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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Seventy-fourth Meeting
Montreal, 18-22 May 2015

UNDP's WORK PROGRAMME FOR 2015

COMMENTS AND RECOMMENDATION OF THE FUND SECRETARIAT

1. UNDP is requesting approval from the Executive Committee of US $1,538,317 for its 2015 work programme, plus agency support costs of US $121,682 listed in Table 1. The submission is attached to this document.

Table 1: UNDP's Work Programme for 2015

Country	Activity/Project	Amount Requested (US $)	Amount Recommended (US $)
SECTION A: ACTIVITIES RECOMMENDED FOR BLANKET APPROVAL			
A1: Renewal of institutional strengthening projects			
Chile	Institutional strengthening renewal (phase XI)	186,550	186,550
Colombia	Institutional strengthening renewal (phase X)	275,600	275,600
Georgia	Institutional strengthening renewal (phase IX)	60,667	60,667
	Subtotal for A1	522,817	522,817
Agency support costs (7 per cent for institutional strengthening):		36,597	36,597
	Total for A1	559,414	559,414
A2: Project preparation			
Egypt	Preparation for HCFC phase-out investment activities (stage II) (extruded polystyrene foam sector)	20,000	20,000
	Subtotal for A2	20,000	20,000
Agency support costs (7 per cent for project preparation):		1,400	1,400
	Total for A2	21,400	21,400
SECTION B: ACTIVITIES FOR INDIVIDUAL CONSIDERATION			
B1: Preparation of a demonstration project for low-global warming potential alternatives technologies			
China	Demonstration project for developing screw high temperature heat pump compressor units with low-global warming potential (GWP) refrigerant in the industrial and commercial refrigeration industry	36,500	*
	Demonstration projects of ammonia semi-hermetic frequency convertible screw refrigeration system in the industrial and commercial refrigeration industry	24,000	*
Costa Rica	Demonstration project for the transition of HCFC-22 based refrigerant unit to NH3 system in cold chambers	40,000	*
Egypt	Demonstration of low-GWP alternatives technologies in RAC under high ambient temperature conditions – bilateral with the Government of Japan	20,000	*
India	Demonstration project for development and evaluation of polyol systems for foam products using HFOs as blowing agent	30,000	*
	Demonstration project for development and evaluation of spray foam polyols systems for buildings using HFOs as blowing agent	30,000	*

Kuwait	Demonstration project for low-GWP alternatives in high ambient temperature conditions in air-conditioning applications	20,000	*
Maldives	Demonstrating low-GWP alternatives for HCFC phase-out in refrigeration applications in fishing industry	15,000	*
Trinidad and Tobago	Demonstration project for the production of hydrocarbons refrigerants in for refrigeration and air-conditioning (RAC) applications in Latin America and the Caribbean	40,000	*
Uruguay	Assessment of unsaturated HFC (HFO) in RAC applications in a small non-LVC country	40,000	*
	Subtotal for B1	295,500	
Agency support costs (7 per cent for project preparation):		20,685	*
	Total for B1	316,185	
B2: Technical assistance for a feasibility study			
Dominican Republic	District cooling feasibility study	100,000	*
	Subtotal for B2	100,000	
Agency support costs (9 per cent for technical assistance):		9,000	*
	Total for B2	109,000	
B3: Technical assistance for preparation for ODS surveys			
Costa Rica	Survey of ODS alternatives at the national level	70,000	*
El Salvador	Survey of ODS alternatives at the national level	70,000	*
India	Survey of ODS alternatives at the national level	180,000	*
Islamic Republic of Iran	Survey of ODS alternatives at the national level	120,000	*
Lebanon	Survey of ODS alternatives at the national level	90,000	*
Panama	Survey of ODS alternatives at the national level	70,000	*
	Subtotal for B3	600,000	
Agency support costs (9 per cent for technical assistance):		54,000	*
	Total for B3	654,000	
	Grand Total (A1, A2, B1, B2 and B3):	1,659,999	

* Projects for individual consideration

SECTION A: ACTIVITIES RECOMMENDED FOR BLANKET APPROVAL

A1: Institutional strengthening

Project description

2. UNDP submitted the requests for the renewal of the institutional strengthening (IS) projects for the countries listed in Table 1. The description for these projects is presented in Annex I to this document.

Secretariat's comments

3. The Secretariat reviewed the requests for the renewal of three IS projects submitted by UNDP on behalf of the Governments concerned against the guidelines and relevant decisions regarding eligibility and funding levels. The requests were cross-checked against the original IS work plan for the previous phase, country programme and Article 7 data, the latest report on implementation of the HCFC phase-out management plan (HPMP), the agency's progress report, and any relevant decisions of the Meeting of the Parties to the Montreal Protocol. It was noted that these countries are in compliance with the ODS phase-out targets under the Montreal Protocol and have also submitted their country programme implementation reports for 2013.

Secretariat's recommendations

4. The Secretariat recommends blanket approval of the IS renewal requests for Chile, Colombia and Georgia at the level of funding indicated in Table 1 of this document. The Executive Committee may wish to express to the aforementioned Governments the comments which appear in Annex II to this document.

A2: Project preparation for HCFC phase-out management plans/HCFC phase-out investment projects (stage II)

Project description

5. UNDP submitted a request for additional project preparation funds for stage II of HCFC phase-out management plans (HPMPs) for Egypt, for the preparation of investment projects in the extruded polystyrene (XPS) foam sector, at US $20,000, plus agency support costs of US $1,400.

Secretariat's comments

6. The Secretariat queried the need for additional funding for the foam sector noting that US $60,000 was already approved for the activity. UNDP explained that this additional request is for addressing the consumption of the XPS foam sector used by two enterprises that consume HCFC-141b/HCFC-22, since the previous approval covered only the polyurethane (PU) foam sector.

7. In reviewing the stage I of the HPMP for Egypt, the Secretariat noted that only one out of the two enterprises may be eligible for funding, as one of these was established in 2008, after the cut-off date. Accordingly, UNDP adjusted the request from US $40,000 to US $20,000.

8. The Secretariat further noted that the country's remaining eligible consumption is 310 metric tonnes (mt). At the 73rd meeting, the Executive Committee approved US $210,000 (US $60,000 for the PU foam sector and US $150,000 for the refrigeration sector for UNIDO) for the preparation of the investment component of stage II. The request is in addition to funding for preparation of stage II of the HPMP already approved at the 73rd meeting (US $300,000 plus agency support costs); however, it is within the limits set by decision 71/42(d), (f) and (g) based on their remaining HCFC consumption eligible for funding. With its remaining eligible consumption, the country may receive up to a maximum of US $300,000 for the investment component of the HPMP. The additional request for the XPS foam sector would bring the amount of funding for project preparation for the investment component up to US $230,000.

9. The additional request for project preparation funds for the XPS foam sector for Egypt is in line with decisions 71/42 and 72/18.

Secretariat's recommendation

10. The Fund Secretariat recommends blanket approval of the request of UNDP for additional funds for project preparation for HCFC phase-out investment activities for the XPS foam sector (stage II) for Egypt at the level of funding indicated in Table 1.

SECTION B: ACTIVITIES FOR INDIVIDUAL CONSIDERATION

B1: Project preparation for projects to demonstrate climate-friendly and energy-efficient alternative technologies to HCFCs

Project description

11. UNDP submitted 10 requests for funding for the preparation of projects that would demonstrate climate-friendly and energy-efficient alternative technologies to HCFCs, as listed in Table 1 of this document. Out of these, eight were requests for projects in the refrigeration and air conditioning (RAC) sector, and two for the foam sector. The projects were submitted in line with decision 72/40.

12. Each of the project preparation requests included information on the concept of the project; the activities to be undertaken during project preparation and associated costs; and an estimate of the total cost of the resulting demonstration project. All project preparation request were submitted with endorsement letters from the respective governments. The details of each request are contained in the attachment to the present document.

Secretariat's comments

13. At the 72nd meeting, after consideration of the overview of approved HCFC demonstration projects and options for additional projects to demonstrate climate-friendly and energy-efficient alternative technologies to HCFCs[1] under agenda item 10, the Executive Committee decided *inter alia* to consider at its 75th and 76th meetings proposals for demonstration projects for low-global-warming potential (GWP) alternatives to HCFCs within the framework established, and provided criteria for such projects (decision 72/40).

14. At the 73rd meeting, the Executive Committee further discussed the low-GWP demonstration projects and feasibility studies on district cooling in the context of the consolidated business plan of the Multilateral Fund[2]. Further to discussions, additional guidance was also provided in order to ensure that the best proposals for demonstration projects were submitted[3].

15. In order to assist the Executive Committee in selecting the best demonstration project proposals submitted pursuant to this decision, the Secretariat had prepared an analysis of all these proposals only with regard to their concepts and how they comply with the guidelines provided by the Executive Committee. This analysis is contained in the document on the Overview of issues identified during project review[4].

Secretariat's recommendation

16. The Executive Committee may wish to:

(a) Consider the proposal for the preparation of projects that would demonstrate climate-friendly and energy-efficient alternative technologies to HCFCs, as listed in Table 1 of this document in the context of its discussion on proposals for demonstration projects for low global-warming potential (GWP) alternatives to HCFCs as described in the document on the Overview of issues identified during project review (UNEP/OzL.Pro/ExCom/74/13); and

[1] UNEP/OzL.Pro/ExCom/72/40.
[2] UNEP/OzL.Pro/ExCom/73/18.
[3] The suggestions made by Executive Committee members are contained in paragraph 97 of document UNEP/OzL.Pro/ExCom/73/62.
[4] UNEP/OzL.Pro/ExCom/74/13.

(b) Approve the project preparation requests mentioned in sub-paragraph (a) above, in case the Executive Committee selects such proposals.

B2: Technical assistance for a feasibility study for district cooling in the Dominican Republic (US $100,000)

Project description

17. UNDP submitted a request for a feasibility study to develop a business model for district cooling in the Dominican Republic, in the amount of US $100,000, plus agency support costs of US $9,000. The feasibility study is submitted in line with decision 72/40, where the Executive Committee agreed, *inter alia*, "to invite bilateral and implementing agencies to provide proposals for feasibility studies, including business cases for district cooling, no later than the 75th meeting." The feasibility study for the district cooling is contained in the attachment to the present document.

18. The objective of the feasibility study is to determine the technical and financial viability of developing a district cooling system, and options for funding the full project after the feasibility study is completed. This feasibility study will be developed within the areas owned by Grupo Puntacana in the Dominican Republic, which includes three hotels, an international airport and a new shopping mall, taking into account future development in the area.

19. The feasibility study will assess the use of alternative sources of energy generation, such as the use of waste heat from existing waste incineration facility owned by Grupo Puntacana, as well as deep sea water from Punta Cana Bay. The district cooling system in Punta Cana could potentially reduce 80 per cent energy demand (depending on energy source selected) and have large reductions in greenhouse gas (GHG) emissions. The study will be finished in 12 months.

20. The following activities will be implemented:

(a) Analysis of the cooling demand, examining the current developed area, type of buildings and use, existing cooling systems used and the feasibility of replacing them with district cooling;

(b) Analysis of the waste treatment plant; its capacity and types of waste, thermal output, electrical output; its location and the type of waste heat cooling available;

(c) Analysis of the sea water source (bathymetry, temperature data, restrictions to use);

(d) Analysis of stakeholder involvement including owners of the facility, the source of utilities, local authorities, and other Government and private entities;

(e) Analysis of the economic and financial factors including current energy charges, usage, water and sewage costs, gate fess for waste, options for the conversion, energy gains, payback scenario, and potential funding from sources;

(f) Technical analysis of the construction of the district cooling system, the production, and distribution network, including building energy transfer stations; and

(g) Risk identification.

Secretariat's comments

21. At the 72nd meeting, after consideration of the overview of approved HCFC demonstration projects and options for additional projects to demonstrate climate-friendly and energy-efficient alternative technologies to HCFCs[5] under agenda item 10, the Executive Committee decided *inter alia* to consider at its 75th and 76th meetings proposals for demonstration projects for low-global-warming potential (GWP) alternatives to HCFCs within the framework established, and provided criteria for such projects (decision 72/40).

22. At the 73rd meeting, the Executive Committee further discussed the low-GWP demonstration projects and feasibility studies on district cooling in the context of the consolidated business plan of the Multilateral Fund[6]. Further to discussions, additional guidance was also provided in order to ensure that the best proposals for demonstration projects were submitted[7].

23. In order to assist the Executive Committee in selecting the best demonstration project proposals submitted pursuant to this decision, the Secretariat had prepared an analysis of all these proposals only with regard to their concepts and how they comply with the guidelines provided by the Executive Committee. This analysis is contained in the document on the Overview of issues identified during project review[8].

Secretariat's recommendation

24. The Executive Committee may wish to:

(a) Consider the feasibility study to develop a business model for district cooling in the Dominican Republic in the context of its discussion on proposals for demonstration projects for low global-warming potential (GWP) alternatives to HCFCs as described in the document on the overview of issues identified during project review (UNEP/OzL.Pro/ExCom/74/13); and

(b) Approve the feasibility study mentioned in sub-paragraph (a) above, in case the Executive Committee selects such study.

B3: Technical assistance for preparation for ODS surveys

Project description

25. UNDP submitted six funding requests to conduct national surveys on alternatives to ODS in response to paragraph 4 of decision XXVI/9[9], as listed in Table 1.

26. The objective of the surveys would be to assist an Article 5 country to better understand its consumption trends for non-ODS alternatives, and their distribution by sector and subsector. The inventories on ODS alternatives may also provide the countries with an overview of their national markets where ODS alternatives have been (and will be) phased in, while taking into consideration existing technologies. The surveys will estimate the amounts of each ODS alternative currently used in

[5] UNEP/OzL.Pro/ExCom/72/40.
[6] UNEP/OzL.Pro/ExCom/73/18.
[7] The suggestions made by Executive Committee members are contained in paragraph 97 of document UNEP/OzL.Pro/ExCom/73/62.
[8] UNEP/OzL.Pro/ExCom/74/13.
[9] The Parties to the Montreal Protocol decided *inter alia* "to request the Executive Committee of the Multilateral Fund to consider providing additional funding to conduct inventories or surveys on alternatives to ozone-depleting substances in interested parties operating under paragraph 1 of Article 5 upon their request".

the country, identify alternatives that could be potentially used in the future to replace HCFCs and HFCs; and forecast the amounts of each of the ODS alternatives currently used and potentially to be used in the country for the 2015-2030 period.

Secretariat's comments

27. In response to the request by the Parties to the Executive Committee in paragraph 4 of decision XXVI/9, the Secretariat has prepared document UNEP/OzL.Pro/ExCom/74/53, presenting the text of decision and seeking guidance from the Executive Committee on how to address this request from the Meeting of the Parties. Attached to the above-mentioned document is a "Note from the Secretariat" which contains information on the matter of providing additional funding to conduct inventories or surveys on ODS alternatives in interested Article 5 countries.

28. As the Executive Committee has not decided on how to address the request by the Parties, the Secretariat has not reviewed the requests on surveys on ODS alternatives submitted by Article 5 countries. In its deliberations, the Executive Committee may wish to note that the requests for surveys were not included in the 2015-2017 business plan of UNDP, and are not required to meet or accelerate the HCFC compliance needs of Article 5 countries.

Secretariat's recommendation

29. The Executive Committee may wish to consider the requests to conduct national surveys on alternatives to ODS, as listed in Table 1 of this document in the context of its discussion on agenda item 12 on follow-up to decision XXVI/9 (paragraph 4) of the Twenty-sixth Meeting of the Parties on additional funding to conduct inventories or surveys on ODS alternatives.

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Annex I

INSTITUTIONAL STRENGTHENING PROJECT PROPOSALS

Chile: Renewal of institutional strengthening

Summary of the project and country profile			
Implementing agency:			UNDP
Amounts previously approved for institutional strengthening (US $):			
	Phase I:	Jun. 1992	213,000
	Phase II:	Oct. 1996	113,500
	Phase III:	Jul. 1998	143,500
	Phase IV:	Dec. 2000	143,500
	Phase V:	Nov. 2002	186,550
	Phase VI:	Apr. 2005 & Nov. 2005	186,550
	Phase VII:	Mar. 2007	186,550
	Phase VIII:	Apr. 2009	186,550
	Phase IX:	Apr. 2011	186,550
	Phase X:	Apr. 2013	186,550
		Total:	1,732,800
Amount requested for renewal (phase XI) (US $):			186,550
Amount recommended for approval for phase XI (US $):			186,550
Agency support costs (US $):			13,058
Total cost of institutional strengthening phase XI to the Multilateral Fund (US $):			199,608
Date of approval of country programme:			1992
Date of approval of HCFC phase-out management plan:			2011
Baseline consumption of controlled substances (ODP tonnes):			
Annex B, Group III (methyl chloroform) (average 1998-2000)			6.4
Annex C, Group I (HCFCs) (average 2009-2010)			87.5
Annex E (methyl bromide) (average 1995-1998)			212.5
Latest reported ODS consumption (2013) (ODP tonnes) as per Article 7:			
Annex B, Group III (methyl chloroform)			0.00
Annex C, Group I (HCFCs)			75.99
Annex E (methyl bromide)			165.90
		Total:	241.89
Year of reported country programme implementation data:			2013
Amount approved for projects (as at November 2014) (US $):			16,765,611
Amount disbursed (as at December 2013) (US $):			11,605,190
ODS to be phased out (as at November 2014) (ODP tonnes):			1,278.3
ODS phased out (as at December 2013) (ODP tonnes):			998.5

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

Summary of activities	Funds approved (US $)
(a) Investment Projects	10,191,515
(b) Institutional strengthening:	1,732,800
(c) Project preparation, technical assistance, training and other non-investment projects:	4,841,296
Total:	16,765,611

Progress report

2. The tenth phase of the institutional strengthening project for Chile has been implemented successfully. Since 2014 the national ozone unit (NOU) has reported to the Office of Climate Change

(Ministry of Environment). The Deputy Minister of Environment has been involved in ozone activities including participation in public awareness events. The country continues working on stage I of the HPMP in close cooperation with national stakeholders. The remaining activities of the phase-out projects for halons and methyl bromide were completed and the project completion report for the halon project was submitted. A number of publications on methyl bromide alternatives in the fruits nurseries, tomato and strawberry sectors were prepared and published. HCFC import and export controls are now fully operational, including for HCFC-141b contained in imported pre-blended polyols. The NOU has developed a good relationship with the customs office, working closely to train customs officials to improve their capabilities.

Plan of action

3. During the next phase of the IS project, Chile seeks to maintain the freeze in HCFC consumption at the baseline level and to achieve compliance with the 10 per cent reduction in HCFCs in 2015. The NOU will continue assisting in implementation of stage I of the HPMP, including the conversion of end−users (supermarkets) to low-global warming potential (GWP), non-ODS alternatives, the establishment of a pilot recovery and recycling centre, and the consolidation of the certification process. These activities will be complemented by training programmes on good refrigeration practices and public awareness activities. Additionally, Chile will start the preparation of stage II of the HPMP.

Colombia: Renewal of institutional strengthening

Summary of the project and country profile			
Implementing agency:			UNDP
Amounts previously approved for institutional strengthening (US $):			
	Phase I:	Mar-94	317,790
	Phase II:	Mar-98	212,000
	Phase III:	Mar-00	212,000
	Phase IV:	Nov-02	275,600
	Phase V:	Apr-05	275,600
	Phase VI:	Jul-07	275,600
	Phase VII:	Jul-09	275,600
	Phase VIII:	Jul-11	275,600
	Phase IX:	Jul-13	275,600
		Total:	2,395,390
Amount requested for renewal (phase X) (US $):			275,600
Amount recommended for approval for phase X (US $):			275,600
Agency support costs (US $):			19,292
Total cost of institutional strengthening phase X to the Multilateral Fund (US $):			294,892
Date of approval of country programme:			1994
Date of approval of HCFC phase-out management plan:			2010
Baseline consumption of controlled substances (ODP tonnes):			
Annex B, Group III (methyl chloroform) (average 1998-2000)			0.6
Annex C, Group I (HCFCs) (average 2009-2010)			225.6
Annex E (methyl bromide) (average 1995-1998)			110.1
Latest reported ODS consumption (2013) (ODP tonnes) as per Article 7:			
Annex B, Group III (methyl chloroform)			0.00
Annex C, Group I (HCFCs)			176.65
Annex E (methyl bromide)			0.00
		Total:	176.65
Year of reported country programme implementation data:			2013
Amount approved for projects (as at November 2014) (US $):			31,710,425
Amount disbursed (as at December 2013) (US $):			26,799,457
ODS to be phased out (as at November 2014) (ODP tonnes):			1,936.9

Summary of the project and country profile	
ODS phased out (as at December 2013) (ODP tonnes):	1,896.1

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

Summary of activities	**Funds approved (US $)**
(a) Investment projects:	23,952,758
(b) Institutional strengthening:	2,395,390
(c) Project preparation, technical assistance, training and other non-investment projects:	5,362,277
Total:	31,710,425

Progress report

5. During the ninth phase of the IS project for Colombia, the NOU continued working to maintain the total phase-out of CFCs, halon and CTC, achieved the 2013 freeze in HCFC consumption, and is on target to achieve the 10 per cent reduction in HCFC consumption in 2015. Working closely with the National Learning Service (SENA), the National Refrigeration and Air-Conditioning Association (ACAIRE), and consultants in intermediate cities, the NOU assisted with the development of the technical certification scheme, and technical assistance for recovery and recycling of refrigerants in a large number of enterprises. ODS trade was monitored in close cooperation with the Ministry of Commerce, Industry and Tourism, the Customs authority (DIAN) and Ministry of Environment (ANLA). The strategy of stage II of HPMP was developed based on discussions with the refrigeration and air-conditioning (RAC) and foam manufacturing sectors to identify future needs for HCFC alternatives that are environmentally safe, have low-GWP, and offer more energy-efficient applications. The NOU continued to be active in public awareness activities (e.g., TV/radio, newspapers, public presentations and celebration of the International Ozone Day), and participated in discussions taking place at regional network meetings, Executive Committee meetings and Meeting of the Parties to the Montreal Protocol.

Plan of action

6. The tenth phase of the IS project for Colombia will focus towards the achievement of the 35 per cent reduction in HCFC consumption by 1 January 2020. The Government through its NOU will initiate the strategy in stage II of the HPMP, ensuring the sustainability of activities implemented in the servicing sector as part of stage I of the HPMP, assisting end-users in the selection of low-GWP alternatives and strengthening of the legal framework. Additionally, support will be provided to the commercial refrigeration sector to convert to low-GWP alternatives, and the conversion of the remaining polyurethane foams sector (continuous and discontinuous panels, spray application and integral skin) in mostly small and medium enterprises served by the local system houses. The synergies with climate change will continue through the implementation of the Nationally Appropriate Mitigation Action (NAMA) for the domestic refrigeration sector with the aim of reducing emissions of greenhouse gases as well as conversion to ozone friendly alternatives, and through contributing to the development of the district cooling project to replace conventional air-conditioning systems. The Government of Colombia will continue reporting its ODS consumption on the Article 7 of the Montreal Protocol and on the country programme report and will contribute to the discussions taking place at regional network meetings, Executive Committee meetings and Meeting of the Parties to the Montreal Protocol.

Georgia: Renewal of institutional strengthening

Summary of the project and country profile			
Implementing agency:			UNDP
Amounts previously approved for institutional strengthening (US $):			
	Phase I:	Nov. 1997	70,000
	Phase II:	Dec. 2000	46,700
	Phase III:	Apr. 2003	60,667
	Phase IV:	Apr. 2005	60,667
	Phase V:	Jul. 2007	60,667
	Phase VI:	Apr. 2009	60,667
	Phase VII:	Apr. 2011	60,667
	Phase VIII	Apr: 2013	60,667
		Total:	480,702
Amount requested for renewal (phase IX) (US $):			60,667
Amount recommended for approval for phase IX (US $):			60,667
Agency support costs (US $):			4,247
Total cost of institutional strengthening phase IX to the Multilateral Fund (US $):			64,914
Date of approval of country programme:			1997
Date of approval of HCFC phase-out management plan:			2011
Baseline consumption of controlled substances (ODP tonnes):			
Annex B, Group III (methyl chloroform) (average 1998-2000)			0.0
Annex C, Group I (HCFCs) (average 2009-2010)			5.3
Annex E (methyl bromide) (average 1995-1998)			13.7
Latest reported ODS consumption (2013) (ODP tonnes) as per Article 7:			
Annex B, Group III (methyl chloroform)			0.00
Annex C, Group I (HCFCs)			1.38
Annex E (methyl bromide)			0.00
		Total:	1.38
Year of reported country programme implementation data:			2013
Amount approved for projects (as at November 2014) (US $):			2,414,369
Amount disbursed (as at December 2013) (US $):			2,065,925
ODS to be phased out (as at November 2014) (ODP tonnes):			87.9
ODS phased out (as at December 2013) (ODP tonnes):			86.8

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

Summary of activities	**Funds approved (US $)**
(a) Investment projects:	900,500
(b) Institutional strengthening:	480,702
(c) Project preparation, technical assistance, training and other non-investment projects:	1,033,194
Total:	2,414,369

Progress report

8. The NOU of Georgia implemented activities under the eighth phase of the IS project in cooperation with the HCFC consuming private sector, and all other key stakeholders. The IS project continued to support and coordinate the implementation of stage I of the HPMP, information dissemination and public awareness activities including International Ozone Day and the NOU's website[1]. Coordination efforts with industry associations resulted in the publication of the first edition of

[1] www.ozone.ge

a magazine for the Georgian Association of Refrigeration, Cryogenic and Air-conditioning Engineers. An electronic reporting management system (ERMS) was developed to facilitate the collection of ODS import/consumption data and the NOU submitted country programme and Article 7 data to the Fund and Ozone Secretariats, respectively, by the required deadlines. A number of workshops were organized for customs officers as part of efforts to monitor illegal trade. The NOU also prepared and is implementing a demonstration project to address disposal of accumulated unwanted ODS (the project is implemented in cooperation with a GEF/UNDP programme on excavation, re-packaging and disposal of obsolete persistent organic pollutants pesticides).

Plan of action

9. The NOU of Georgia will continue working to ensure national compliance with the HCFC phase-out targets required by the Montreal Protocol. The country will further develop improved legislative measures to support the control of HCFC consumption and ensure implementation of activities in stage I of the HPMP until 2020. Consideration will be given to projects to demonstrate the use of natural refrigerants where technically feasible, and on additional awareness initiatives in the public and private sectors. The IS project will also include the collection and processing of ODS data for the Fund and Ozone Secretariats, the enhancement of coordination with the customs department, the introduction of a mandatory certification system for RAC technicians, and preparation of a report of the ODS disposal project.

Annex II

VIEWS EXPRESSED BY THE EXECUTIVE COMMITTEE ON RENEWAL OF INSTITUTIONAL STRENGTHENING PROJECTS SUBMITTED TO THE 74th MEETING

Chile

1. The Executive Committee reviewed the report presented for the institutional strengthening (IS) project renewal (phase XI) request for Chile and noted with appreciation that Chile is taking the necessary steps to sustain total phase-out of CFC consumption and to meet the Montreal Protocol control measures related to HCFCs. The Executive Committee commends the Government of Chile for the implementation of stage I of the HCFC phase-out management plan (HPMP) for Chile, the follow-up on the adjusted Decree to control HCFCs, building a registry of HCFC products and equipment. The Executive Committee appreciates the work carried out to establish the certification programme for refrigeration technicians, the training of custom officers in HCFC controls, and training on new technology and alternatives in several sectors including fumigation, fire protection and refrigeration. The Executive Committee is also pleased by the level of awareness-raising related to the HCFC phase-out challenge and Chile's national goals. The Executive Committee is hopeful that Chile will continue the implementation of its planned activities with outstanding success and progress, and will sustain and build upon its current ODS phase-out achievements.

Colombia

2. The Executive Committee reviewed the report presented with the request for the renewal of the IS project (phase X) for Colombia and noted with appreciation that Colombia is taking the necessary steps to maintain the total phase-out of CFCs, halon and CTC, and to meet the HCFC control measures under the Montreal Protocol. The Executive Committee commends the Government of Colombia for achieving the freeze in HCFC consumption by 1 January 2013, the preparation of the strategy for the second stage of its HPMP, and persistent efforts to strengthen and ensure the sustainability of the activities being implemented in the servicing sector as part of the first stage of the HPMP. The Executive Committee took particular note of the technical assistance offered to end-users, the choice of low-global-warming-potential alternatives, involvement of governmental and private stakeholders, and the strengthening of the legal framework which supports the aforementioned activities. The Executive Committee is pleased with the efforts and actions by Colombia to achieve its commitments under the Montreal Protocol and is hopeful the country will continue the implementation of its IS project and HCFC phase-out activities with outstanding success.

Georgia

3. The Executive Committee reviewed the report presented with the request for the renewal of the IS project (phase IX) submitted by the Government of Georgia and noted with appreciation that the country reported 2013 country programme and Article 7 data by the prescribed deadlines and is in compliance with the Montreal Protocol's control measures. The Executive Committee acknowledges with appreciation that Georgia has demonstrated its commitment to the gradual phase-out of HCFC consumption by meeting the 2013 freeze in HCFC consumption at the baseline for compliance. The Executive Committee also noted that stage I of the HPMP for Georgia is at an advanced stage of implementation and is therefore confident that Georgia will confirm it has achieved the 10 per cent reduction in HCFC consumption as required by the Montreal Protocol in 2015, and is on track to achieve compliance with the control measure to reduce HCFC consumption by 35 per cent in 2020.

United Nations Development Programme
Montreal Protocol Unit / Chemicals

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74th Meeting of the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol

(18-22 May 2015)

UNDP
2015 WORK PROGRAMME

17 April 2015

2015 WORK PROGRAMME

I. EXECUTIVE SUMMARY

The present document constitutes UNDP's 2015 Work Programme and is being submitted for consideration of the Executive Commmitee (ExCom) at its 74th Meeting. The list of submissions for all funding requests (including investment projects) that will be submitted by UNDP to the 74th ExCom meeting in Annex 1 to this document is provided for information. Project documentation such as multi-year agreements (MYA) tranche requests, HCFC investment and demonstration projects and other individual/investment proposals, are not submitted as part of this document and are submitted separately as per normal practice. Only the following (non-investment) submissions are part of the main body of this document.

II. FUNDING REQUESTS PART OF THE WORK PROGRAMME AMENDMENT

Institutional Strengthening Extensions

Requests for funding of extensions of institutional strengthening projects included in this document for submission at the 74th ExCom Meeting are tabulated below. The documents with terminal reports and requests for extension of IS funding are being submitted separately.

Country	Type	Title	Duration (months)	Amount	Agency Fee	Total
Chile	INS	Institutional Strengthening Renewal (Phase XI)	24	186,550	13,059	199,609
Colombia	INS	Institutional Strengthening Renewal (Phase X)	24	275,600	19,292	294,892
Georgia	INS	Institutional Strengthening Renewal (Phase IX)	24	60,667	4,247	64,914
Total (3 requests)				**522,817**	**36,597**	**559,414**

Preparation funding requests for stage II HPMP

UNDP is submitting 1 funding request for the preparation of stage II of HPMPs to 74th ExCom meeting as per the table below. The Annex 2 contains the PRP submission.

Country	Type	Title	Duration (months)	Amount	Agency Fee	Total
Egypt	PRP	Stage II HPMP Preparation (XPS)	12	20,000	1,400	21,400
Total (1 requests)				**20,000**	**1,400**	**21,400**

Preparation funding requests for additional projects to demonstrate climate-friendly and energy-efficient alternative technologies to HCFCs, and feasibility studies on district cooling

Pursuant to the ExCom decision 72/40, as part of the Work Programme, UNDP is submitting to 74th ExCom meeting the funding requests for the preparation of additional projects to demonstrate climate-friendly and energy-efficient alternative technologies to HCFCs, and feasibility studies on

district cooling. The table below provides the summary information and the actual PRP requests can be found in the Annex 3 of the present Work Programme.

The full proposals for i) Colombia "Demonstration project to validate the use of Hydrofluoro Olefins (HFO) for discontinuous panels and spray in Article 5 parties through the development of cost effective formulations", ii) Dominican Republic "District Cooling Feasibility Study For Punta Cana, Dominican Republic", and iii) Egypt "Demonstration of Low Cost Options for the Conversion to non-ODS Technologies in PU Foams at Very Small Users (VSUs) (Dec 72/40)" are being submitted separately for the consideration of the ExCom. Therefore, they aren't included in the table below since no PRP funding is requested for these proposals.

Country	Type	Title	Duration (months)	Amount	Agency Fee	Total
China	DEM PRP	Demonstration project for developing screw high temperature heat pump compressor units with low GWP refrigerant in the Industrial and Commercial Refrigeration Industry (Dec 72/40)	12	36,500	2,555	39,055
China	DEM PRP	Demonstration Projects of ammonia Semi-hermetic Frequency Convertible Screw Refrigeration System in the Industrial and Commercial Refrigeration Industry (72/40)	12	24,000	1,680	25,680
Costa Rica	DEM PRP	Demonstration Project for the transition of HCFC-22 based refrigerant unit to NH3 system in Cold Chambers (Dec 72/40)	6	40,000	2,800	42,800
Egypt	DEM PRP	Demonstration of low GWP alternatives technologies in RAC under high ambient temperature conditions (dec 72/40) – bilateral with the Government of Japan	12	20,000	1,400	21,400
India	DEM PRP	Demonstration project for development and evaluation of Polyol systems for foam products using HFOs as blowing agent (Dec 72/40)	12	30,000	2,100	32,100
India	DEM PRP	Demonstration project for development and evaluation of spray foam Polyols systems for buildings using HFOs as blowing agent (Dec 72/40)	12	30,000	2,100	32,100
Kuwait	DEM PRP	Demonstration project for low GWP alternatives in high ambient temperature conditions in air-conditioning applications (Dec 72/40)	12	20,000	1,400	21,400
Maldives	DEM PRP	Demonstrating low GWP alternatives for HCFC phase-out in refrigeration applications in fishing industry (Dec 72/40)	12	15,000	1,050	16,050
Trinidad and Tobago	DEM PRP	Demonstration Project for the Production of hydrocarbons refrigerants in for Refrigeration and Air Conditioning applications in Latin America and the Caribbean (Dec 72/40)	6	40,000	2,800	42,800
Uruguay	DEM PRP	Assessment of unsaturated HFC (HFO) in air conditioning and refrigeration applications in a small non-LVC country (Dec 72/40)	6	40,000	2,800	42,800
Total (10 requests)				**295,500**	**20,685**	**316,185**

Other requests for non-investment projects

Pursuant to the decision of XXVI/9 of the Twenty-Sixth Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, as part of the Work Programme, UNDP is submitting to 74th ExCom meeting the requests for funding to conduct surveys of ODS alternatives in selected developing countries. The table below provides the summary information and the proposal is in the Annex 4 of the present Work Programme.

Country	Type	Title	Duration (months)	Amount	Agency Fee	Total
Costa Rica	TAS	Survey of ODS Alternatives at the National Level	18	70,000	6,300	76,300
El Salvador	TAS	Survey of ODS Alternatives at the National Level	18	70,000	6,300	76,300
India	TAS	Survey of ODS Alternatives at the National Level	18	180,000	16,200	196,200
Iran	TAS	Survey of ODS Alternatives at the National Level	18	120,000	10,800	130,800
Lebanon	TAS	Survey of ODS Alternatives at the National Level	18	90,000	8,100	98,100
Panama	TAS	Survey of ODS Alternatives at the National Level	18	70,000	6,300	76,300
Total (6 requests)				**600,000**	**54,000**	**654,000**

III. SUMMARY OF FUNDING REQUESTS (WORK PROGRAMME)

The table below summarizes the funding requests for non-investment activities and proposals, as part of UNDP's Work Programme for 2015, submitted to the 74th ExCom Meeting:

Country	Type	Title	Duration (months)	Amount	Agency Fee	Total
Chile	INS	Institutional Strengthening Renewal (Phase XI)	24	186,550	13,059	199,609
China	DEM PRP	Demonstration project for developing screw high temperature heat pump compressor units with low GWP refrigerant in the Industrial and Commercial Refrigeration Industry (Dec 72/40)	12	36,500	2,555	39,055
China	DEM PRP	Demonstration Projects of ammonia Semi-hermetic Frequency Convertible Screw Refrigeration System in the Industrial and Commercial Refrigeration Industry (72/40)	12	24,000	1,680	25,680
Colombia	INS	Institutional Strengthening Renewal (Phase X)	24	275,600	19,292	294,892
Costa Rica	DEM PRP	Demonstration Project for the transition of HCFC-22 based refrigerant unit to NH3 system in Cold Chambers (Dec 72/40)	6	40,000	2,800	42,800
Costa Rica	TAS	Survey of ODS Alternatives at the National Level	18	70,000	6,300	76,300
Egypt	PRP	Stage II HPMP Preparation (XPS)	12	20,000	1,400	21,400
Egypt	DEM PRP	Demonstration of low GWP alternatives technologies in RAC under high ambient temperature conditions (dec 72/40) – bilateral with the Government of Japan	12	20,000	1,400	21,400
El Salvador	TAS	Survey of ODS Alternatives at the National Level	18	70,000	6,300	76,300
Georgia	INS	Institutional Strengthening Renewal (Phase IX)	24	60,667	4,247	64,914
India	DEM PRP	Demonstration project for development and evaluation of Polyol systems for foam products using HFOs as blowing agent (Dec 72/40)	12	30,000	2,100	32,100

Country	Type	Title	Duration (months)	Amount	Agency Fee	Total
India	DEM PRP	Demonstration project for development and evaluation of spray foam Polyols systems for buildings using HFOs as blowing agent (Dec 72/40)	12	30,000	2,100	32,100
India	TAS	Survey of ODS Alternatives at the National Level	18	180,000	16,200	196,200
Iran	TAS	Survey of ODS Alternatives at the National Level	18	120,000	10,800	130,800
Kuwait	DEM PRP	Demonstration project for low GWP alternatives in high ambient temperature conditions in air-conditioning applications (Dec 72/40)	12	20,000	1,400	21,400
Lebanon	TAS	Survey of ODS Alternatives at the National Level	18	90,000	8,100	98,100
Maldives	DEM PRP	Demonstrating low GWP alternatives for HCFC phase-out in refrigeration applications in fishing industry (Dec 72/40)	12	15,000	1,050	16,050
Panama	TAS	Survey of ODS Alternatives at the National Level	18	70,000	6,300	76,300
Trinidad and Tobago	DEM PRP	Demonstration Project for the Production of hydrocarbons refrigerants in for Refrigeration and Air Conditioning applications in Latin America and the Caribbean (Dec 72/40)	6	40,000	2,800	42,800
Uruguay	DEM PRP	Assessment of unsaturated HFC (HFO) in air conditioning and refrigeration applications in a small non-LVC country (Dec 72/40)	6	40,000	2,800	42,800
Total (20 requests)				**1,438,317**	**112,682**	**1,550,999**

ANNEX 1

List of all UNDP submissions for funding to the 74th ExCom Meeting

No	Country	Type	Description	Funding Request for the 74th ExCom (US$)		
				Amount	Agency Fee	Total
1	Brazil	PHA	Stage I HPMP - 3rd tranche	3,000,000	225,000	3,225,000
2	Brunei Darussalam	PHA	Stage I HPMP - 2nd tranche	39,600	3,564	43,164
3	Chile	INS	Institutional Strengthening Renewal (Phase XI)	186,550	13,059	199,609
4	China	DEM PRP	Demonstration project for developing screw high temperature heat pump compressor units with low GWP refrigerant in the Industrial and Commercial Refrigeration Industry (Dec 72/40)	36,500	2,555	39,055
5	China	DEM PRP	Demonstration Projects of ammonia Semi-hermetic Frequency Convertible Screw Refrigeration System in the Industrial and Commercial Refrigeration Industry (72/40)	24,000	1,680	25,680
6	Colombia	INS	Institutional Strengthening Renewal (Phase X)	275,600	19,292	294,892
7	Colombia	DEM	Demonstration project to validate the use of Hydrofluoro Olefins (HFO) for discontinuous panels and spray in Article 5 parties through the development of cost effective formulations (Dec 72/40)	456,450	31,952	488,402
8	Costa Rica	DEM PRP	Demonstration Project for the transition of HCFC-22 based refrigerant unit to NH3 system in Cold Chambers (Dec 72/40)	40,000	2,800	42,800
9	Costa Rica	TAS	Survey of ODS Alternatives at the National Level	70,000	6,300	76,300
10	Costa Rica	PHA	Stage I HPMP - 3rd tranche	62,000	4,650	66,650
11	Dominican Republic	PHA	Stage I HPMP - 4th tranche	170,000	12,750	182,750
12	Dominican Republic	DEM	District Cooling Feasibility Study For Punta Cana, Dominican Republic (Dec 72/40)	100,000	9,000	109,000
13	Egypt	PRP	Stage II HPMP Preparation (XPS)	20,000	1,400	21,400
14	Egypt	DEM PRP	Demonstration of low GWP alternatives technologies in RAC under high ambient temperature conditions (dec 72/40) – bilateral with the Government of Japan	20,000	1,400	21,400
15	Egypt	DEM	Demonstration of Low Cost Options for the Conversion to non-ODS Technologies in PU Foams at Very Small Users (VSUs)	340,000	23,800	363,800
16	El Salvador	TAS	Survey of ODS Alternatives at the National Level	70,000	6,300	76,300
17	El Salvador	PHA	Stage I HPMP - 2nd tranche	58,928	4,420	63,348
18	Georgia	INS	Institutional Strengthening Renewal (Phase IX)	60,667	4,247	64,914
19	India	DEM PRP	Demonstration project for development and evaluation of Polyol systems for foam products using HFOs as blowing agent (Dec 72/40)	30,000	2,100	32,100
20	India	DEM PRP	Demonstration project for development and evaluation of spray foam Polyols systems for buildings using HFOs as blowing agent (Dec 72/40)	30,000	2,100	32,100
21	India	TAS	Survey of ODS Alternatives at the National Level	180,000	16,200	196,200
22	Iran	TAS	Survey of ODS Alternatives at the National Level	120,000	10,800	130,800
23	Iran (Islamic Republic of)	PHA	Stage I HPMP - 4th tranche	475,930	35,695	511,625
24	Kuwait	DEM PRP	Demonstration project for low GWP alternatives in high ambient temperature conditions in air-conditioning applications (Dec 72/40)	20,000	1,400	21,400
25	Kyrgyzstan	PHA	Stage II HPMP - 1st tranche	170,000	15,300	185,300

No	Country	Type	Description	Funding Request for the 74th ExCom (US$)		
				Amount	Agency Fee	Total
26	Lebanon	TAS	Survey of ODS Alternatives at the National Level	90,000	8,100	98,100
27	Lebanon	PHA	Stage I HPMP - 3rd tranche	124,760	9,357	134,117
28	Maldives	DEM PRP	Demonstrating low GWP alternatives for HCFC phase-out in refrigeration applications in fishing industry (Dec 72/40)	15,000	1,050	16,050
29	Panama	TAS	Survey of ODS Alternatives at the National Level	70,000	6,300	76,300
30	Panama	PHA	Stage I HPMP - 3rd tranche	31,865	2,390	34,255
31	Paraguay	PHA	Stage I HPMP - 2nd tranche	131,500	9,863	141,363
32	Republic of Moldova	PHA	Stage I HPMP - 2nd tranche	8,800	792	9,592
33	Trinidad and Tobago	DEM PRP	Demonstration Project for the Production of hydrocarbons refrigerants in for Refrigeration and Air Conditioning applications in Latin America and the Caribbean (Dec 72/40)	40,000	2,800	42,800
34	Uruguay	DEM PRP	Assessment of unsaturated HFC (HFO) in air conditioning and refrigeration applications in a small non-LVC country (Dec 72/40)	40,000	2,800	42,800
Total (34 requests)				**6,608,150**	**501,213**	**7,109,363**

Notes:

1. All amounts in US dollars
2. Special reports due (delays, balances, status reports, etc.) as well as other projects not part of the WP will be submitted separately.
3. UNDP also submitted tranche requests for 1st stage HPMPs for Armenia, Bangladesh, and Maldives in its role as a Lead Agency. However, these tranche requests aren't reflected in this table since there was no funding request for UNDP components.

ANNEX 2

Funding requests for the preparation of stage II of HPMPs for the following countries:

Egypt (XPS)

PREPARATION OF HPMP-Stage II for Egypt in the XPS foam sector

Proposed Institutional Arrangements and Budget

Introduction

This document describes the proposed institutional arrangements and budgets for participatory preparation of HPMP-Stage II for Egypt, which has assigned to UNDP, as a cooperating agency with UNIDO as the lead and UNEP as a cooperating implementing agency. Such arrangements would need:

a) To reflect national context and priorities, national policies and country-drivenness and consequently would be implemented under the guidance of the EEAA and the National Ozone Unit and in cooperation with other implementing agencies;

b) To draw upon the lessons learnt from functioning of operational mechanisms employed in the implementation of HPMP-Stage I and to the extent possible ensure coordinated implementation of other existing MLF-funded initiatives;

c) To be dynamic and evolving, and to be open for revisions and adaptation as necessary in response to evolving situations.

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

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

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

b) Commitments to achieving the 2013 (freeze at the 2009/2010 baseline level) and 2015 (10% reduction) control milestones through performance-based agreements;

c) In countries where there are multiple implementing agencies, a lead agency should be designated to coordinate the overall development of the HCFC phase-out management plans.

ODS Consumption

Egypt provided Article 7 reports to the Ozone Secretariat and the summary of that information is provided below in ODP tons:

Anx	Grp	AnxGrpName	2009	2010	2011	2012	2013	Baseline
A	I	CFCs	202.7	172.5	0.0	0.0	0.0	1,668.0
A	II	Halons	0.0	0.0	0.0	0.0	0.0	705.0
B	I	Other Fully Halogenated CFCs	0.0	0.0	0.0	0.0	0.0	0.0
B	II	Carbon Tetrachloride	0.0	0.0	0.0	0.0	0.0	38.5
B	III	Methyl Chloroform	0.0	0.0	0.0	0.0	0.0	26.0
C	I	HCFCs	396.6	375.9	355.58	513.78	297.0	386.3
C	II	HBFCs	0.0	0.0	0.0	0.0	0.0	0.0
C	III	Bromochloromethane	0.0	0.0	0.0	0.0	0.0	0.0
E	I	Methyl Bromide	190.2	157.2	133.2	116.4	55.2	238.1

Remaining eligible HCFC consumption is found in the refrigeration manufacturing, PU foam (appliance and non-alliance), XPS foam and the servicing sectors.

Methodology for HCFC data collection

HCFC data collection and verification will follow those survey procedures developed and applied in the preparation of HPMP Stage-I, and will be directed to updating information in the field by deployment of a local expert team. This will be performed in cooperation with the lead UNIDO and cooperating UNEP agencies.

Direct discussions and required industry and Government consultations will be held with XPS foam producers.

PRP Activities

It was recognized at the outset that a strictly “top down” approach of relying on reported import data may have limitations. As in any country, the accuracy and comprehensiveness of this type of data will be a function of the capacity of the responsible institutions to identify imported HCFCs through the licensing system, Customs data, and its level of physical enforcement. It will also be a function of the degree to which importers, distributors, product manufacturers and other end users voluntarily comply with reporting and control measures and what economic and structural factors may exist to discourage such compliance.

In view of the above limitations, a more comprehensive “bottom up” approach to estimating HCFC consumption in all possible sectors was adopted during preparation of HPMP-Stage I. It relied on direct survey and supplemented by the use of statistically based data from HCFC importers and system houses.

This approach was facilitated by the extensive network of contacts maintained by the NOU generally and particularly in the refrigeration sector, including involvement of the developing refrigeration association. Additional contacts among end-users generally were obtained through relevant national and local government agencies, as was the statistical data related to estimated total inventory of operating

HCFC containing equipment.

In the current proposed work to formulate HPMP-Stage II, the NOU-Egypt with support from UNDP as a cooperating agency for the XPS foam sector will follow established formats of work and update required baseline information, backed by the outreach to the HCFC importers and XPS industry and identify the priority next steps to be taken to phase out HCFCs in the XPS manufacturers. Approaches to implement this phase-out will be designed in discussions with stakeholders and presented in a format for HPMP-Stage II acceptable for the review by the MLF and ExCom.

The following presents the budget for UNDP:

XPS sector survey and project formulation activities	**Budget in US$**
National experts	5,000
International experts	10,000
Travel	5,000
Total for XPS	**20,000**

The budget of US$ 20,000 will cover national experts, international experts and travel (DSA, tickets).

Required data on XPS sector would be collected to establish eligibility of potential XPS enterprises (now known as 2 enterprises, and additional could be identified further), and the range of appropriate HCFC-free and low GWP technologies for selection as the substitute to existing HCFC-dependent manufacturing lines.

Data collected will be used during HPMP Stage II formulation process, and will result in preparation of MLF fundable activity in this sector.

Appropriate coordination with the lead UNIDO and cooperating UNEP agencies will be ensured.

Timeframe

The approval of HPMP-Stage II preparation funding is expected at the 74th Executive Committee meeting in May 2015. In order to complete the project formulation works, NOU-Egypt and UNDP estimate that 12 months will be required to complete project formulation works.

MILESTONE/TIME FRAME (In months)	**M1/3**	**M4**	**M5**	**M6**	**M7**	**M8**	**M9**	**M10**	**M11**	**M12**
Start-up of project activities	X									
Initiation meetings of/for stakeholders	X	X								
Constituting the national team	X	X								
Information dissemination/industry interaction			X	X						
Data collection			X	X	X	X				
Data analysis					X	X	X			
Preparation of draft investment proposals							X	X	X	
Stakeholder consultations									X	X
Finalization and submission									X	X

ANNEX 3

Funding requests for the preparation of additional projects to demonstrate climate-friendly and energy-efficient alternative technologies to HCFCs, and feasibility studies on district cooling

1. **China: Demonstration project for developing screw high temperature heat pump compressor units with low GWP refrigerant in the Industrial and Commercial Refrigeration Industry)**
2. **China: Demonstration Projects of Ammonia Semi-hermetic Frequency Convertible Screw Refrigeration System in the Industrial and Commercial Refrigeration Industry**
3. **Costa Rica**
4. **Egypt**
5. **India: Demonstration project for development and evaluation of Polyol systems for foam products using HFOs as blowing agent**
6. **India: Demonstration project for development and evaluation of spray foam Polyols systems for buildings using HFOs as blowing agent**
7. **Kuwait**
8. **Maldives**
9. **Trinidad and Tobago**
10. **Uruguay**

China: Project preparation funding request

Proposal for demonstration project for developing screw high temperature heat pump compressor units with low GWP refrigerant in the Industrial and Commercial Refrigeration Industry

Introduction

The heat pump technologies like other refrigeration, are categorized as commercial and industrial refrigeration technologies in China. They not only produce cooling but also produce heating and they use refrigerant in the system to perform their heating and cooling functions. Currently, heat pump is regarded as an environmental technology for solving some environment issues in China. The main reasons are as follows:

- It could use the energy from waste water, air, geo-heating, etc.
- Coal consumption for heating is accountable for the main cause of air pollution. In order to reduce the air pollution, China is looking for the technologies for controlling the air pollution and reducing the emission of greenhouse gases and ODSs where heat pumps are used. One of the technologies which seems effective is the heat pump using non-ODS low-GWP technologies.

In the industrial processes of petrochemical industry, chemical industry, textile industry, steel industry, thermal electricity, metallurgy and others, significant amount of waste water in the temperature range of 30 to 70℃ is produced. In addition, CO2, SO2, COx and other fumes are also produced. If these wastes are discharged without treatment, it would not only seriously pollute the environment, but also lead to a huge waste of energy that can be recovered.

In recent years, heat pumps receive increasing attention as an energy-saving and environment friendly technology, and this has resulted in development of high temperature heat pumps i.e., heat pumps that can produce water temperature which is higher than 70℃.

The high temperature heat pump units of this development project refer to use the refrigerant with zero ODP and low GWP to extract "low" heat energy from industrial heated waste water, and transfer to high-grade heat energy to reach a target of output water temperature ranges from 90℃ to 150℃ (The maximum output water temperature of lithium bromide absorption heat pump is lower than 80℃).

In this way, it can be used to produce hot water for civil or industrial usage like the heating in the north cities in China, the crude oils heating transportation, the dyeing and weaving process or others. This technology can also be used in low temperature steam requirement areas. The temperature in those sectors is usually between 90℃ to 150℃, the technology could meet the temperature appropriately.

Thus, a technology to replace small size coal-fired, oil-fired, gas-fired industrial boiler and to achieve efficient recycling of industrial waste heat could reduce the energy wastage that could otherwise be utilised for beneficial heating purposes and pollution reduction from burning coal that contributes to haze problem in the country.

There are 600,000 boilers in China and most of these are industrial coal-fired boilers with low energy efficiency. Industrial coal-fired boilers are also facing serious shortage of construction of environmental protection facilities. For example, industrial boilers for heating close to the city and residential areas are with the low height. They are not constructed to avoid emission of pollutants in the form of particulate

matter. This has become the major cause of urban haze. In other word, controlling industrial haze can be accomplished by reducing use of industrial coal-fired boilers.

In order to improve the quality of the environment, people in the industrial sectors plan to use the heating pump to substitute the boilers in supplying hot water and heating purposes. Currently, the heat pump will consume the refrigerant especially HCFC-22, which is ODS, and this is planned to be phase out committed by Chinese government in line with its Montreal Protocol commitments. Therefore, the industry sector is looking the new technology for the heat pump which is both zero ODP and low GWP. The new generation of refrigerant such as HFOs draws high attention in China.

Brief project summary

Shanghai Hanbell Precise Machinery Co., Ltd. chooses HFO-1336mzz (Z) refrigerant produced by DuPont for this product development. The Project activities include (a) Adaptive design of product and prototype production, (b) Building performance test centre and (c) training for related personnel. . The Project is planned for completion in a period of 24 months.

- **Development of special semi - hermetic screw compressor heat pump**

Taking into account the long exposure to high suction temperature and the exhaust temperature of the compressor operations, impact of time period of exposure should be considered for the compressor design:

1. Choice of low coefficient of expansion rotor with high hardness materials to avoid high temperature expansion that leads to accelerated wear between teeth;
2. Appropriate reduction in the compressor suction flow rate, avoiding mass flow pressure drop under adverse effects on system performance;
3. Adjust cavity diameter, axial clearance of the compressor to avoid high temperature expansion which leads to rotor and casing inner wall rubbing;
4. Adjust the compressor oil design to avoid adverse effect of oil content in system performance increase;
5. Adjust the compressor motor load ratio design to avoid long-term high temperature operation of motor which will cause the burning;
6. Economizer's energy-saving changes with pressure ratio and be adjusted to ensure the optimization of compressor performance.

Besides, the oil development is considered as one part of the design of this new compressor.

- Transformation of the Performance Test Centre

In order to conduct the test for the new products, the existing test centre, which is currently used to test the performance of the products with old refrigerant agents, needs to be modified. The modification of the test centre possibly includes following items:

1. Evaporator system with high-temperature heat source: It can meet the heat exchange demands of the high-temperature heat source with the temperature range of 0 ~ 120 ℃, and a pressurized system will be used to avoid vaporization of the high-temperature water;
2. High-temperature condenser system: The temperature range is 70 ~ 150 ℃, and in order to avoid vaporization of the high temperature water, a pressurized system will be used.

3. Heating system with high-temperature heat source: It can provide controllable heat source for the super high temperature heat pump system with the temperature range of 20 ~ 120 ℃, and a pressurized system is used to prevent the high temperature water vaporizing.
4. Cooling system with high-temperature hot water: In order to ensure the system runs continuously in a stable condition, valves, cooling towers and other components are used to release the excess heat of the system.
5. High-temperature thermal storage system: The heat stored in the last system operation is the heat source of the unit.
6. Start cabinet and control systems: It can guarantee a coordinating and stable operation between the entire unit and the external high-temperature heat source system, high-temperature hot water cooling system.
7. Other: The insulation of the high-temperature heat source and the related safety equipment.

- Training

According to the characteristics of the new refrigerant and the high-temperature heat pump unit, the training is planned for production staff, safety staff, managers, Installers and maintenance personnel. In this project, a total of 50 staff members are proposed to be trained.

When the project is completed, the technology can result in production of screw compressor using high temperature heat pump. This will result in a feasible technology for eliminating small size coal-fired, oil-fired, gas-fired industrial boiler, which can provide technical support for the governance of the hazy weather in China.

Project objectives

Shanghai Hanbell Precise Machinery Co., Ltd. chooses HFO-1336mzz (Z) refrigerant produced by DuPont. Regarding this project, Semi-hermetic screw heat pump compressor is going to be developed to make three prototypes of high temperature heat pump units which have heating capacity of 350kw~1400kw and have ability of producing high temperature water or vapour range from 90℃ to 150℃. When the project is completed, the screw compressor using high temperature heat pump could be commercially produced in China and could be used to reduce small size coal-fired, oil-fired, gas-fired industrial boiler, which can contribute to reduction in haze in China.

Expected demonstration results

The high temperature heat pump uses HCFC-124, HCFC-142b and blends of HCFC-142b as refrigerants. Under this demonstration project, zero ODP and lower GWP refrigerant (HFO-1336Mzz (Z)) will be demonstrated in the production of high temperature heat pump units in China. The project also has aim to find a technical route to replace small size coal-fired, oil-fired, and gas-fired industrial boiler and provides technical support for the governance of the hazy weather in China.

The production line is of capacity of 300 units annually. If the HFO-1336Mzz (Z) could be used, it will reduce the consumption of 90 MT HCFCs indirectly.

The demonstration project also promotes the utilization of the new refrigerants in China.

Institutional arrangements

China is facing severe air pollution issue now; one of the reasons is the coal consumption which gives rise to the reparable particulates. It is expected that the efficient heat pumps could be used for promoting the energy efficiency and reducing the coal consumption.

The State Council of Chinese government issued the Notice "Air Pollution Prevention Action Plan" in 2013. The year 2017 targets are: The reparable particulate matter concentrations of national level and above cities will be decreased more than 10% over 2012; concentrations of fine particulate mattered in Beijing, Tianjin, the Yangtze River Delta, Pearl River Delta region will be decreased by 25%, 20 %, about 15%, of which the average annual concentration of fine particulate matter in Beijing will be controlled at about 60 micrograms/cubic meter.

Chinese government is keen on the technology and hope the technology could be integrated in the process of phase-out ODS. The HFOs technology is ODS free, low GWP, and could be used in heat pump for energy utilization and reduction of reparable particulate emission.

The new technology not only help China to promote energy efficiency, but also help china to improve the air quality by minimize the utilization of coal boilers in some situation. Besides, it can also promote the usage of new generations of refrigerants in the industrial and commercial sector. Since the new refrigerant is zero ODP and low GWP, it can help China to meet its committeemen to Montreal protocol and other environment agreement. The project is aimed at demonstration of low-GWP technologies in heat pump with HFO-1336Mzz (Z) refrigerant in China. If the technology is successfully demonstrated in China, it will help China to control ODS consumption in RAC sector,

The product would be overall managed by FECO and would be directly supervised by the FECO office staff handling commercial refrigeration equipment. CRAA will provide technical inputs while designing the project. UNDP would provide technical backstopping and support to the NOU for developing an implementation plan and assistance in implementing the project. Technical consultant(s) would be recruited for providing advisory support for developing the project taken into consideration project objectives and Executive Committee guidelines.

The Government provides a commitment to complete the project preparation within 12 months from the date of approval of the project preparation funds.

Company Information

Shanghai Hanbell Precise Machinery Co., Ltd. is located in the Ancient Town Fengjing, Jinshan District, Shanghai and is conveniently situated at the central position of Yangtze River Delta. The company is established in January 1998. The area of the factory site is more than 40 thousand square meters. Hanbell Precise Machinery is specialized in the research and development of corresponding technology of screw compressor and its production, sales and after-sales service. The main products include R series (screw refrigerating compressor), L series (screw refrigerant compressor), A series (screw air compressor) and P series (vacuum pump), which are widely applied to all walks of life, as one of most important common electromechanical equipment.

R series screw refrigerating compressors have been listed as No. 1 in market share for 9 years and have about 400 customers like Haier, Midea, Gree, Tongfang, TICA, Dunan, York, CLIMAVENETA, etc. Hanbell has the annual production capacity of 25,000 refrigerant screw compressors. "To be the leading brand of fluid machinery in the world" is the vision of Hanbell.

Budget

The total budget for project preparation activities is given in the table below.

Particulars	**Value in USD**
Consultants	22,500
Travel - national and international	8,000
Local coordination	6,000
Grand total	**36,500**

China: Project preparation funding request

Proposals of Demonstration Projects of Ammonia Semi-hermetic Frequency Convertible Screw Refrigeration System in the Industrial and Commercial Refrigeration Industry

Introduction

In the Industrial and Commercial Refrigeration and Air Conditioning (ICR) Sector, there has been a sustained growth in refrigerant consumption in the past few years. The ICR HCFCs sector consumption baseline was over 40,000 metric tonnes. The sector contributes about US$ 30 billion to the economy and employs over 100,000 persons in over 1,000 enterprises, many of which are small and medium-sized. This sector also has a large variety of products and applications, categorized into nine sub-sectors. The main constraint faced by the sector in the context of HCFC phase-out is the availability of mature and proven availability of cost-effective and low-GWP alternative refrigerants that can result in energy efficient performance of equipment and related technology and the ability to deploy alternative technologies for meeting the Stage-I targets, without undue burden on the industry and public.

Based on survey results, the consumption of HCFCs in 2010 was 43,940 tons. 10% of which was consumed by cool storage, cool transportation, this covers three sub-sectors, i.e. Condensing Units, Freezer and cold storage equipment, and Transport Air conditioning. Currently, most of the manufactures use HCFCs as refrigerants. Keeping in view the requirement of Zero ODS, low GWP, size of equipment, safety, etc., and after preliminary comparing various technologies, China plans to promote adoption of equipment in the small and medium sized freezing and cold storage（such as supermarket and cold storage) using Ammonia based semi-hermitic frequency convertible screw refrigeration compressor units. Towards this, a demonstration project for manufacturing the said compressors is proposed to be implemented in Fujian Snowman Co. Limited.

The current project, for which PRP funding is requested, is expected to help the company develop facilities to manufacture Ammonia based semi-hermitic frequency convertible screw refrigeration compressor units, as well as the system, that can be used in the small and medium sized freezing and cold storage. The technology is based on NH_3 as refrigerant and CO_2 as secondary refrigerant for heat exchange. The performance results of such compressors and systems would be available to different end-users so that they can adopt this technology in their cold storage products. This demonstrated technology can be adopted in China and other countries with similar operational requirements in cold storage and cold chain applications which use HCFC-22 as refrigerants.

Brief project summary

The project aims at promoting adoption of low GWP climate friendly technologies among the users in identified applications in the ICR sector. This would be undertaken as follows:

1. Product Design

The project includes redesign of three specifications of R717/R744 screw compressor units and systems. The main design works includes:

1) Profile design of screw rotor, electrical motor design, compressor design, working drawings and related design assessment and review;
2) Design of ammonia semi-hermetic frequency convertible screw compressor;

3) Design of special motor for the ammonia semi-hermetic frequency convertible screw compressors;
4) Design of R717/R744-related pressure vessel screw frequency convertible compressors;
5) Design of R717/R744 system of screw frequency convertible compressors unit;
6) Electrical control and software design;

2. Design of production process and operations

1) Pressure Vessel Manufacturing Process Design
2) Forming of pressure vessels welding process design
3) Reconstruction design of container strength test device
4) Compressor Unit Assembly Manufacturing Process Design
5) Compressor unit production process design
6) Forming, welding process design
7) Forming, welding and other process equipment design;
8) Assembly process, tooling design
9) Electrical Control System Manufacturing Process Design
10) Electrical control system production process design

In addition to the above, the other elements of production process and operations design include the following:

1. The semi-hermetic frequency convertible screw compressors mould
2. Compressor units mould
3. Compressor's newly added fixture and tool
4. Compressor's newly added fixture.

Besides all above-mentioned, the test device, training and marketing promotion are also necessary component for the project.

Test Device

1. Compressor online testing device
2. Pressure vessel strength testing device
3. R717/R744 compressor performance test equipment

Training

Trainings for related designers, processors and manufacturing personnel people, etc.

Marketing and Promotion

1. Promotion and Technology Communication through publication and information outreach of the results.
2. Product Promotion that would include attending International Refrigeration Exhibition, China Refrigeration Exhibition, demonstration and promotion the results of the demonstration project, showing the re-designed products, and sharing experience of the demonstration through advertising videos and so on.

Project objectives

The main objective of the project is to demonstrate and provide performance results of ammonia based semi-hermetic frequency convertible screw refrigeration compressor units, small and medium size commercial refrigeration equipment in freezing and cold storage under different ambient conditions in China. The performance results would primarily include (a) refrigeration cooling performance, (b) energy consumption and energy efficiency, and (c) product installation and servicing effectiveness including safety aspects for safe operation and maintenance.

Expected demonstration results

- ✓ after completion of the project and operation in full production, the project will achieve the reduction of 80-100 tons HCFC22 and 146,000 CO_2 equivalent tons greenhouse gas emissions
- ✓ Miniaturization of NH_3 refrigeration equipment for the first time in China. The combination of NH_3 and CO_2 will further reduce the amount of NH_3charged into cooling system, so small refrigerator application NH_3 / CO_2 systems could be used in densely populated supermarkets, it is a good low-GWP solution for small and medium size refrigeration sector.
- ✓ Results of performance of the redesigned compressors in different operating conditions.
- ✓ Design improvement / modifications required (if any) for improved performance to suit local ambient conditions and operating requirements.
- ✓ Better understanding of industry on costs and operational performance of using the compressors with the above technology in different ambient conditions. This is expected to result in informed product performance evaluation and increased product acceptance in China and other countries with similar requirements.

Institutional arrangements

As mentioned earlier, the project is aimed at demonstration of low-GWP technologies in small and medium size commercial refrigeration applications. The national regulations governing use of RAC applications using respective technologies would apply (e.g., Ammonia). Specifically, China is currently developing standards for handling and operations including servicing of low GWP flammable refrigerants (e.g., HFOs). Wherever technology choices and use involves such refrigerants, the standards would be taken into consideration during project implementation. Further, standards relating to CO_2 based technologies that involve operations of high-pressure equipment, would be used while designing, installing and operations of equipment using CO2 as a refrigerant where applicable.

The project would be overall managed by FECO and would be directly supervised by the FECO office staff handling commercial refrigeration equipment. UNDP would provide technical backstopping and support to the NOU for developing an implementation plan and assistance in implementing the project. Technical consultant(s) would be recruited for providing advisory support for developing the project taking into consideration project objectives and Executive Committee guidelines.

The Government provides its commitment to complete the project preparation within 12 months from the date of approval of the project.

Company Information

Fujian Snowman Co. Limited is one of biggest company supplying the industrial and commercial compressors in china, with a registered capital of RMB 160 million. The headquarter is in Binhai

Industrial Zone, Fuzhou, Fujian Province, and it also covers an area of 156 acres in Liren new industrial park of Changle City. The company has developed into the largest professional manufacturer of ice-making system, and it became a professional high-tech enterprise integrated with the R&D, designing, manufacturing, sales and engineering unit installation of compressors, ice-making equipment, cooling water equipment, ice storage system and cooling system; The products are widely used in cold-chain logistics, food processing, ice storage cooling, mine cooling, nuclear power plant construction, water conservancy and hydropower and other fields.

Under the development ideas of "acceleration of the industry's upgrading", Fujian Snowman Co., Ltd has actively practiced the industry mergers and acquisitions, overseas mergers and acquisitions, in order to accelerate the achievement of industrial upgrading and strategic transformation. In 2013, the company has deeply cooperated with Swedish Opcon and Refcomp, the famous screw compressor company. The company has mastered the design and manufacturing technology of middle and high-end compressor in advanced commerce and industry and owned the complete production line of open type screw compressor, semi-hermetic compressor and piston compressor.

The HCFC22 consumed by the company from 2012 2014 is indicated in the following table.

HCFC-22 Consumption in 2012-2014

year	HCFC-22 consumption (metric ton)
2012	457
2013	434
2014	349

Budget for the preparation

The total budget for project preparation activities is given in the table below.

Particulars	Value in USD
consultants	10,500
Travel - national and international	8,500
local coordination	5,000
Grand total	**24,000**

PROJECT COVER SHEET

TYPE OF PROJECT	Project preparation funding request
TITLE OF THE PROJECT	Demonstration Project for the transition of HCFC-22 based refrigerant unit to NH3 cascade system in refrigeration applications
COUNTRY NAME	Costa Rica
IMPLEMENTING AGENCY	UNDP
GOV. COUNTERPART	Ministry of Environment, Energy and Sea (MINAE)

DATES OF RATIFICATION OF AMENDMENTS TO THE PROTOCOL			
London	June 1998	**Copenhagen**	June 1998
Montreal	May 2005	**Beijing**	October 2008

GENERAL INFORMATION		
Sector / Sub-sector	Refrigeration and Air Conditioning	
ODS Consumption		
Baseline	23.0 ODP tonnes	
Starting Point for Aggregate Reduction	23.0 ODP tonnes	
Sector Consumption	10.5 ODP tonnes	
Project Impact	Not applicable	
Participating Company (ies)	PINOVA S.A.	
Eligibility of participating company (ies)	100 % (A5)	0 % (non-A5)
Project Preparation Costs (US $)	40,000	
MLF Requested Funding (US $)	40,000	
I.A. Supporting Costs (US $)	3,000 (7.5%)	
Total cost of the Project for the MLF (US $)	43,000	
Project Duration (months)	12	

PROJECT PRP PROPOSAL SUMMARY

Costa Rica became a Party to the Vienna Convention and Montreal Protocol, and also ratified the London, Copenhagen, Montreal and Beijing Amendments. The country is fully committed to the phase-out of HCFCs and is aware of the challenges and barriers in the whole Latin America region, particularly in the Caribbean sub-region, in terms of promoting the wide and cost-effective application of hydrocarbons (HCs) refrigerants to support the phase-out of HCFCs and leapfrog the HFCs in the refrigeration and air conditioning sector.

Minding that there is a trend in LAC region for use of HFCs in small and medium sized industrial and supermarkets sub-sectors, it is recognized that LAC companies and users face technical, commercial and financial constraints to adopt natural refrigerants, particular the “perception” related to toxicity and flammability of certain applications.

Therefore, the objective of this project preparation request is to develop a demonstration project that will enable the country to promote the reconversion of an existenting HCFC-22 cold room to a NH3-based system, so such constraints can be assessed and barriers addressed, generating lessons learnt for countries that face similar challenges in order to overcome those.

At this stage, preparation funding is being requested. The detailed costs of the demonstration project will be included in the “full” demonstration project proposal, however, indicative estimates are around USD 590,000 (with estimate co-finance of the recipient company of USD 380,000). It is the intent that the results of the demonstration projects will be shared with the Multilateral Fund and the interest countries/stakeholders through the regional and sub-regional ozone officers meetings.

INTRODUCTION

1. The accelerated agreement to phase-out the HCFCs consumption, under the Decision XIX/6, also brought a challenge to Article 5 countries which is to establish HCFCs alternative replacement policies that could also promote the use of low-GWP technologies in order to maximize the effects over the climate change issue.

2. It is acknowledged that such drivers must be either precede, or be followed by, technically proven, commercially available and ready-to-use alternatives that are not only able to be used in the HCFCs consuming sectors, but that are also suitable (or adapted) to regional/local specific requirements that, today, are barriers for their full implementation.

3. This is the case for a widespread application of natural refrigerants, both in the manufacturing and in the servicing sectors, in the Latin America and the Caribbean (LAC) region. In general, A5 countries have a wide supermarket base and other industries that required high quantities of refrigerants in cold chambers, which is essential for food security and its conservation.

4. Today, LAC countries depend almost entirely on HCFC-22 in a large scale for these sub-sectors, with increasing tendencies to migrate to HFCs-based refrigerant. Particularly for supermarkets and light industrial applications, Brazil has been pioneering cascade systems (CO_2-based cascade units are, today, present in almost 40 units in this country), however, such cascade systems are almost entirely dominated by CO_2-HFCs refrigerant cycles, with very minor use of CO2-Ethylene Glycol refrigerants. There is no use of CO_2-HC / CO_2-NH_3 or Supercritical CO_2 whatsoever. In the same sense, it is not known application of such systems in other LAC countries, especially no NH_3 systems are known to be used in LAC for SMEs, particularly in the Central America sub region.

5. In this sense, this proposal aims to request funding to prepare a project that will demonstrate the feasibility of the reconversion of medium to small size cold chamber that current uses HCFC-22 to NH3-based system (either a cascade system with R-717/ethylene glycol or a R-717 direct expanstion one – to be defined during project preparation) , to verify its applicability in the field and identify, list and remove barriers to the use of natural refrigerants (that require specific safeguards in terms of toxicity and flammability, for example) in Costa Rica, resulting in additional gains in terms of GWP reductions.

6. The project´s results are expected to be consolidated and disseminated in the LAC region, with possibility to be replicated in countries that today face barriers and challenges to promote and adopt natural refrigerants, particularly in the same conditions of systems used in hybrid situations (supermarkets/industrial medium to small size cold rooms, usually located in mixed-use zoning areas, inside cities) and usually lack proper field information suited to their national realities.

OBJECTIVES

7. The expected objectives of the demonstration project are:

(a) Promote the use of Ammonia (R-717) in the field through the reconversion of a cold chamber of 150 refrigeration tons demand,;
(b) Lower the operational costs of the system, lower energy consumption and lower significantly the direct emissions of CO_2-eq gases.
(c) Optimize environmental and hygienic controlling systems and procedures;
(d) Identify and put in place a real case example to enable the country to remove barriers to the adoption of toxic/flammable natural refrigerants;

(e) Phase-out the consumption of HCFC-22 in the cold chamber of the subsidiary company "Premezclas Industriales para Panaderia", part of PINOVA S.A. group.

EXPECTED RESULTS

8. The expected result of the preparation project is:

(a) A Full Demonstration Project Proposal, that in compliance with the "GUIDE FOR THE PREPARATION AND SUBMISSION OF ADDITIONAL PROJECTS TO DEMONSTRATE CLIMATE-FRIENDLY AND ENERGY-EFFICIENT ALTERNATIVE TECHNOLOGIES TO HCFCS, AND FEASIBILITY STUDIES FOR DISTRICT COOLING (Decision 72/40);

9. The expected outcomes of the Demonstration Project are:

(a) A HCFC-22 system replaced. HCFC-22 refrigerant recovered and disposed of;
(b) A R-717-based system installed. Plant properly adapted the installation to fit safety measures;
(c) Barriers and challenges for the adoption of natural refrigerants identified, and potential solutions recommended;
(d) Energy consumption in the plant lowered. Operational costs minimized for the plant. GHG emissions lowered in the recipient company;
(e) Final report prepared and shared with interested parties and stakeholders;

INSTITUTIONAL ARRANGEMENTS

I. Legal and Regulatory Framework

10. The Government of Costa Rica has currently regulations that are specifically for HCFCs import/export controlling, as well as a fully functional import quota system in place since 2013. The Government is able regulate production, trade and usage of any ODS that is controlled under the Montreal Protocol. Unregistered companies are not allowed to produce, import, export, market and/or use ODS. It is prohibited to use CFCs substances in new systems, equipment and products, national and imported, and under the HPMP, supported with the results of the demonstration, a sector approach can be undertaken to lead to a promotion of low-GWP refrigerants to replace HCFCs, supporting the country to meet the Montreal Protocol obligations.

II. Institutional Structure

11. The Ministry of Environment, Energy and Sea (MINAE) has its origins back to 1988 when the Ministry of Industry, Mines and Energy was created, being re-organized in 1995 and re-founded and MINAE, as maximum entity responsible for the formulation and execution of Government's policy in the environmental sector. The Ministry operates as facilitator in the implementation of those policies through its various units and affiliated agencies. The MINAE also house the National Ozone Unit, which coordinates the formulation and implementation of all projects funded by the MLF.

12. Under this proposed preparation project, UNDP will serve as implementation agency (IA) working in close coordination with the National Ozone Unit (NOU), which will act as executing partner for the project implementation.

III. Implementation Approach

13. The implementation modality to be used in this specific project preparation proposal will be Direct Implementation Modality, using UNDP to provide support to the NOU in the implementation of the PRP activities and the development of the project proposal.

14. Under this implementation modality UNDP will be responsible for:

(a) Hire experts and consultant, arrange for missions;
(b) Provide technical expertise for the preparation of the proposal;
(c) Monitor and oversight PRP activities.

15. The National Ozone Unit will be responsible for:

(a) Coordinate the overall project preparation activities;
(b) Provide guidance to the PRP activities;
(c) Facilitate the PRP activities with the stakeholders;
(d) Review and endorse the Project Demonstration proposal;
(e) Request UNDP to submit the Project Demonstration proposal to the MLF on its behalf.

IV. Government Commitment

16. The Annex I of this project preparation funding request brings the Transmittal Letter of the Government of Costa Rica confirming its full commitment to the project preparation.

PARTICIPATING COMPANY

17. This pilot project is designed around the company PINOVA S.A, and will take place in one of its subsidiaries, the *Premezclas Industriales para Panaderías*. Contact information is as follows:

Company:	PINOVA S.A.
Contact:	Gerardo Miranda Corporate Environmental Manager
Address	Aptdo 2046-3000. Heredia. Costa Rica.
Phone:	+506 24376590
E-mail:	Gerardo.mirandaifco.com
Foundation date:	1908
Capital:	100% A5 (Costa Rica)
HCFC installed capacity/consumption	To be verified during the preparation phase

18. PINOVA S.A. is a company from Costa Rica with main focus on the food industry, providing pastry and bread products countrywide in the areas of pre-processing, frozen crude, pre-heated frozen, completed frozen and cooled foods.

19. The project is to be developed in the PINOVA subsidiary *Premezclas Industriales para Panaderías*, responsible for the production of pre-processing mixing foods. The refrigeration demand in this unit is around 150 tons and the system is designed to reach low temperatures of -25°C. The system has two scroll compressors (60 hp each) and 14 heat exchangers. However, the current capacity is already outdated since the demand might be as twice as the current used, resulting in inefficiencies in the system, larger risk of defects and HCFC-22 emissions and higher energy consumption to freeze the foods. In this sense, the installation of a new system is envisaged and this might be an opportunity to leapfrog HFCs and promote the use of natural refrigerants in the country.

The Annex II of this project preparation funding request brings the Letter of Commitment of the company, confirming its interest to the preparatory project.

EGYPT:

Project Preparation Funding Request

Demonstration of HCFC free low GWP technologies performance in the commercial refrigeration sector in Egypt

Introduction

Refrigeration and air-conditioning in countries with high temperature ambient environments represent particular challenges in terms of achieving effective cooling, and specifically with the application of air-based condensers. Egypt is one of the countries with such environmental conditions, and in the need for demonstration of practical and performing HCFC-free and low GWP solutions with natural refrigerants as a prime choice (carbon dioxide/ammonia).

The rationale behind the currently proposed demonstration project with the bilateral support from the Government of Japan is to select, install and demonstrate newer modern technologies in chosen sectors (the prime target would be industry and/or public sectors such as hospitals, libraries etc) which would avoid HCFCs as a refrigerant, and at the same time higher GWPs such as HFCs. This would be carried out in stages, when prepared and approved for implementation, associated with the identification of recipients, discontinuing the existing older HCFC based equipment, purchase of modern HCFC-free refrigerated packages, their installation at selected projects sites and operation for a definite amount of time with appropriate performance recording and servicing support available through specific capacity building from a manufacturer of supplied equipment.

Currently, there is limited in-country experience with such non-HCFC/non-HFC solutions as well as lacking experience with maintenance and servicing of equipment of this type, and the demonstration will reveal the market capital costs, operational costs, performance to deliver and savings information which can only be received from a practical field operation of such equipment.

Brief project summary

The project will engage with selecting a recipient of the refrigeration equipment that would work on HCFC-free and low GWP options or natural refrigerants. This would involve initial scoping consultations with the NOU-Egypt, UNDP and technical experts from the refrigeration sector, and identification of a long-list of potential participants meeting criteria such as established business's status with a prospect of replicating equipment replacement investments in other branches, or important partner from the public sector (public library, hospital etc) with state support, refrigeration service technicians on staff to oversee the equipment's operations or regular sub-contracts with qualified service companies/centers.

When recipient is selected, appropriate baseline parameters on the equipment performance such as an average number of annual service episodes, and cooling capacity and energy use in peak high temperature season will be documented to provide a basis for background measurements.

The demonstration equipment to replace the existing HCFC-based technology will be supplied through an international tender with specific requirements demanding delivery, installation and maintenance service directly by the supplier and with engagement of a local service company to build their technical capacity in continuing to maintain this new equipment after commissioning.

Where baseline cooling and energy-efficiency performance would be recorded for initial months of operation with existing installed equipment, and after the replacement with target equipment with HCFC-free/low GWPs characteristics, performance of this new equipment will be assessed to compare with original values throughout one year of operations capturing major weather seasons in the country. All required parameters for comparison will be established with the help of the equipment supplier.

In case proven technically performing in high temperature ambient and superior in energy-efficiency savings as compared to cheaper HCFC/common replacement HFC equipment, the project will support an awareness raising component through a series of stakeholder consultations on spreading this crucial information, and providing linkages to the HPMP Stage II formulation and implementation processes with further information exchange to key stakeholders in the refrigeration sector – major end-users, equipment assemblers on performance parameters on newer technologies, and providing regulatory drafts to stimulate the introduction of such newer equipment models into the market for wider spread.

Secondary objective of the project is to test local capability and readiness for equipment assembly from imported ready components for direct installation by local qualified firms which in that case would receive specialized trainings and continuous equipment's post-commissioning support from the supplier.

Project objectives

The main objective of the project is to outsource the existing HCFC-free/low GWP refrigeration packages, install and provide performance results under high-ambient temperature conditions in Egypt which would include cooling and energy use performance, capital and operational costs side, and equipment control and performance adjustment methods via direct operation and also remote controls. This will be supported by safety briefings and awareness raising workshops on the demonstration of equipment as locally so via the regional ODS officer network meetings. The secondary objective is the capacity building for local refrigeration service providers which would include training on equipment assembly and installation from imported components to ensure better sustainability in future.

Expected demonstration results

The expected results from this demonstration project are:

- Understanding HCFC-free/low GWP (natural refrigerants) equipment supply sources (local/regional/international), capital and operating costs, maintenance and safety requirements;
- Establishing baseline comparative performance parameters for old and new replacement equipment including refrigeration capacity in various ambient temperature regimes, and optimization improvements including servicing, and energy efficiency to understand the savings during the equipment operations;
- Generation of technical and financing capacity in spreading the technology; and
- National technical capacity building for safety standards, equipment maintenance and servicing, as well as potential assembly of such equipment from imported components for better sustainability of efforts to respond to further local equipment installation interests.

Institutional arrangements

EEAA and NOU-Egypt plan to promote the selection of alternatives to HCFC that minimize environmental impacts, particularly on climate change and meeting health safety and economic

considerations. In addition, banning new HCFCs dependent installation would reduce HCFCs demand and enhance the national HCFC Phase out process and encourage the introduction of non-HCFCs technologies and automatically stop dumping of obsolete HCFCs dependent technologies to Egypt. In order to support this process, capacity building for refrigeration technicians and service centers would be needed and encouraged to include training modules on handling HCFC-free and low GWP technologies.

The product would be overall managed by NOU-Egypt in cooperation with the implementing agency and the technical advisory support from the Government of Japan.

UNDP will provide necessary technical backstopping and support to the NOU during formulation and further implementation of the project. Technical consultant(s) would be recruited for providing advisory support for the project and managing project activities. The full project, once submitted, would seek support from Government of Japan as a bilateral agency supporting this project.

The Government provides a commitment to substantively complete the project within 20 months from the date of approval of the project.

Company Information

This is not applicable for the project as this project does not relate to an enterprise.

Budget

Budget item	**US$**
International/national experts	20,000
Total	**20,000**

India: Project preparation funding request

Proposal for demonstration project for development and evaluation of Polyol systems for foam products using HFOs as blowing agent

Introduction

Development and evaluation of Polyol systems, technology, machinery and know-how for various foam products manufactured by Small and Medium Enterprises (SMEs). There is a growing use of HCFC-141b in the country especially by SMEs which is likely to be converted to HFCs such as HFC-245fa. The proposed demonstration project would leapfrog from HCFC-141b to low-Global Warming Potential (GWP) liquid blowing agent, HFO-1233zd(E) and result in phase-out of Ozone Depleting Substances (ODSs) and would reduce Green House Gas (GHG) emissions due to use of low-GWP HFOs in place of high-GWP HFCs.

There are a large number of Micro, Small & Medium Enterprises (MSMEs) in the country which are engaged in the manufacturing of foam products. This sector in India is growing at a pace of 30 to 40% per annum and it is likely to grow in coming years. This sector consists of the following types of enterprises:

(i) Ice box manufacturers.
(ii) Cold water Jug/flask manufacturers.
(iii) Small refrigerator/deep freezer manufactures.
(iv) Walk in cold room/refrigerated truck manufactures.
(v) Air conditioner Ducting manufacturers
(vi) Water heater manufacturer (both domestic and commercial)
(vii) Overhead water tank manufactures.
(viii) Light density packaging foam manufactures.
(ix) Water coolers/tea coffee vending machines manufactures.
(x) Ice cube/slabs machine manufacturers
(xi) Insulation sheets manufactures.
(xii) Foam insulation used for chilling plants
(xiii) Polyurethane insulation used to make insulated doors.

Brief project summary

The project envisage the development and evaluation of formulations of pre-blended polyol systems using HFO-1233zd (E) for various foam products under high-ambient conditions prevailing in the country. This would require development of polyol systems using low-GWP, HFO-1233zd(E); a liquid blowing agent, and a comprehensive study of various thermo-physical and structural properties including strength and durability of the foam. The proposed liquid blowing agent is non-flammable, non-toxic and has low-GWP (GWP=1). The commercial production of HFO-1233zd(E) has recently started in US and a few enterprises have initiated the use of HFO-1233zd(E) in SME sector. However, the trials and its use in Article 5 countries having high-ambient conditions have not yet accomplished.

The HFOs are patented technologies and have higher costs, more than 10 times to HCFC-141b and about 3 times to HFCs which are commonly used in some countries in place of HCFC-141b. The polyol

system optimization in terms of percentage use of blowing agent to minimize the increase of cost of insulation would also form one of the important parameters of the study. The project would also involve field trials at the downstream enterprises and training of these enterprises. Finally, on successful trials the technology developed will be used in converting the foam manufacturing facilities from HCFC-141b to HFO-1233zd(E).

Project objectives

- Study of polyol formulations with low-GWP HFO as blowing agent.
- Evaluation of thermo-physical and structural properties of the polyol systems with HFO.
- Trials at the concerned foam products manufacturing companies.
- Training of foam product manufacturing enterprises.
- Conversion of pre-blended polyol manufacturing facility from HCFC-141b to low-GWP HFO.
- Introduction of foam products using HFO as blowing agent in the market as few multinationals, govt enterprises, research institutions and companies as a part of their Corporate Social Responsibility (CSR) activities. The demonstration project would result use of HFOs in the market both in India and other countries.

This project differs from the technical assistance to systems house in terms of development, evaluation and testing of low-GWP based polyol formulations at the user end and training, information outreach to SME end users.

Expected demonstration results

- Optimized polyol formulation(s) using HFO with field trial result.
- Pilot production facility of polyols with HFO.
- Conversion of production facility from HCFC-141b to HFO.

Institutional arrangements

India has comprehensive Ozone Depleting Substances (Regulation and Control) Rules, 2000 in place. These rules have been amended to align with accelerated phase-out of HCFCs and have been notified as Ozone Depleting Substances (Regulation and Control) Amendment Rules, 2014. These rules support the demonstration project for phase-out of HCFCs.

The demonstration project will be prepared by UNDP in consultation with Industrial Foams Pvt. Ltd. and other stakeholders under the guidance of Ozone Cell, Ministry of Environment, Forest and Climate Change (MoEF&CC), Government of India. UNDP as the lead implementing agency will provide the technical assistance through international/ national consultants in the demonstration project. It would also seek cooperation with the global enterprises working in the field of manufacturing such products and have either developed such formulations of polyol systems using HFOs or in the process of developing such formulations. The project would provide funding for the procurement of necessary equipment including testing equipment / instrumentation for the project.

The project preparation funding request for the demonstration project is accompanied with a letter from Ozone Cell, MoEF&CC, Government of India for completion of the project in 12 months from the date of approval of the project and fund transfer to the implementing agency.

Company Information

Industrial Foams Pvt. Ltd. undertakes the responsibility for implementation of the demonstration project and sharing the results to the MLF for dissemination to other enterprises and countries.

The table below provides the summary of consumption of HCFC-141b in SME Foam sector at Industrial Foams Pvt. Ltd. for the last three years.

Table: Summary of consumption of HCFC-141b supplied to MSMEs

Foam blowing agent	**Consumption of HCFC-141b in MT**		
	2012	**2013**	**2014**
HCFC-141b	155	185	235

Project Budget

The total budget for preparation of this project is given below.

Particulars	**Total Amount in USD**
Technical consultant	20,000
Travel	5,000
Management and coordination	2,000
Grand Total	**30,000**

India: Project preparation funding request

Proposal for development and evaluation of spray foam Polyols systems for buildings using HFOs as blowing agent

Introduction

Insulation of buildings is in infancy stage in India but it is growing with 30-40% growth rate because of high energy consumption in building about 30-40% due to high ambient conditions and there is increased emphasis on energy conservation in buildings and regulatory framework. There is a growing use of HCFC-141b for spray foams in the country which is likely to be converted to HFCs especially to HFC-245fa. The proposed demonstration project would leapfrog from HCFC-141b to low-Global Warming Potential (GWP) liquid blowing agent, HFO-1233zd(E) and would result in phase-out of Ozone Depleting Substances (ODSs) as well as reduction in Green House Gas (GHG) emissions due to use of low-GWP HFO in place of HFCs.

There are a large number of Micro, Small & Medium Enterprises (MSME) in the country which are engaged in the spray foam sub-sector for building insulation. The project has a potential for replicability not only within India but also in many Article 5 Parties because of increased emphasis on conservation of energy in air-conditioned buildings.

Brief project summary

The project envisage the development and evaluation of formulations using HFO-1233zd(E) for spray foams in the form of pre-blended polyols for high-ambient conditions prevailing in the country. This would require development of polyol systems using low-GWP liquid blowing agent, HFO-1233zd(E) as blowing agent and a comprehensive study of various thermo-physical and structural properties including strength and durability of the spray insulation on walls and roofs of the building. The demonstration project will use liquid blowing agent, HFO-1233zd(E). The proposed liquid blowing agent is non-flammable, non-toxic and has low-GWP (GWP = 1). The commercial production of HFO-1233zd(E) has recently started in US and a few enterprises have initiated the use of HFO-1233zd(E) in spray foams. However, the trials and its use in Article 5 countries having high-ambient conditions have not yet accomplished.

The HFOs are patented technologies and have higher costs, more than 10 times to HCFC-141b and about 3 times to HFCs which are commonly used in some countries for spray foams in place of HCFC-141b. The polyol system optimization in terms of percentage use of blowing agent to minimize the cost of insulation per unit surface area would also form one of the important parameters of the study. The project would also involve field trials and training of downstream enterprises of spray foam. Finally, on successful trials the technology developed will be used in converting the manufacturing facility of pre-blended polyol from HCFC-141b to HFO-1233zd(E).

The HFOs could not be undertaken in the technical assistance to the systems house in HPMP Stage-I for development of pre-blended polyols for spray foams and other polyurethane foam products as there was no availability of HFOs during that period. It is envisaged that there will be availability of HFO-1233zd(E) as its commercial production has started by one of the global companies in November, 2014.

Project objectives

- Study of polyol formulations with low-GWP HFOs as blowing agent.

- Evaluation of thermo-physical and structural properties of the polyol systems with HFOs.
- Field trials of spray foams both in new buildings and existing buildings.
- Training of downstream enterprises of spray foam.
- Conversion of manufacturing facility from HCFC-141b to low-GWP HFOs.

Expected demonstration results

- Optimized polyol formulation(s) using HFO with field trial results
- Pilot production facility of polyols with HFOs
- Conversion of production facility from HCFC-141b to HFO

Institutional arrangements

India has comprehensive Ozone Depleting Substances (Regulation and Control) Rules, 2000 in place. These rules have been amended to align with accelerated phase-out of HCFCs and have been notified as Ozone Depleting Substances (Regulation and Control) Amendment Rules, 2014. These rules support the demonstration project for phase-out of HCFCs.

The demonstration project will be prepared by UNDP in consultation with Industrial Foams Pvt. Ltd. and other stakeholders under the guidance of Ozone Cell, Ministry of Environment, Forest and Climate Change (MoEF&CC), Government of India. UNDP as the lead implementing agency will provide the technical assistance through international/ national consultants in the demonstration project. It would also seek cooperation with the global enterprises working in the field of spray foams and have either developed such formulations of polyol systems using HFOs or in the process of developing such formulations. The project would provide funding for the procurement of necessary equipment including testing equipment / instrumentation for the project.

The project preparation funding request for the demonstration project is accompanied with a letter from Ozone Cell, MoEF&CC, Government of India for completion of the project in 12 months from the date of approval of the project and fund transfer to the implementing agency.

Company Information

Industrial Foams Pvt. Ltd. undertakes the responsibility for implementation of the demonstration project and sharing the results to the MLF for dissemination to other enterprises and countries. A letter to this effect is attached.

The table below provides the summary of consumption of HCFC-141b in spray foams at Industrial Foams Pvt. Ltd. for the last three years.

Table: Summary of consumption of HCFC-141b in spray foams

Foam blowing agent	Consumption of HCFC-141b in MT		
	2012	2013	2014
HCFC-141b	110	135	185

Project Budget

The total budget for preparation of this project is given below

Particulars	**Total Amount in USD**
Technical consultant	20,000
Travel	5,000
Management and coordination	2,000
Grand Total	**30,000**

Project preparation request for demonstration project
Demonstration of HCFC free low GWP technologies performance in air-conditioning Applications in Kuwait

Introduction

Air-conditioning is a very important need for countries in the Middle East like Kuwait where ambient temperature can cross 50 degrees centigrade or more during summer months. Currently, HCFC-22 is widely used in this region for their air-conditioning equipment households. Given the larger size of households in Kuwait, the capacity of these equipment is of the range of upto 30 TR or more. On an average, the equipment are much larger in capacity compared to air-conditioners used in other countries in Asia Pacific region.

Technologies air-conditioning applications for high ambient temperature have been a challenge. These have been highlighted and discussed in different for a since 2007. In the recent TEAP report presented in 26th MOP in Paris in November 2014, it has been highlighted that availability of HCFC free alternative technologies in air-conditioning applications is limited. It is known that for such high-capacity air-conditioning equipment, low GWP refrigerants based on HCs (e.g., R-290) poses a significant challenge in terms of safe operations and use. On other alternatives such as HFC-32, low-GWP blends etc., there is limited information available and they need to be demonstrated through actual operational performance in the country. It is known that some of the technology options mentioned in paragraphs above are available in Article 5 countries but are at initial stages of market adoption.

The market for these air-conditioning equipment is growing at high rate and this growth is mainly on account of increase in number of households in the country. To avoid dependence of HCFC-22 based equipment that would result in prolonged use of HCFC-22 in servicing, it is essential for the country to demonstrate performance of HCFC free low-GWP technologies for adoption in households. The results would be replicable not only in Kuwait but also in other countries in the region and other parts of the world, where high-ambient temperature conditions are experienced during summer months. Thus, this project has significant opportunities for replicability.

Brief project summary

The project would involve installation of air-conditioning equipment in selected locations in residential areas in Kuwait with HCFC free low-GWP technologies (e.g., HFC-32, R-290, blends to name a few). These locations would be identified through a consultative process among the NOU of Kuwait, UNDP and technical expert(s). The equipment would be installed by the identified company for an identified technology option – this would be based on technology information research and market assessment of product, including system component, availability, performance under high ambient temperature conditions and servicing support availability by technical expert identified for this project.

The installations' product performance would be tested on a set of identified parameters for assessment of (a) air-conditioning and cooling performance in different parts of the year, (b) energy consumption during operations and energy efficiency in different parts of the year, (c) safety aspects relating to installation and servicing. These parameters would be identified in consultation with technology provider, technical experts and NOU.

The results of the demonstration project would be documented and publicised widely for information to other market players and consumers. The outreach plan will be finalised during the time when the project is initiated. In addition, the performance results would also be provided to the other Ozone Units during network meetings and international meetings, as found feasible, on refrigeration and air-conditioning technologies.

Project objectives

The main objective of the project is to install and provide performance results of air-conditioning equipment under high-ambient temperature conditions in Kuwait. The performance results would primarily include (a) air-conditioning and cooling performance, (b) energy consumption and energy efficiency, and (c) product installation and servicing effectiveness including safety aspects for safe operation and maintenance.

Expected demonstration results

The expected results from this demonstration project are:

- Product installation needs for such low GWP alternatives in high-ambient temperature conditions
- Cooling performance of product under different prevailing ambient temperature conditions
- Energy consumption levels and energy efficiency performance under different prevailing ambient temperature conditions
- Product operational performance in terms of refrigerant leakage and servicing needs.
- Safety standards that need to be followed for installation and servicing of equipment.

Institutional arrangements

The product would be overall managed by National Ozone Unit of Kuwait and would be directly supervised by the NOU office. UNDP would provide technical backstopping and support to the NOU for implementation of this project. Technical consultant(s) would be recruited for providing advisory support for the project and managing project activities. The full project, once submitted, would seek support from Government of Japan as a bilateral agency supporting this project.

The Government provides a commitment to complete the project preparation within 12 months from the date of approval of the project.

Company Information

This is not applicable for the project as this project does not relate to an enterprise.

Project budget

The total budget for preparation of this project is given below.

Particulars	**Total amount in USD**
Technical consultant	13,000
Travel	4,000
Management and coordination	3,000
Grand total	**20,000**

Project preparation request for demonstration project for HCFC free low GWP alternatives in refrigeration in fisheries sector in Maldives

Introduction

Maldives is a small island country and consumes HCFC-22 in refrigeration and air-conditioning applications. As per survey report of HPMP, about 76 MT of HCFC-22 was consumed in Maldives in the year 2008. The consumption of HCFC-22 in the year 2013 is about 60.3 MT. Of this total consumption, fisheries sector applications consume about 15-20% of the total consumption.

Fisheries sector is an important sector for Maldives economy. This sector is the second largest contributor to Maldives' economy and employs a very significant population of Maldives. The fish catch of Maldives is stored and processed and exported to different countries across the globe. HCFC-22 is consumed in fisheries sector in a range of applications and predominantly in fishing vessels, processing and storage applications. Many of these equipment still have an economic life, though old and need continued use of HCFCs for their operations. Given that fishing vessels operate in sea and many times under rough sea / weather conditions, it is difficult to control leakage and adopt servicing practices as in other equipment like refrigeration equipment using HCFCs in land.

Under HPMP Stage-I, targeted projects addressing consumption of HCFCs in fishing vessels were implemented. Due to technological constraints and given the need for compliance of the country, they had to adopt ODS free alternatives which have GWP as retrofit / drop-in substitutes. Fishing industry has agreed with the Government of Maldives to continue their efforts to convert to low GWP alternatives that are technically feasible and economically viable, as and when such alternatives are available in the market.

In the recent TEAP report presented in 26th MOP in Paris in November 2014, it has been highlighted that availability of HCFC free low-GWP alternative technologies that can substitute HCFCs are available in refrigeration applications. While specific details on retrofit options directly used in fishing sector is not given, it is noted that some of the low-GWP blends that are substitutes HCFC-22 in refrigeration and air-conditioning can be adopted as retrofit options. Depending upon the type of use, the specific option for existing fishing vessels would need to be chosen and adopted.

In this proposed project, demonstration of low-GWP alternatives for retrofitting equipment using HCFCs is proposed to be undertaken. Replacement options for fishing vessels which are HCFC free would also be considered for demonstration projects. Technical information on retrofit and replacement technologies would be provided for the benefit of industry. This will not only assist Maldives in adoption of such technologies and promote their low GWP low carbon growth policy, but also help other countries which have a significant consumption of HCFCs in fishing industry – mainly in refrigeration applications, switch over to low GWP alternatives. In different reports and meetings, the issue of non-availability of such drop-in substitutes for refrigeration applications in fisheries industry has been highlighted. Thus this project is expected to have a significant impact on (a) HCFC phase-out in the country with low-GWP alternatives and (b) scaled up adoption of HCFC free alternatives in countries with large fishing industry consuming HCFCs including Maldives (e.g., Fiji, PICs)

Brief project summary

The project would involve demonstration of low GWP HCFC free alternatives for fishing industry focusing on fishing vessels and storage and processing operations in Maldives. The steps involved in this project would include:

- Technical review of latest low-GWP climate friendly technologies developed for fishing industry mainly in fishing vessels, storage and processing applications.
- Identification of technical options that could be adopted as drop-in substitutes / substitutes with minimum retrofit of existing equipment by the industry keeping in mind technical feasibility, economic viability and safety in operations.
- Demonstration of use of low GWP alternatives in identified users in these applications that would include drop-in as well as replacement options. The specific number of units for demonstration would be decided by NOU in close consultation with fishing industry.
- Development of training and technical information outreach manual on retrofit and maintenance of equipment using selected low-GWP alternatives. This manual will also provide technical information on low-GWP technologies that can replace HCFC based / high –GWP refrigeration technologies in fisheries.

The results of the demonstration project would be documented and publicised widely for information to other users in countries where HCFCs are consumed in fishing industry. The information outreach plan will be finalised during the time during the project development phase.

Project objective

The main objective of the project is to demonstrate low-GWP HCFC free alternative for use by fishing industry in Maldives. The project results can be used in other countries that have similar HCFC use in fishing industry.

Expected demonstration results

The expected results from this demonstration project are:

- Identification and adoption of low GWP alternatives that can be adopted for replacing HCFC use in existing refrigeration applications in fishing industry
- Steps to be followed for safe retrofitting, servicing and maintenance of equipment including adoption of safety standards
- Technical information on replacement technologies that could be adopted in existing vessels and new vessels.
- Training programs and checklist for safe retrofitting, operations and maintenance of equipment using low GWP HCFC free refrigerants
- Regulations that need to be updated for use of such options for fast track phase-out of HCFC based refrigeration equipment in fishing industry

Institutional arrangements

The product would be overall managed by National Ozone Unit (NOU) of Maldives and would be directly supervised by the NOU office. UNDP would provide technical backstopping and support to the NOU for implementation of this project. Technical consultant(s) would be recruited for providing advisory support for the project particularly on standard practices for retrofitting, operations and maintenance of retrofitted equipment that use the refrigerants. Technical information dissemination on

low GWP technologies would also be undertaken with support from UNEP through the regional networks and CAP program resources.

The Government provides a commitment to complete the preparation project within 12 months from the date of approval of the project.

Company Information

This is not applicable for the project as this project does not relate to an enterprise.

Project budget

The total budget for preparation of this project is given below.

Particulars	**Total amount in USD**
Technical consultant	9,000
Travel	4,000
Management and coordination	2,000
Grand total	**15,000**

PROJECT COVER SHEET

TYPE OF PROJECT	Project Preparation Funding Request
TITLE OF THE PROJECT	Demonstration Project for the Production of hydrocarbons refrigerants in for Refrigeration and Air Conditioning applications in Latin America and the Caribbean
COUNTRY NAME	Trinidad & Tobago
IMPLEMENTING AGENCY	UNDP
GOV. COUNTERPART	Ministry of Environment and Water Resources

DATES OF RATIFICATION OF AMENDMENTS TO THE PROTOCOL			
London	June 1999	**Copenhagen**	June 1999
Montreal	June 1999	**Beijing**	October 2003

GENERAL INFORMATION		
Sector / Sub-sector	Refrigeration and Air Conditioning	
ODS Consumption		
Baseline	46.2 ODP tonnes	
Starting Point for Aggregate Reduction	46.2 ODP tonnes	
Sector Consumption	43.7 ODP tonnes	
Project Impact	Not applicable	
Participating Company (ies)	National Energy Corporation	
Eligibility of participating company (ies)	100 % (A5)	0 % (non-A5)
Project Preparation Costs (US $)	40,000	
MLF Requested Funding (US $)	40,000	
I.A. Supporting Costs (US $)	3,000 (7.5%)	
Total cost of the Project for the MLF (US $)	43,000	
Project Duration (months)	12	

PROJECT PRP PROPOSAL SUMMARY

Trinidad and Tobago became a Party to the Vienna Convention and Montreal Protocol on August, 1998. Brazil also ratified the London, Copenhagen, Montreal and Beijing Amendments. The country is fully committed to the phase-out of HCFCs and is aware of the challenges and barriers in the whole Latin America region, particularly in the Caribbean sub-region, in terms of promoting the wide and cost-effective application of hydrocarbons (HCs) refrigerants to support the phase-out of HCFCs and leapfrog the HFCs in the refrigeration and air conditioning sector.

Minding that there is a trend in LAC region for use of HC-600a in Domestic Refrigerators by large multinational and national companies (that have power to undertake international negotiations for large scale supply that today costs, at average level, USD 18.00/kg for propane, and USD 17.00/kg for iso-butane to end-users, FOB prices), it is recognized that LAC companies and users face supply and costs constraints that are barriers for the use of such alternatives.

Therefore, the objective of this project preparation request is to develop a demonstration project that will enable the country to take advantage of its purified hydrocarbons and to put together proper know how and facilities to recover, bottle and distribute local made HC refrigerants that can be used in the LAC industries and servicing sectors in their HCFC phase-out activities.

At this stage, preparation funding is being requested. The detailed costs of the demonstration project will be included in the "full" demonstration project proposal, however, indicative estimates are around USD 520,000. It is the intent that the results of the demonstration projects will be shared with the Multilateral Fund and the interest countries/stakeholders through the regional and sub-regional ozone officers meetings.

INTRODUCTION

1. The accelerated agreement to phase-out the HCFC consumption under the Decision XIX/6 also brought a challenge to Article 5 countries which is to establish HCFCs alternative replacement policies that could also promote the use of low-GWP technologies in order to maximize the effects over the climate change issue.

2. It is acknowledged that such drivers must either precede or be followed by, technically proven, commercially available and ready-to-use alternatives that are not only able to be used in the HCFCs consuming sectors, but that are also suitable (or adapted) to regional/local specific requirements that, today, are barriers for their full implementation.

3. This is the case for a widespread application of hydrocarbon refrigerants, both in the manufacturing and in the servicing sectors, in the Latin America and the Caribbean (LAC) region. Although having an important petroleum industry, currently the LAC countries depend entirely of pure-grade HC refrigerants imported either from China or Europe, and to a small extent, some HC blends from Canada, which elevates the prices of the products, specially due to freight issues, and put those countries therefore on a disadvantageous position to implement real low-cost (to the end-user) and low GWP refrigerants.

4. Having a local and steady source of HC refrigerants will provide a reliable supply to regional industries, so they can prepare conversion plans to adopt HCs in many refrigeration applications. There is already a trend in LAC for use of HC-600a in Domestic Refrigerators, for example, being applied to large multinational companies that have power to undertake international negotiations for large scale supply, but having a reliable source with competitive prices (today at average level of USD 18.00/kg for propane, and USD 17.00/kg for iso-butane, FOB) is expected to enable the conditions to expand the base to low scale producers of commercial refrigeration and air conditioning applications, and of course, provide supply for future servicing of such equipment.

5. In this sense, this proposal requests funding to prepare a Project Proposal that will demonstrate the feasibility of local production of pure-grade HC refrigerants, through a hydrocarbon purification and bottling plant in Trinidad & Tobago, providing a reliable and cost-effective source of HC refrigerants, primarily to the Caribbean region, but expansible to parts of Latin America, that can support local industry's plans to convert out of HCFCs and HFCs, reducing ODS consumption and resulting in additional GWP reductions .

6. The Project´s results are expected to be consolidated and disseminated in the LAC region, with possibility to be replicated in countries that today have the proper hydrocarbon (HC) production facilities, but have no technical and physical capacity to purify and these bottle. It is, again emphasized that for this proposed pilot project, the feed stock would be already available, the propane and iso-butane, to be purified and bottled. This would reduce the capital outlays compared to related pilot project already in its final phase in Nigeria (which aims at distilling the subject HCs from LPG or NPG as no suitable HC separation facilities are available in that market). The proposal for Trinidad and Tobago offers therefore a lower cost option for certain countries and is not a duplication of the approved pilot project in Nigeria.

OBJECTIVES

7. The expected objectives of the Demonstration Project are:

(f) Develop cost-effective local/regional hydrocarbon supply for natural refrigerants (R-290a, R-600a and R-600) to replace HCFCs – and potentially also HFCs - in refrigeration manufacturing and servicing applications for RAC equipment;

(g) Demonstrate the selected technology at domestic and commercial refrigeration manufacturers and service providers in the Caribbean region, and

(h) Train selected initial RAC manufacturers and service providers in the safe use of hydrocarbons.

EXPECTED RESULTS

8. The expected result of the Preparation Project is:

(b) A "full" Demonstration Project Proposal, in compliance with the "GUIDE FOR THE PREPARATION AND SUBMISSION OF ADDITIONAL PROJECTS TO DEMONSTRATE CLIMATE-FRIENDLY AND ENERGY-EFFICIENT ALTERNATIVE TECHNOLOGIES TO HCFCS, AND FEASIBILITY STUDIES FOR DISTRICT COOLING (Decision 72/40)

9. The expected outcome of the Demonstration Project are:

(f) Pure-grade HC refrigerants (R-600, R-600a and R-290a) being produced;
(g) A Bottling Line for refrigerants in place;
(h) A Distribution scheme to close by Caribbean countries developed;
(i) Training in technology at domestic and commercial refrigeration manufacturers undertaken and service providers in the Caribbean region, Safety will be an important component of the training;
A Market Feasibility Study (FS) on demand, cost and distribution of these hydrocarbons in the LAC market prepared. And
(j) Final report prepared and shared with interested parties and stakeholders;

INSTITUTIONAL ARRANGEMENTS

V. Legal and Regulatory Framework

10. The Government of the Republic of Trinidad and Tobago currently has regulations that are specifically for HCFCs import/export controlling, as well as a fully functional import quota system in place since 2013. The Government is able to regulate trade and usage of any ODS that is controlled under the Montreal Protocol. Unregistered companies are not allowed to import, export, market and/or use ODS. It is prohibited to use CFCs substances in new systems, equipment and products, national and imported, and under the HPMP, supported with the results of the demonstration, a sector approach can be undertaken to lead to a further promotion of low-GWP alternative refrigerants, to support the country to meet the Montreal Protocol obligations.

VI. Institutional Structure

11. The Ministry of Environment and Water Resources was established in June 2012 following the 2010 General Elections. The Ministry was formerly part of the Ministry of Planning, Housing and the Environment and then the Ministry of Housing and the Environment. It is responsible for the formulation and execution of Government's policy in the Environmental sector. The Ministry operates

as facilitator in the implementation of those policies through its various units and affiliated agencies. The Ministry of Environment and Water Resources also house the National Ozone Unit, which coordinates the formulation and implementation of all projects funded by the MLF.

12. Under this proposed preparation project, UNDP will serve as implementation agency (IA) working in close coordination with the National Ozone Unit (NOU), which will act as executing partner for the Project implementation.

VII. Implementation Approach

The implementation modality to be used in this specific Project Preparation Proposal will be Direct Implementation Modality, using UNDP to provide support to the NOU in the implementation of the PRP activities and the development of the Project Proposal.

13. Under this implementation modality UNDP will be responsible for:

(a) Hire experts and consultant, arrange for missions;
(b) Provide technical expertise for the preparation of the Proposal;
(c) Monitor and oversight PRP activities.

14. The National Ozone Unit will be responsible for:

(f) Coordinate the overall project preparation activities;
(g) Provide guidance to the PRP activities;
(h) Facilitate the PRP activities with the stakeholders;
(i) Review and endorse the Project Demonstration proposal;
(j) Request UNDP to submit the Project Demonstration Proposal to the MLF on its behalf.

VIII. Government Commitment

15. The Annex I of this Project Preparation Funding Request brings the Transmittal Letter of the Government of Trinidad and Tobago confirming its full commitment to the Project.

PARTICIPATING COMPANY

16. This Pilot Project is designed around support of the National Energy Corporation of Trinidad and Tobago Limited. Contact information is as follows:

Company:	National Energy Corporation of Trinidad and Tobago Limited
Contact:	Mrs. Merlyn Rennie-Browne; Vice-President, Energy Industry Development (Ag)
Address	Cor. Rivulet and Factory Roads Brechin Castle, Couva,,Trinidad & Tobago
Phone:	636-8471 ext. 227
E-mail:	m.rennie-browne@nationalenergy.tt
Website (if any):	www.nationalenergy.tt

Foundation date:	1979
Capital:	100% A5: Trinidad and Tobago
HCFC installed capacity/consumption	Not applicable

17. National Energy Corporation of Trinidad and Tobago Ltd. (National Energy) is a wholly owned subsidiary of The National Gas Company of Trinidad and Tobago Ltd (NGC). National Energy was also involved in the construction and operation of the early petrochemical plants and the port and marine infrastructure which service all plants at the Point Lisas Industrial Estate, and for more than (30) years National Energy has been committed to supporting the infrastructure of the energy industry, while providing quality service in the area of natural gas-based development and downstream industries.

18. National Energy provides services on energy related projects that include: Natural Gas Master Plans; Industrial Development Strategy; Assessment of options for Energy-based Industrial Development; Project Development and Management; and Feasibility Studies on the energy sector.

19. The Annex II of this project preparation funding request brings the Letter of Commitment of the company, confirming its interest to the preparatory project.

PROJECT COVER SHEET

TYPE OF PROJECT	Project preparation funding request
TITLE OF THE PROJECT	Assessment of unsaturated HFC (HFO) in air conditioning and refrigeration applications in a small non-LVC country.
COUNTRY NAME	**Uruguay**
IMPLEMENTING AGENCY	UNDP
GOV. COUNTERPART	Climate Change Division. Government of Uruguay

DATES OF RATIFICATION OF AMENDMENTS TO THE PROTOCOL			
London	November 16th, 1993	**Copenhagen**	July 3rd, 1997
Montreal	February 16th, 2000	**Beijing**	September 16th, 2003

GENERAL INFORMATION		
Sector / Sub-sector	Air conditioning and Refrigeration.	
ODS Consumption (sector)		
Baseline		
Starting Point for Aggregate Reductions		
Project Impact (ODP t.)		
Participating Company (ies)	LATU	
Eligibility of participating company (ies)	100 % (A5)	0 % (non-A5)
Project Costs (US $)	40,000	
MLF Requested Funding (US $)	40,000	
I.A. Supporting Costs (US $)	3,000 (7.5%)	
Total cost of the Project for the MLF (US $)	43,000	
Project Duration (months)	12	

PROJECT PRP PROPOSAL SUMMARY

In Article 5 countries, especially on those non-LVC with small consumptions and markets, there is a lack of technical, safety and economical knowledge on the use of HFO for air conditioning and refrigeration applications, which presents a barrier to promote its adoption as alternatives to HCFC.

The PRP project will prepare a project document, in line with the guidelines established, to address this lack of information; the project will assess its technical performance, energy efficiency, safety measures and identify barriers in the field and in the conditions of this kind of country, being Uruguay a perfect example, that will promote the adoption of HFO as a viable alternative to HCFC in LAC.

At this stage, preparation funding is being requested. The detailed costs of the demonstration project will be included in the "full" demonstration project proposal, however, indicative estimates are around USD 320,000. It is the intent that the results of the demonstration projects will be shared with the Multilateral Fund and the interest countries/stakeholders through the regional and sub-regional ozone officers meetings.

INTRODUCTION

1. The accelerated agreement to phase-out the HCFCs consumption under the Decision XIX/6 also brought a growing concern to the Article 5 countries related to the establishment HCFCs replacement´s policies that could also promote the use of low-GWP technologies, in order to maximize the effects over the climate change issue.

2. It is acknowledge that such drivers must be either precedent or followed for technically proven, commercially available and ready-to-use alternatives that, are not only able to be used in the HCFCs consuming sectors, but that are also suitable (or adapted) to regional/local specific requirements that, today, are barriers for their full implementation.

3. This is the case for the use of HFO in air conditioning and commercial refrigeration applications. In several Article 5 countries, HCFC-22 is the main alternative available, with increasing use of HFC-based refrigerants.

4. In most Article 5 countries, there is a lack of knowledge on the technical, safety and economical requirements that need to be considered to adopt HFO, when designing and installing air conditioning and refrigeration systems. The adoption of this kind of technology, which are non-ODP, low-GWP, mildly flammable (A2L), can generate valuable opportunities for Article 5 countries in the implementation of their HPMP's second stage, as there are limitations to use natural refrigerants in all applications.

5. For small, non-LVC countries, where air conditioning and refrigeration sector represent most of its consumption, finding alternatives to these applications is fundamental for achieving reductions goals as agreed with the Montreal Protocol.

6. In this sense, this project preparation proposal aims to request funding to prepare a project demonstration proposal that will validate the use of HFO as a viable option to HCFC for air conditioning and refrigeration applications in Uruguay.

7. The project´s results are expected to be consolidated and disseminated in the LAC region, where several countries are starting the preparation of the second stage of their HPMP, generating opportunities to address the consumption of HCFC in the refrigeration sector.

OBJECTIVES

8. The expected objectives of the project are:

(c) Assessment technical, logistical (including economical and availability in LAC aspects) and safety requirements for adopting HFO in air conditioning and refrigeration systems;
(d) Evaluation of performance and energy efficiency of air conditioning and refrigeration systems using HFO.
(e) In case of a positive outcome, promote the application the technology in the 2nd Stage of HPMPs;
(f) To transfer the technology to interested companies and other countries.

EXPECTED RESULTS

9. The expected results of the preparation project are:

(a) A Full Demonstration Project Proposal, that in compliance with the "GUIDE FOR THE PREPARATION AND SUBMISSION OF ADDITIONAL PROJECTS TO DEMONSTRATE CLIMATE-FRIENDLY AND ENERGY-EFFICIENT ALTERNATIVE TECHNOLOGIES TO HCFCS, AND FEASIBILITY STUDIES FOR DISTRICT COOLING (Decision 72/40);

10. The expected outcomes of the Demonstration Project are:

(a) Identification of technical requirements for using HFO in air conditioning and commercial refrigeration systems;
(b) Comparative assessment of performance and energy efficiency of air conditioning and commercial refrigeration systems (HCFC-22 vs HFO).
(c) Identification of safety and control requirements for using HFO in air conditioning and commercial refrigeration systems.
(d) Cost-efficient analysis for the adoption of HFO.

INSTITUTIONAL ARRANGEMENTS

IX. Legal and Regulatory Framework

11. The Uruguay has currently regulations that are specifically for HCFCs import/export controlling, as well as a fully functional import quota system in place since 2013. The Government is able regulate production, trade and usage of any ODS that is controlled under the Montreal Protocol. Unregistered companies are not allowed to produce, import, export, market and/or use ODS. It is prohibited to use CFCs substances in new systems, equipment and products, national and imported, and under the HPMP, supported with the results of this demo, a stringent sector approach to prohibit use and ban consumption of HCFCs may be put into practice to support the country to meet the Montreal Protocol obligations during HPMP Stage 2 implementation.

12. Imports and exports of all ODS are subject to registration at customs and are subject to annual quotas. All equipment using, containing and requiring refrigerant, such as air conditioning, domestic and commercial refrigerators, are subject to control by the customs office.

X. Institutional Structure

13. The Ministry of Housing, Land Management and Environment (MVOTMA in Spanish), has the mission of achieve adequate protection of the environment by promoting sustainable development through the creation and implementation of programs and instruments to improve the quality of life of the population and conservation and environmentally responsible use of ecosystems, coordinating the environmental management of public entities and coordinating with the various stakeholders.

14. MVOTMA, through National Environment Directorate (DINAMA in Spanish), where the Climate Change Division also acts as National Ozone Unit NOU for the Montreal Protocol and coordinates the formulation and implementation of all projects funded by the Multilateral Fund.

15. Under this proposed project, UNDP will serve as implementation agency (IA) working in close coordination with MVOTMA, through the Climate Change Division, which will act as executing agency for the project implementation.

XI. Implementation Approach

16. The implementation modality to be used in this specific project preparation proposal will be Direct Implementation Modality, using UNDP to provide support to the NOU in the implementation of the PRP activities and the development of the project proposal.

17. Under this implementation modality UNDP will be responsible for:

(a) Hire experts and consultant, arrange for missions;
(b) Provide technical expertise for the preparation of the proposal;
(c) Monitor and oversight PRP activities.

18. The NOU will be responsible for:

(k) Coordinate the overall project preparation activities;
(l) Provide guidance to the PRP activities;
(m) Facilitate the PRP activities with the stakeholders;
(n) Review and endorse the Project Demonstration proposal;
(o) Request UNDP to submit the Project Demonstration proposal to the MLF on its behalf.

XII. Government Commitment

19. The Annex I of this project preparation funding request brings the Transmittal Letter of the Government of Uruguay confirming its full commitment to the project, informing the forecast for its completion expected to be within 12 (twelve) months.

PARTICIPATING COMPANY

20. This pilot project is designed around Technological Laboratory of Uruguay (LATU in Spanish). Contact information is as follows:

Company:	Technological Laboratory of Uruguay (LATU)
Contact:	
Address	Av Italia, Montevideo 11500, Uruguay
Phone:	
E-mail:	

Website (if any):	http://www.latu.org.uy/
Foundation date:	
Capital:	
HCFC installed capacity/consumption	2011: 2012: 2013:
Annual Sales	2011: 2012: 2013:
Export profile:	

LATU is a reference institute at national and international level, which has supported NOU activities since 1993. It is internationally recognized for its quality and technical capabilities. LATU has multiple laboratories addressing the main industrial sectors in the country, being a focal point for development and support of Uruguay and Mercosur industries.

ANNEX 4

SURVEYS ON ALTERNATIVES TO OZONE-DEPLETING SUBSTANCES

OBJECTIVE

Pursuant to the decision of XXVI/9 of the Twenty-Sixth Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, the objective of this project is to conduct surveys of ODS alternatives, prioritizing the Foams, Refrigeration and Air Conditioning sectors in selected developing countries representing a balance of size and regional spread in order to:

(a) Establish the market penetration of current commercially available alternatives, in terms of supply chain and costs, performance and environmental impact;

(b) Identify emerging alternatives, in terms of their expected market introduction and availability, performance and projected costs.

BACKGROUND AND RATIONALE

- Implementation of HCFC Phase-out Management Plans (HPMPs) in developing countries, involves technology and policy interventions for phasing out HCFCs, to comply with the control targets of the accelerated HCFC phase-out schedule. During the HPMP Stage-I covering the 2013 and 2015 control targets, higher ODP HCFCs and sectors (HCFC-141b and the Foams Sector) were prioritized to maximize environmental impact. It followed that larger enterprises, where cost-effective conversions could be carried out using existing and mature technologies (hydrocarbons), were also prioritized.

- However, even in the prioritized sectors/substances (HCFC-141b, Foams Sector), for enterprises with lower levels of HCFC consumption, established alternatives to HCFCs (e.g. hydrocarbons) did not provide a sustainable solution in terms of availability, costs and performance. Similarly, in other sectors and substances, alternatives to HCFCs are in various stages of development and market introduction and reliable data in terms of costs, availability and performance is not readily available, particularly at the country/ground level.

- UNDP has significant experience in carrying out similar exercises (e.g. HCFC surveys during 2005-2007, HPMP surveys in major A5 countries, HFC surveys within the Climate and Clean Air Coaltion, etc.) and also in technology assessments of emerging alternatives (Methyl formate, Methylal, CO_2, R-32, Ammonia, etc.) in various sectors.

Mapping of various species of ODS alternatives at this stage, prioritizing the Foams, Refrigeration and Air Conditioning sectors, would be a valuable resource on performance, cost and availability of alternatives, to facilitate selection of appropriate safe and efficient technologies for various applications, including for Stage-II HPMPs.

PROJECT DESCRIPTION

The project envisages the following activities based on the outcomes specified:

Establish market penetration of currently available commercial alternatives by substance (and to the extent feasible, by sector)

- Interact with upstream chemical and equipment suppliers/importers and/or their local representatives, relevant industry associations and government departments as needed;

- Collect import (production and export where applicable) data for various alternative substance species for the past 1-3 years
- Correlate ODS alternative substances with possible end-use in various sectors prioritizing the Foams, Refrigeration and Air Conditioning sectors,
- Establish estimated use of ODS alternative substances by sector

To identify emerging ODS alternatives, in terms of their expected market introduction and availability, performance and projected costs

- Compile data on available emerging alternatives for various sectors/applications
- Identify opportunities and challenges for applying there alternatives for various applications, based on availability, projected costs and performance

The above activities would be carried out through engagement of suitable national and international industry experts, in close cooperation with the government and stakeholders. Stakeholder consultation meetings would need to be carried out to ensure their engagement. Documentation and reporting will also be needed to present the results.

PROJECT COSTS AND FINANCING

The total project costs are US$ 823,900. The details are tabulated below:

Breakdown of project budget (US$)[1]

	Country	Budget Item/Description				Sub-total	Agency fees	Funding request
		National experts	International experts	Stakeholder consultation meetings	Documentation and reporting			
1	Costa Rica	25,000	25,000	15,000	5,000	70,000	4,900	**74,900**
2	El Salvador	25,000	25,000	15,000	5,000	70,000	4,900	**74,900**
3	India	60,000	45,000	45,000	30,000	180,000	12,600	**192,600**
4	Iran (Islamic Republic of)	45,000	30,000	30,000	15,000	120,000	8,400	**128,400**
5	Lebanon	30,000	30,000	20,000	10,000	90,000	6,300	**96,300**
6	Panama	25,000	25,000	15,000	5,000	70,000	4,900	**74,900**
						Grand Total		**642,000**

1. *The budget breakdown is indicative. There may be revisions to line items based on the specific situation in each country. UNDP documents such budget revisions and reports them as needed.*

MONITORING MILESTONES

MILESTONE/MONTHS	Q1	Q2	Q3	Q4	Q5	Q6
Start-up of project activities						
Award of contracts						
Data collection						
Data analysis						
Reporting						