional Strengthening projects are made for five countries, namely, Argentina, Costa Rica, Cuba, Indonesia and Trinidad & Tobago **( Annex 1**). All these requests cover funding requirements for two years duration. As requested by the Secretariat, the amounts for a one-year duration are also provided and tabulated below (based on an extension for two years):

| Country | Type | Title | Duration (months) | Amount | Agency Fee | Total | Coop Agency |
|---|---|---|---|---|---|---|---|
| Argentina | INS | Institutional Strengthening Extn (Phase VI) | 24 | 311,567 | 23,368 | 334,935 | N/A |
| Costa Rica | INS | Institutional Strengthening Extn (Phase VIII) | 24 | 140,513 | 10,538 | 151,051 | N/A |
| Cuba | INS | Institutional Strengthening Extn (Phase VII) | 24 | 149,066 | 11,180 | 160,246 | N/A |
| Indonesia | INS | Institutional Strengthening Extn(Phase VII) | 24 | 271,245 | 20,343 | 291,588 | N/A |
| Trinidad & Tobago | INS | Institutional Strengthening Extn (Phase VI) | 24 | 60,000 | 4,500 | 64,500 | N/A |
| **Total (5 requests)** | | | | **932,391** | **69,929** | **1,002,320** | |

The amounts calculated for a one-year extension period for the above would be as tabulated below:

| Country | Type | Title | Duration (months) | Amount | Agency Fee | Total | Coop Agency |
|---|---|---|---|---|---|---|---|
| Argentina | INS | Institutional Strengthening Extn (Phase VI) | 12 | 155,784 | 11,684 | 167,468 | N/A |
| Costa Rica | INS | Institutional Strengthening Extn (Phase VIII) | 12 | 70,257 | 5,269 | 75,526 | N/A |
| Cuba | INS | Institutional Strengthening Extn (Phase VII) | 12 | 74,533 | 5,590 | 80,123 | N/A |
| Indonesia | INS | Institutional Strengthening Extn(Phase VII) | 12 | 135,623 | 10,172 | 145,795 | N/A |
| Trinidad & Tobago | INS | Institutional Strengthening Extn (Phase VI) | 12 | 30,000 | 2,250 | 32,250 | N/A |
| **Total (5 requests)** | | | | **466,197** | **34,965** | **501,162** | |

The relevant supporting documents are submitted separately.

### Agency Programme (Core Unit support)

Funding request for UNDP's administrative costs (core unit support) for 2010 has been requested as below, reflecting a 3% increase from the previous year, consistent with ExCom Decisions 46/35, 56/41 and 56/42. Submitted separately from this WPA document.

| Country | Type | Title | Duration (months) | Amount | Agency Fee | Total | Coop Agency |
|---|---|---|---|---|---|---|---|
| Global | TAS | Agency programme (core unit support) | 12 | 1,913,365 | N/A | 1,913,365 | N/A |
| **Total (1 request)** | | | | **1,913,365** | **N/A** | **1,913,365** | |

## Preparation funding requests for ODS Disposal Pilots

Funding requests for preparation of pilot/demonstration projects are being submitted for countries as tabulated below (**Annex 2** contains the detailed project concepts/proposals).

| Country | Type | Title | Duration (months) | Amount | Agency Fee | Total | Coop Agency |
|---|---|---|---|---|---|---|---|
| Colombia | PRP | Pilot project for ODS Disposal/Bank Mgmt | 12 | 40,000 | 3,000 | 43,000 | None |
| Cuba | PRP | Pilot project for ODS Disposal/Bank Mgmt | 12 | 40,000 | 3,000 | 43,000 | None |
| India | PRP | Pilot project for ODS Disposal | 12 | 80,000 | 6,000 | 86,000 | None |
| **Total ( 3 requests)** | | | | **160,000** | **12,000** | **172,000** | |

The proposals are in response to the Decision XX/7 (2) of the Meeting of Parties (for ODS disposal), and take into account the stipulations of Decision 58/19 of the Executive Committee. These requests for preparation of ODS disposal pilots will result in proposals for achieving destruction of unwanted ODS and generate practical data and experience on technologies, operational issues, costs, synergies with other related initiatives and opportunities for leveraging additional finance. This will help determine technical, economic, institutional, market and other conditions required to have cost-effective ODS disposal systems in place.

## HCFC Activities

### *(a) Additional preparation funding for HCFC investment and associated activities*

Funding requests for preparation of investment and associated activities are being made for 2 countries, Trinidad & Tobago and the Philippines, in accordance with ExCom Decision 56/16 (d).

| Country | Type | Title | Duration (months) | Amount | Agency Fee | Total | Coop Agency |
|---|---|---|---|---|---|---|---|
| Trinidad & Tobago | PRP | HCFC investment activities | 12 | 65,000 | 4,875 | 69,875 | NA |
| Philippines | PRP | HCFC investment and associated activities in the Refrigeration and Air Conditioning Sector including the Servicing Sector (excluding the air-to-air air conditioning sector) | 12 | 65,000 | 4,875 | 69,875 | UNIDO |
| **Total ( requests)** | | | | **130,000** | **4,875** | **69,875** | |

For Trinidad and Tobago, UNDP requested at the 55 meeting 85,000 US$ for the preparation of the HPMP. At that time, the national ozone unit in T&T and UNDP were under the impression that all HCFC consumption in T&T was for servicing. Meanwhile however the country's latest HCFC consumption (2008) was reported to be 1,032.94 metric tons, which is much higher than anticipated. In addition to this, it has come to known during the preparation of the HPMP that HCFCs are also used for manufacturing (Foam and Commercial Refrigeration). It has also been revealed that HCFC 141b has been imported in premixed systems and have therefore not been detected by customs. Preliminary results confirm the presence of 3 foam companies and 1 commercial refrigeration manufacturer. This

number could be higher, and this needs further investigation during the HPMP preparation. UNDP would therefore like to request an additional 65,000 US$ (150,000 US$ in total) to take the high consumption into account, and to include the manufacturing sector in the development of the HPMP.

For the Philippines, a request for additional preparation funding for HCFC investment and associated activities in the Refrigeration and Air Conditioning Sector (excluding air-to-air air conditioning sector) is being made for the Philippines (related project concept and government endorsement letter are in the **Annex 3**):

### *(b) Preparation funding for HCFC pilot/demonstration projects*

Please see Section III: Policy Issues.

## Global Activities

UNDP had submitted a request for funding for a global technical assistance activity to the 57th ExCom meeting, for resource mobilization for maximizing climate co-benefits in HCFC phase-out. This request is being resubmitted for the 59th ExCom meeting **(Annex 4).**

| Country | Type | Title | Duration (months) | Amount | Agency Fee | Total | Coop Agency |
|---|---|---|---|---|---|---|---|
| Global | TAS | Resource mobilization for climate co-benefits | 12 | 250,000 | 18,750 | 268,750 | N/A |
| **Total (1 request)** | | | | **250,000** | **18,750** | **268,750** | |

## Investment Projects

### *TPMPs and Sector National Plans*

A total of 11 requests for annual tranches of TPMPs and Sector/National Plans are being submitted, supported by progress reports on the implementation of annual plans for the previous year and performance verification reports wherever required, which are submitted separately.

Funding requests for tranches of approved ongoing TPMPs and Sector/National Plans are tabulated below (the relevant progress reports and performance verification documentation are submitted separately):

| Country | Type | Title | Amount | Agency Fee | Total | Cooperating Agency |
|---|---|---|---|---|---|---|
| Bahrain | INV | TPMP 2nd tranche | 40,000 | 3,000 | 43,000 | UNEP lead |
| Brazil | INV | CFC Phase-out Plan 8th tranche | 100,000 | 5,000 | 105,000 | UNDP lead |
| China | INV | Solvents Sector Plan | 1,480,000 | 111,000 | 1,591,000 | N/A |
| Costa Rica | INV | MeBr 5th tranche | 726,792 | 54,509 | 781,301 | N/A |
| Cuba | INV | National CFC Phase-out Plan 5th / 6th tranches | 156,000 | 11,700 | 167,700 | UNDP lead |
| Grenada | INV | TPMP 3rd tranche | 30,000 | 2,700 | 32,700 | UNEP lead |
| Guyana | INV | TPMP 2nd tranche | 91,000 | 8,190 | 99,190 | UNEP lead |
| Kyrgyzstan | INV | TPMP 3rd tranche | 60,000 | 4,500 | 64,500 | UNEP lead |
| Mozambique | INV | TPMP 2nd tranche | 17,000 | 1,530 | 18,530 | UNEP lead |
| Nigeria | INV | National CFC Phase-out Plan 7th/ 8th tranche | 454,200 | 36,518 | 490,718 | UNDP lead |
| Swaziland | INV | TPMP 2nd tranche | 40,000 | 3,600 | 43,600 | UNEP lead |
| **Total (11 requests)** | | | **3,194,992** | **242,247** | **3,437,239** | |

### *HCFC investment projects*

Two HCFC phase-out investment projects (one in Mexico and one in Dominican Republic) are being submitted. Funding requests for those projects are tabulated below. The relevant documents are being submitted separately.

| Subst. | Type | Sector | Title | Amount | Agency Fee | Total |
|---|---|---|---|---|---|---|
| HCFC | INV | FOA | HCFC phase-out project in Dominican Republic (1 request) | 395,500 | 29,663 | 425,163 |
| HCFC | INV | FOA | HCFC phase-out project in Mexico (1 request) | 2,790,660 | 209,300 | 2,999,960 |
| **Total ( 2 requests)** | | | | **3,186,160** | **238,963** | **3,425,123** |

## III. POLICY ISSUES

### Requests for Renewal of Institutional Strengthening Projects

During the 29th Open Ended Working Group Meeting held in July 2009, intensive deliberations were made on the issue of funding of Institutional Strengthening projects beyond 2010. A decision pertaining to this issue will be considered at the upcoming XXIst Meeting of the Parties (MOP) in November 2009, preceding the 59th ExCom Meeting. In light of this, UNDP had requested a number of institutional strengthening extensions (see relevant section above) with a duration of 24 months, with the understanding that these durations could be affected by the decisions of the XXIst MOP and 59th ExCom Meeting in November 2009.

The MLF Secretariat asked UNDP to submit proposals for renewal of Institutional Strengthening projects with a duration of 12 months only. Since clear policy guidance on this issue is likely to be available prior to the 59th ExCom Meeting, UNDP has submitted the above requests for both 12 months and 24 months durations.

### Preparation funding (PRP) requests for HCFC pilot/demonstration projects

The Secretariat has requested that the following submissions of preparation funding requests for three HCFC pilot/demonstration projects (two projects in the Solvents Sector in China and one project in the XPS Foam Sector in China) should not be included in the work programme amendment for the 59th ExCom meeting, as they were removed from UNDP's business plan in the 57th ExCom Meeting:

| Country | Type | Title | Duration (months) | Amount | Agency Fee | Total | Coop Agency |
|---|---|---|---|---|---|---|---|
| China | PRP | HCFC Demonstration project in Solvents | 12 | 30,000 | 2,250 | 32,250 | N/A |
| China | PRP | HCFC Demonstration project in Solvents | 12 | 30,000 | 2,250 | 32,250 | N/A |
| China | PRP | HCFC Demonstration project in XPS Foam | 12 | 80,000 | 6,000 | 86,000 | N/A |
| **Total ( 3 requests)** | | | | **140,000** | **10,500** | **150,500** | |

China has requested UNDP to bring this to the Committee's attention and requests that the Committee considers these requests at the 59th ExCom Meeting, although these are technically not in UNDP's 2009 business plan. Justification is provided in **Annex 5.**

## HCFC Demonstration project in XPS( full project)

A request to consider inclusion back in the UNDP 2009 Business Plan came from Turkey. The funding request for a full-fledged HCFC demonstration project in the XPS Foam Sector was removed from the business plan at a previous ExCom meeting. The project, as per request of Turkey, was re-submitted separately but not recommended by the Secretariat due to the above reason.

| Subst. | Type | Sector | Title | Amount | Agency Fee | Total |
|---|---|---|---|---|---|---|
| HCFC | DEM | XPS | HCFC demonstration project in Turkey (1 request) | 192,500 | 14,500 | 207,000 |
| **Total ( 1 request)** | | | | **192,500** | **14,500** | **207,000** |

# Amendment to the UNDP Work Programme
# Annexes

**Annex 1.** **Institutional Strengthening Renewal Requests ( Argentina, Costa Rica, Cuba, Indonesia and Trinidad & Tobago)**

**Annex 2.** **Justification/Concepts for PRP Requests for Pilot Projects on ODS Disposal/Destruction (Colombia, Cuba, India)**

**Annex 3.** **Request for additional preparatory funding for the Philippines**

**Annex 4.** **Resource Mobilization for Climate Co-Benefits**

**Annex 5.** **Justifications for preparatory funding requests for HCFC pilot/demonstration (China)**

# Annex 1. Institutional Strengthening Renewal Requests

## ( Argentina, Costa Rica, Cuba, Indonesia and Trinidad & Tobago)

# Annex 2. Justification for PRP Requests for Pilot Projects on ODS Disposal/Destruction

## COLOMBIA

In behalf of the Government of Colombia UNDP is requesting funding for the preparation of a pilot project on ODS destruction. The project complies with the criteria established by Decision 58/19 and it is focused on specific aspects not previously addressed by pilot projects. Previous pilot projects approved in the region were addressed to countries where there is already ODS destruction technologies in place and there is potentially a major supply of ODS from banks that could justify investments (CFC baselines above 4,000 tonnes). The case of Colombia has the following particularities:

1. Medium Size country without destruction facilities in place. This is the situation of many countries in the region, which makes this pilot attractive as the information produced could be used by other countries with comparable characteristics. The destruction of CFC 11 will be analyzed for at least one incineration technology of CFC 11 contained in the PU Foams (the information obtained could be compared with the technology being used in other pilots that consist of extracting the CFC from the foam and destroying it, which requires high volumes of CFC 11 to be economically feasible). For CFC 12 at least one destruction technology will be analyzed against mobilizing the CFCs to other countries through private operators using their existing waste management expertise and infrastructure..
2. ODS banks management and destruction research in an advanced stage. Previous and current initiatives have set the conditions to work on destruction, data has been collected and partnerships with the private sector and other governmental entities exist. This will make the pilot easier to implement.
3. Geographic conditions in the country make ODS banks fragmented in regions not always easily communicated. The project is considering including ten cities representing three climate areas (1 to 1,000; 1,000 to 2,500, and higher than 2,500 m above the sea level), each one of these areas will generate ODS from different sources (i.e. higher zones will focus more in refrigeration and lower zones in air conditioning).

The government of Colombia has been working for several years in looking for solutions to destroy the CFCs contained in banks and have implemented pilots on collection of ODS from existing banks. The present project will build from this learning experience and put the last step in the waste management chain in Colombia. We are presenting attached a comprehensive proposal explaining the background of the work being done in Colombia and what is required. Below is a summary on how the project complies with the Decision 58/19:

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

This proposal will cover transport, storage and destruction (or export for destruction) of ODS already in cylinders coming from different sources as presented in the table presented in section iii below. This pilot project does not aim to duplicate what a pilot initiative in early retirement of appliances (collection) already did. Instead, it will be complementary by tackling the areas not covered yet by that pilot (transport, storage and actual destruction of the ODS). The Government has already tackled and created the partnerships required to work in collection, by having resolved the issues related to destruction

through the present proposal; the government will be able to implement in a large scale a complete ODS waste management system including collection, transportation, storage and final destruction of ODS.
Once information on logistics, costs and technical requirements to undertake these 3 categories (transport, storage and actual destruction) is generated, decisions will be made on how each one of them is going to be addressed and all the elements for the ODS waste management and disposal will be in place. At this point the country will be able to combine these steps with the existing collection scheme and expand operations. The collection efforts will provide a portion of the ODS for destruction but as mentioned before, the collection scheme is already tackled and funded by other sources.
An important aspect to consider is that Colombia is a country with several climate areas, which turns complex the management of a national project. In this sense, taking into account the regionalized infrastructure created by the National Phase Out Plan, the work will be done in 10 cities that include the three climate areas (0 to 1.000 m, 1 000 m to 2 500 m, and higher than 2500 above sea level). For each city the project will include the stockpiling, storage, transport and destruction of CFCs both concentrated and diluted. With regards to financial incentives for ODS collection to complement the destruction pilot, the following are being considered:

- Identification of national sources, through funds coming from the generation and distribution stages.
- Financial sources have also been identified and there is advance in an investment program with the Clean Technology Fund (through the IDB).
- Clean Development Mechanism, in correspondence with the indirect decrease of GHG as consequence of the Energy Efficiency improvement of the equipments.
- Voluntary carbon markets, (applied to the CFC destruction case).
- Economical instruments being identified as feasible by the Government and that incentive the buyer to change his equipment.
- Payment terms of the equipments, through traders' policies.

**ii. 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;**

Completed activities directly related to ODS destruction:

Colombia has been one of the countries leading the discussion on ODS waste management within the Montreal Protocol framework, and has provided inputs to the studies requested by the Executive Committee on the subject. As part of this work, the following activities have been completed at the national level:

- National research on identification of ODS banks (2003, 2004)
- Research on national capacity for ODS destruction (2004)
- Research on energy consumption of national locally used refrigerators and air conditioners (2006)
- Pilot project on refrigerators early retirement and scrap processing (2008) (Explained in detail in numeral v)
- Halon banks management project completed under the NPP with the export of 7,940 kgs for critical uses in other countries (2009)

Related activities that will contribute or that could have synergies with the pilot project:

- National Plan: Though the regional centers created by the NPP the pilot project will operate at the same time in different local markets taking advantage of local expertise built and recovery & reclaiming infrastructure in place to handle CFCs.
- Chillers project: This project which is just starting will generate CFC 11 and CFC 12 that will need to be destroyed.
- National Context on Energy Efficiency: The Ministry of Mining and Energy and its subsidiary bodies have been configuring the national framework on the Policy about Energy's Rational Use. Within this framework, the substitution of domestic refrigerators has been identified as a priority activity, since in a 20-year scenario analysis the savings on consumption would be of about 198 GWH per year. For boosting this work, a Committee has been formed in which the Ministries of Mining and Energy and of Environment participate, as well as the NOU, UPME (electric utility) and the national refrigerators manufacturers.
- National Context on Wastes: Since December 2005, Colombia has a Environmental Policy for the Integral Management of Hazardous Wastes, set out with long term strategies, in the frame of the integrated product life cycle management, which general objective is to prevent the generation of hazardous wastes or residues and to promote the environmentally sound management of those being generated, with the purpose of minimizing the risks. Within the Action Plan of the Policy, it has been established as goal for the period 2006-2018 to achieve 40% elimination of hazardous wastes that are a priority under the international commitments, for the ODS case, expressed in tonnes of phased out ODS wastes, with the intermediate goal for year 2010 of having a program for the management and final disposal of ODS wastes.
- POPs and Hazardous Wastes: Within the development of the Stockholm Convention on POPs, Colombia has managed in the past years the exportation of PCBs for their destruction outside the country. Currently the Ministry of Environment submitted with UNDP to the GEF a project to manage and destroy PCBs, which includes the analysis of alternatives for destruction. There are potential synergies with ODS destruction that should be explored .
- Other initiatives include the national policy of electric and electronic equipment post-consumption and the collection of disused cellular phones and Computers.

**iii. An estimate of the amount of each ODS that is meant to be handled within the project;**

The current inventory of CFC and HCFC ready for destruction is 10 tonnes. Secondly, there is one tone of ODS retained in customs ready for destruction. Finally and most importantly the ODS destruction pilot will destroy the CFC contained in existing appliances that will be collected through the government collection scheme. The CFC installed banks in domestic refrigerators is 240 tonnes of CFC 12 and 10,200 tonnes of polyurethane foam containing CFC 11. For this particular pilot project the collection scheme will contribute with CFCs from 300,000 domestic refrigerators, 5,000 commercial refrigerators and 5,000 air conditioners that can be collected in one year. Taking into account the average data obtained from the pilot project carried out in year 2008 (80 grams of refrigerant gas and 3,4 kilograms of polyurethane foam recovered per refrigerator), it is expected to recover 24 tonnes of refrigerant gas and 1.020 tonnes of polyurethane foams with CFC-11. In the commercial refrigeration sector it is estimated a removal of 5,000 refrigerators, each one with a recoverable charge of one (1) kilogram of gas and 5,000 domestic air conditioners with a recoverable charge of nearly 0.5 kg of refrigerant.

The table below presents a summary of all the sources of waste ODS to be destroyed:

| SOURCE | EQUIPMENT /SUBSTANCE | MATRIX | ODS Amount to be Destroyed |
|---|---|---|---|
| Current inventory of waste ODS from regional centers | Residual CFC coming from servicing and other operations through the R&R centers | CFC-11 and CFC-12 | 10 |
| CFC extraction from domestic refrigerators | 300.000 domestic refrigerators | CFC 12 0.080 kg/unit* | 24 |
| CFC extraction from domestic refrigerators | 300.000 domestic refrigerators | 3.4 kg de PU Foam/unit = 1020 ton of Foams, out o it 10% is CFC 11* | 102 |
| CFC extraction from air conditioning units | 5.000 air conditioning units | Refrigerant | 2,5 |
| CFC extraction from commercial refrigerators | 5.000 commercial refrigerators | Refrigerant | 5 |
| Current inventory of waste ODS retained in customs | Illegal ODS | Stored ODS | 1 |
| **TOTAL** | | | **144.5** |

** Source: Information obtained from the early retirement project implemented in 2008*

The table above presents the amount of waste ODS that the country can commit to destroy directly through the present project (subject to the level of funding approved). However, it is expected that having resolved the destruction issues through the pilot project, the conditions to destroy additional ODS will be in place.

**iv. 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;**

Known existing stock: 10 tonnes of CFC and HCFC (source regional centers). One additional tone of ODS waste is retained in customs for destruction (source customs department). The information on the CFCs contained in appliances is a very conservative estimation made based on real data obtained from the information gathered during the collection project on early retirement done in 2008 in Bogota. Details on this initiative can be found in the document submitted by the Government of Colombia, attached to this justification.

**v. 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;**

A pilot initiative on early retirement of domestic refrigerators took place in 2008 during four months in Bogota, with the objective of establishing a scheme by which old CFC based refrigerators of different

sizes and trademarks in the hands of end users (consumers) could be replaced by more energy efficient CFC free refrigerators, and all the materials obtained from the old refrigerators, including the ODS, could be disposed of in an environmentally sound manner. The project was funded by the participants (government, manufacturers and retailers) and a total of 2000 final users were benefited by this initiative as their energy bills were reduced. But most importantly, the project helped to establish the scheme for collection of domestic refrigerators and extraction of the ODS for destruction. Among the results obtained, the project identified all the steps required for this kind of operation (logistical, administrative and financial), identified all the involved stakeholders and engaged them to participate, measured costs, and measured quantities of ODS and other materials recoverable by unit. The main outcome of this pilot is that the conditions and the approach for collection of domestic refrigerators and extraction of ODS were established.

Having progressed on the collection phase, the issues to be tackled now by the present pilot proposal are the ones related to the ODS destruction. The collection scheme is ready to be expanded to the 10 regional centers created by the National Phase Out Plan. With participation of the 3 of the largest retail stores chains and participation of all manufacturers and importers of domestic refrigerators. This will absorb a good portion of the CFC based domestic refrigerators (and other appliances) currently functioning in the country; however, in order to expand this operation a solution has to be found for the ODS destruction. The present proposal aims to find solutions for the ODS destruction in Colombia.

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

The present project will focus on CFCs. With regards to halons Colombia has already taken action to manage its banks as part of the National Phase Out Plan. A national inventory of the installed quantities was performed and it was found that the main user was a company that generates and commercializes electric power. With the assistance of the National Ozone Unit this company was able to procure with the company REMTEC INTERNATIONAL the disposal of 7,940 kilograms of Halon-1301, contained in 94 cylinders, which were stored in the Hydroelectic Power Stations of San Carlos and Jaguas located in the eastern part of Antioquia. This substance was acquired by REMTEC as raw material to subsequently commercialize it in the Halon Bank of Critical Uses of the United States of America. At the end of May 2009, the packing activities for Halon-1301 were carried out as well as the container loading, which was exported from the port of Cartagena in mid-June.

# DETAILED COUNTRY PROPOSAL COLOMBIA
# DEMONSTRATION PROJECT PROPOSAL FOR ODS WASTES MANAGEMENT

## 1. BACKGROUND AND NATIONAL CONTEXT ON ODS WASTES IN COLOMBIA

Colombia has made efforts to implement a coherent environmental strategy in the management of Ozone Depleting Substances, reason for which notwithstanding the technological and economical limitations, we have tried to generate management alternatives for ODS wastes. Among the main activities where work has been done the following are highlighted: national researches for the identification and quantification of ODS banks, assessment of national management capacities for these wastes, pilot project for the substitution of domestic refrigerators (year 2008), halons management, proposal for ODS wastes management in the Montreal Protocol negotiation scenarios, etc.

### 1.1. National researches for the identification of ODS banks

During years 2003 and 2004 the TOU (Technical Ozone Unit) coordinated a research project with the support of the domestic refrigerators manufacturers that are part of the National Businessmen Association of Colombia (Asociación Nacional de Empresarios de Colombia - ANDI), the National University of Colombia and University of Los Andes, with the objective of gathering the information on banks of CFC-based domestic refrigerators and on the perspective of building a disassembling plant for domestic refrigerators in Colombia.

### 1.2. Research on national capacities for CFC destruction

With the support of the National University of Colombia, a research task was carried out for revising the national capacities for ODS destruction in Colombia (2004).

### 1.3. Research on the energy consumption of domestic refrigerators and air conditioners at national level (2006)

The Unit of Energy and Mining Planning (UPME by its initials in Spanish) of the Ministry of Mining and Energy and the National University performed a research on the energy consumption of air conditioners and domestic refrigerators in 4 Colombian cities. This study was used for the identification of refrigerators substitution as a core program of the national strategy of Energy's Rational Use.

### 1.4. Pilot project of domestic refrigerators scrap processing (2008).

The project consisted in carrying out a pilot in the city of Bogotá, with a duration of four (4) months, from April 30 to August 31 2008, for the substitution of domestic refrigerators, of different sizes and trademarks, that contained chlorofluorocarbon compounds – CFC and that were still in the hands of the final users (consumers) and the management of the wastes coming from these equipments, which included the use of parts and the destruction of CFC from the refrigeration circuit and of the polyurethane foam used as thermal isolation.

The main participants were: Mabe Colombia S.A., Industrias Haceb S.A., Almacenes Éxito S.A. (13 stores in Bogotá), Ministry of Environment, Housing and Territorial Development (MAVDT per its initial in Spanish), United Nations Development Programme – UNDP. There was also participation from: Home Appliances Chamber of the Asociación Nacional de Empresarios de Colombia – ANDI, COMPRAVENTA DE EXCEDENTES INDUSTRIALES LITO LTDA. (solicitors in charge of the use

of materials and final disposal of the wastes) and Codensa S.A., ESP. (payment financing of new equipments, support in the diffusion of the project).

1.5. Handling of the issue inside the discussion scenarios of the Montreal Protocol (2003-2009)

Colombia has led the discussion on the need of managing ODS wastes, within the framework of the different instances of the Montreal Protocol (Meetings of the Parties, TEAP and EXCOM). Resulting from one of these negotiations, a consultancy at international level was carried out through the company ICF, which comprised an analysis of the "state of the art" of ODS wastes management in seven Article 2 countries and two Article 5 countries (Colombia was one of these two countries). Likewise, several decisions from the Parties related with this issue have been promoted with other countries.

## 2. ACTUAL STATUS ON ODS WASTES SITUATION

### 2.1 CFC-INSTALLED BANKS

It is calculated that a total of three million domestic refrigerators are in the hands of the final users in the whole country. Taking into account the average data obtained from the pilot project performed in year 2008 (80 grams of CFC-12 and 3,4 kilos of CFC-11 polyurethane foam recovered per refrigerator), there are approximately 240 tonnes of CFC-12 and 10 200 tonnes of CFC-11 polyurethane foam, regarding domestic refrigeration. Other sectors with CFC-installed banks are the commercial refrigeration and air conditioning.

### 2.2. CFC RESULTING FROM THE REFRIGERANTS' RECOVERING AND RECYCLING PROJECT.

While developing the National ODS Phase Out Plan, Colombia has improved its environmental management strategy for refrigerants, through a project of activities' regionalization, that has enabled knowing how each region of the country works regarding the maintenance of Refrigeration and Air Conditioning Systems. This has allowed the boost of the tasks related to the Technicians Certification and the commitment on the good handling of refrigerants, specially in the tasks of recovery and recycling of these substances.

As already known, a continuous claim from the technicians is not being able to access the proper mechanisms for handling the wastes of contaminated refrigerant, which causes its venting to the environment, with the negative consequences on the same. For solving this problematic, the TOU has established a complementary strategy, implementing as from the current year five regional Refrigerants reclaiming centers. These centers will improve the available quality of the recovered and recycled refrigerant, but will not be able to meet the needs of refrigerant destruction that is already in a well-advanced contamination state. Nowadays, a complete inventory of these refrigerants does not exist, but there is a deeply-felt demand among the certificated technicians and shops. A preliminary estimated inventory is of 10 tonnes of CFC and HCFC for destruction.

### 2.3. WASTES OF OTHER ODS

- Halons:

Colombia has stopped importing halons since year 2002. Through the National ODS Phase Out Plan project, a national inventory of the installed quantities was performed.

The main Halon user, ISAGEN S.A. – E.S.P., utilities company that generates and commercializes electric power, was advised by the Technical Ozone Unit and was able to procure with the company REMTEC INTERNATIONAL the disposal of 7940 kilograms of Halon-1301, contained in 94 cylinders, which were stored in the Hydroelectic Power Stations of San Carlos and Jaguas located in the eastern part of Antioquia. This substance was acquired by REMTEC as raw material to subsequently commercialize it in the Halon Bank of Critical Uses of the United States of America. At the end of May 2009, the packing activities for Halon-1301 were carried out as well as the container loading, which was exported from the port of Cartagena in mid-June.

Seizures conducted by Customs (DIAN)

The Direction of National Taxes and Customs – DIAN (as per its initials in Spanish) as part of the trade control activities has seized ozone depleting substances (R-12, R-502, other mixtures of unknown composition) in the cities of Cucuta, Barranquilla and Sincelejo. A preliminary inventory allows estimating the seized ODS stock for destruction in around one (1) tonne.

## 3. ANALYSIS OF NATIONAL SYNERGIES WITH POLICIES ON WASTES AND ENERGY EFFICIENCY

### 3.1. National context on wastes

Since December 2005, Colombia has a Environmental Policy for the Integral Management of Hazardous Wastes, set out with long term strategies, in the frame of the integrated product life cycle management, which general objective is to prevent the generation of hazardous wastes or residues – 'Respel' (as known in Spanish) and to promote the environmentally sound management of those being generated, with the purpose of minimizing the risks on human health and on the environment, thus contributing to sustainable development.
The specific objectives of this Policy are: 1) Preventing and minimizing the generation of hazardous wastes; 2) Promoting the environmentally-safe management and handling of hazardous wastes; and 3) Implementing the commitments of the International Conventions ratified by the country, related with hazardous substances and wastes. This third objective refers to the harmonization, cooperation and application of strategies and actions towards complying with the implementation of the National Application Plan of the Stockholm Convention and the Phase Out Plan for Ozone Depleting Substances – ODS and their wastes according to the Montreal Protocol.
Likewise, within the Action Plan of the Policy, it has been established as goal for the period 2006-2018 to achieve 40% elimination of hazardous wastes that are a priority under the international commitments, for the ODS case, expressed in tonnes of phased out ODS wastes, with the intermediate goal for year 2010 of having a program for the management and final disposal of ODS wastes.

### 3.2. Relation with projects and conventions on management of chemical substances, hazardous wastes and electric and electronic equipment wastes.

- POPs and Hazardous wastes

Within the development of the Stockholm Convention on POPs, Colombia has managed in the past years the exportation of PCBs for their destruction outside the country. Currently the MAVDT is developing the adjustments of the National Adoption Plan (PDA as per its initials in Spanish).

On the other hand, in the national context of the hazardous wastes management, the country has been strengthening its national capacities through the establishment of a specific legislation framework and the development of initiatives for the management of these residues. As consequence, Colombia has a consolidated group of solicitors of this type of substances (See Annex 1).

With FAO's support, the elimination outside the country of obsolete pesticides was procured, resulting from the agriculture programs of the 1970 decade. It was also procured the elimination of DDT's obsolete stock, resulting from the malaria control programs in the 80's and 90's decades.

- National policy of electric and electronic equipment post-consumption

Colombia is currently developing a national policy on post-consumption management, within which a Law in the Republic's Congress is under discussion and process for ruling on the life cycle of these products, with the objective of avoiding their inadequate final disposal. The following activities have been also developed:

- Collection of disused cellular phones

This program has up to date 155 collection points of disused cell phones and accessories, located in 34 cities of the country: Armenia, Barrancabermeja, Barranquilla, Bogotá, Bucaramanga, Buenaventura, Buga, Cali, Cartagena, Cartago, Caucasia, Cúcuta, Florencia, Ibagué, Ipiales, Manizales, Medellín, Montería, Neiva, Palmira, Pasto, Pereira, Popayán, Riohacha, San Andrés, San Gil, Santa Marta, Sincelejo, Tuluá, Tumaco, Tunja, Valledupar, Villavicencio and Yopal. Since the signature of the 'Compromise Agreement' (Convenio de Concertación in Spanish), in April 2007, until June 2009 2 933 010 pieces have been collected, distributed between accessories (1 851 625), cell phones (578 813), Li-on batteries (337 020), boards (68 473), network material (34 954) and other equipment (62 125), from which nearly 90% has been exported for its environmentally sound management outside the country.

- Computers collection

In April 2008, the Ministry of Environment, Housing and Territorial Development (MAVDT), the Ministry of Communications and the program Computers for Education with the support of the Basel Convention Regional Center for South America, EMPA Switzerland and Stores Carrefour, carried out the pilot project “Recycle this Used Computer and Connect with a Renewed World”, with the purpose of inviting homes and the general public to hand over the computers and printers no longer used or that had been discarded by any motive, at the four collection points established to such purpose in the city of Bogotá.

This campaign took place in the city of Bogotá during April 19, 20, 26 and 27 of 2008, in Carrefour stores Calle 80, Cra 30, Calle 170 and Santa Ana, it had the total participation of 626 donors during the two calls, which handed over a total of 2415 pieces distributed in monitors (638), keyboards (558), CPU (549), mouse (423), printers (223), and portables (24); with a larger attendance at the point located in Calle 80 (32%), followed by Carrera 30 (30%), Calle 170 (23%) and Santa Ana (15%).

- Seaflower, San Andrés Biosphere Reserve campaign, free of technological wastes

The Corporation for the Sustainable Development of the Archipelago of San Andrés, Providencia and Santa Catalina - CORALINA and the Ministry of Environment, Housing and Territorial Development launched in November 2008, the first campaign for collecting cell phones and their accessories,

computers, batteries and disused tires, with the purpose of carrying out an environmentally sound management of these wastes jointly with education strategies for residents and tourists on the importance of preserving this environmental treasure.

The results of this campaign are materialized in the collection of 16 398 pieces distributed in disused tires (6 100 units - 39 Ton), computers (3 407 units - 15 Ton), cell phones (1 653 units) and batteries (5 238), which were taken from the island with the support of the National Army Force and of the Colombian Air Force, for their environmentally sound management in the continent by solicitors specialized in the issue.

- Street Lights

On last 20th of November 2008, it was signed the "Compromise Agreement for a environmentally safe management of post-consumption wastes from electrical and electronic lighting devices (light bulbs with mercury and lead) within the integral management framework", between the manufacturers, Stores Éxito, Carrefour Colombia, General Electric, Greenlight, Havells Sylvania Colombia, Mecanelectro-Homesentry, Osram, Philips, Sodimac Colombia- Homecenter, Tronex Battery Company and the Ministry of Environment, Housing and Territorial Development, which objective is the environmentally sound management of post-consumption wastes from electrical and electronic lighting devices (light bulbs with mercury and lead).

### 3.3. National Context on Energy Efficiency

The Ministry of Mining and Energy and its subsidiary bodies have been configuring the national framework on the Policy about Energy's Rational Use. Within this framework, the substitution of domestic refrigerators has been identified as a priority activity, since in a 20-year scenario analysis the savings on consumption would be of about 198 GWH per year. For boosting this work, a Committee has been formed in which the Ministries of Mining and Energy and of Environment participate, as well as the TOU, UPME and the national refrigerators manufacturers.

## 4. PROPOSAL FOR THE MPMLF

### 4.1. Strategy for the substitution of CFC-based refrigeration and air conditioning equipment.

This proposal will cover transport, storage and destruction (or export for destruction) of ODS already in cylinders coming from different sources as presented in the table below. This pilot project does not aim to duplicate what a pilot initiative in collection did. It aims to tackle the areas not covered yet by that pilot. The Government has already tackled and created the partnerships required to work in collection, by having resolved the issues related to destruction through the present proposal; the government will be able to implement in a large scale a complete ODS waste management system including collection, transportation, storage and final destruction of ODS.
Once information on logistics, costs and technical requirements to undertake these 3 categories (transport, storage and actual destruction) is generated, decisions will be made on how each one of them is going to be addressed and all the elements for the ODS waste management and disposal will be in place. At this point the country will be able to combine these steps with the existing collection scheme and expand operations. The collection efforts will provide a portion of the ODS for destruction but as mentioned before, the collection scheme is already tackled and funded by other sources.

By resolving the destruction issue, the collection scheme can be scaled up to a minimum of 10 cities, with three (3) large retail stores chains with national coverage and the participation of all manufacturers and importers of domestic refrigerators. The Project duration will be of one (1) year. It is estimated that in this manner at least 300 000 domestic refrigeration units and 10 000 air conditioners could be changed. Advantage will be taken from the awareness campaign for motivating and performing the substitution of commercial refrigeration equipment and of the air conditioning equipment that still operate with CFC and that are considered to be at least 15% of the total of the installed equipment in the country (information that will be gathered during the project's preparation).

With the project's execution, compliance will be given to objective 7 of the Millennium, of chapter V of the National Development Plan 2006-2011 and to the objectives and goals of the Action Plan of the Environmental Policy on the Integral Management of Hazardous Wastes or Residues.

An important aspect is that Colombia is a country with several climate areas, which turns complex the management of a national project. In this sense, work will be done in 10 cities that include the following climate areas:

- From 0 meters to 1.000 m above sea level
- From 1 000 m to 2 500 m above sea level
- Higher than 2500 meters

The project will include the stockpiling, storage and transport in each identified city. The destruction activity will be developed in the identified plants either at national or international level for such purpose.

4.2. Indication of the categories that will be included in ODS phase out.

The project will include stockpiling, transport, storage and destruction of CFCs both concentrated and diluted.

a) Stockpiling (to be covered by the collection scheme, not paid by the ODS pilot project): the refrigerators and air conditioners that are changed, will be picked up and transported by the manufacturers, importers and traders that are participating in the project. Once placed in the stockpiling plants, the recovery of the refrigerant gas will take place, which will be stored temporarily to check its quality and proceed to give the proper final destination to the same. The isolation foams will also be stored for their subsequent destruction. Further components will be handled according to the possibility of use and in all cases, an environmentally-responsible management will be provided. This activity will be covered by the project's participants (manufacturers – importers – traders)
b) Transport: The foam will be taken to the final disposal sites nationally, to destruction centers having technologies approved by the Montreal Protocol. The refrigerant gas that is in good conditions will be taken to the reclaiming centers established nationally, within the national strategy framework of Refrigerants Recovery and Recycling. The gas that does not meet the specifications will be stores for its subsequent destruction, either in the country or outside of the same.
c) Storage: both foams and gas will be correctly stored by the solicitors of the scrap process, before their final destination.
d) Destruction: the national capacity for foam destruction will be assessed, which will eventually could be eliminated in incineration kilns that meet the requirements established by the Montreal

Protocol and the national legislation. For the destruction of the refrigerant gas that cannot be used again at national level, it will be analyzed the option of acquiring a plasma-technology equipment, of small or medium capacity, that may phase out the amounts generated by the project. Colombia has experience in mobilize hazard wastes to be destroyed in other countries trough enterprises that are established in Colombia. This experience may be used in order to structure a comprehensive strategy to eliminate SAO outside the country.

4.3. Energy framework

The National Program on Energy's Rational Use is being consolidated, which proposes the substitution of domestic refrigerators among its strategic projects. It currently has the participation of national entities (Ministry of Mining and Energy, UPME, participating entities, manufacturing companies, etc.). Amongst the achievements attained at this instance, it has been possible to agree on the minimum environmental characteristics and of energy efficiency that the new refrigerators must have to substitute the old CFC-based equipment, that would participate in the substitution program.

4.4. Financial and incentives framework for the substitution program.

Within the National Program framework on Energy's Rational Use, a consultancy is being developed with Corporación Andina de Fomento that will aid to the restructuring of the Program, which will include the economical and financial analysis, as well as the institutional framework that will enable to incentive the change of refrigeration and air conditioning equipment. Among the issues that have been preliminarily identified are:

- Identification of national sources, through funds coming from the generation and distribution stages.
- Financial sources have also been identified and there is advance in an investment program with the Clean Technology Fund (through the IDB).
- Clean Development Mechanism, in correspondence with the indirect decrease of GHG as consequence of the Energy Efficiency improvement of the equipments.
- Voluntary carbon markets, applied to the CFC destruction case.
- Economical instruments being identified as feasible by the Government and that incentive the buyer to change his equipment.
- Payment terms of the equipments, through traders' policies.

4.5. Calculation base and estimation of ODS amounts that will be managed in the project.

**Calculation base**: it will be used the value obtained from the pilot project in which 2.000 domestic refrigerators were changes.

It is estimated that a total of three hundred thousand (300.000) domestic refrigerators will be changed by the project in one year. Taking into account the average data obtained from the pilot project carried out in year 2008 (80 grams of refrigerant gas and 3,4 kilograms of polyurethane foam recovered per refrigerator), it is expected to recover 24 tonnes of refrigerant gas and 1.020 tonnes of polyurethane foams with CFC-11.

In the commercial refrigeration sector it is estimated a removal of 5.000 refrigerators, each one with a recoverable charge of one (1) kilogram of gas and 5.000 domestic air conditioners with a recoverable charge of nearly 0,5 kg of refrigerant.

## COLOMBIA ODS DESTRUCTION PILOT ANNEX- LEGAL FRAMEWORK

Colombia is a signatory to the Montreal Protocol on Substances that Deplete the Ozone Layer. The status of the ratification of this protocol and its Amendments is as follows:

| Instrument | Congress Law |
|---|---|
| Vienna Convention (1985) | # 30, 5-Mar-90 |
| Montreal Protocol (1987) | # 29, 28-Dec-92 |
| London Amendment (1990) | # 29, 28-Dec-92 |
| Copenhagen Amendment (1992) | # 306, 5-Aug-96 |
| Montreal Amendment (1997) | # 618, 6-Oct-00 |
| Beijing Amendment (1999) | # 960, 28-Jun-05 |

### 1. Control Measurements

In chronological order, the regulations that apply to ODSs are:

- **Law 99 of 1993** (Congress): The Secretary of Environment, *Ministerio del Medio Ambiente*, was created, and the National Environmental System was organized. Environmental licenses -issued by the Secretary of Environment- for the importation and production of substances controlled by international treaties were established.
- **Resolution 528 of June 18, 1997** (Secretaries of Environment and Foreign Trade): The use of CFCs (refrigerant and blowing agent) for the production of domestic refrigerators was banned.
- **Resolution 304 of April 16, 2001** (Secretaries of Environment and Foreign Trade): Imports of ODS listed in the Annex A, Group I, were regulated[1]. Annual quotas per company, defined according to the Country Programme and the import history, were established. NOU approval is required for the expedition of the environmental license.
- **Resolution 734 of June 22, 2004** (Secretaries of Environment -now *Ministerio de Ambiente, Vivienda y Desarrollo Territorial*- and Foreign Trade -now called *Ministerio de Comercio, Industria y Turismo*- ): Resolution 304 was modified to take into account the adjusted Country Programme.
- **Resolution 874 of July 23, 2004** (Secretaries of Environment and Foreign Trade): Resolution 734 is expanded. Methodology to quotas allocation is defined.
- **Government Decree 423 of February 21, 2005**: Exports of substances listed in Annex A, Groups I and II, Annex B, Groups I, II and III, Annex C, Groups I, II and III, and Annex E, Group I, are regulated. They required the approval of the Secretary of Environment (UTO)[2].
- **External Resolution 21 of April 1, 2005** (Secretary of Commerce, Industry and Tourism): The approval of UTO (Secretary of Environment) for the imports of HCFCs and Halons is established. The duty positions that require NOU approval are listed: Annex A, Groups I and II, Annex B, Groups I, II and III, Annex C, Groups I, II and III, Annex E, Group I, substitutes for HFCs, refrigerant blends containing ODS and HFCs and blends based on Methyl Bromide.
- **External Resolution 22 of April 1, 2005** (Secretary of Commerce, Industry and Tourism): The exports of substances listed in Annex A, Groups I and II, Annex B, Groups I, II and III, Annex C,

[1] Unfortunately, substances listed in Annex A, Group II, were not included.

[2] In 2003 it was estimated that 12 % of the imported ODS were exported.

Groups I, II and III, and Annex E, Group I are regulated. The Secretary of Environment (UTO) should established annual quotas per substance.

- **External Resolution 23 of April 7, 2005** (Secretary of Commerce, Industry and Tourism): The list of duty positions belonging to domestic refrigerators and freezers, whose imports require UTO approval, is updated.
- **Resolution 2188 of December 29, 2005** (Secretary of Environment): Exports are regulated with reference to Decree 423.
- **Resolution 901 of May 23, 2006** (Secretary of Environment): Imports of ODS listed in the Annex A, Group II, Halons, were regulated. Annual quotas per company, defined according to the Country Programme and the import history, were established. The use of halons in new installations was banned.
- **Resolution 902 of May 23, 2006** (Secretary of Environment): Imports of ODS listed in the Annex B, Group I, II and III, were regulated. Annual quotas per company, defined according to the Country Programme and the import history, were established. The use of halons in new installations was banned.
- Since 1999 HCFCs imports require environmental license.
- **Resolutión 2120 of October 31, 2006** (Secretary of Environment): Establish the measurements to control Annex C substances.

Since December 2005 Colombia has an overall policy for the management of hazardous waste, where ODSs are included. This policy is covered in the **Decree 4741 of 2005** based on the implementation of the Basel Convention.

# Annex 2( cont). Justification for PRP Requests for Pilot Projects on ODS Disposal/Destruction

## CUBA

On behalf of the Government of Cuba UNDP would like to request funding for the preparation of an ODS destruction demonstration project in Cuba. The project complies with the criteria established in decision 58/19. This project will be the first of its kind in the Caribbean region, and it will generate valuable information about possible models to establish a long term self sustained system to collect ODS from the banks and destroy them taking into consideration the specific characteristics and needs of Small Island Development States and in the Caribbean region. Furthermore, this information could also be helpful to Central American countries interested to undertake similar approaches to manage their ODS banks. Taking into consideration the amount of work already done by Cuba on this area (explained below) the pilot project will benefit from already existing data and its burden will be reduced to only the final stages of the establishment of this ODS disposal system.

Several factors make this project unique:

1) Out of the 33 ODS Destruction pilots included in the three agencies and Japan business plans, this is the only one addressing all the aspects of a complete ODS waste management system in a SIDS. Although one of the demonstration projects already approved will explore regional and sub-regional transportation of ODS among countries in Asia (probably including some islands), this is not the case in Cuba where local destruction will be considered part of the strategy. If destroying ODS in Cuba becomes possible, any learning regional transportation could be used by other islands and Central American countries to send their ODS to be destroyed in Cuba. It is important to remember that although there are two countries with operational ODS destruction capacity in the region, none of them is likely to receive ODS from other countries due to their national waste management policies.

2) The demonstration project will create the necessary conditions to set up the proper logistics for transport, storage and destruction of ODS in Cuba and will explore different options in order to assure the long term sustainability of ODS destruction in Cuba. It will build from a remarkable energy efficiency experience being implemented by Cuba during the last 4 years, by which 2.6 million CFC based domestic refrigerators have already been collected and dismantled, and 48.3 tones of CFC have been cumulated for destruction.

3) The project will demonstrate the feasibility of a destruction technology developed by Japan for Cement Kilns that has not previously been tested in the region. The economics and sustainability of ODS destruction in Cuba will be explored in view of the country's replacement programme mentioned above. In 2006 a technical delegation from the government of Cuba was invited by the government of Japan to attend a demonstration of the ODS technology in Japan. Subsequent to the demonstration it was considered that the technology could perfectly fit the needs of Cuba and countries with comparable characteristics and Cuba made a feasibility study to evaluate a possible site. It was determined that the Cement Kiln in "Fabrica de Siguaney" in the Sancti Spiritus Province would be a very good candidate.

4) None of the demonstration projects approved at ExCom 57 deals with the logistical characteristics of SIDS.

5) With regards to the financial sources to maintain the ODS destruction operations in the future, different to other demonstration projects the pilot project in Cuba is not considering a-priori market based mechanisms. The demonstration will focus on alternative solutions to the market based solutions tested in other countries.

6) With the exception of the Destruction technology, Cuba has already developed all the individual components that are needed for a comprehensive ODS destruction system (recollection, transport, storage and Destruction). There is available data that would take years to collect in a pilot where no previous collection efforts undertaken. The challenge is to set up the all the logistics that will bring all the individual pieces together and make it work as a sustainable comprehensive system coordinated by the central government.

7) Cuba has previously explored the possibility of exporting ODS for destruction in Mexico. Many barriers (economic, legal, Basel and Rotterdam conventions stipulations, etc.) finally make it difficult for Cuba to export ODS for destruction. Given the high quantity of Cuba already recollected as well as the perspectives for the future, it is considered of utmost importance to have a national based solution for ODS destruction. Other SIDS in the region could benefit from the destruction facility in Cuba.

8) The Caribbean is underrepresented in the global carbon market, and it would in practical terms be difficult to generate a project for the voluntary market for Cuba. However, the project would explore that as well as other potential co-financing options.

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

Cuba introduced in 2006 the energy revolution year to promote the complete substitution of old energy inefficient domestic refrigerators and air-conditioning units. The programme has been actively supported by the National Ozone Unit in order to make sure that ODS have been properly recovered. The programme is aiming at replacing 3 million units of domestic refrigerators and an un-quantified number of old air-conditioning units. So far the ambitious recollection programme has replaced 2.6 million refrigerators and more than 276.000 air-conditioning units. The government of Cuba has funded the complete recollection, substitution and de-manufacturing programme with their own funds. Under the National CFC Phase Out Plan more than 80 Recovery and Recycling centers have been established and they have played an important role in the recovery of refrigerants. The main challenge in Cuba is related to setting up the logistics for transport, storage and destruction of ODS.

The present project will build from the experience gained and propose a sustainable long term collection, transportation, storage, destruction scheme that could expand to ODS extraction from other kind of banks (mostly commercial refrigeration and chillers)

**ii. 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;**

There are currently no other ongoing chemical disposal programmes in Cuba.

**iii. An estimate of the amount of each ODS that is meant to be handled within the project;**

Cuba has under the national recollection programme recovered a total of 133.164 tons of ODS (48.3 tons of CFC and 84.9 tons of HCFC). The estimation is that up to a total of 299 tons of ODS could be recovered before the end of 2010 under the NPP, the Chillers project, and the continuation of the substitution programme of Domestic refrigerators and air-conditioning units.

| **Description** | **Quantity (T)** | **R-12** | **R-11** | **R-22** |
|---|---|---|---|---|
| National substitution programme of Domestic refrigerators and inefficient air-conditioning units. | **133,1** | **48,3** | **-** | **84,8** |
| Recovery and Recycling programme in 750 workshops through out the country. | **130** | **129** | **1** | **-** |
| Chillers Replacement Project | **2,5** | **-** | **2,5** | **-** |
| Commercial Retrofit Programme under the NPP | **35** | **35** | **-** | **-** |
| **Total** | **299,16** | **212,** | **3,5** | **84,8** |

**iv. 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;**

As mentioned in iii) more than 133 tons of SAOs have already been recollected and are currently store in large cylinders in Cuba.

**v. 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;**

The substitution of domestic refrigerators and air-conditioning units programme is under full implementation and has been so for several years. It has been fully funded by the Government of Cuba. The Commercial Retrofit programme under the National Plan as well as the Chillers replacement project will promote additional recovery of CFCs.

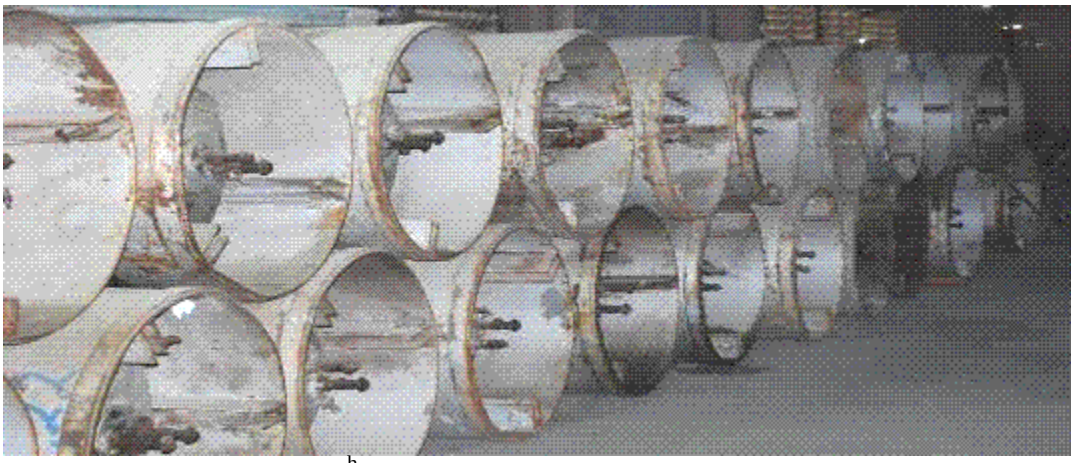
**vi. For activities that focus at least partially on CTC or halon, an explanation of how this project might have an important demonstration value;**

This project will focus exclusively on the destruction of contaminated CFCs and HCFCs.

Detailed information on the Cuban experience and proposal can be found in the attached document.

**59h Executive Committee Meeting**

# ODS DISPOSAL DEMOSTRATION PROJECTS FOR CUBA

59h Executive Committee Meeting

Proyecto Demostrativo de Destrucción de SAO para Cuba.

ODS DISPOSAL DEMOSTRATION PROJECTS FOR CUBA

Pais: **CUBA**

Región: **CENTROAMÉRICA Y EL CARIBE**

Sector: **DESTRUCCIÓN DE SAO**

| | |
|---|---|
| PROJECT DURATION: | 1 years (Dec 2009 - Nov 2010) |
| PROJECT IMPACT: | |
| PROJECT COST: | |
| AGENCY SUPPORT COST: | |
| TOTAL COST TO THE MLF: | |
| SOURCE OF FUNDS: | Multilateral Fund (MLF) for the Implementation of the Montreal Protocol. |
| NATIONAL IMPLEMENTING AGENCY: | Technical Ozone Office; Ministry of Science, Technology and Environment |
| IMPLEMENTING AGENCY: | UNDP |
| SUBMISSION DATE: | November 2009 (59h Executive Committee Meeting) |

## 1. BACK GROUND

La 20 Reunión de las Partes del Protocolo de Montreal aprobó la decisión XX/7 que indica al Excom incluir en sus planes de negocios proyectos Demostrativos de Destrucción de SAO para países articulo 5 y que cubran los aspectos de recolección , transportación, almacenamiento y destrucción de SAO con una muestra representativa regional de países articulo 5.

La 58 reunión del Excom aprobó los lineamientos para la asignación de fondos a los proyectos demostrativos para la destrucción de SAO de acuerdo al párrafo 2 de la decisión XX/7 de la 20 Reunión de las Partes.

Cuba implementa el plan Nacional de eliminación de CFC con PNUD que le permitirá en el 2009 eliminar la importación-consumo total de CFC y prepara su Plan nacional de Eliminación de HCFC que le permite actualmente de disponer de volúmenes importante de SAO que de no ser destruidos de forma acelerada se convertirían en un peligro potencial de emisión a la atmósfera de no acometerse un proyecto de destrucción de forma acelerada.

Cuba tiene un levantamiento de equipos de refrigeración y aire acondicionado que va a ser actualizada y que permite estimar el equipamiento existente, los talleres y el personal técnico existente en Cuba, las importaciones de equipamiento realizada en los últimos años, así como se capacitaron mas de 5,300

técnicos y mecánicos en buenas Practicas de refrigeración que permiten realizar una razonable valoración del Banco de equipos con CFC y SAO y los volúmenes disponibles de SAO a destruir.

Cuba desarrolla un grupo importantes de proyectos nacionales y el Fondo Multilateral del Protocolo de Montreal mediante las agencias PNUD, Canadá y Alemania en su momento que le permiten de disponer de proyectos importantes que garantizan la disponibilidad de tecnología y equipamientos por esta vía.

Se contó con la ayuda de Japón y una visita a ese país que permitió el acceso a varias tecnologías y definir la más conveniente para Cuba así como recibir la tecnología japonesa, definir las bases del proyecto, la tecnología y los equipos y materiales necesarios para utilizar la tecnología de Hornos de cemento desarrollada en Japón.

Por otra parte se valoraron las fábricas de cemento disponibles en Cuba y se determino la Fábrica de Siguaney en la Provincia de Sancti Spiritus como la que más se adecuaba, y realizando un estudio preliminar para realizar el proyecto de la instalación y la adecuación de la tecnología dada por Japón.

## 2. País y Región

La Republica de Cuba es un país en desarrollo clasificado como articulo 5, situado en la **Región de Centroamérica y el Caribe, país insular**, clasificado como país de no bajo consumo en el Protocolo de Montreal el cual ratifico el Protocolo de Montreal en 1992 así como todas sus enmiendas y cumple todos sus compromisos con el Protocolo de Montreal de forma precisa y completa.


## 1. CONSUMO DE SAO EN CUBA

| Año | Consumo |
|---|---|

| | | |
|---|---|---|
| 1993 | 125 | ODP Tonnes |
| 1994 | 150 | ODP Tonnes |
| 1995 | 546.2 | ODP Tonnes |
| 1996 | 663.8 | ODP Tonnes |
| 1997 | 665.4 | ODP Tonnes |
| 1998 | 531.4 | ODP Tonnes |
| 1999 | 571.4 | ODP Tonnes |
| 2000 | 533.6 | ODP Tonnes |
| 2001 | 504.0 | ODP Tonnes |
| 2002 | 488.8 | ODP Tonnes |
| 2003 | 481 | ODP Tonnes |
| 2004 | 445.1 | ODP Tonnes |
| 2005 | 208,6 | ODP Tonnes |
| 2006 | 239.6 | ODP Tonnes |
| 2007 | 83.5 | ODP Tonnes |
| 2008 | 74.4 | ODP Tonnes |

| Substance | ODS Consumption by Sector in Tons/Year 2008 | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Aerosol | Foam | Fire | Refriger-ation | Solvents | Fumiga-tion of soils | Quarantine and pre-shipment | Total |
| CFC-11 | 7.00 | | | 0 | | | | 7.00 |
| CFC-12 | 55.93 | | | 11,49 | | | | 67,42 |
| CFC-113 | | | | | | | | 0 |
| CFC-114 | | | | 0 | | | | 0 |
| CFC-115 | | | | 0 | | | | 0 |
| halons | | | | 0 | | | | 0 |
| carbon tetrachloride | | | | | 0,01 | | | 0,01 |
| methyl chloroform | | | | | 0 | | | 0 |
| HCFC-22<br>HCFC-141b | | 0<br>9,19 | | 230,21 | | | | 230,21<br>9,19 |
| HCFC-123<br>HCFC -124 | | | | 0,54<br>0,34 | | | | 0,54<br>0,34 |
| methyl bromide | | | | | | 0 | 1,5 | 1,5 |

## 2. ACCIONES QUE SE DESARROLLAN EN CUBA POR EL GOBIERNO DE CUBA Y EL PROTOCOLO DE MONTREAL Y QUE CONTRIBUYEN AL PROYECTO DE DESTRUCCIÓN DE SAO.

**Programa de sustitución de refrigeradores y aires acondicionados domésticos ineficientes, altos consumidores de energía y que trabajan con SAO en todo el país**.

Como parte del de la Revolución Energética el gobierno de Cuba desarrolla el Programa de sustitución total de refrigeradores y aires acondicionados domésticos ineficientes, altos consumidores de energía y que trabajan con SAO en todo el país, El Programa se encuentra en una etapa muy avanzada prácticamente en la etapa de finalización.

**El Programa tiene como objetivos fundamentales**

- **El Ahorros de valores importantes de energía eléctrica** mediante la sustitución 3 Millones de los refrigeradores domésticos (prácticamente el total de los existentes) y 300,000 aires acondicionados ineficientes en su gran mayoría de entre 20 y 60 años de uso por equipos nuevos de muy bajo consumo de energía, Estos ahorros posibilitan disminuir la quema de miles de toneladas de combustibles fósiles, y liberar grande capacidades de generación de termoeléctricas evitando la inversión de nuevas capacidades necesarias para el desarrollo del país
- **La Preservar el Medio Ambiente** especialmente la Protección de la Capa de Ozono mediante la recuperación de cientos de toneladas de CFC y HCFC ,

La eliminación definitiva del uso y consumo de CFC en la refrigeración domestica en Cuba y creando las bases para la eliminación de los HCFC cumpliendo los compromisos de Cuba en el Protocolo de Montreal

Evitando la emisión de millones de toneladas de carbono a la atmósfera, potentes gases de efecto invernadero mitigando de forma importante los efectos del cambio climático.

- **Elevación de la calidad de la vida de la población cubana** al sustituir los refrigeradores viejos e ineficientes con tiempo de vida entre 20 y 60 años por nuevos, modernos con mayores prestaciones y eficientes, logrando disminuciones importantes en el pago eléctrico por la población, así como la entrega de los equipos en condiciones muy favorables al suministrarse a precio de costo y facilidades de varios años de pago en correspondencia con el poder adquisitivo de cada uno,

El proyecto beneficia a toda la población del país y no a una parte y se desarrolla con la participación de los organismos del estado, gobiernos provinciales, municipales, locales y la comunidad en cada territorio que permite vincular a toda la población cubana a este programa.

Mediante el Programa se han sustituido ya mas de 2 millones 600,000 refrigeradores y 276 mil aires acondicionados domésticos, altos consumidores de energía y que utilizan SAO como gas refrigerante.

**También permite el reciclando y reventa de muchos otros materiales tal como metales, aluminio, vidrio y plásticos**

Para su implementación se contó con **una gran inversión de mas de $700,000 millones de dólares realizada por el Estado cubano.**

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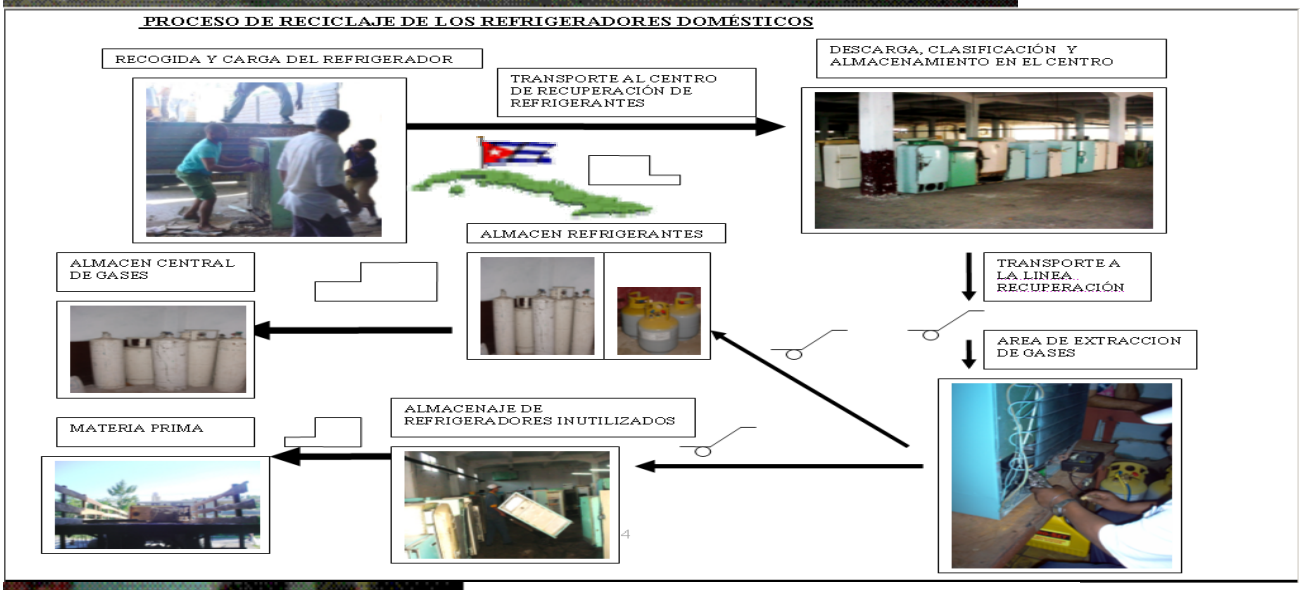
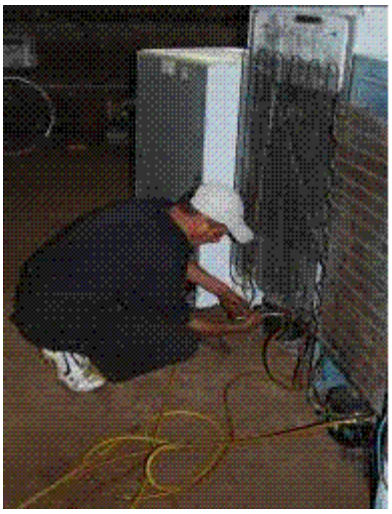
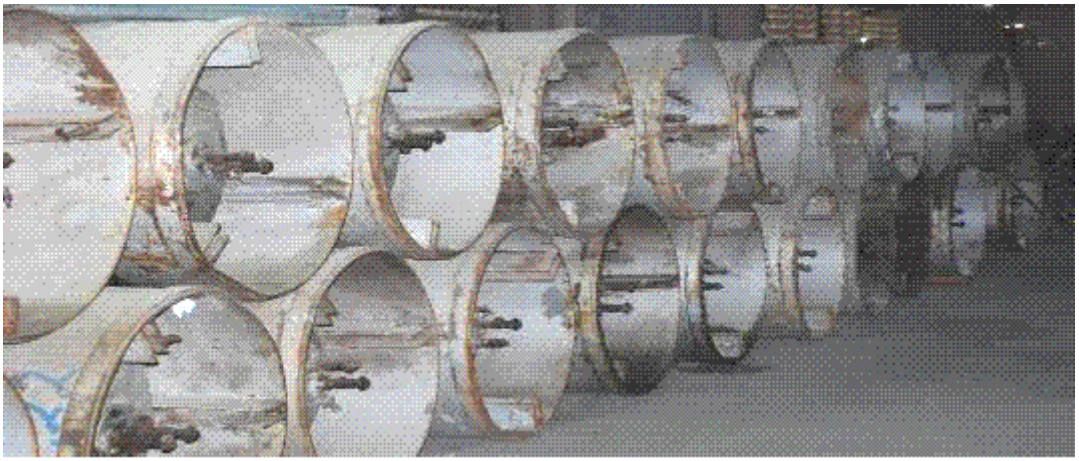

PROCESO DE RECICLAJE DE LOS REFRIGERADORES DOMÉSTICOS
RECOGIDA Y CARGA DEL REFRIGERADOR
TRANSPORTE AL CENTRO DE RECUPERACIÓN DE REFRIGERANTES
DESCARGA, CLASIFICACIÓN Y ALMACENAMIENTO EN EL CENTRO
ALMACEN REFRIGERANTES
ALMACEN CENTRAL DE GASES
TRANSPORTE A LA LINEA RECUPERACIÓN
AREA DE EXTRACCION DE GASES
ALMACENAJE DE REFRIGERADORES INUTILIZADOS
MATERIA PRIMA


Ciudad de La Habana
La Habana
Matanzas
Villa Clara
Sancti Spíritus
Pinar del Río
Camagüey
Las Tunas
Cienfuegos
Isla de la Juventud
Ciego de Avila
Holguín
Granma
Santiago de Cuba
Guantánamo



Se crearon más de 80 centros especializados de Recuperación de Refrigerantes en todo el país donde se han recuperado un total de 133,16 T de SAO, encontrándose almacenadas especializados en almacenes Nacionales, provinciales y de centros) del MINCIN en espera de su destrucción (existe peligro de por el tiempo almacenado se produzcan fugaz a la atmósfera de SAO),



## SAO ALMACENADAS PARA DESTRUIR

| Refrigerantes Almacenados para destrucción. | TOTAL (Kg) |
|---|---|
| R-12 | 48,308.45 |
| R-22 | 84,855.46 |
| **Total** | **133,163.91** |

## AHORROS MÁS IMPORTANTES ALCANZADOS

En un año se logro

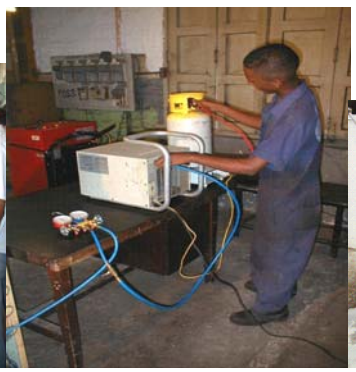
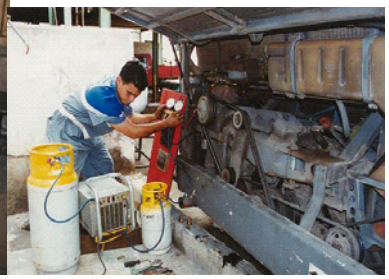
- La Reducción de la demanda máxima en 248,3MW

Equivalente a una inversión de 248 millones de dólares.

- Ahorro de 2 476 GWh en un año equivalente a 705662 toneladas de combustible por la sustitución de refrigeradores,,
- La Sustitución de 270,000 aires acondicionados Ineficientes, altos consumidores de energía se logra un Ahorro de 360 GWh en un año equivalente a 102,572 toneladas de combustible y
- En Total se logra un Ahorro de 2 836 GWh en un año y en 10 años 28,360 GWh
- Equivalente a 808,000 toneladas de combustible en un año, y en 10 años 8,080,000 toneladas de combustible

POR AHORRO DE ENERGÍA ELÉCTRICA Y SAO EN UN AÑO SE DEJARON DE EMITIR UN TOTAL DE 3, 730, 000 TONELADAS DE CO2,
EN 10 AÑOS SE DEJARAN DE EMITIR EN TOTAL 37, 300,000 TONELADAS DE CO2 UNA IMPORTANTE CONTRIBUCIÓN AL CAMBIO CLIMATICO

**Programa de Recuperación y Reciclaje en la refrigeración domestica, móvil, comercial e industrial** en más de 750 talleres en todo el país. Esto permitirá una recuperación de mas 130 T de refrigerante R-12 y R-11 en mas de 5000 equipos estimados que se encuentran en los en uso en estos momentos. Ello esta vinculado a varios proyectos de Recuperación y reciclaje que se llevan a cabo desde 1995 con el PNUD y Canadá.

**Proyecto demostrativo de sustitución de chillers con R-11 CFC en hospitales, centros científicos y culturales**.

El Proyecto incluye la sustitución de mas de 10 Chiller de entre 150 y 250 T de refrigeración que utilizan R-11 por nuevos chillers más eficientes con una disminución de un 30-40% del consumo de energía y con refrigerante que no afectan la capa de Ozono, libre de CFC, que se lleva a cabo con PNUD y Canadá. Posteriormente se prevé la sustitución de unos 32 chillers en otras instituciones y áreas como resultado de la extensión de los resultados del proyecto

Esto prevé recuperar más de 2.5 T de refrigerante R/11 que serán llevadas a destruir en el programa de destrucción.

. **Programa de reconversión de equipos de refrigeración y climatización** comerciales e industriales como parte del Proyecto Plan Nacional de eliminación de CFC en Cuba que se lleva a cabo con el PNUD y CANADA. Incluye la reconversión de mas de 800 equipos de diferentes magnitudes con CFC a refrigerantes alternativos. Esto permitirá recuperar más de 35 Toneladas de R-12 en los equipos reconvertidos que posteriormente serán destruidos.

**2.5 Proyecto de purificación, separación y obtención de hidrocarburos refrigerantes LB-12, 600ª. Y 290ª mediante la instalación de una nueva planta de separación de gas licuado del petróleo y la obtención de gases puros y mezclas refrigerantes con una capacidad de 60 T por año en la refinería Hermanos Gomes de de Santiago de Cuba.**

Con el auspicio de Canadá y Alemania, su principal objetivo es garantizar en el mercado interno un refrigerante de producción nacional con calidad y que no daña la Capa de Ozono, para ser empleado en la refrigeración doméstica y en pequeñas instalaciones de refrigeración comercial sustituyen el uso de los CFC y los HCFC.

Esto tendrá un impacto positivo en el mejoramiento de la eficiencia energética y la disminución de los gases de efecto invernadero.

*Vista de la moderna planta para producir el refrigerante cubano LB 12, ubicada dentro de la refinería de petróleo "Hermanos Díaz" de Santiago de Cuba.*

## 3. CANTIDAD DE SAO QUE SERÁN TRATADAS MEDIANTE EL PROYECTO DEMOSTRATIVO DE DESTRUCCIÓN.

**RESUMEN DE LAS CANTIDADES A DESTRUIR MEDIANTE EL PROGRAMA DE DESTRUCCION**

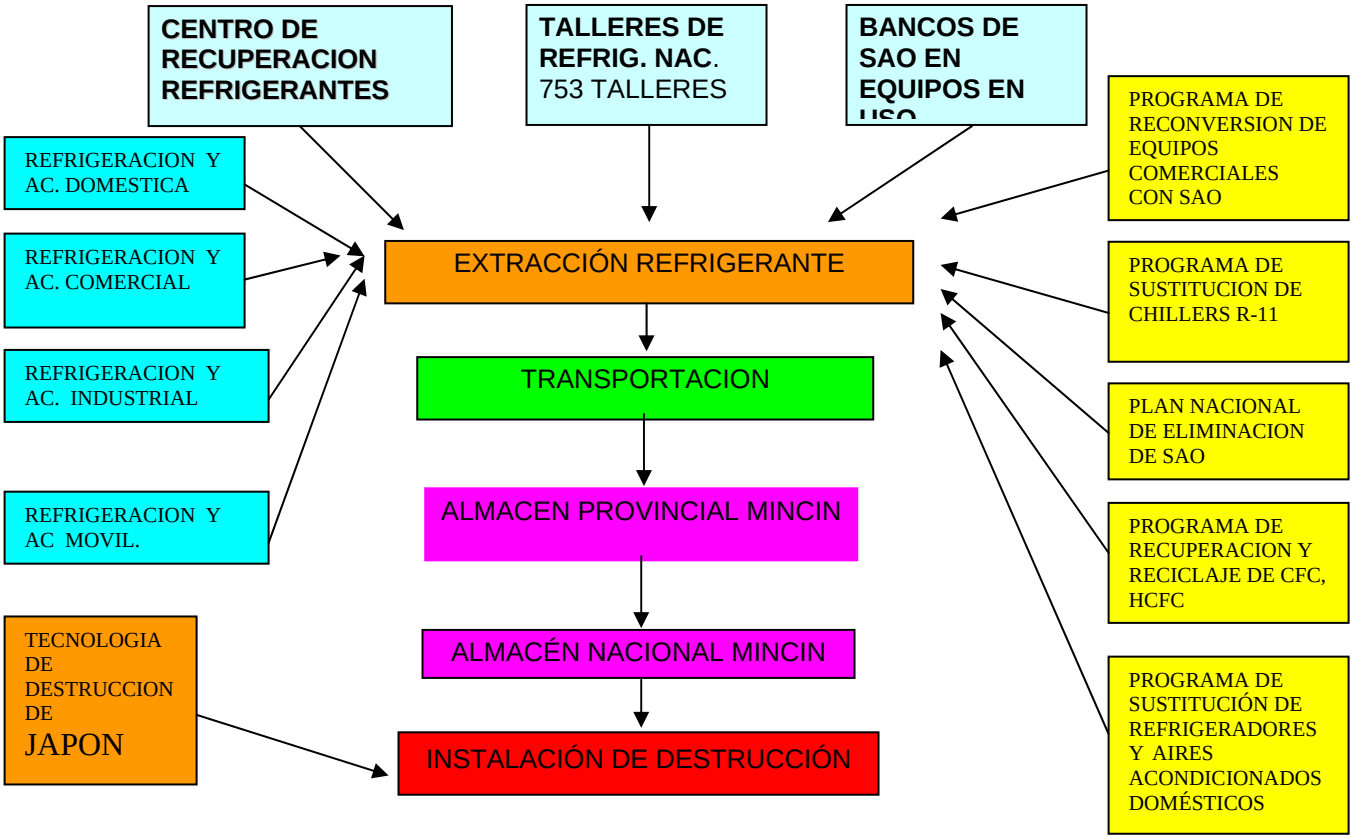
| Descripción | Cantidad (T) | R-12 | R-11 | R-22 |
|---|---|---|---|---|
| Programa de sustitución de refrigeradores y aires acondicionados domésticos ineficientes, altos consumidores de energía y que trabajan con SAO en todo el país | **133,1** | **48,3** | **-** | **84,8** |
| Programa de Recuperación y Reciclaje en la refrigeración domestica, móvil, comercial e industrial en más de 750 talleres en todo el país | **130** | **129** | **1** | **-** |
| Proyecto demostrativo de sustitución de chillers con R-11 CFC en hospitales, centros científicos y culturales. | **2,5** | **-** | **2,5** | **-** |
| Programa de reconversión de equipos de refrigeración y climatización comerciales e industriales como parte del Proyecto Plan Nacional de eliminación de CFC en Cuba. | **35** | **35** | **-** | **-** |
| **Total** | **299,16** | **212,** | **3,5** | **84,8** |

## 4. PROGRAMAS PARA LA DESTRUCCION DE QUIMICOS

En Cuba no existen proyectos y programas para la destrucción de químicos relacionados con otros acuerdos ambientales.

## 5. PROCESO DE RECOLLECCION, RECUPERACION, TRANSPORTACION, ALMACENAMIENTO Y DESTRUCCION

Abarca desde que se le extrae al equipo el refrigerante en el taller, centro de recuperación de refrigerantes o lugar en que se encuentre instalado el equipo, hasta lograr la segura destrucción del refrigerante.




## 7. Tecnologías de destrucción

En colaboración con el gobierno de Japón se realizo una valoración de las alternativas viables para la destrucción de las SAO bajos las condiciones de Cuba. Se realizó una visita a Japón a la División de Medio Ambiente Global del Ministerio de Medio Ambiente y la Oficina de control de CFC Ministerio del Ambiente de Japón, a la fabrica de cemento “Sumimoto Osaka Cement co ltd en Osaka ciudad de

Ako y a la planta de destrucción de desechos del grupo sanyu situada en la ciudad de YOKOHAMA donde pudimos obtener la tecnología y los posibles insumos necesarios.

Se determino que la tecnología mas factible técnico y económicamente viable era la destrucción en Hornos de fabricas de cemento, gracias al gobierno de Japón se puso la tecnología a disposición de Cuba, incluida el listado de materiales a adquirir (suministrador, precios etc.) para crear las condiciones y facilidades en una fabrica de cemento en Cuba. Quedando pendiente a la creación de lineamientos y aprobaciones de proyectos en el FMPM.

Por otra parte se valoraron las fábricas de cemento disponibles en Cuba y se determino la Fábrica de Siguaney en la Provincia de Sancti Spiritus situada en el centro del país como la que más se adecuaba, realizando un estudio preliminar para realizar el proyecto de la instalación y la adecuación de la tecnología dada por Japón

Los hornos cementeros son una excelente opción técnica para eliminar residuos debido a las características especiales que presentan como son:

- **Altas temperaturas.** Se alcanzan temperaturas en la llama de 1800-2000 Cº y de 1400-1500 Cº en el material, garantizando la destrucción de cualquier sustancia orgánica.
- **Altos tiempos de residencia.** Como consecuencia del tamaño del horno y de los caudales de aire operados, los tiempos de residencia de los gases se encuentran en el orden de 6 segundos en el horno propiamente dicho, sin considerar el tiempo de residencia en las torres de intercambio térmico. Esto permite que todas las sustancias orgánicas en fase gaseosa se oxiden completamente.

- **Ambiente altamente alcalino** en el interior del horno de clinker, lo cual garantiza la neutralización de los compuestos ácidos tales como ácido clorhídrico, fluorhídrico y otros como los compuestos de azufre ($SO_2$ y $SO_3$).
- **No se genera ningún residuo**. No se producen escorias ni cenizas. Los metales pesados son incorporados, de forma estable, a la estructura del clinker sin mermar sus propiedades ni su calidad final.

A partir de que las temperaturas en el horno rotatorio de las plantas cementeras alcanza valores superiores a los 1500 ºC y de que el tiempo de permanencia de los gases a esta temperatura excede los 6 segundos, este se comporta como un incinerador ideal para la destrucción de compuestos orgánicos de elevada estabilidad química como los CFC y los HCFC.

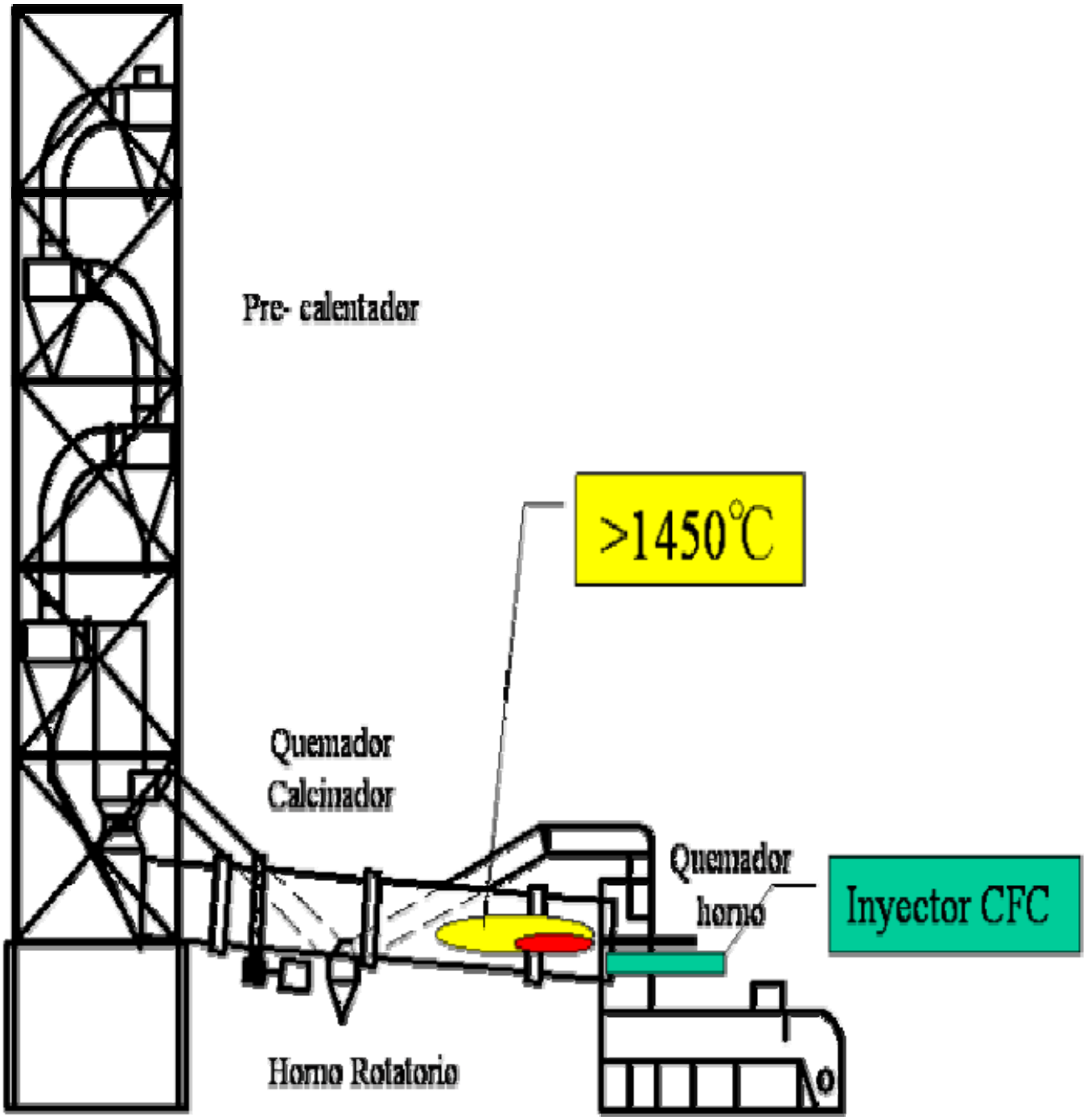
La destrucción de los gases freones en las fábricas de cemento, resuelve uno de los principales problemas que genera la incineración de estas sustancias, la emisión de gases ácidos (HCl y HF), pues estos reaccionan con las sales de calcio presentes en la materia prima, formando $CaCl_2$ y $CaF_2$, los cuales no se emiten con los gases de salida; si no pasan a formar parte del clínker sin afectar las características del mismo.
Por otra parte el cloro contenido en estos gases constituye el principal problema porque puede afectar la calidad del cemento y la operación del horno. Excesos de cloro ($Cl^-$) presente en los gases calientes que circulan, contribuyen a desarrollar ilimitadamente el espesor de la costra interior adherida al material refractario que puede llegar a reducir marcadamente el interior del horno afectando el rendimiento productivo del mismo; este efecto se acentúa en los hornos de proceso seco con precalentador de ciclones, donde la concentración de cloro se enriquece en los ciclones inferiores de 100 a 250 veces con relación a la concentración en el clinker; provocando la formación de minerales de bajo punto de fusión en su combinación con los óxidos de calcio, sílice y azufre, lo que origina incrustaciones y tupiciones que impiden la operación del horno.

Por lo anteriormente dicho es de vital importancia el control de la dosificación de los CFCs que se alimentan al horno.

La dosificación de los gases al horno se realizará en función de la concentración de CFC en el flujo alimentado, de modo que no afecte la operación estable de los hornos y la calidad del clínker.

**Esquemas de las instalaciones de CFCs**

**Destrucción en Horno de Cemento**




## CONCLUSIONES:

1. **En el Fondo Multilateral del Protocolo de Montreal no existen proyectos demostrativos de destrucción de SAO aprobados para la Región de Centro América y el Caribe en países de medio-bajo consumo**, ni para ninguna región insular en el mundo por lo que es un proyecto único.

2. **Cuba dispone de cantidades importante de SAO almacenadas**, más de 133 T de SAO listas para la destrucción inmediata. sin solución en estos momentos y en peligro de escape a la atmósfera por el tiempo almacenadas, lo que constituye una singularidad en el mundo.

3. **Cuba ya no importa CFC** desde el 31 de Diciembre del 2008 y las cantidades almacenadas se incrementan y la necesidad de destrucción se hace imprescindible e inminente darle solución a este grave problema ambiental.

4. **Cuba posee un avanzado Programa de sustitución <u>total</u> de refrigeradores y aires acondicionados domésticos** ineficientes, altos consumidores de energía y que trabajan con SAO en todo el país, destacándose que abarca a toda la población del país y no a una parte del mismo. El Programa se encuentra en una etapa muy avanzada prácticamente en la etapa de finalización no obstante ya mas de 2 millones 600,000 refrigeradores y 276 mil aires acondicionados domésticos, altos consumidores de energía y que utilizan SAO como gas refrigerante se han sustituido

5. **En Cuba no existen proyectos y programas para la destrucción de químicos** relacionados con otros acuerdos ambientales, por lo que esta es la única alternativa viable.

6. **Cuba dispone de una cantidad importante de Programas y proyectos** que le garantizan una continuidad en la disponibilidad de SAO a destruir.

7. **Cuba posee experiencia en la implementación de proyectos de sustitución de refrigeradores AC, recuperación de refrigerantes, instalaciones de recuperación, centros de recuperación**, instalaciones y personal preparado y capacitado listo para iniciar las tareas de recolección y almacenamiento de las SAO a destruir. Lo que constituye un gran adelanto y una singularidad a destacar.

8. **Cuba posee una importante infraestructura y personal capacitado, creados por los proyectos del Fondo Multilateral** del Protocolo de Montreal vinculados al sector de la refrigeración y AC. Así como del gobierno de Cuba en la recuperación de refrigerantes que podrían usarse para el desarrollo del proyecto y acelerar su desarrollo.

9. **Cuba dispone de la tecnología en Hornos de cemento que le fue brindada de forma cooperativa y amable por Japón,** así como los listados de materiales fundamentales que es una base importante para el comienzo de forma inmediata de los trabajos. Lo que constituye un gran adelanto y una singularidad a destacar.

10. **Cuba tiene seleccionada una planta de cemento en SIGUANEY y hecho los estudios iniciales** para comenzar de forma acelerada los trabajos de destrucción de

SAO en esta instalación. Lo que constituye un gran adelanto y una singularidad a destacar.

11. **El gobierno de Cuba posee una fuerte voluntad política y una gran vocación ambiental para impulsar en forma decidida los trabajos de destrucción en forma acelerada** así como asumir la inversión de infraestructura y de personal calificado que se requiera. Ello garantiza la sostenibilidad del proyecto y la garantía de su acelerado desarrollo.

12. **Cuba posee un grado elevado de avance de las actividades a realizar que constituyen una gran fortaleza** y lo ponen en posición única en estos momentos en el mundo y la región.

13. **Todo ello permite reproducir las experiencias con gran rapidez tanto en la región así como en los países insulares de cualquier otra región** Lo que constituye un gran adelanto y una singularidad a destacar

# Annex 2(cont). Justification for PRP Requests for Pilot Projects on ODS Disposal/Destruction

## INDIA

### PROJECT CONCEPT

| | | | |
|---|---|---|---|
| **COUNTRY:** | INDIA | **IMPLEMENTING AGENCY:** | UNDP |
| **PROJECT TITLE:** | Preparation of a demonstration project for disposal of CTC and other ODS in accordance with MOP Decision XX/7 and ExCom Decision 58/19 | | |
| **PROJECT IN CURRENT BUSINESS PLAN:** | Yes | | |
| **SECTOR:** | ODS Destruction (DES) | | |
| **SUB-SECTOR:** | N/A | | |
| **ODS USE IN SECTOR:** | N/A | | |
| **PROJECT IMPACT:** | Up to 1,500 ODP tonnes/year (CTC) and up to 100 ODP tonnes (other ODS)*<br>*Preliminary estimates. More accurate estimates would be available in the actual project proposal. | | |
| **PROJECT DURATION:** | 12 months | | |
| **PROJECT COST:** | US$ 80,000 | | |
| **REQUESTED GRANT:** | US$ **80,000** | | |
| **AGENCY SUPPORT COSTS:** | US$ 6,000 | | |
| **TOTAL COST TO MULTILATERAL FUND:** | **US$ 86,000** | | |
| **PROJECT MONITORING MILESTONES:** | Included | | |
| **NATIONAL COORDINATING BODY:** | Ozone Cell, Ministry of Environment and Forests | | |

**PROJECT SUMMARY**

This project will establish facilities for disposal of a variety of ODS in India, using innovative organizational, operational and financial mechanisms, that would ensure sustainability.

India has a robust chloromethane production, of which CTC is a significant co-product. Due to the imminent phase-out of CTC in the consumption sector, and based on industry forecasts of feedstock uses of CTC in the foreseeable future, there is a high likelihood of excess co-production of CTC. Since CTC is a potent ozone depleting substance as well as a greenhouse gas, it is essential to institute facilities and mechanisms to closely monitor CTC co-production and to ensure that unwanted CTC does not enter the consumption market. Preliminary estimates of future CTC co-production and its possible uses, indicate that there is likely to be excess availability of CTCs in the medium-term and it is therefore critical that sustainable destruction facilities are available with appropriate management mechanisms, to address undesirable emissions.

India is also a large producer of ODS-based appliances and equipment. There is a large existing population of CFC-based appliances, such as household refrigerators, freezers as well as commercial and industrial refrigeration equipment containing CFCs. Estimates of the total size of these banks in India are available from many sources and generally range widely from 5,000 to 50,000 metric tonnes, however this needs to be established. It is expected that during the medium to long term, a significant proportion of the population of CFC-based appliances and equipment would need to be replaced due to various reasons such as end of useful life, energy efficiency considerations, consumer preferences, business reorganization, etc., potentially making large quantities of CFCs available for disposal, along with the consequent challenges to minimize emission risks.

The proposed pilot project for ODS disposal in India would:

a) Establish estimated quantities of unwanted CTC and establish sizes of accessible CFC banks
b) Demonstrate disposal technology and its synergies with environmental objectives across conventions, as well as multi-source financial mechanisms
c) Propose policy and regulatory interventions which would support successful scaling up
d) Identify and assess risks associated with the above interventions and propose mechanisms to manage these risks
e) Assess and document the comprehensive environmental impact of the above interventions.

**INDIA- PROJECT PROPOSAL**

This document presents the project concept relating to a ODS disposal pilot project in India. The proposed project is expected to handle multiple ODSs, namely, CFCs, CTC and HCFCs. The model for operations would involve a combination of cost compensation and profit-sharing mechanisms with relevant stakeholders. ***This proposed project is not expected to address Halon banks.***

## Background

1. India was one of the largest ODS producing and consuming countries in the last decade. By 1 January 2010, the country is expected to phase out all CFC consumption except CFC use in MDI applications, halons and CTC. Of these uses, CFCs used in refrigeration applications have been largely replaced with HFCs and this has resulted in an increase in HFC consumption over the last 8 to 10 years It must also be noted that small quantities of HFCs are also used in foam applications as replacement to CFC-11.

2. HCFC consumption is primarily in RAC applications and foam applications. There has been a significant growth in both these applications due to general economic growth due to the expansion of the middle class over the last decade.

3. Keeping in mind decision 58/19, the following ODSs/applications given below are proposed to be addressed through this project.

| **Substance** | **Applications** |
|---|---|
| CFC-11 | Foam products, RAC appliances in chillers |
| CFC-12 | Foam products, RAC appliances in chillers |
| CTC | Excess CTC |
| HCFC-22 | RAC appliances (in future) |
| HCFC-141b | Foam appliances |

4. The following sections provide a summary of estimated banks/sources of ODS in each of these applications along with method of collection of ODSs in different applications.

## CFC Banks including CFC-11 and CFC-12

5. As indicated in the table above, CFC banks are primarily expected in RAC and foam applications. Based on estimated population of CFCs using RAC applications as per National CFC Consumption Strategy adjusted for (a) use of HCs and HCFCs in foam applications and (b) drop-ins used in refrigeration applications, the banks of CFCs in refrigeration and foam applications is about **10,800 MT.**[3]
   Of the above, about **7,800 MT** is estimated to be available in domestic refrigerators (**7,100 MT**) and MACs (**700 MT**).

[3] These are estimates based on secondary data available from National CTC Phase-out Project and would be updated during the actual ODS destruction project preparation activities.

These banks can be accessed through various consumer driven programs in close cooperation with industry and equipment service agencies. Buy-back schemes in refrigeration equipment for conversion of old equipment to new equipment with clearly defined parameters relating to age, equipment condition etc. can help in consolidating collection of CFCs from this equipment. Service agencies can play an important role in collecting CFCs from MAC and this can be promoted through automobile manufacturing enterprises through appropriate collaborations.

**CTC for destruction**

6. India is one of the producers of carbon tetrachloride (CTC). Currently, in India, there are four manufacturers of CTC as given in the table below.

| Name of the manufacturer | Location | Chloromethane Manufacturing capacity in tons per annum* | CTC production levels (% of manufacturing capacity) | |
|---|---|---|---|---|
| | | | Maximum | Minimum |
| Chemplast Sanmar Limited | Southern India | 35,500 | 23 | 15 |
| Gujarat Alkalies & Chemicals Limited | Western India | 25,200 | 28 | 25 |
| SRF Limited | Northern India | 30,000 | 57 | 15 |
| Gujarat Fluorochemicals Limited | Western India | NA | NA | 5 |

** Chloromethane manufacturing capacity. The CTC co-production is a variable percentage of this, broadly within the ranges mentioned in the last two columns.*

This translates to about 18,000 tons of CTC production at minimum capacity. Companies are undertaking steps to minimize CTC production through redesign of plant operations parameters, identifying products where CTC can be used as a chlorinating agent feedstock, etc.

***Chloromethane plants produce Chloroform, Methylene Chloride and CTC as co-products. Demand of Methylene chloride is in solvents and process agent applications and this is on the rise. India is import-dependent on Methylene Chloride. Chloroform is used in manufacturing HCFCs and PTFE. While demand for chloroform is expected to fall on account of accelerated phase-out of HCFCs under Montreal Protocol, industry sources believe increase in chloroform demand for PTFE would compensate for the shortfall. Thus, demand for chloroform is expected to increase.***

7. Of the listed Chloromethane producers, only CSL and GFL have destruction facilities. While CSL uses the facility for destruction of its Vinyl Chloride Monomer (VCM) plant operating at around 100 Tons per annum, GFL's CTC destruction facility is aimed at destroying minimum quantities of CTC produced in their facility (estimated minimum CTC generation capacity is about 1,500 - 2,000 metric tonnes per annum).

8. CTC is a controlled substance under Montreal Protocol with the following phase-out schedule.

- Consumption (Baseline level – average annual consumption of 1998-2000)

- 85% reduction compared to baseline levels of CTC consumption by 1 January 2005;
- 100% reduction compared to baseline levels of CTC consumption by 1 January 2010;

- Production (Baseline level – average annual production of 1998-2000)
  - 85% reduction compared to baseline levels of CTC production by 1 January 2005;
  - 100% reduction compared to baseline levels of CTC production by 1 January 2010.

While non-feedstock applications of CTC are subject to this control schedule, quantities used for feedstock applications are not subject to this control schedule.

9. As per National CTC phase-out plan of India approved in the 45th Meeting of the Executive Committee, the following is the phase-out schedule of CTC.

| Particulars in ODP tons | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| CTC production control limits | 1726 | 1147 | 706 | 268 | 48 |
| CTC consumption control limits | 1726 | 1147 | 706 | 268 | 48 |

*Source: National CTC phase-out plan approved in the 45th Meeting of the Executive Committee.*

CTC phase-out activities in India for non-feedstock applications are almost complete and by 01 January 2010, India is likely to phase-out all its domestic CTC consumption for non-feedstock applications. This has been achieved through a combination of projects whereby companies have eliminated their dependence on CTC in solvent and process agent applications as well as stringent national regulations for controlling and monitoring CTC.

10. CTC use in feedstock applications in India was primarily in CFC manufacturing and CFC use in DV Acid Chloride Manufacturing.

**CTC used in CFC production:** Over the last 9 years, CFC production decreased from about 22,000 MT to nil after 1 August 2008. This resulted in decrease in CTC demand for CFC use of about 28,600 MT. Since CFC manufacturers were importing CTC and procuring CTC from domestic market for these uses, this decrease in demand reduced CTC import demand for CFC manufacturing and CTC domestic manufacturing demand for CFC manufacturing. The latter required product mix optimisation at CTC production facilities to ensure no excess CTC for sale in the market particularly after CY 2005 and this also resulted in changes in the manufacturing plans for co-products produced in a chloromethane facility namely methylene chloride and chloroform.

**CTC used in DVAC production:** Currently, CTC is used in manufacturing DV Acid Chloride manufacturing operations and this feedstock demand is about 15,400 MT in the year 2008 as shown below.

| **Particulars in MT** | **2007** | **2008** |
|---|---|---|
| CTC use in DVAC production | 13,848 | 15,411 |

***Source: Estimates based on CTC reports. Future projections at an assumed 10% growth rate.***

Production growth in DVAC industry is subject to demand of products (namely synthetic pyrethroids) which use DVAC as active ingredient. Synthetic Pyrethroids are used in applications for controlling pests and insects.

Research studies undertaken in the past have indicated that these substances pose health hazards to the users on account of their toxic nature and in the long run may be eliminated from use. This poses a risk to CTC manufacturing industry which would be saddled with excess CTC available over feedstock demand post 2010.

In addition to this, CTC used for manufacturing synthetic pyrethroids can be procured locally and from international markets. Higher procurement from latter would result excess stocks of locally manufactured CTC in the domestic market. This is a function of availability of CTC as well as price of CTC manufactured in domestic market compared to import factory-gate price. In the past, it has been seen that favorable international prices have attracted DV Acid manufacturers to importing CTC rather than procuring from domestic market.

MLFS evaluation report (doc no. 51/12) has requested Executive Committee to consider *"… Recommending to CTC producers in India to use a precautionary approach to CTC management by installing destruction facilities, if not yet available, in case the feedstock outlets – essentially for DVAC – should not grow as expected or would be squeezed by increasing CTC imports"*. Based on this, the Executive Committee as per decision 51/11 para (f) has recommended to *recommend to CTC producers in India that they use a precautionary approach to CTC management by installing destruction facilities, if not yet available, in case the feedstock outlets, essentially for DV acid chloride, should not grow as expected or would be squeezed by increasing CTC imports.*

It must also be recognized that DVAC industry need not use CTC as a raw material for manufacturing. DV ester is also used as a raw material for manufacturing DVAC – particularly manufacturing using this process is undertaken by companies in China. Use of the substitutes to CTC in DVAC manufacturing process can also result in excess CTC.

11. CTC destruction facilities are not currently mandatory in India. It must, however, be noted that the chloromethane manufacturing facility of GFL had a destruction facility in-built into the manufacturing process. This was required for GFL as a safeguard for avoiding any excess CTC production which cannot be sold in the market for feedstock applications. While the CTC destruction capacity of GFL is not published, it is estimated to be about 1,500 - 2000 MT per annum.

It must also be noted here that high-boiler chemicals are produced in chloromethane plants in small quantities (i.e., of the order of about 100 – 150 tons per annum per manufacturing plants). These chemicals have certain proportion of CTC which is very difficult extract in the manufacturing plant. These chemicals are sold in the open market as "solvent chemicals" or sent for destruction.

12. From the above, the following factors pose risks affecting sustainability of CTC demand from domestic manufacturers for feedstock applications and consequent compliance challenges:

- ❖ Sudden decrease in DVAC products on account of substitute input chemicals for manufacturing DVAC (e.g., DV ester) and non-chemical pest control products (which would, in turn, reduce the demand of pesticides manufactured using DVAC) in the different markets.

- ❖ Import of CTC which could cater to domestic manufacturing of DV Acid Chloride driven by favorable import cost economics.

- ❖ Chloromethane plant optimization needs for production of methylene chloride and chloroform which results in consequential CTC production. As explained in earlier, growth in demand for the above two products is expected to result in growth in CTC production. This would also be a factor that would contribute to oversupply of CTC.

13. The following table gives an overview of how the CTC excess supply situation in India would appear under different scenarios.

| Scenario | CTC demand in DV Acid Chloride manufacturing falls | Increase in CTC imports to substitute local CTC manufacturing |
|---|---|---|
| **What if** | Demand decreases to 60% of 2008 levels. | Demand from domestic CTC manufacturers decreases by say about 8000 MT.@ |
| **CTC minimum capacity** | 12,000 MT | 12,000 MT |
| **Demand of CTC for DVAC manufacturing** | Approx 15,000 MT | Approx 15,000 MT |
| **Excess CTC at minimum economic capacity** | 3,000 MT per annum | 5,000 MT per annum |
| **Known destruction capacity*** | 1,500 MT per annum | 1,500 MT per annum |
| **Excess CTC that needs to be destroyed** | 1,500 MT per annum | 3,500 MT per annum |

* *This needs to be confirmed / verified as the actual capacity is not known.*
*@ Imports of CTC in the past have been of the order of about 15,000 MT. This is purely driven by market factors such as price of CTC in international markets, availability of CTC, duty exemption on CTC which is imported for producing products which are exported and collaboration among different users to import in bulk. It must be noted that this CTC includes both DVAC as well as CFC producers.*

The quantities of CTC that would flow into the destruction facility are also dependent on the trend in fall in CTC demand over the years. Also it must be noted that a combination of the factors highlighted above can also affect overall CTC demand.

14. It must be noted here that Decision XVIII/17 indicates that CTC produced in a particular year for use in a future year as a feedstock chemical needs to be reported to the implementation committee. Under the current Montreal Protocol conditions, this excess quantity in one year can result in non-compliance of the producing country in that year. This decision is subject to review in the 21st MOP.

15. In light of these challenges, it becomes imperative that CTC destruction capacities are established to avoid risks of market demand decreases and consequent oversupply of CTC. Further, given the uncertainty in such a situation, it may be prudent to examine a multi-chemical ODS destruction facility which would also address CTC destruction.

Since CTC is manufactured by four established manufacturers as mentioned above, the collection process for destruction is expected to be cost-effective. Except for defining processes for CTC material movement and monitoring for destruction, additional interventions are not envisaged.

**HCFCs for destruction (future)**

16. The estimated quantity of HCFC-22 in banks, as of 31 December 2009, is about **40,000 + MT**. This includes banks of HCFCs in air-conditioning equipment and water coolers (which have started using HCFCs in the recent past). This bank is expected to grow

17. Estimated quantities of HCFC-141b in foam are also high. Of the banks in foam, rigid foam in applications in refrigeration and air-conditioning applications is estimated at **10,000-11,000 MT** as of 31 December 2009**.** This quantity of foam products is widely distributed and in use in different parts of the country. Over the last 8-10 years, a large number of companies have switched over in foam applications from CFC-11 to HCFC-141b in other rigid foam and integral skin applications. These are estimated to constitute **11,700 MT** and **1,300 MT** of foams, respectively by 31 December 2009.

These banks can be accessed through various consumer driven programs in close cooperation with industry and equipment service agencies. In case of air-conditioning equipment, (a) buy-back schemes, (b) programs focusing on large institutional uses (e.g., Military, Railways, Container Corporation which handles container movements in railways and exports, National Dairy Development Board etc.), (c) recovered unusable gas from service agencies, (d) linked replacement programs for industrial air-conditioning equipment, chillers using HCFCs etc. could be adopted for supply of destroyable HCFC-22. In case of HCFC-141b, the collection process is more complex as the users are widely distributed. As mentioned earlier in the document, the proposed project would target at destruction of HCFC-141b in rigid foam in RAC applications and other foam applications.

**Others**

18. It must also be noted that ODS destruction needs to be made sustainable through carbon financing and other mechanisms. The following table summarises the GWP of ODSs that are under consideration in the current project.

| **ODSs** | **GWP** | **ODSs** | **GWP** |
|---|---|---|---|
| CFC-11 | 4,700 | CTC | 1,400 |
| CFC-12 | 10,800 | HCFC-22 | 1,700 |
| | | HCFC-141b | 713 |

While CCX-based carbon finance can be accessed for CFCs and CTC (which have final phaseout date of 31 December 2009), such mechanisms are not available for HCFCs. In case of HFCs, CDM mechanism can be used for carbon financing under suitable methodologies for the same. It must be noted for access of each of these mechanisms, suitable methodologies may need to be defined and applied to the projects under consideration.

19. HFCs are used in Indian market mainly in refrigeration and air-conditioning and foam applications. However, the quantities of HFCs need to be ascertained in detail and hence, is not included in the present analysis. HFCs are estimated to be used in domestic market in refrigeration appliances, MAC appliances and certain foam appliances.

## Objective

To develop and implement ODS destruction facility (ies) at suitable locations in India in a sustainable manner to help avoid emissions of ODSs and HFCs.

## Approach

The following approach is proposed to be adopted to undertake this assessment. This defines the approach for undertaking this assessment and does not cover implementation costs which would be undertaken in the next stage.

- Carry out an analysis of potential banks of CFCs, HCFCs and HFCs ("identified chlorofluorochemicals") in the market. This analysis would be done based on expert inputs, already available data for assessing these banks with Ozone Cell and contacts with limited industry experts and technical experts.

- Carryout an analysis of CTC use in DVAC in the future with inputs from industry players and international experts.

- Based on the size of banks available, define quantities of the identified substances that are likely to be accessed for disposal after accounting for potential reuse by substance (e.g., CFC-11, CFC-12 etc.)

- Define process for collection and consolidation of the substances through both centralized and decentralized mechanisms along with players involved (including industry through buy-back schemes) and associated costs. Given the size of the country, it is envisaged that for the identified chlorofluorochemicals would be collected from different end-use applications at different locations in the country. In case of CTC, the supply would flow from the 4 CTC manufacturers.

- Define technical parameters for ODS destruction facility – it is envisaged that this would be a multi-product destruction facility. Since this facility is expected to operate through funding from carbon finance facility, the technical standards of operations is to be defined to conform to CDM, CCX or other VCM market standards.

- Develop a business model addressing:

**Investment costs components**

- ❖ Levels of funds required for the facility – at centralized level and decentralized levels (if found necessary)
- ❖ Funds flow from different sources – MLF, other donor funding, local enterprises
- ❖ Categories of instruments – grant funds, equity and debt funds
- ❖ Structure of these funds and their linkages to specific operational performance parameter for destruction facility

**Operating costs and returns**

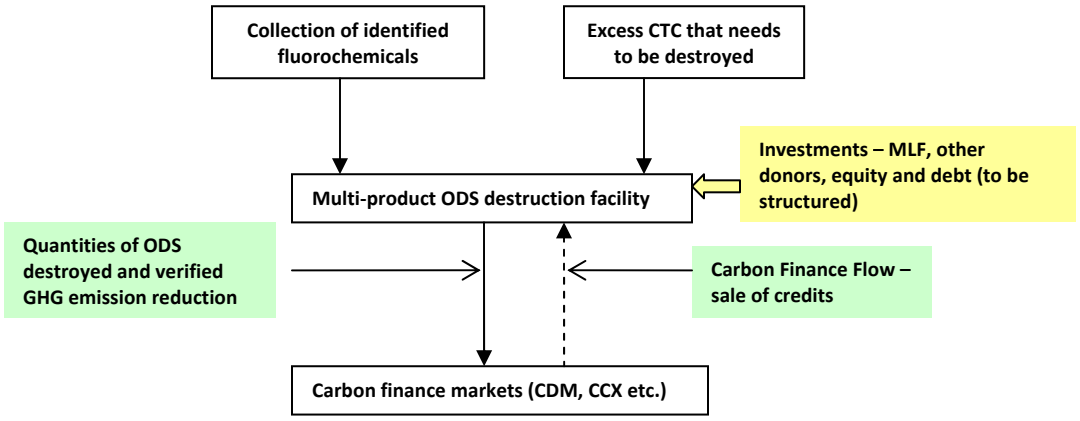
- ❖ Expected returns to ODS destruction facility – voluntary carbon funds and CDM revenues (as found feasible)
- ❖ Assess operating costs of ODS destruction facility
- ❖ Structuring investments to optimize tax impacts
- ❖ Mechanisms of sharing profits among different stakeholders

It is envisaged the operational effectiveness and viability of the business model would be driven by multiple fluorochemicals flow into the facility as well as returns from carbon finance markets. Therefore, the project would focus on structuring a viable proposition to ensure access to (a) all identified fluorochemicals and CTC and (b) carbon finance.

- Agree with national stakeholders including Ozone Cell, other regulatory institutions that may be identified during the course of the study and industry players on the project document and its operational parameters.

Exhibit below provides an overview (illustrative) of how this facility could operate in terms of investments and operations. Details of operational modalities and implementation modalities would be developed at the next stage of this project.

**Exhibit – Indicative Structure for Operating this facility**




Depending upon return levels for the facility, suitable instruments to "risk-proof" operation costs, return sharing with project participants would be defined. Further, this facility can also be operated for ODS destruction from other countries in the region if necessary.

**Benefits**

- ✓ Avoiding ODS emissions from accessible banks in India and (if found feasible) from countries in the region.
- ✓ Helping India avoid risks of non-compliance due to excess CTC supply in the domestic market.
- ✓ Development of a model which can be replicated both within the country and outside the country on ODS destruction.

- ✓ Development of infrastructure for access to ODS banks and banks of high-GHG HFC banks. This infrastructure would help in addressing HCFC banks at a future date.

- ✓ Demonstration of effective sustainable operationalizing of ODS banks in conformance with other chemical conventions namely Basel, Stockholm and Rotterdam Convention.

**UNDP Response to comments from MLF Secretariat**

.India: Project *preparation* of ODS Destruction Pilot

12. In reviewing this submission, the Secretariat notes that there is another request for project preparation for an ODS disposal project for India (and Bangladesh) submitted by UNEP for unwanted ODS in ship breaking yards. Has any discussion taken place between UNEP and UNDP to ensure that there is no overlap in the activities proposed?

*UNDP and UNEP have discussed and exchanged notes on the respective proposals. These two proposals would in fact be complementary. As advised by UNEP, their proposed interventions will be cover capacity-building and policy/regulatory support for safe disposal of ODS. UNDP's proposal covers the demonstration of the destruction facility structured within a replicable and sustainable management and financing model. There are existing quantities of ODS already collected and stored at the ship-breaking yards (estimated at about 20 metric tonnes currently in India). Since ship-breaking is a significant business in India, in fact the continuing availability of already collected ODS would contribute to the sustainability of the proposed facility.*

13. The Secretariat has the following observations and comments on the submitted proposal:

a. It is understood that on priority, this project would like to look at destruction of excess co-production of CTCs. The Secretariat is concerned that this may not necessarily be something that falls within the guidelines for pilot ODS projects and would like UNDP to reconsider what exactly will be done under the project. In addition, you may wish to also look at the assistance that India has already received for the complete phase out of CTC and determine whether this may be considered double counting.

*UNDP's proposal is well aligned to the requirements specified in MOP Decision XX/7. Specifically, the proposal (a) addresses excess stocks of CTC which would be potentially emitted, (b) conceives of an innovative models which would include public-private partnerships and co-financing through appropriate carbon markets (c) would facilitate replication of not only the technology but also of the model (d) will result in a facility for destruction a variety of ozone depleting and global warming chemicals, ensuring the sustainability of the model and the related investments. Based on this UNDP believes that the proposal is consistent with ExCom Decision 58/19 (particularly para a) iv) a i to vi). The proposal goes beyond just destroying collected quantities of ODS, but has an important demonstration value, as well as significant environmental benefits, both for ozone layer protection and global warming.*

*India has received assistance for phase-out of CTC production and consumption for non-feedstock applications. For feedstock applications, due to market and technology trends, the*

*demand for CTC is projected to reduce and result in excess CTC. It is critical that this excess CTC would need to be safely disposed otherwise it may enter the consumption market and present consequent emission and non-compliance risks. Thus, it is clear that there is no double-counting involved.*

b. We also noted that while the there is an estimate of the possible volume of the excess CTC for the production of chloromethane, decision 58/19 is very clear that there should be an existing amount of ODS that are really identified as waste ODS and need to be phased out.

*The project provides details of estimated stocks of ODSs in banks and expected excess quantities of CTC. These are ODSs which have no use or "waste ODS" and need to be destroyed / disposed without being emitted.*

*Please note that CTC is co-produced in Choromethane production continually and is therefore easily accessible without complex programmes for collection. It is also conveniently measurable. Thus, for practical purposes the CTC quantity mentioned is already available during a given span of time, as long as Chloromethane production continues. It is important that the destruction facility is sustainable. It will not be economically viable for only one-time destruction of a fixed amount of collected ODS. Such sustainability is ensured only when the supply of unwanted ODS is assured on a continuing basis with minimal risks and uncertainties. Further, if such a facility is designed to be versatile for destruction of a range of ODS and other chemicals, this will add to its viability and sustainability.*

*In this proposal, the banks of CFCs referred, will only add to the sustainability of the facility. The facility will be viable with CTC alone.*

c. In looking at the objectives of the pilot project, it is clear that this preparation will still include estimating the quantities of unwanted CTC and other ODS banks. We believe that the intention of the pilot project is for a country to implement a project that could actually destroy a specific amount of ODS already identified for destruction, with the added benefit of understanding the operation of a technology that will allow the eventual continuous destruction of unwanted ODS that are stored in banks, in future.

*As mentioned in the proposal and in the earlier paragraph, the quantities of CTC are already identified. With the understanding that this proposal is a request for preparation funding, the actual proposal will indeed provide more accurate information on the quantities. In this regard the information provided in the proposal is consistent with the requirements of ExCom Decision 58/19 (particularly para a) iv) a i to vi) and UNDP believes that the pilot project once prepared, will fulfill the intention behind such pilot projects.*

*As per the audit report of CTC producers and feedstock users under the National CTC phase-out plan in India, the quantities of CTC stocks available with the CTC producers and feedstock users aggregate to 1,116 MT and 3,600 MT, respectively. A stock increase has been reported in the year 2008 (i.e., between 1 Jan 2008 to 31 Dec 2008) by about 1170 MT. The quantity allowed for consumption in CY 2009 in India is only around 44 MT. Hence, the stocks of CTC with dealers/distributors in the consumption market are negligible.*
*We would also like to draw your attention to ExCom Decision 58/35 (d), where the risks posed by excess stocks of CTC meant for feedstock use have been acknowledged.*

d. The Secretariat also noted that the proposal mentions that two of the four CTC manufacturers in the country already have destruction facilities, with that of GFL specifically being used to destroy CTC. If the destruction technology is already known and available in the country, you may wish to review your proposal in this light to see how this existing technology can be used for other ODS and design your pilot project around aspects for which this existing facility/technology can play a larger role.

*The only CTC destruction technology implemented in India which is currently operational is in Chemplast Sanmar Limited (CSL). This facility is of a very small capacity and is integrated into the Vinyl Chloride Monomer (VCM) manufacturing process of CSL. The CTC destruction facility at GFL is not yet operationalized and its capacity is not verified. Furthermore, these facilities are integral to the existing manufacturing process and are not designed for handling multiple ODS and other fluorinated chemicals. We will of course endeavor to examine existing destruction capacities to the extent relevant to the project objective and model.*

e. Can you also please describe to us whether there is an existing approach for systematically collecting old equipment and taking out the waste ODS in the country, and what is the progress of this? Would there be any information about a specific amount of already collected waste ODS that may be disposed of in this pilot project?

*Currently, there are some pilot schemes for appliance replacements, initiated by private-sector players. Indeed one important result of the present proposal would be to make such schemes more viable and comprehensive; otherwise the waste collected from such appliance replacement programmes will present environmental and occupational risks. UNDP will seek to carefully develop partnerships with such initiatives to enhance the sustainability of programmes on both sides.*

f. If the pilot project is for the development of a business model for ODS destruction, then this should be the focus of the submission. It would be interesting to understand how this business model (as shown in the schematic provided in the submission) will work, and how each box will be funded. The Secretariat would like to understand where MF funding will be in this proposed structure.

*The proposal indeed aims to develop a project, which will address precisely these issues. As earlier clarified and as mentioned in the proposal, the business model is critical and so is its replicability.*

*At present, the following funding options/possibilities are being considered. These will be further developed, refined and clarified in the actual project proposal:*

- *Destruction facility: Funded with support from MLF, equity investment by private enterprises and debt funds. It is projected that returns on these investments would accrue partially from carbon credits from destruction.*

- *Collection costs: Expected to be borne by the host entity, which at present is conceived as a special purpose vehicle (SPV). This would be further articulated in the actual project proposal. As per decision 58/19, this cost would not be funded by MLF.*

- *Transport, regulatory compliance and monitoring: These costs would be funded partly through MLF and partly through co-financing. The financial structure of the facility will be defined in more clarity in actual project proposal, after consultations with partners and stakeholders.*

*Financing from the carbon markets, both voluntary and compliance, will be estimated based on the mix of chemicals that will be processed for destruction and this exercise will be an important element of the actual project proposal.*

*Ensuring long-term sustainability and replicability would be critical considerations in designing the business model and the actual project proposal.*

14. While we acknowledge that one of the objectives why this project is being submitted is to look at setting up a facility that could eventually be done with little assistance from the Multilateral Fund in its operation, this current project preparation submission does not seem to have the information required by decision 58/19. It is therefore our view that we cannot recommend this to the Executive Committee unless some other justification and information can be provided to support this as soon as possible, which is clearly in line with decision 58/19(iv)a.

*We trust that the proposal as well as additional clarifications provided in the preceding responses meet the requirements of the ExCom Decision 58/19 (particularly para a) iv) a i to vi). UNDP believes that this proposal brings important value to addressing the issue of ODS disposal and will result in an innovative project, which will provide a replicable and sustainable model for addressing unwanted ODS.*

# Annex 3. Request for additional preparatory funding for the Philippines ( Letter from the Government attached)

## PROJECT CONCEPT

| | |
|---|---|
| **COUNTRY:** | PHILIPPINES **IMPLEMENTING AGENCY:** UNDP |
| **PROJECT TITLE:** | Preparation of investment and associated activities in the Refrigeration and Air Conditioning Sectors (except residential air conditioning) |
| **PROJECT IN CURRENT BUSINESS PLAN:** | No |
| **SECTOR(S):** | Refrigeration |
| **SUB-SECTOR(S):** | All (except residential air conditioning) |
| **ODS USE IN SECTOR:** | 3,200 metric tonnes (2008)* |
| **PROJECT IMPACT:** | To be established* |
| | * More accurate estimates would be available in the actual project proposal |
| **PROJECT DURATION:** | 12 months |
| **PROJECT COST:** | US$ 65,000 |
| **REQUESTED GRANT:** | US$ **65,000** |
| **AGENCY SUPPORT COSTS:** | US$ 4,875 |
| **TOTAL COST TO MULTILATERAL FUND:** | **US$ 69,875** |
| **PROJECT MONITORING MILESTONES:** | Included |
| **NATIONAL COORDINATING BODY:** | Philippines Ozone Desk, Environment Management Bureau, Department of Environment and Natural Resources |

## PROJECT SUMMARY

| | |
|---|---|
| **Objective:** | Preparation of individual projects and/or sub-sector/sector phase-out plan(s) in the Refrigeration Sector (excluding the residential air conditioning sector) in Philippines, for compliance with the 2013/2015 control targets |
| **Sector Background:** | The Refrigeration Sector in Philippines (including servicing) consumed about 3,200 metric tonnes of HCFCs in 2008. The survey of this sector is to be ongoing as part of the activities under the overarching HPMP, very little information is currently available on sub-sector-wise consumption patterns. Based on the Article-7F and CP Progress data reporting, HCFC-22 is the predominant substance used with small quantities of HCFC-123 used mainly in servicing of chillers. There is manufacturing activity in the sector that covers domestic and commercial refrigeration and air conditioning equipment, mostly for domestic consumption. Preliminary estimates indicate about 500-600 metric tonnes of HCFC consumed in manufacturing activities. |
| **Funding request:** | The present funding request for US$ 65,000 would cover the cost of national and international technical experts, project personnel, and technical workshops for targeted technology information dissemination to support development of proposals for investment and associated activities for individual projects and/or sub-sector/sector phase-out plans, consistent with policy directions from Philippines. |
| **Impact:** | The key output of this request would be the development and submission of individual projects and/or sub-sector/sector phase-out plans to facilitate HCFC reductions for compliance with the 2013/2015 control targets. |

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**Guidance in the Preparation of Sector Investment Proposals for HCFC Phaseout Management in the Philippines**

Further to the communication of the Undersecretary Atty. Mary Ann Lucille L. Sering, National Coordinator, Phase out of Ozone Depleting Substances, Department of Environment and Natural Resources (DENR) to the Multilateral Fund Secretariat, the following agencies are requested to include in their business plans for submission to the 59th Meeting of the Executive Committee of the Montreal Protocol appropriation for investment plan preparation for the following sectors:

| Sector | Implementing Agency | Indicative Amount for proposal preparation |
|---|---|---|
| Foam | United Nations Industrial and Development Organization (UNIDO) | US $ 70,000.00 |
| Refrigeration | United Nations Development Programme (UNDP) | US $ 65,000.00 |
| Total Amount | | US $ 135,000.00 |

Fund summary:

| Total amount that the can be availed of (180 ODP tones consumption for 2007) | Amount to be requested by UNIDO and UNDP | Balance |
|---|---|---|
| US $ 200,000.00 | US $ 135,000.00 | US $ 65,000.00 |

The balance of US $ 65,000.00 is proposed to be requested to cover the additional sector(s) that will be identified upon completion of the sectoral survey to be conducted by the World Bank.

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# Annex 4. Resource Mobilization for Climate Co-Benefits

**Resource Mobilization to Address Climate Co- Benefits in HCFC Phaseout - UNDP**

## 1. Amended Proposal

### 1.1 Resubmission of the Amended Proposal

In accordance with ExCom Decision 58/37 (g), UNDP is resubmitting this proposal for consideration at the 59th Meeting. This new version of the proposal has been amended to take recent developments into account and, in particular, to allow for UNDP to proceed in parallel to the ongoing work on a possible Facility for Additional Income (FAI) under the MLF.

As such, in summary, the activities under this amended proposal are now split into two phases:

- *Phase I*, which can commence immediately, will provide concrete, learning-by-doing case studies from four distinct pilot project proposals. These case studies will be of value irrespective of the eventual design of any FAI.
- *Phase II*, which can commence at a later stage, will involve UNDP collectively analyzing these case studies in the context of any MLF mechanism for resource mobilization. The timing of this phase can align with future studies on any FAI.

### 1.2 Recent Developments

UNDP submitted an earlier version of this proposal prior to the 57th Meeting. In the interim period there have been a number of developments:

- Initial studies on the FAI are now being conducted under the Multilateral Fund. The Secretariat submitted a first report on the FAI at the 58th Meeting of the Executive Committee, focusing on preliminary issues related to legal, structural and administrative issues, as well as potential uses of the FAI. The Committee has now requested a further concept paper for the 59th Meeting to focus on clarifying the definition of the FAI, and has requested that the Secretariat explore the carbon market aspects of any FAI.
- The Workshop on Management and Destruction of ODS Banks and Implications for Climate Change was held in Geneva in July 2009. As part of this workshop, an interim report on the costs of bank management was presented by the TEAP, and a report on funding opportunities was presented by the Ozone Secretariat.
- UNDP presented a side-event at the 57th Meeting on carbon markets as a potential funding source for climate co-benefits. This presentation was intended as a thought-piece and concluded that any move into carbon finance should be conducted in a considered and phased manner, in order to build market credibility, send appropriate forward signals and manage risk. The presentation recommended that any move into carbon finance have 3 phases: commencing with pilot projects, moving to a facility/fund structure, and then finally linking fully to the compliance carbon markets. The presentation also stated that the Montreal Protocol bodies could play an active role in any mechanism.

### 1.3 Continued Rationale for Exploring Carbon Markets as a Co-Financing Source

UNDP is working on a number of fronts to address the important issue of potential sources of financing to address incremental climate benefits.

In UNDP's view, the carbon markets remain particularly attractive as a medium/long-term funding source. As identified in the recent Interim TEAP report presented in Geneva, the funding requirement for realizing climate co-

benefits from destruction of ODS from banks will be significantly high, in the tens, if not hundreds, of US$ billion[4]. Funding of this magnitude will be difficult, if not impossible, to meet through traditional donor or fund-based sources. On the other hand, carbon markets, given their size (annual investment currently stands at $7bn[5]), rapid growth, and political momentum, could be an interesting financing source with the appropriate scale.

UNDP stands ready to assist the Montreal Protocol community to explore carbon markets as a potential financing source. UNDP believes such an exploration should be carefully pursued, taking into account all risks, but if addressed in a timely fashion can provide valuable early learning experiences and an initial platform which can, if deemed appropriate, be rapidly built upon.

### 2.1 UNDP's Capabilities in this Field

UNDP is an active participant in the carbon finance arena with established procedures, staff and expertise in place. In terms of direct emission reductions, UNDP is active in the following areas:

- The MDG Carbon Facility, which offers project development services for projects under the Clean Development Mechanism (CDM) and other carbon markets.
- UN REDD, which is pioneering carbon finance in 9 pilot countries in the area of avoided emissions from deforestation. As a new area of carbon finance, there are a number of similarities between avoided deforestation and any possible ODS-related carbon finance.

UNDP is now combining the experience of its carbon finance teams with the long-standing expertise UNDP has as an Implementing Agency for the Multilateral Fund since 1991. UNDP's current role as the Lead Agency for HPMPs in a significant number of key Article-5 countries places it in a unique position to identify and develop appropriate projects.

## 3. Proposed Activities

### 3.1. Overview of ODS Project Opportunities

UNDP sees clear opportunities for projects in at least two areas:

1. Bank management and ODS disposal projects – particularly related to the end-of-life management of appliances.
2. Co-financing opportunities in HCFC phase-out where climate co-benefits can be generated and maximized through additional investments for conversion to appropriate technologies.

For example, there are clear possibilities to use linkages with other programmes such as energy efficiency actions under the GEF to develop projects for leveraging access to inefficient ODS-based appliances in order to ensure appropriate end-of-life management, and tap into country specific initiatives towards energy savings gains in appliance replacement programmes.

It is recognized that both project areas would be of interest to the Executive Committee of the Multilateral Fund, since the Committee is mandated by MOP Decision XIX/6 to prioritize funding of cost-effective projects and programmes that maximize climate benefits. The mechanisms for assessing and accounting such benefits are under development, and UNDP will continue to cooperate closely with the MLF Secretariat to ensure that approaches to the subject are consistent.

[4] The interim TEAP report estimated that cost for Low/Medium ODS bank management in developing countries was USD 70-94 billion for a saving of around 5 billion tonnes CO2-eq. of potential GHG emissions.
[5] State of the Carbon Markets 2008, World Bank

### 3.1. Phase I Activities: Pilot ODS Projects

UNDP has significant experience in the carbon financing sector which it can leverage to assist in the development of a sound approach to the financing of climate co-benefits (whether from the market or on a cost-coverage basis). The Montreal Protocol Unit of UNDP has long experience in implementing ODS phase-out projects and programmes but has no dedicated budget to seek to apply the carbon financing 'best practice' and expertise existing within UNDP via the MDG Carbon Facility.

Under Phase I of the proposed activities, UNDP has identified four different project scenarios, selected for their distinct illustrative value, which could benefit from co-financing of climate co-benefits. For each of these four areas, UNDP will provide technical assistance for translating these concepts into concrete pilot project proposals, addressing each project type's methodological, structural, commercial and legal aspects. UNDP will then seek to work with project entities to implement these projects. Finally, for each project type, UNDP will evaluate its experience in a detailed case-study report.

The activities under Phase I can commence immediately. Phase I will produce concrete, learning-by-doing case studies at the project level which will be useful for the Montreal Protocol bodies irrespective of the final design of any FAI.

The four different project scenarios are:

a. An MLF funded project where climate co-benefits can be realized at a cost exceeding $25 per tonne of CO2 saved
b. An HCFC phase-out project in an Article-5 country, which is not eligible for funding by the MLF but could be funded from the proceeds of realizing climate co-benefits.
c. An Energy Efficiency project (e.g. GEF) in which end-of-life management of ODS would bring incremental ozone and climate benefits.
d. A stand-alone bank management./ODS destruction project which could be based on an existing methodology for funding of climate co-benefits

For each project scenario UNDP will perform the following activities:

1) An analysis of the project type and its potential climate benefits.
2) Identification of potential stakeholders who may act as the project entity.
3) Review of emerging methodologies for assessing CO2 emission reductions in support of the project type and commissioning of new methodologies, where appropriate.
4) Review of financing options, including carbon markets, assessing risks and cost effectiveness of different options, and identifying potential financing partners
5) Preparation of project proposals for each project type
6) Evaluation of experiences and preparation of stand-alone case-study reports for each project type

.

### 3.2 Phase II Activities: Report Analyzing Phase I Pilots in Context of any MLF Mechanism for Resource Mobilization

There are currently a number of ongoing studies into potential frameworks for resource mobilization for financing climate co-benefits, including the ExCom's request to the MLF Secretariat for a concept note to be prepared on the FAI for the 59th Meeting.

In Phase II, UNDP will produce a report analyzing the results of the Phase I pilot projects in the context of any MLF mechanism or framework that may arise from these ongoing studies, including any FAI. This Phase II report will provide inputs to the design of any such mechanism, covering aspects such as identifying how each of the four pilot project types would fit into such a mechanism, and where likely benefits or challenges would be found, particularly in scaling up such activities under a mechanism. The report would leverage the hands-on experience of the Phase I case-studies, as well as the carbon markets expertise of UNDP's carbon finance team which has been involved in establishing a number of carbon finance mechanisms.

**4. Resource Requirements**

The total costs are estimated as below (all figures in US dollars):

| Cost Head | Phase-I | Phase-II | Total |
|---|---|---|---|
| International Consultant for technical coordination | 45,000 | 0 | 45,000 |
| Four technical experts for analysis/methodologies | 169,000 | 0 | 169,000 |
| Travel and overhead costs | 36,000 | 0 | 36,000 |
| Cost recovery for inputs from UNDP | 150,000 | 100,000 | 250,000 |
| **Total** | **$400,000** | **$100,000** | **$500,000** |
| Matching in-kind co-financing from UNDP | (150,000) | (100,000) | (250,000) |
| **Net MLF Funding Requirement** | **$250,000** | **0** | **$250,000** |

As set out above, UNDP will be making a matching contribution of in-kind services amounting to US$250,000 when considering both phases. The inputs from UNDP will cover staff time and costs of its in-house carbon finance and other teams for providing technical services related to analysis and development of methodologies and for developing the structural, commercial, legal and policy elements.

The Phase-I costs of US$250,000 are being requested for consideration at the 59th ExCom meeting.

# Annex 5. Justifications for Preparatory Funding Requests for HCFC pilot/demonstration (China)

**Demonstration projects in the Solvents Sector(2) and XPS Sector (1)**

Since submission of UNDP's Business Plan and deliberations on HCFC pilot/demonstration projects, China has progressed in the sectoral data collection for the HPMP. Based on the recent survey of the Solvents and XPS Foam Sectors carried out after the 57th ExCom meeting in April 2009, new and additional information has become available.

**Demonstration Project in the Solvent Sector**

The use of HCFCs in Solvents Sectors is concentrated mainly in the Medical Sector and Electronics Sector and as is well known, solvent uses of HCFCs are 100% emissive. Further, the Medical Sector serves critical social needs and has very specific and imminent challenges for adaptation of low-GWP and safe alternative technologies, which serve the needs of both the organized enterprises and SMEs. Therefore the government and other stakeholders have prioritized this sector for early interventions.

The technologies selected for demonstration are low-GWP and safe. In terms of time, an earliest possible demonstration of the technologies identified is necessary, as the two proposals address the needs of both the organized sector and SMEs. Such demonstration, if moved to the next business planning cycle, will lead to delays in technology selection, which needs to feed into the HPMP for this sector, which is targeted to be finalized by mid-2010. The government and other stakeholders spent the past several months in collecting data for developing these concepts, with the expectation that 7-8 months would be saved if these requests could be considered at the last meeting of 2009. For this reason, China has asked UNDP strongly to include these requests for submission to the 59th ExCom Meeting.

**Demonstration Project in the XPS Foam Sector**

- The XPS foam sector in China has experienced remarkable growth in the past several years. Due to the steep growth in the construction industry, demand for XPS foam boards for building insulation has increased significantly, ascribed also to enhanced energy-efficiency standards. The 2008 estimated HCFC consumption in the sector in China is about 30,000 metric tonnes.

- Based on information from ongoing surveys, there are about 20 indigenous manufacturers of XPS extrusion lines and an estimated 500 manufacturers of XPS foam in the sector, most of which are small/medium-sized. Another defining characteristic of this sector is that most of the polystyrene raw material used by SMEs in XPS foam manufacturing originates from recycled polystyrene scrap of unknown composition/contaminants.

- Recent zero-ODP XPS foam technologies introduced by multinational corporations are expensive and have been closely guarded in terms of intellectual property. Due to this, these technologies are not cost-effectively accessible for SMEs and may not be compatible to operate with a high proportion of recycled polystyrene scrap. It would be a challenge for the SMEs to comply with the enhanced energy-efficiency standards if they have to convert to non-ODS technologies. There is thus, a clear and present need for a cost-effective and environmentally safe technology alternative

for SMEs, in order to remain sustainable and maintain product quality. At a broader level, this affects an important part of the economy in China.

- The selected technologies are ozone and climate-friendly and potentially cost-effective, as compared to other alternatives. The development and demonstration of the proposed technology would be particularly facilitated cost-effectively due to the unique situation of the enterprise as both a manufacturer of equipment as well as XPS foam. As an equipment manufacturer, this enterprise would be in a position to transfer this technology to a potentially large number of SMEs, who would be able to make XPS foam without using ODS-based blowing agents, while still being able to maintain the quality of products consistent with enhanced standards and remain techno-economically sustainable and viable. The technology will be provided through UNDP by internationally renowned XPS foam experts/firms.

- Much of this information has been available after the 57th ExCom decision referred to by the Secretariat regarding inclusion/exclusion from UNDP's 2009 Business Plan. In all other respects, this proposal will meet or exceed the requirements of ExCom Decision 55/43 for demonstration projects.

- It is critical to have safe and cost-effective technologies developed and demonstrated in this Sector at the earliest possible opportunity, given the size and consumption levels in this sector. In this regard, we would like to emphasize that as per ExCom Decision 56/16 the XPS Foam Sector is a separate and standalone sector and is not considered part of the a foam or polyurethane foam sector.

- Given that very short time is available for preparation and implementation of HPMPs, it is necessary that the results of such a demonstration project are available in a timely manner to feed into the HPMP for this sector which is targeted for finalization by mid-2010.

- Considering this background, the critical situation of this Sector and its importance for 2013/2015 compliance, China has strongly asked UNDP to submit this request to the 59th ExCom meeting itself, so that this request can be considered and deliberated by the Committee.

Concepts for the 3 demonstration projects mentioned can be found below.

## PROJECT CONCEPT

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| **COUNTRY:** | CHINA **IMPLEMENTING AGENCY:** UNDP |
| **PROJECT TITLE:** | Preparation of a demonstration project for conversion from HCFC-141b to a combination of Isopropyl Alcohol and Hydrocarbon-based compounds in solvent cleaning applications at Kandelai Co. Ltd. |
| **PROJECT IN CURRENT BUSINESS PLAN:** | Yes |
| **SECTOR:** | Solvents (SOL) |
| **SUB-SECTOR:** | Medical |
| **ODS USE IN SECTOR:** | 4,145 metric tonnes (2008)* |
| **PROJECT IMPACT:** | 100 metric tonnes* |
| | *Preliminary estimates based on ongoing surveys. More accurate estimates would be available in the actual project proposal |
| **PROJECT DURATION:** | 12 months |
| **PROJECT COST:** | US$ 30,000 |
| **REQUESTED GRANT:** | US$ **30,000** |
| **AGENCY SUPPORT COSTS:** | US$ 2,250 |
| **TOTAL COST TO MULTILATERAL FUND:** | **US$ 32,250** |
| **PROJECT MONITORING MILESTONES:** | Included |
| **NATIONAL COORDINATING BODY:** | Foreign Economic Cooperation Office, Ministry of Environment Protection |

### PROJECT SUMMARY

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| **Objective:** | This demonstration project will establish the suitability of a combination of Isopropyl Alcohol (IPA) and Hydrocarbon compounds to replace HCFC-141b in cleaning of disposable syringes, injector needles and other implantable medical devices at Kandelai Co. Ltd. |
| **Sector Background:** | The Solvents Sector is characterized by emissive use of HCFCs. The major applications include cleaning in the Medical, Metal (Compressors), Metal (Other), Electronics (LCD), Electronics (Precision), Electronics (Other) and Formulated Solvents sub-sectors. The Medical Applications sub-sector is important from a human health perspective and consumed about 1,120 metric tonnes of HCFCs in 2008. This sub-sector is expected to grow at 10% annually until 2012 and at 5% annually thereafter. |
| **Enterprise Background:** | Kandelai Co. Ltd. was established in 1987 and is one of the major manufacturers of a range of medical devices. The enterprise was selected for this demonstration project in view of its technical and managerial capacity and readiness to evaluate a suitable alternative technology to replace HCFC-141b use. |
| **Technology:** | Several alternative technologies such as HFE-7100, HFC-365mfc, Hydrocarbons, Alcohols, Low molecular weight halohydrocarbons, etc. are available. But in general, there has to be a trade-off between solvent properties, costs, toxicity issues and flammability issues. The enterprise has selected a combination of Isopropyl Alcohol and Hydrocarbon compounds, in view of its zero ODP, negligible GWP, no toxicity and favorable costs. However, flammability is an issue and will need to be addressed through introduction of appropriate safety measures. This technology has not been applied commercially so far in China and only in limited applications outside China. |
| **Costs:** | The preliminary estimate of the cost of the demonstration project is about US$ 300,000. This will include development costs for the appropriate solvent mixture, equipment modifications and additional equipment, safety measures, laboratory testing, product trials, evaluation and testing for biocompatibility, drug compatibility, suitability for radiation sterilization, etc. |
| **Funding request:** | The present funding request for US$ 30,000 would cover the cost of technical experts for developing the full-fledged proposal. |
| **Impact:** | The successful implementation of this demonstration project will provide a safe and cost-effective alternative for enabling replication of this technology in similar applications and enterprises in the Medical Applications sub-sector in China and facilitate HCFC reductions for compliance with the 2013/2015 control targets. |

## PROJECT CONCEPT

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| **COUNTRY:** | CHINA **IMPLEMENTING AGENCY:** UNDP |
| **PROJECT TITLE:** | Preparation of a demonstration project for conversion from HCFC-141b to Hydrocarbon-based compounds in solvent cleaning applications at Sunyun Co. Ltd. |
| **PROJECT IN CURRENT BUSINESS PLAN:** | Yes |
| **SECTOR:** | Solvents (SOL) |
| **SUB-SECTOR:** | Medical |
| **ODS USE IN SECTOR:** | 4,145 metric tonnes (2008)* |
| **PROJECT IMPACT:** | 20 metric tonnes* |
| | *Preliminary estimates based on ongoing surveys. More accurate estimates would be available in the actual project proposal |
| **PROJECT DURATION:** | 12 months |
| **PROJECT COST:** | US$ 30,000 |
| **REQUESTED GRANT:** | US$ **30,000** |
| **AGENCY SUPPORT COSTS:** | US$ 2,250 |
| **TOTAL COST TO MULTILATERAL FUND:** | **US$ 32,250** |
| **PROJECT MONITORING MILESTONES:** | Included |
| **NATIONAL COORDINATING BODY:** | Foreign Economic Cooperation Office, Ministry of Environment Protection |

### PROJECT SUMMARY

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| **Objective:** | This demonstration project will establish the suitability of Hydrocarbon compounds to replace HCFC-141b in cleaning of disposable syringes, injector needles and other implantable medical devices at Sunyun Co. Ltd. |
| **Sector Background:** | The Solvents Sector is characterized by emissive use of HCFCs. The major applications include cleaning in the Medical, Metal (Compressors), Metal (Other), Electronics (LCD), Electronics (Precision), Electronics (Other) and Formulated Solvents sub-sectors. The Medical Applications sub-sector is important from a human health perspective and consumed about 1,120 metric tonnes of HCFCs in 2008. This sub-sector is expected to grow at 10% annually until 2012 and at 5% annually thereafter. |
| **Enterprise Background:** | Sunyun Co. Ltd. was established in 1988 and is one of the major manufacturers of a range of medical devices. The enterprise was selected for this demonstration project in view of its technical and managerial capacity and readiness to evaluate a suitable alternative technology to replace HCFC-141b use. |
| **Technology:** | Several alternative technologies such as HFE-7100, HFC-365mfc, Hydrocarbons, Alcohols, Low molecular weight halohydrocarbons, etc. are available. But in general, there has to be a trade-off between solvent properties, costs, toxicity issues and flammability issues. The enterprise has selected Hydrocarbon compounds, in view of its zero ODP, negligible GWP, no toxicity and favorable costs. However, flammability is an issue and will need to be addressed through introduction of appropriate safety measures. This technology has not been applied commercially so far in China and only in limited applications outside China. |
| **Costs:** | The preliminary estimate of the cost of the demonstration project is about US$ 150,000. This will include development costs for the appropriate solvent mixture, equipment modifications and additional equipment, safety measures, laboratory testing, product trials and evaluation. |
| **Funding request:** | The present funding request for US$ 30,000 would cover the cost of technical experts for developing the full-fledged proposal. |
| **Impact:** | The successful implementation of this demonstration project will provide a safe and cost-effective alternative for enabling replication of this technology in similar applications and enterprises in the Medical Applications sub-sector in China and facilitate HCFC reductions for compliance with the 2013/2015 control targets. |

## PROJECT CONCEPT

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| **COUNTRY:** | CHINA | **IMPLEMENTING AGENCY:** | UNDP |
| **PROJECT TITLE:** | Preparation of a demonstration project for conversion from HCFC-142b+HCFC-22 technology to Methyl Formate based compounds in the manufacture of XPS Foam at Feininger (Nanjing) Energy Saving Technology Co. Ltd. | | |
| **PROJECT IN CURRENT BUSINESS PLAN:** | Yes | | |
| **SECTOR:** | XPS Foams | | |
| **SUB-SECTOR:** | N/A | | |
| **ODS USE IN SECTOR:** | 30,000 metric tonnes (2008)* | | |
| **PROJECT IMPACT:** | 510 metric tonnes* | | |
| | *Preliminary estimates based on ongoing surveys. More accurate estimates would be available in the actual project proposal | | |
| **PROJECT DURATION:** | 12 months | | |
| **PROJECT COST:** | US$ 80,000 | | |
| **REQUESTED GRANT:** | US$ **80,000** | | |
| **AGENCY SUPPORT COSTS:** | US$ 6,000 | | |
| **TOTAL COST TO MULTILATERAL FUND:** | **US$ 86,000** | | |
| **PROJECT MONITORING MILESTONES:** | Included | | |
| **NATIONAL COORDINATING BODY:** | Foreign Economic Cooperation Office, Ministry of Environment Protection | | |

### PROJECT SUMMARY

**Objective:** This demonstration project will establish the suitability of Methyl Formate-based compounds to replace HCFC-142b+HCFC-141b as blowing agent in the manufacture of XPS foam at Feininger (Nanjing) Energy Saving Technology Co. Ltd.

**Sector Background:** The XPS foam sector in China has experienced remarkable growth in the past several years. Due to the steep growth in the construction industry, demand for XPS foam boards for building insulation has increased significantly, ascribed also to enhanced energy-efficiency standards. The 2008 estimated HCFC consumption in the sector is about 30,000 metric tonnes. Based on information from ongoing surveys, there are about 20 indigenous manufacturers of XPS extrusion lines and an estimated 500 manufacturers of XPS foam in the sector, most of which are small/medium-sized. Another defining characteristic of this sector is that most of the polystyrene raw material used by SMEs in XPS foam manufacturing originates from recycled polystyrene scrap of unknown composition/contaminants. Recent zero-ODP XPS foam technologies introduced by multinational corporations are expensive and have been closely guarded in terms of intellectual property. Due to this, these technologies are not cost-effectively accessible for SMEs and may not be compatible to operate with a high proportion of recycled polystyrene scrap. It would be a challenge for the SMEs to comply with the enhanced energy-efficiency standards if they have to convert to non-ODS technologies. There is thus, a clear and present need for a cost-effective and environmentally safe technology alternative for SMEs, in order to remain sustainable and maintain product quality.

**Enterprise Background:** Feininger (Nanjing) Energy Saving Technology Co. Ltd. was established in 2002 and is one of the major manufacturers of XPS extrusion lines, XPS foam recycling machines and associated equipment and XPS foam. The enterprise manufactures XPS foam boards of 20 mm to 120 mm thickness. In 2008, the estimated production level of XPS foam was about 140,000 $m^3$. Due to the diversity of XPS foam-related products, this enterprise is particularly suited to be a conduit for introduction and transfer of technology.

**Technology:** Several alternative zero-ODP technologies such as HFCs, $CO_2$, Hydrocarbons, etc. with additives and co-blowing agents are available. However, XPS technologies involve a high level of process optimization and these new technologies are significantly expensive and/or involve intellectual property rights controlled by a small number of multinational corporations. Introduction of these technologies is a difficult challenge for SMEs. The selected technology, namely, Methyl Formate-based compounds, promises to be an optimal solution for SMEs. This technology has not been employed in developed countries or by multinationals elsewhere and is not subject to intellectual property rights limitations. Apart from some flammability issues associated with Methyl Formate, this technology is zero-ODP, negligible GWP, no toxicity and negligible occupational safety issues.

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| **Technology (cont'd):** | The enterprise has selected this technology based on the above considerations. Due to the unique situation of the enterprise as a manufacturer of XPS foam as well as processing equipment, the development and demonstration of this technology would be particularly facilitated cost-effectively. As an equipment manufacturer, this enterprise would be in a position to transfer this technology to a potentially large number of SMEs, who would be able to make XPS foam without using ODS-based blowing agents, while still being able to maintain the quality of products consistent with enhanced standards and remain techno-economically sustainable and viable. The technology will be provided through UNDP by internationally renowned XPS foam experts/firms. |
| **Costs:** | The preliminary estimate of the cost of this demonstration project is about US$ 450,000 at this enterprise and an additional about US$ 600,000 for technology transfer and conversion at minimum three downstream XPS foam manufacturers. This will include development costs for the appropriate process technology with Methyl Formate-based compounds and co-blowing agents as needed, equipment modifications and additional equipment, safety measures, laboratory testing, product trials, evaluation and in addition, development of extrusion line and related equipment designs and implementation, suited for this technology. |
| **Funding request:** | The present funding request for US$ 80,000 would cover the cost of national and international technical experts and related expenses for developing the full-fledged proposal. The final proposal would include at least three downstream XPS foam manufacturers, who would use the technology developed under the project, to effect conversion. |
| **Impact:** | The successful implementation of this demonstration project will provide an environmentally safe and cost-effective alternative for enabling replication of this technology in similar applications and SMEs in the XPS foam sector in China and facilitate HCFC reductions for compliance with the 2013/2015 control targets. It will also significantly contribute to the viability of SMEs in this sector, avoid industrial obsolescence and dislocation and maintain sustainable livelihoods dependent on employment in this sector. |