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**Annex I**

**INSTITUTIONAL STRENGTHENING PROJECT PROPOSALS**

**Armenia: Renewal of institutional strengthening**

<b>Summary of the project and country profile</b>	
Implementing Agency:	UNIDO
Amounts previously approved for institutional strengthening (US \$):	0
Amount requested (Phase I) (US \$):	120,000
Amount recommended for approval for Phase I (US \$):	120,000
Agency support costs (US \$):	9,000
Total cost of institutional strengthening Phase I to the Multilateral Fund (US \$):	129,000
Equivalent amount of CFC phase-out due to institutional strengthening Phase I at US \$12.1/kg (ODP tonnes):	n/a
Date of approval of country programme:	n/a
ODS consumption reported in country programme (insert year) (ODP tonnes):	n/a
Baseline consumption of controlled substances (ODP tonnes):	
(a) Annex A Group I (CFCs) (Average 1995-1997)	196.5
(b) Annex A Group II (Halons) (Average 1995-1997)	0.0
(c) Annex B Group II (Carbon tetrachloride) (Average 1998-2000)	0.0
(d) Annex B Group III (Methyl chloroform) (Average 1998-2000)	0.0
(e) Annex E (Methyl bromide) (Average 1995-1998)	0.0
Latest reported ODS consumption (2007) (ODP tonnes) as per Article 7:	
(a) Annex A Group I (CFCs)	25.0
(b) Annex A Group II (Halons)	0.0
(c) Annex B Group II (Carbon tetrachloride)	0.0
(d) Annex B Group III (Methyl chloroform)	0.0
(e) Annex E (Methyl bromide)	0.0
(f) Annex C Group I (HCFCs)	4.4
<b>Total</b>	<b>29.4</b>
Year of reported country programme implementation data:	2007
Amount approved for projects (US \$):	97,000
Amount disbursed (as at insert month year) (US \$):	0
ODS to be phased out (ODP tonnes):	n/a
ODS phased out (as at insert month year) (ODP tonnes):	

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

<b>Summary of activities</b>		<b>Funds approved (US \$)</b>
(a)	Investment projects:	0
(b)	Institutional strengthening:	0
(c)	Project preparation, technical assistance, training and other non-investment projects:	97,000
	<b>Total:</b>	<b>97,000</b>

**Former Yugoslav Republic of Macedonia: Renewal of institutional strengthening**

<b>Summary of the project and country profile</b>		
Implementing Agency:		UNIDO
Amounts previously approved for institutional strengthening (US \$):		
	Phase I: oct-96	152,900
	Phase II: mar-00	101,950
	Phase III: dec-01	101,950
	Phase IV: apr-04	132,347
	Phase V: apr-06	132,347
	Total	621,494
Amount requested for renewal (Phase VI) (US \$):		132,347
Amount recommended for approval for Phase VI (US \$):		132,347
Agency support costs (US \$):		9,926
Total cost of institutional strengthening Phase VI to the Multilateral Fund (US \$):		142,273
Equivalent amount of CFC phase-out due to institutional strengthening Phase VI at US \$12.1/kg (ODP tonnes):		n/a
Date of approval of country programme:		1995
ODS consumption reported in country programme (1995) (ODP tonnes):		72.8
Baseline consumption of controlled substances (ODP tonnes):		
	(a) Annex A Group I (CFCs) (Average 1995-1997)	519.7
	(b) Annex A Group II (Halons) (Average 1995-1997)	32.1
	(c) Annex B Group II (Carbon tetrachloride) (Average 1998-2000)	0.1
	(d) Annex B Group III (Methyl chloroform) (Average 1998-2000)	0.0
	(e) Annex E (Methyl bromide) (Average 1995-1998)	12.2
Latest reported ODS consumption (2007) (ODP tonnes) as per Article 7:		
	(a) Annex A Group I (CFCs)	0.0
	(b) Annex A Group II (Halons)	0.0
	(c) Annex B Group II (Carbon tetrachloride)	0.0
	(d) Annex B Group III (Methyl chloroform)	0.0
	(e) Annex E (Methyl bromide)	0.0
	(f) Annex C Group I (HCFCs)	1.2
	Total	1.2
Year of reported country programme implementation data:		2007
Amount approved for projects (US \$):		4,755,247
Amount disbursed (February 2009) (US \$):		4,517,526
ODS to be phased out (ODP tonnes):		574.4
ODS phased out (February 2009) (ODP tonnes):		539.4

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

<b>Summary of activities</b>		<b>Funds approved (US \$)</b>
(a)	Investment projects:	3,319,677
(b)	Institutional strengthening:	621,494
(c)	Project preparation, technical assistance, training and other non-investment projects:	814,076
	Total:	4,755,247

Progress report

3. The Former Yugoslav Republic of Macedonia reported on a number of important initiatives it has undertaken during this last phase of the institutional strengthening project. These include the completion of some investment projects that were delayed, implementation of the TPMP in the country through the completion of training courses for refrigeration service technicians, approval of code of practice,

provision of training materials and equipment for vocational schools. The NOU has also continued timely reporting of ODS consumption, and initiated a series of awareness raising activities covering the whole country. The NOU of Former Yugoslav Republic of Macedonia is also an active member of the network for ODS officers in the ECA region and has provided advice and assistance to the younger members of the network.

#### Plan of action

4. Over the next two years Former Yugoslav Republic of Macedonia's action plan intends to focus on the completion of the remaining activities in the TPMP to ensure that they meet the 2010 CFC and halons phase-out. It will also continue awareness raising activities in the country, as well as initiate actions for the phase-out of HCFCs. These include the preparation of the HPMP and review of ODS regulations to include HCFCs.





**UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION**

57th Executive Committee of the  
Multilateral Fund for the Implementation  
of the Montreal Protocol

**UNIDO Work Programme**

**57<sup>th</sup> ExCom**

UNIDO

**Work Programme - 57<sup>th</sup> ExCom  
Final (24 February 2009)**

Introduction

This Work Programme for the year 2009 (57<sup>th</sup> ExCom) has been prepared based on ongoing and planned activities and following receipt of government requests. The Work Programme will support the implementation of UNIDO's three year Rolling Business Plan 2009-2011.

Priority was given to Article 5 countries needing immediate assistance to prepare the HCFC investments projects and management plans. The Business Plan is meant to provide an indication on where the UNIDO programme is moving in 2009, and to establish a financial resource estimate for implementing such a programme. Focus has been put on preparation of HCFC demonstration and investment projects.

The renewal of institutional strengthening support will be required for Macedonia.

Following the re-classification of Armenia as an Art.5 Country and completion of the previous IS components under the Country Programme implementation, the Government requested UNIDO to submit a new Project proposal to MLF, to cover the country needs for the compliance to Montreal Protocol and coordination of HCFCs phase-out related activities.

Furthermore, a number of project preparation activities for ODS disposal sector are foreseen.

The document comprises the following sections:

**Section 1**

Gives in a tabulated form by project types and country a consolidated list of activities foreseen for HCFC, MeBr, CTC/TCA and institutional strengthening.

Funding is requested as follows:

- Project preparation: US\$ 1,206,688 including 7.5% A.S.C.;
- Technical Assistance 9% A.S.C.: US \$109,000
- Funds mobilization proposal 7.5 %:US\$ 322,500 including
- Institutional strengthening: US\$ 271,273 including 7.5% A.S.C.;
- Total **US\$ 1,909,461** including A.S.C.

**Section 2**

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



UNIDO

Work Programme - 57<sup>th</sup> ExCom  
Final (24 February 2009)

### Section 1

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

Country	Type	Substance	Title of Project	Requested amount USD	A.S.C USD	Total (incl ASC) USD	A.S .C. %	P. D.	Coop. with IAs
<b>Institutional Strengthening</b>									
Armenia	INS	SEV	Institutional Strengthening, NEW.	120,000	9,000	129,000	7.5	24	
Macedonia FYR	INS	CFC	Institutional Strengthening, Renewal.	132,347	9,926	142,273	7.5	24	
			<b>Institutional Strengthening Total</b>	<b>252,347</b>	<b>18,926</b>	<b>271,273</b>			
<b>Technical assistance</b>									
Cambodia	TAS	TCA	Technical assistance solvent sector	40,000	3,600	43,600	9	12	
Kenya	TAS	CTC/TCA	Technical assistance in the solvent sector	40,000	3,600	43,600	9	12	
Oman	TAS	SEV	Verification audit of the TPMP	20,000	1,800	21,800	9	12	
			<b>Total</b>	<b>100,000</b>	<b>9,000</b>	<b>109,000</b>			
<b>MeBr project preparation</b>									
Chile	PRP	MBR	Fumigants	50,000	3,750	53,750	7.5	12	
			<b>MeBr Total</b>	<b>50,000</b>	<b>3,750</b>	<b>53,750</b>			
<b>Project preparation for Demonstration Projects</b>									
Indonesia	PRP	HCFC-141b	Foam sector	60,000	4,500	64,500	7.5	12	
China	PRP	HCFC-22	Room AC Manufacturing (RAC) sector	60,000	4,500	64,500	7.5	12	
China	PRP	HCFC-22	Compressor manufacturing	30,000	2,250	32,250	7.5	12	
Uruguay	PRP	HCFC-22	Commercial refrigeration manufacturing sector (demonstration for 2 enterprises)	60,000	4,500	64,500	7.5	12	
			<b>PRP Total</b>	<b>210,000</b>	<b>15,750</b>	<b>225,750</b>			
<b>Project preparation for Investment HPMP Projects</b>									
Argentina	PRP	HCFC-22	AC Manufacturing (RAC) sector	80,000	6,000	86,000	7.5	12	
Croatia	PRP	HCFC-141b	Foam sector	40,000	3,000	43,000	7.5	12	
				<b>120,000</b>	<b>9,000</b>	<b>129,000</b>			
<b>Additional funding for HPMP preparation (HPMP)</b>									
Albania	PRP	HCFC	Additional funding HPMP preparation	55,000	4,125	59,125	7.5	12	
			<b>Additional funding for HPMP - Total</b>	<b>55,000</b>	<b>4,125</b>	<b>59,125</b>			

Country	Type	Substance	Title of Project	Requested amount USD	A.S.C USD	Total (incl ASC) USD	A.S.C. %	P.D.	Coop. with IAs
<b>New req. for HPMP preparation (HPMP)</b>									
Guatemala	PRP	HCFC	HPMP preparation	75,000	5,625	80,625	7.5	12	UNEP
Myanmar	PRP	HCFC	HPMP preparation	42,500	3,188	45,688	7.5	12	UNEP
			<b>Funding for HPMP Plan Total</b>	<b>117,500</b>	<b>8,813</b>	<b>126,313</b>			
<b>ODS Disposal project preparation</b>									
Chile	PRP	SEV	Pilot project for ODS destruction	60,000	4,500	64,500	7.5	12	
China	PRP	SEV	Pilot project for ODS destruction	100,000	7,500	107,500	7.5	12	
Croatia	PRP	SEV	Pilot project for ODS destruction	30,000	2,250	32,250	7.5	12	
DPRK	PRP	SEV	Pilot project for ODS destruction	40,000	3,000	43,000	7.5	12	
Iran	PRP	SEV	Pilot project for ODS destruction	60,000	4,500	64,500	7.5	12	
Macedonia	PRP	SEV	Pilot project for ODS destruction	30,000	2,250	32,250	7.5	12	
Nicaragua	PRP	SEV	Pilot project for ODS destruction	40,000	3,000	43,000	7.5	12	
Pakistan	PRP	SEV	Pilot project for ODS destruction	40,000	3,000	43,000	7.5	12	
Serbia	PRP	SEV	Pilot project for ODS destruction	40,000	3,000	43,000	7.5	12	
Turkey	PRP	SEV	Pilot project for ODS destruction	60,000	4,500	64,500	7.5	12	
Venezuela	PRP	SEV	Pilot project for ODS destruction	70,000	5,250	75,250	7.5	12	
			<b>Funding for ODS disposal pilot projects</b>	<b>570,000</b>	<b>42,750</b>	<b>612,750</b>			
<b>Technical Assistance for Funds Mobilization</b>									
Global	TAS	SEV	Funds mobilization	300,000	22,500	322,500	9	12	
			<b>Total Funds Mobilization</b>	<b>300,000</b>	<b>22,500</b>	<b>322,500</b>			
			<b>GRAND TOTAL</b>	<b>1,774,847</b>	<b>134,614</b>	<b>1,909,461</b>			

UNIDO

Work Programme - 57<sup>th</sup> ExCom  
Final (24 February 2009)

## Section 2

Project concepts

### Project Concept

<b>Country:</b>	<b>Armenia</b>
<b>Title:</b>	Institutional Strengthening for the implementation of Montreal Protocol in Armenia
<b>Project Duration:</b>	24 months
<b>Project Budget:</b>	129,000 (including US\$ 9,000 representing 7.5% Agency Support Costs)
<b>Implementing Agency:</b>	UNIDO
<b>Coordinating Agency:</b>	Ministry of Nature Protection of Armenia

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### Project Summary

The project aims at **institutional strengthening and capacity building of the Ministry of Nature Protection** and will ensure helping the Government meet its obligations under the Montreal Protocol on the substances that deplete the Ozone Layer.

In this context, the National Ozone Office will be assisted in monitoring and identification of Ozone-depleting substances consumption and up-dating the needed national policies and regulations.

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

## Project Concept

**Country:** **Argentina**

**Title:** Preparation of investment projects for the conversion of ten air-conditioning manufacturing companies to non-HCFC based technologies

**Project Duration:** 12 months

**Project Budget:** 86,000 (including 7.5% Agency Support Costs)

**Implementing Agency:** UNIDO

**Coordinating Agency:** OPROZ, Ministry of Environment

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## Project Summary

UNIDO received an official Government request from Argentina to prepare investment projects for the phase-out of HCFCs in the air-conditioning manufacturing sector at ten companies.

Manufacturer	Production start	Units produced 2008	R-22 consumption 2008 [kg]
Audivic	2005	120,000	156,000
BGH	1982	259,567	243,000
Digital Fueguina (Garbarino)	2007	74,570	70,840
Electrofuegina (Fravega)	2005	123,409	81,200
Foxman Fueguina	2004	8,000	6,200
Good Cold	1996	980	2,040
Interclima (Mirgor)	2004	325,190	292,000
Multicontrol	1983	5,546	12,500
New Scan*	1999	157,850	147,400
RVF-SOMTEC-MEGASAT	1984	169,253	128,000
Total		1,244,365	1,139,180

\*: 55% local ownership (2008 production data based on local ownership only)

Potential technology selection: HFC-410A, and in some cases HFC-417 and HFC-404A. Final decision on alternative selection will be made during project preparation.

### Project Concept

**Country:** Republic of Macedonia

**Title:** Extension of Institutional Strengthening Project - Phase VI

**Project Duration:** 24 months

**Project Budget:** 142,273 (including US\$ 9,926 representing 7.5% Agency Support Costs)

**Implementing Agency:** UNIDO

**Coordinating Agency:** Ministry of Environment and Physical Planning - Republic of Macedonia

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### Project Summary

UNIDO received an official Government request from the Ministry of Environment and Physical Planning - Republic of Macedonia for the renewal of the institutional strengthening support for Macedonia, Phase VI.

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

## Project Concept

<b>Country:</b>	<b>Cambodia</b>
<b>Title:</b>	Technical Assistance for the total phase-out of CTC and TCA in solvent sector and compliance to Montreal Protocol targets
<b>Project Duration:</b>	12 months
<b>Project Budget:</b>	43,600 US\$ ((including US\$ 3,600 representing 9% Agency Support Costs)
<b>Implementing Agency:</b>	UNIDO
<b>Coordinating Agency:</b>	NOU - Ministry of Environment

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## Project Summary

The CTC and TCA consumption in the last 3 years is less than 2MT, and the solvent sector has not been covered by already approved TPMPs

The TA project will ensure support for monitoring activities and training to ensure the country compliance to the final elimination targets and in line with the Montreal Protocol commitments.

The Governments of Cambodia have specifically requested UNIDO's technical assistance to address the phase-out of the remaining CTC/TCA consumption. Both TAS requests are in line with ExCom Decision 45/14. In addition to possible CAP activities, UNIDO is planning to make a survey of the remaining CTC/TCA uses in the countries, will hold awareness raising workshops and provide tailor-made assistance to the end-users, and identify critical laboratory uses for which alternatives may not be available, for an effective and sustainable phase-out and for preparation of EUN in case required. This concept has already been successfully implemented by UNIDO in several countries in similar situation.

### Project Concept

**Country:** Kenya

**Title:** Technical Assistance for the total phase-out of CTC and TCA in solvent sector and compliance to Montreal Protocol targets

**Project Duration:** 12 months

**Project Budget:** 43,600 US\$ ((including US\$ 3,600 representing 9% Agency Support Costs)

**Implementing Agency:** UNIDO

**Coordinating Agency:** NOU - Ministry of Environment

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### Project Summary

The CTC and TCA consumption in the last 3 years is less than 2MT, and the solvent sector has not been covered by already approved TPMPs

The TA project will ensure support for monitoring activities and training to ensure the country compliance to the final elimination targets and in line with the Montreal Protocol commitments.

The Governments of Kenya have specifically requested UNIDO's technical assistance to address the phase-out of the remaining CTC/TCA consumption. Both TAS requests are in line with ExCom Decision 45/14. In addition to possible CAP activities, UNIDO is planning to make a survey of the remaining CTC/TCA uses in the countries, will hold awareness raising workshops and provide tailor-made assistance to the end-users, and identify critical laboratory uses for which alternatives may not be available, for an effective and sustainable phase-out and for preparation of EUN in case required. This concept has already been successfully implemented by UNIDO in several countries in similar situation.

**Project Concept**

**Country:** Chile

**Title:** Elimination of MeBr in soil fumigation (horticulture, mainly strawberry sector)

**Project Duration:** 12 months

**Project Budget:** 53,750 US\$ (including 7.5% Agency Support Cost)

**Implementing Agency:** UNIDO

**Coordinating Agency:** Ministry of Environment (CONAMA)

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**Project Summary**

Project preparation to submit an investment project to eliminate the 175 ODP tones before 2015, which still consuming by the country in soil fumigation, mainly in the strawberry production.

## Project Concept

**Country:** China

**Title:** Preparation of two demonstration projects for the conversion of two manufacturing lines to two non-HCFC based technologies in the room air-conditioning sector

**Project Duration:** 12 months

**Project Budget:** 64,500 (including 7.5% Agency Support Costs)

**Implementing Agency:** UNIDO

**Coordinating Agency:** Ministry of Environmental Protection

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## Project Summary

China is the largest producer of room air conditioners worldwide. The sector consists of some 100 companies. Due to the climatic conditions of the country the use of room air conditioners is wide-spread in offices, medical and educational institutions, households etc. Currently there are no final alternatives to replace HCFC-22 in the sector. The most promising technologies are hydrocarbons (HCs), hydrofluorocarbons (HFCs) and carbon dioxide (CO<sub>2</sub>). The selection of the most appropriate alternatives has to be matched with the availability of the new refrigerant in China, its price, cost of conversion, cost of new components required, safety and environmental considerations, and market acceptance.

UNIDO received a government request from China to prepare two demonstration projects for the room air-conditioning manufacturing sector to study the technical and financial implications of the conversion to:

- a) HFC-410A and
- b) HC290 alternatives.

### Company information:

#### 1) Qingdao Haier

- Established in 1984
- Start-up of production of room air-conditioners in 1992
- Total number of production lines: 16;

- Number of room air-conditioners produced in 2007: approximately 8,940,000 units, of which about 2,560,000 sets were exported;
- Total consumption of HCFC-22 in 2007: approximately 10,000 metric tons;
- Annual production level of the targeted demonstration production line: about 300,000 units;
- The annual consumption of this line is about 300 metric tons;
- Proposed alternative: HC-290.

## **2) Guangzhou Midea**

- Established in 1968
- Start-up of production of room air-conditioners in 1981
- Total number of production lines: 90;
- Total number of room air-conditioners produced in 2008: about 15,000,000 units;
- Total consumption of HCFC-22 in 2008: about 12,000 metric tons;
- Annual production level of the targeted demonstration production line is about 500,000 units;
- Annual consumption of this line is about 400 metric tons;
- Proposed alternative: HFC-410A.

The above demonstration projects will provide sufficient information required for the preparation for the sector plan including selection of medium-term alternative(s), technical and technological requirements, detailed costing of conversion (incl. ICC and IOC).

The project has also global implications in two sense:

- A) Since China is the biggest supplier of air-conditioners worldwide, early phase-out of the use of R-22 in the manufacturing of room ACs in China will benefit the phase-out efforts of other A5 countries.
- B) Lessons learned in the conversion can be utilized in other A5 countries manufacturing room ACs with R-22.

The alternative technology for each demonstration project will be finalized in the preparation stage.

## Project Concept

<b>Country:</b>	<b>China</b>
<b>Title:</b>	Preparation of a demonstration project for the conversion of a compressor manufacturing line to non-HCFC based technology in the room air-condition sector
<b>Project Duration:</b>	12 months
<b>Project Budget:</b>	32,250 (including 7.5% Agency Support Costs)
<b>Implementing Agency:</b>	UNIDO
<b>Coordinating Agency:</b>	Ministry of Environmental Protection

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## Project Summary

China is the largest producer of room air conditioners worldwide. The selection of the most appropriate alternatives has to be matched with the availability of the new refrigerant in China, its price, cost of conversion, cost of new components required, safety and environmental considerations, and market acceptance.

UNIDO received a government request from China to prepare a demonstration project for the conversion of a compressor manufacturing line to non-HCFC based technology in the room air-conditioning manufacturing sector to study the technical and financial implications of the conversion.

### Company information:

#### **3) Shanghai Haili - compressor manufacturer**

- Established in 1954
- Start-up of production of room air-conditioners in 1986
- Total number of compressors produced in 2007: about 12,660,000 sets, of which about 1,660,000 sets were exported;
- Annual production at the targeted demonstration production line: about 100,000 compressors;
- The annual indirect consumption of this line is about 130 metric tons;
- Proposed alternative: HC-290.

## Project Concept

<b>Country:</b>	<b>Indonesia</b>
<b>Title:</b>	Preparation of demonstration projects for the conversion technology at two different sub-sectors of the polyurethane foam; rigid polyurethane sandwich panel production and flexible moulded foam production, to two non-HCFC and low GWP based technologies.
<b>Project Duration:</b>	12 months
<b>Project Budget:</b>	64,500 (including 7.5% Agency Support Costs)
<b>Implementing Agency:</b>	UNIDO
<b>Coordinating Agency:</b>	Ministry of Environment

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## Project Summary

Located at the cross-road of the Asian Pacific, between two oceans and two continents of Australia and Asia, Indonesia is the largest archipelago in the world consisting of about 17,000 islands with total area of 9.8 million square kilometers (7.9 million km<sup>2</sup> sea and 1.9 million km<sup>2</sup> land).

With an economic growth of 6.3 per cent in 2007 and a Gross Domestic Product (GDP) per capita of US \$1,858, Indonesia is emerging as one of the world's Middle Income Countries.

Almost 90% of global greenhouse gas (GHG) emissions come from five sources: energy (25.9%), industry (19.4%), forestry (17.4%), agriculture (13.5%) and transport (13.1%). Extensive use of fossil fuel, deforestation, agricultural practices, waste and other energy sources are responsible for much of global warming.

Indonesia is an Article 5 country with a large foam sector which includes all sub-sectors, flexible box foam, flexible slabstock, flexible moulded and integral skin, extruded polystyrene and polyethylene, phenolic foams and rigid polyurethane foam, being the largest in terms of foam produced and ODS consumed. Due to the climatic conditions of the country and energy saving efforts insulating materials play very important role for new designs in civil construction and

refrigeration sectors. Currently there are no final alternatives to replace HCFC-141b in the sector. The most promising technologies are hydrocarbons (HCs), methyl formate and carbon dioxide (CO<sub>2</sub>). The selection of the most appropriate alternatives has to be matched with the availability of the new blowing agents in Indonesia, its price, cost of conversion, capital investments and cost of new components required, safety and environmental considerations, and market acceptance.

UNIDO received a government request from Indonesia to carry out stand alone demonstration projects of HCFC phase-out in the foam industry.

#### Company information:

##### **1) PT Airtekindo Prima**

- Established in 1993
- The company has two continuous lines for the production of rigid PU sandwich panels. Two sides Al-sheet laminated panels are used mainly for the fabrication and installation of the ductworks.
- In 2008 the company produced almost 700 tonnes of sandwich panels and consumed more than 60 tonnes of HCFC 141b.
- Company opted for the conversion to low operational cost cyclopentane blowing. The company has its own premixing facility to prepare 10-component batches which should be replaced with accurate direct metering and dosing to multi component mixing head, to ensure economy in the use of components explosion safety and quality of end products.
- The company is ready to establish their converted technology on the use of domestic cyclopentane, thus validation of new technology for the use of C-5 fractions to be supplied by Indonesian petrochemical producer, Pertamina will be also subject of the demonstration project.
- The proposed technology is new to Indonesia.

##### **2) PT Universal Furnitech Industry**

- Established in 1996
- The company is producing seats and chairs made of steel and wooden structures.
- More than 15,000 chairs per month are normally produced.
- The company is currently using HP foam dispenser serving 11 mould and still also hand mix technique normally

serving four smaller moulds for armrests and other smaller components like head rests.

- Foam density varies from 40 - 55 kg/m<sup>3</sup> depending on the type of product (seat, back seat, armrest). Total consumption of HCFC-141b in 2008: about 12 metric tons;
- Proposed alternative technology liquid CO<sub>2</sub> blowing dosed directly to mixing head, complemented with minimal portion of CO<sub>2</sub> generated through water-isocyanate reaction to ensure optimal cell creation and thus homogenous flexible PU foam. The technology is new to Indonesia.

The above demonstration projects will provide sufficient information required for the preparation for the sector plan including selection of long term sustainable and energy saving alternatives with all climate concerns including no- (very low) global warming potential.

The technologies are new to Indonesia and therefore adaptability to local conditions as well as the use of locally made blowing agents will be also validated.

Lessons learned in the conversion can be utilized:

- in other sectors like domestic and commercial refrigeration,
- in other A5 countries to produce high quality insulating materials and high comfort durable sitting furniture.

The alternative technology for each demonstration project will be finalized in the preparation stage.

### Project Concept

**Country:** Croatia

**Title:** Project preparation for the phase-out of HCFC-141b in the PU Foam Production

**Project Duration:** 18 months

**Project Budget:** 43,000 (including 7.5% Agency Support Costs of US\$ 3,000)

**Implementing Agency:** UNIDO

**Coordinating Agency:** Ministry of Environment (MEPPPC)

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### Project Summary

UNIDO received an official Government request for preparation of an investment project for the phase-out of approximately 40 MT of HCFC-141b in the PU Foam production in Croatia

**Name of the companies:**

- Pavusin established in 1997
- Poli-Mix established in 1998

**HCFCs consumption:**

Approximately 40 MT HCFC -141b

**Products:**

- Sandwich panels hard PU Foam blocks, integral skin

### Project Concept

**Country:** Uruguay

**Title:** Project preparation for a demonstration to eliminate HCFC use in the refrigeration manufacturing sector

**Project Duration:** 12 months

**Project Budget:** 64,500 (including 7,5% Agency Support Cost)

**Implementing Agency:** UNIDO

**Coordinating Agency:** Direccion Nacional de Medio Ambiente, Ministry of Environment

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### Project Summary

UNIDO received an official Government request for preparation of a demonstration project for the elimination of approximately 10 MT of HCFC use in the refrigeration manufacturing sector in Uruguay

Two manufacturing refrigerator chamber companies located in Montevideo would be ready to adopt some alternatives. Both companies have been established before July 1995.

Alternative technology to be considered under preparatory activities will be different refrigerants adapted to the condition and system of the companies. Test on efficiency, energy consumption will be carried out

#### Company information:

##### 1) Company One

- Established in 1978
- Start-up of production of commercial refrigeration chambers in 1978
- Number of tailor made chambers produced in 2007: approximately 400 units for the local per unit about 15 kgs average.
- Total consumption of HCFC-22 in 2007: approximately metric tons;

- Annual production level of the targeted demonstration about 40 units;
- Proposed alternative: HFC Blend and Hydrocarbons blend including the necessary safety measures.
- Located in Montevideo

Company information:

**1) Company Two**

- Established in 1984
- Start-up of production of commercial refrigeration chambers 1984
- Number of tailor made chambers produced in 2007: approximately 300 units for the local average of 13 Kg
- Total consumption of HCFC-22 in 2007: approximately 4 metric tons;
- Annual production level of the targeted demonstration about 30 units;
- Proposed alternative: HFC Blend and Hydrocarbons blend including the necessary safety measures.
- Located in Montevideo

Results of the demonstration will be disseminated through workshops, conferences and network meeting to interested Article 5 countries with emphasis to the region.

**Project Concept**  
**Additional funding for HPMPs preparation**

**Country:** Albania, Guatemala and Myanmar

**Title:** Preparation HPMP

**Project Duration:** 12 months

**Project Budget:** as per the summary table above

**Implementing Agency:** UNIDO

**Coordinating Agency:** National Ozone Unit

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**Project Summary**

In response to Decision 56/16 UNIDO is submitting three funding requests for HPMP preparation.

Guatemala and Myanmar have not yet received HPMP preparation funding. These projects will be implemented in cooperation with UNEP as decided by the Governments concerned.

Albania received US\$ 30,000 for HPMP preparation at the 55<sup>th</sup> ExCom Meeting based on the zero HCFC consumption reported at that time. Since Albania has reported HCFC consumption in its 2007 data reporting, Albania is eligible for US\$ 85,000 for HPMP preparation funding in line with ExCom Decision 56/16. In light of the above US\$ 55,000 plus support cost is requested as additional HPMP preparation funding for Albania.

### Project Concept

<b>Country:</b>	Several (Chile, China, Croatia, DPR Korea, Iran, Macedonia, Nicaragua, Pakistan, Serbia, Turkey, Venezuela)
<b>Title:</b>	Preparation ODS disposal pilot projects
<b>Project Duration:</b>	12 months
<b>Project Budget:</b>	as per the table above
<b>Implementing Agency:</b>	UNIDO
<b>Coordinating Agency:</b>	National Ozone Unit

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### Project Summary

Following the Decision XX/7 of the Meeting of the Parties to Montreal Protocol, related to the Environmentally sound management of banks of ozone-depleting substances, is requesting both IAs and MLF to consider as a matter of urgency commencing pilot projects that may cover the collection, transport, storage and destruction of ozone-depleting substances, UNIDO included in the work plan related preparatory related activities.

The future pilot projects for ODSs destruction will address the total available know stocks for destruction, by addressing the include the following activities:

- unwanted ODS inventory
- collection and transportation
- screening in technologies and selection of destruction methods
- up-date of national legislation and regulations to support destruction activities
- training needs and training programmes to develop the country capacity in dealing with ODS destruction issues and unwanted future ODS stockpiling
- consideration of potential different funding sources (as CDM and voluntary markets, or other financial instruments)

**Expected amount of ODSs to be destroyed:**

<b>Country</b>	<b>Sector / Sub-Sector</b>	<b>Total ODP tonnes</b>
Chile	Pilot project for the destruction of ODSs	60.0
China	Pilot project for the destruction of ODSs	100.0
Croatia	Pilot project for the destruction of ODSs	15.0
Iran	Pilot project for the destruction of ODSs	30.0
Korea, DPR	Pilot project for the destruction of ODSs	10.0
Macedonia, FYR	Pilot project for the destruction of ODSs	10.0
Nicaragua	Pilot project for the destruction of ODSs	10.0
Pakistan	Pilot project for the destruction of ODSs	50.0
Serbia	Pilot project for the destruction of ODSs	50.0
Turkey	Pilot project for the destruction of ODSs	14.0
Venezuela	Pilot project for the destruction of ODSs	200.0

## Project Concept

**Country:** Global

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

**Project Duration:** 12 months

**Project Budget:** 322,500 (including 7.5% Agency Support Costs)

**Implementing Agency:** UNIDO

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### Project Summary

**Reference: the MLF facility for resource mobilization funding**

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

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

- GEF provides funding for projects in the thematic areas of interest, such as those relating to the UNFCCC, UNBDC and UNDCC. Projects aiming at energy saving and increase the energy efficiency are usually funded.
- GEF operates through national Focal Points (NFP) within governments and in most cases the projects proponents or counterparts are governmental entities (Energy Ministry, Agricultural Ministry, transportation Ministry, etc).
- GEF has limited access/experience in working with individual companies in the private sector especially if they are SMEs.
- GEF confounding requirements made more complex for developing countries to fully benefit from the GEF. And this is more apparent when SMEs were concerned.
- MLF has the mandate to provide funding and assistance for covering the incremental costs relating to the ODS phase out.
- MLF and IAs have a long history of successful cooperation with A5 countries conversion projects at national and

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

#### Proposal:

To develop a concept and methodology to calculate the additional costs to be born by the MLF corresponding to the introduction of alternatives or practices that generate climate co benefits. Such additional costs are mostly related to the improvements of the energy performance during manufacturing and subsequently increased energy efficiency of equipments during operation. This is due to the fact that in the refrigeration and A/C equipment, the indirect emissions are dominant in most cases.

Such additional costs could be then covered by the GEF through a special facility at the MLF to allow for more approvals of phase out projects with co climate benefits without jeopardizing the limited funds under the current replenishment.

It is needless to mention that such additional costs will be definitely less compared to costs to be paid by GEF to achieve the same results through their current way of business to implement stand alone projects with the objective to increase the energy efficiency of production and equipments at a designated manufacturing facility (estimated at 15- 20% of the total project).

A conversion project funded by the MLF covers usually the remaining costs relating to activities that are required any way to enable manufacturing enterprises to improve their energy performance.

One should consider that in most developing countries, equipments manufacturers are not required to improve the energy efficiency of their products if it means additional costs to be born by them either due to modification of process or materials costs. As savings generated due to increased

energy efficiency would be usually beneficial to end-users and subsequently to developing countries governments due to reducing of required investments in power generation to meet the national growing demands.

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

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

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

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

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

**Cost breakdown (in US\$):**

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