



**Programa de las  
Naciones Unidas  
para el Medio Ambiente**



Distr.  
GENERAL

UNEP/OzL.Pro/ExCom/79/23  
9 de junio de 2017

ESPAÑOL  
ORIGINAL: INGLÉS

---

COMITÉ EJECUTIVO DEL FONDO MULTILATERAL  
PARA LA APLICACIÓN DEL  
PROTOCOLO DE MONTREAL  
Septuagésima novena Reunión  
Bangkok, 3 – 7 de julio de 2017

**PROGRAMA DE TRABAJO DE ONUDI PARA 2017**

## COMENTARIOS Y RECOMENDACIÓN DE LA SECRETARÍA DEL FONDO

1. ONUDI solicita la aprobación del Comité Ejecutivo de la cantidad de 740 080 \$EUA, más unos gastos de apoyo del organismo de 51 806 \$EUA para su programa de trabajo de 2017 que se expone en la tabla 1. La presentación se adjunta al presente documento.

**Tabla 1: Programa de trabajo de ONUDI para 2017**

País	Actividad/Proyecto	Cantidad solicitada (\$EUA)	Cantidad recomendada (\$EUA)
<b>SECCIÓN A: ACTIVIDADES RECOMENDADAS PARA APROBACIÓN GENERAL</b>			
<b>A1: Renovación de proyectos de fortalecimiento institucional</b>			
México	Renovación del proyecto de fortalecimiento institucional (fase XIII)	316 160	316 160
Qatar	Renovación del proyecto de fortalecimiento institucional (fase IV)	113 920	113 920
Subtotal para A1		430 080	430 080
Gastos de apoyo al organismo (7 por ciento para fortalecimiento institucional) para A1:		30 106	30 106
Total para A1		460 186	460 186
<b>A2: Preparación de proyectos</b>			
República Popular Democrática de Corea	Preparación de un plan de gestión de la eliminación de HCFC (etapa II) (estrategia general)	70 000	70 000
República Popular Democrática de Corea	Preparación para las actividades de inversión para la eliminación de HCFC (etapa II) (sector de fabricación de equipos de refrigeración)	60 000	60 000
Subtotal para A2		130 000	130 000
Gastos de apoyo al organismo (7 por ciento para preparación de proyectos):		9 100	9 100
Total para A2		139 100	139 100
<b>SECCIÓN B: ACTIVIDADES RECOMENDADAS PARA CONSIDERACIÓN PARTICULAR</b>			
<b>B1: Preparación de proyectos para proyectos de demostración (decisión 78/3 (g))</b>			
Ecuador	Preparación de proyectos para proyectos relacionados con HFC en el sector manufacturero en las empresas Ecasa e Indurama para adquirir experiencia en costos adicionales de capital y en costos adicionales de explotación asociados con la reducción gradual de los HFC	60 000	*
Líbano	Preparación de proyecto para proyecto relacionado con HFC en el sector manufacturero en la empresa Lematic Industries para adquirir experiencia en costos adicionales de capital y en costos adicionales de explotación asociados con la reducción gradual de los HFC en equipos de refrigeración domésticos	30 000	*
México	Preparación de proyectos para proyectos relacionados con HFC en el sector manufacturero en las empresas Fersa e Imbera para adquirir experiencia en costos adicionales de capital y en costos adicionales de explotación asociados con la reducción gradual de los HFC	60 000	*
Viet Nam	Preparación de proyectos para proyectos relacionados con HFC en el sector manufacturero en la empresa Nagakawa Vietnam Company para adquirir experiencia en costos adicionales de capital y en costos adicionales de explotación asociados con la reducción gradual de los HFC	30 000	*
Subtotal para B1		180 000	
Gastos de apoyo al organismo (7 por ciento para preparación de proyectos):		12 600	
Total para B1		192 600	
Gran total (A1, A2, B1):		791 886	599 286

Para consideración particular

## SECCIÓN A: ACTIVIDADES RECOMENDADAS PARA APROBACIÓN GENERAL

### A1: Fortalecimiento institucional

#### Descripción del proyecto

2. ONUDI presentó las solicitudes para la renovación de los proyectos de fortalecimiento institucional de los países enumerados en la tabla 1. La descripción de estos proyectos se presenta en el anexo I al presente documento.

#### Comentarios de la Secretaría

3. La Secretaría examinó las solicitudes de renovación de dos proyectos de fortalecimiento institucional presentadas por ONUDI en nombre de los Gobiernos concernidos teniendo en cuenta las directrices y las decisiones pertinentes sobre admisibilidad y los niveles de financiación. Las solicitudes fueron doblemente verificadas comparándolas con el plan de trabajo original para el fortalecimiento institucional, los datos del programa del país y del Artículo 7, el último informe sobre la aplicación del plan de gestión de la eliminación de los HCFC, el informe sobre el avance de las actividades del organismo y cualquier decisión pertinente de la Reunión de las Partes. Se observó que estos países cumplen con los objetivos de eliminación gradual de SAO en virtud del Protocolo de Montreal y su consumo anual de HCFC no supera el consumo anual máximo permisible indicado en sus respectivos acuerdos del plan de gestión de la eliminación de los HCFC con el Comité Ejecutivo. Asimismo, todas las solicitudes incluían indicadores de desempeño para las actividades planificadas para la siguiente fase de los proyectos de fortalecimiento institucional, de acuerdo con la decisión 74/51(e)<sup>1</sup>.

#### Recomendaciones de la Secretaría

4. La Secretaría recomienda la aprobación general de las solicitudes de renovación del fortalecimiento institucional para México y Qatar, con el nivel de financiación que se indica en la tabla 1 de este documento. El Comité Ejecutivo puede considerar oportuno expresar a los Gobiernos mencionados anteriormente los comentarios que aparecen en el anexo II a este documento.

### A2: Preparación de proyectos

República Popular Democrática de Corea: Preparación para un plan de gestión de la eliminación de los HCFC (etapa II) (estrategia general): 70 000 \$EUA

República Popular Democrática de Corea: Preparación para las actividades de inversión para la eliminación de HCFC (etapa II) (sector de fabricación de equipos de refrigeración) 60 000 \$EUA

#### Descripción del proyecto

5. En nombre del Gobierno de la República Popular Democrática de Corea, ONUDI, como organismo de ejecución principal, ha presentado solicitudes para la preparación de la estrategia general para la etapa II del plan de gestión de la eliminación de los HCFC y las actividades de inversión de dos fabricantes de equipos de refrigeración comercial y compresores, como se muestra en la tabla 1. La presentación incluyó una actualización sobre la ejecución de la etapa I del plan de gestión de la

<sup>1</sup> El Comité Ejecutivo decidió seguir usando el formato existente para la renovación de proyectos de fortalecimiento institucional que se aprobó en la 61ª reunión (decisión 61/43(c)) con una modificación en la sección 10, para indicar que los indicadores de desempeño se deberían incluir, tal como aparecen en el anexo XIX al documento UNEP/OzL.Pro/ExCom/74/56 (decisión 74/51(e)).

eliminación de los HCFC, la justificación de la financiación solicitada, las actividades a llevar a cabo y los presupuestos correspondientes.

### **Comentarios de la Secretaría**

6. La Secretaría examinó la solicitud de preparación del proyecto en consonancia con la etapa I del plan de gestión de la eliminación de los HCFC aprobada en la 73ª reunión para cumplir con la reducción del 15 % del consumo de referencia de HCFC en 2018, y las directrices para la financiación de la preparación de la etapa II de los planes de gestión de la eliminación de los HCFC de países del Artículo 5 que figura en la decisión 71/42. La República Popular Democrática de Corea tiene un consumo de referencia de HCFC de 78,0 toneladas PAO y un consumo declarado en 2015 de conformidad con el Artículo 7 del Protocolo de Montreal de 70,02 toneladas PAO. También tiene un consumo declarado de 69,91 toneladas PAO para 2016 según la notificación de datos de su programa de país.

7. La Secretaría señaló que el informe sobre la marcha de las actividades de la ejecución de la etapa I parecía estar en buen camino para una serie de actividades, y que el país ha implementado un sistema de cupos para las importaciones y exportaciones de HCFC. El último tramo de la etapa I del plan de gestión de la eliminación de los HCFC es en 2018. La ejecución de las actividades está en plena conformidad con la resolución del Consejo de Seguridad de las Naciones Unidas (CSNU).

8. La Secretaría expresó su preocupación con respecto a la sostenibilidad de las alternativas para el sector de la refrigeración comercial de conformidad con la decisión 77/35(a)(v)<sup>2</sup> y de la complejidad en la ejecución de proyectos en el país debido a la resolución del CSNU. ONUDI aseguró a la Secretaría que las actividades se llevan a cabo como estaba previsto y explicó la importancia de la aprobación de la financiación para la preparación del proyecto en este momento, a fin de cumplir con el Protocolo de Montreal.

9. Después de los debates, la Secretaría concluyó que la solicitud de financiación de la estrategia general para la etapa II del plan de gestión de la eliminación de los HCFC y las actividades de inversión para la eliminación cumplen con los requisitos de la decisión 71/42.

### **Recomendación de la Secretaría**

10. La Secretaría recomienda la aprobación general de la solicitud de ONUDI para la preparación de proyectos para la etapa II del plan de gestión de la eliminación de los HCFC y de actividades de inversión para la eliminación de HCFC para la República Popular Democrática de Corea, con el nivel de financiación que se indica en la tabla 1 de este documento.

## **SECCIÓN B: ACTIVIDADES RECOMENDADAS PARA CONSIDERACIÓN PARTICULAR**

### **B1: Preparación de proyectos para proyectos relacionados con HFC (decisión 78/3 (g))**

#### **Descripción del proyecto**

11. ONUDI presentó cuatro solicitudes de financiación para la preparación de proyectos relacionados con HFC en el sector manufacturero, tal como se muestra en la tabla 1. Una de estas propuestas fue la sustitución de HFC-134a por alternativas sin HFC en el sector de refrigeración doméstica, y las otras tres solicitudes fueron para estudiar alternativas a los HFC para equipos de refrigeración comercial autocontenidos. Las presentaciones estuvieron en consonancia con la decisión 78/3(g)<sup>3</sup>.

---

<sup>2</sup> Para evaluar, durante la preparación del proyecto, la disponibilidad de la tecnología seleccionada en el país, incluidos los componentes, refrigerantes, aceites, agentes de espumación, etc., necesarios.

<sup>3</sup> Considerar, entre otras cosas, la posibilidad de aprobar un número limitado de proyectos relacionados con los HFC únicamente en el sector de fabricación, sin perjuicio de diferentes tipos de tecnología, a más tardar en la primera

12. Cada una de las solicitudes de preparación de proyecto incluyó información sobre el concepto del proyecto, las actividades que se llevarán a cabo durante la preparación del proyecto y los costos asociados con dichas actividades. Todas las solicitudes de preparación de proyecto fueron presentadas con cartas de aval de los gobiernos respectivos, en consonancia con los requisitos de la decisión 78/3(g). Los detalles de cada solicitud figuran en el documento adjunto al presente documento.

### **Comentarios de la Secretaría**

13. En la 78ª reunión, durante el debate sobre la información pertinente para establecer criterios de financiación de la reducción gradual de los HFC, se señaló que se necesitaba información adicional para poder llegar a una decisión sobre los costos adicionales admisibles. Después de seguir examinando la cuestión, el Comité Ejecutivo estuvo de acuerdo con la decisión 78/3(g).

14. La Secretaría señaló que, si bien los proyectos fueron presentados en consonancia con los costos considerados por el Comité Ejecutivo para la financiación de la preparación de proyectos, y que las propuestas contenían suficientes detalles para permitir el examen de estas solicitudes, se requería mayor orientación para determinar las prioridades de los proyectos. Deben definirse los criterios, el alcance y el tipo de proyectos cubiertos, la financiación total disponible para estos proyectos, la duración de la ejecución de los proyectos, y los requisitos en materia de presentación de informes después de la terminación para que la Secretaría pueda examinar estas solicitudes y formular recomendaciones al Comité Ejecutivo.

15. La Secretaría ha examinado esta cuestión en el documento sobre la reseña de las cuestiones identificadas durante el examen de proyectos<sup>4</sup>.

### **Recomendación de la Secretaría**

16. El Comité Ejecutivo puede considerar oportuno estudiar las propuestas para la preparación de proyectos relacionados con HFC para el sector de fabricación, tal como se muestran en la tabla 1, en el contexto de su debate de las propuestas de proyectos relacionados con los HFC que se describen en el documento sobre la reseña de las cuestiones identificadas durante el examen de proyectos (UNEP/OzL.Pro/ExCom/79/19).

---

reunión de 2019, a fin de que el Comité pueda adquirir experiencia con los costos adicionales de capital y los costos adicionales de explotación que pueden estar relacionados con la reducción de los HFC en los países que operan al amparo del artículo 5, en la inteligencia de que cualquier país que opera al amparo del artículo 5 que presente un proyecto debe haber ratificado la Enmienda de Kigali o haber enviado una nota oficial que indique la intención del gobierno de ratificar la Enmienda; de que no habría otros fondos disponibles hasta que el instrumento de ratificación no hubiera sido recibido por el depositario en la Sede de las Naciones Unidas en Nueva York; y de que cualquier cantidad de HFC reducida como resultado del proyecto se deduciría del punto de partida.

<sup>4</sup> UNEP/OzL.Pro/ExCom/79/19.



## Annex I

## INSTITUTIONAL STRENGTHENING PROJECT PROPOSALS

## Mexico: Renewal of institutional strengthening

Summary of the project and country profile		
Implementing agency:		UNIDO
Amounts previously approved for institutional strengthening (US \$):		
Phase I:	Jun-92 & Dec-94	350,000
Phase II:	Jul-95	95,000
Phase III:	Oct-96	190,000
Phase IV:	Jul-98	190,000
Phase V:	Jul-00	190,000
Phase VI:	Jul-02	247,000
Phase VII:	Apr-05	247,000
Phase VIII:	Jul-07	247,000
Phase IX:	Jul-09	185,250
Phase X:	Dec-10	247,000
Phase XI:	Dec-12	247,000
Phase XII:	Nov-14	247,000
	Total:	2,682,250
Amount requested for renewal (phase XIII) (US \$):		316,160
Amount recommended for approval for phase XIII (US \$):		316,160
Agency support costs (US \$):		22,131
Total cost of institutional strengthening phase XIII to the Multilateral Fund (US \$):		338,291
Date of approval of country programme:		1992
Date of approval of HCFC phase-out management plan (stage I):		2011
Date of approval of HCFC phase-out management plan (stage II):		2014
Baseline consumption of controlled substances (ODP tonnes):		
Annex B, Group III (methyl chloroform) (average 1998-2000)		56.4
Annex C, Group I (HCFCs) (average 2009-2010)		1,148.8
Annex E (methyl bromide) (average 1995-1998)		1,130.8
Latest reported ODS consumption (2016) (ODP tonnes) as per Article 7:		
Annex B, Group III (methyl chloroform)		0.00
Annex C, Group I (HCFCs)		519.66
Annex E (methyl bromide)		49.4
	Total:	569.06
Year of reported country programme implementation data:		2016
Amount approved for projects (as at November 2016) (US \$):		120,301,580
Amount disbursed (as at December 2015) (US \$):		102,425,874
ODS to be phased out (as at November 2016) (ODP tonnes):		6,856.9
ODS phased out (as at December 2015) (ODP tonnes):		6,654.6

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

Summary of activities	Funds approved (US \$)
(a) Investment projects:	106,560,917
(b) Institutional strengthening:	2,682,250
(c) Project preparation, technical assistance, training and other non-investment projects:	11,058,413
Total:	120,301,580

Progress report

1. During phase XII of the IS project the priorities of the NOU, which is located in the General Direction of Air Quality Management, included HCFC control, project implementation, and the quota system in order to meet the reduction targets set out in the stage II HPMP agreement with the Executive Committee. Further work was undertaken to reinforce the control of imports of ODS into Mexico including work on illegal trade with the Commission for Environmental Cooperation to strengthen coordination in the North American region. Other activities included: consultations with the national steering committee in the General Direction Coordination with Ministry of Foreign Affairs, industry associations, and other stakeholders; public awareness activities including videos on MB phase-out, HCFC phase-out in the foam sector, and ODS destruction; and training on good practices in refrigeration servicing. All these activities and the implementation of phase out projects allowed Mexico to reduce its HCFC consumption by 55 per cent as compared to its baseline by 2016.

Plan of action

2. For phase XIII of the IS project the NOU will continue to coordinate the national Montreal Protocol programme and prepare the basis for legislative and regulatory measures to be adopted by the responsible government authorities with an emphasis on the HCFC phase-out and HFC phase-down targets. The NOU will organize meetings and consultations with relevant government entities to facilitate the ratification of the Kigali Amendment and will continue to prioritize improvements in the control of HCFCs, project implementation and the quota system in order to ensure compliance with the phase-out schedule in stage II of the HPMP.

**Qatar: 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: Mar-99	68,450
	Phase II: Dec-03 & Jul-06	89,000
	Phase III: Nov-2009	89,000
	Total	246,450
Amount requested for renewal (Phase IV) (US \$):		113,920
Amount recommended for approval for Phase IV (US \$):		113,920
Agency support costs (US \$):		7,974
Total cost of institutional strengthening Phase IV to the Multilateral Fund (US \$):		121,894
Date of approval of country programme:		1999
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
Annex C, Group I (HCFCs) (average 2009-2010)		86.9
Annex E (methyl bromide) (average 1995-1998)		0
Latest reported ODS consumption (2015) (ODP tonnes) as per Article 7:		
Annex B Group III (Methyl chloroform)		0
Annex E (Methyl bromide)		0
Annex C Group I (HCFCs)		65.89
	Total	65.89
Year of reported country programme implementation data:		2016
Amount approved for projects (as at November 2016) (US \$):		2,634,857
Amount disbursed (as at December 2015) (US \$):		2,150,560
ODS to be phased out (as at November 2016) (ODP tonnes):		123.5
ODS phased out (as at December 2015) (ODP tonnes):		101.3

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



<b>Summary of activities</b>		<b>Funds approved (US \$)</b>
(a)	Investment projects:	1,358,407
(b)	Institutional strengthening:	246,450
(c)	Project preparation, technical assistance, training and other non-investment projects:	1,030,000
	Total:	2,634,857

#### Progress report

4. Phase III of the IS project was inactive from 2010 to mid-2016 when the NOU was re-established under the overall supervision of the Director of the Radiation and Chemical Protection Department of the Office of Environmental Affairs. In July 2016, the Head of Environmental Monitoring was designated as national ozone officer assisting with the licensing system, import inspections, public awareness and participation in relevant meetings. In spite of the delays in the IS project, ODS phase-out activities in the country were maintained and contributed to the compliance of the country with the HCFC control measures. All controlled substances have been subjected to pre-import permissions by the NOU. Furthermore, relevant law was revised and issued to ensure proper control of HCFCs. The NOU also coordinated the preparation of the request for the second and third tranches of the HPMP. Qatar submitted its country programme data in advance of the 1 May deadline and has attended regional network and Montreal Protocol meetings.

#### Plan of action

5. During phase IV of the IS project, funding will continue to assist the Government to meet its obligations under the Montreal Protocol and the annual HCFC consumption phase-out targets set out in the HPMP Agreement with the Executive Committee. The NOU will follow up on policies and regulations that require further improvements, with a view to move forward the administrative procedures for the ratification of the Kigali Amendment. The NOU will continue to cooperate with ministries and inter-ministerial bodies as well as with advisory groups such as non-governmental organizations, and those in the refrigeration and air-conditioning and other sectors.



## **Anexo II**

### **OPINIONES PRELIMINARES EXPRESADAS POR EL COMITÉ EJECUTIVO SOBRE LA RENOVACIÓN DE PROYECTOS DE FORTALECIMIENTO INSTITUCIONAL PRESENTADOS A LA 79ª REUNIÓN**

#### **México**

1. El Comité Ejecutivo examinó el informe presentado con la solicitud para el proyecto de fortalecimiento institucional de México (etapa XIII) y tomó nota con beneplácito de que México cumple con las metas de eliminación del Protocolo de Montreal y las obligaciones en materia de presentación de informes, y ha fortalecido la capacidad de la dependencia nacional del ozono para el control de los HCFC. El Comité reconoció que México ha prestado apoyo a países de la región de América Latina a través de la difusión de información, la organización de seminarios y visitas técnicas. El Comité Ejecutivo apoya los esfuerzos de México para aplicar las etapas I y II del plan de gestión de la eliminación de los HCFC y dar prioridad a la ratificación de la Enmienda de Kigali.

#### **Qatar**

2. El Comité Ejecutivo examinó el informe presentado con la solicitud para el proyecto de fortalecimiento institucional de Qatar (fase IV) y tomó nota con beneplácito de que Qatar comunicó los datos de su programa de país de 2016 antes de la fecha límite del 1º de mayo. El Comité Ejecutivo también tomó nota de que se restableció la dependencia nacional del ozono que ya está funcionando y alienta a Qatar a que permita a la dependencia continuar ayudando al Gobierno a cumplir con sus obligaciones en virtud del Protocolo de Montreal y con los objetivos anuales de reducción del consumo de HCFC establecidos en el plan de gestión de la eliminación de los HCFC de Qatar. El Comité Ejecutivo expresa la esperanza de que la dependencia nacional del ozono continuará realizando el seguimiento de los procedimientos administrativos para la ratificación de la Enmienda de Kigali que se iniciaron en la fase III. El Comité Ejecutivo reconoció los avances del país en la preparación del segundo y tercer tramo de la etapa I de su plan de gestión de la eliminación de los HCFC y aguarda con interés su presentación en la 80ª reunión.





**UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION**

79<sup>th</sup> Executive Committee of the  
Multilateral Fund for the Implementation of the Montreal Protocol

**UNIDO Work Programme**

**79<sup>th</sup> Meeting of the Executive Committee**

## Introduction

The UNIDO Work Programme for the consideration of the 79<sup>th</sup> Meeting of the Executive Committee (ExCom) of the Multilateral Fund (MLF) has been prepared following the Government requests as well as based on ongoing and planned activities. The Work Programme will support the implementation of UNIDO's three year Rolling Business Plan 2017-2019.

The 79<sup>th</sup> UNIDO WPA is addressing preparatory assistance and institutional strengthening requests.

Preparatory assistance is submitted for the 79<sup>th</sup> Executive Committee Meeting consideration for Democratic People's Republic of Korea to enable the country to overview and update data necessary for the launch and implementation of HPMP Stage II in the refrigeration servicing and refrigeration manufacturing sectors.

Further preparatory assistance requests for demonstration projects in the refrigeration manufacturing sector are being submitted in four countries (Ecuador, Lebanon, Mexico and Viet Nam) in line with the Executive Committee Decision 78/3 (g), to facilitate the analysis of ICCs and IOCs associated with the phase-down on HFCs.

Institutional strengthening extension requests are submitted based on the country requests for Mexico and Qatar.

The UNIDO Work Programme Amendment for the consideration of the 79<sup>th</sup> ExCom Meeting comprises the following sections:

- **Section 1:** Consolidated list of activities foreseen for the above requests by project types and country;
- **Section 2:** Project concepts indicating details and funding requirements.

Funding is requested as follows:

- Preparatory assistance funding for HPMP Stage II in DPR Korea amounting to US\$ 139,100 (including US\$ 9,100 representing 7.0 % A.S.C);
- Preparatory assistance funding for demonstration projects amounting to US\$ 192,600 (including US\$ 12,600 representing 7.0 % A.S.C);
- Institutional strengthening projects amounting to US\$ 460,186 (including US\$ 30,106 representing 7.0 % A.S.C);

**Total: US\$ 791,886 (including US\$ 51,806 agency support cost).**

.....

## SECTION 1

Country	MLF HCFC Status	Type	Substance	Sector and Sub-Sector	Title of Project	Requested amount USD	A.S.C. USD	Total (incl ASC) USD	A.S.C. %	P.D.
<b>Preparatory Assistance for HPMP</b>										
Democratic People's Republic of Korea	Non-LVC	PRP	HCFC-22	REF-Manufacturing	Preparation of Stage II HPMP	60,000	4,200	64,200	7%	12
Democratic People's Republic of Korea	Non-LVC	PRP	HCFC-22	HPMP overarching strategy	Preparation of Stage II HPMP	70,000	4,900	74,900	7%	12
<b>SUBTOTAL</b>						<b>130,000</b>	<b>9,100</b>	<b>139,100</b>		
<b>Preparatory Assistance for Demonstration Projects - Based on Executive Committee Decision 78/3 (g)</b>										
Ecuador	Non-LVC	PRP	HFC-134a	REF-Manufacturing	Project preparation for HFC-related projects in the manufacturing sector at Ecasa and Indurama enterprises to gain experience in ICCs and IOCs associated with the phase-down of HFCs	60,000	4,200	64,200	7%	12
Lebanon	LVC	PRP	HFC-134a	REF-Manufacturing	Project preparation for HFC-related projects in the manufacturing sector at Lematic Industries to gain experience in ICCs and IOCs associated with the phase-down of HFCs in domestic refrigeration	30,000	2,100	32,100	7%	12
Mexico	Non-LVC	PRP	HFC-134a	REF-Manufacturing	Project preparation for HFC-related projects in the manufacturing sector at Ecasa and Indurama enterprises to gain experience in ICCs and IOCs associated with the phase-down of HFCs	60,000	4,200	64,200	7%	12
Viet Nam	Non-LVC	PRP	HFC-134a/ HFC-404a	REF-Manufacturing	Project preparation for HFC-related projects in the manufacturing sector at Nagakawa Vietnam Company to gain experience in ICCs and IOCs associated with the phase-down of HFCs	30,000	2,100	32,100	7%	12
<b>SUBTOTAL</b>						<b>180,000</b>	<b>12,600</b>	<b>192,600</b>		
<b>Institutional Strengthening</b>										
Mexico	Non-LVC	INS	All	SEV	Institutional strengthening	316,160	22,131	338,291	7%	24
Qatar	Non-LVC	INS	All	SEV	Institutional strengthening	113,920	7,974	121,894	7%	24
<b>SUBTOTAL</b>						<b>430,080</b>	<b>30,106</b>	<b>460,186</b>		
<b>GRAND TOTAL</b>						<b>740,080</b>	<b>51,806</b>	<b>791,886</b>		

## SECTION 2

### PROJECT CONCEPT

<b>Country:</b>	<b>Democratic People’s Republic of Korea (DPR Korea)</b>
<b>Title:</b>	Preparatory funding request – Stage II of HPMP Refrigeration and air-conditioning servicing Refrigeration equipment and compressor manufacturing
<b>Project Duration:</b>	12 months
<b>Project Budget:</b>	US\$ 130,000 (excl. 7.0% Agency Support Costs) US\$ 70,000 for overarching strategy for Stage II US\$ 60,000 for REF manufacturing sector
<b>Implementing Agency:</b>	UNIDO
<b>Coordinating Agency:</b>	National Coordination Committee for Environment (NCCE) under Ministry of Land and Environment Protection (MLEP)

---

### Project Summary

The Implementing Agency has received an official request from the Government of DPR Korea for preparatory funding for the Stage II of HPMP. In response to the decision 71/42(b) UNIDO is submitting a request for funds for the preparation of Stage II of HPMP.

DPR Korea’s baseline consumption of HCFCs amounted to 78.0 ODP tonnes. During the implementation of the first phase, 16.0 ODP tonnes of HCFC-141b are planned to be eliminated by 2018, while the remaining eligible consumption amounts to 57.97 ODP tonnes of HCFC-22.

In the Stage II of HPMP, DPR Korea will address the servicing and refrigeration equipment and compressor manufacturing sectors aiming to reach a 67.5% reduction in HCFCs consumption by the year 2025. The Stage II strategy will also include activities for conversion of the HCFC production facility in the country.

### Description of current implementation

The Executive Committee for the Implementation of the Montreal Protocol (ExCom) approved, at its 73rd Meeting (November 2014) Stage I of the HCFC Phase-Out Management Plan (HPMP) for DPR Korea for the period 2014–2018 (Decision 73/62) to reduce HCFC consumption by 15 per cent of the baseline of 78.0 ODP tonnes. Under this framework, the first tranche of Stage I of the HPMP for DPR Korea and the corresponding 2014–2015 implementation plan were approved. At its 75<sup>th</sup> Meeting (November 2015) and 77<sup>th</sup> Meeting (November/December 2016) the ExCom approved the second and third tranches of Stage I for DPR Korea corresponding to the period 2016–2017.

At its 75th meeting, the Executive Committee also decided to transfer the funding for the non-investment component associated with the remainder of the 1<sup>st</sup> tranche as well as consecutive tranches of the HPMP that had originally been approved for UNEP to UNIDO.

Since the approval of HPMP Stage I for DPR Korea, activities have been implemented in relation with all the corresponding activities identified in the project document. After the HPMP approval in November



2014, the country has adopted a decision for full implementation of the quota system in the field of import and production of HCFCs.

The consumption of HCFC-141b in DPR Korea is only in the foam production sector, by three polyurethane (PU) foam manufacturing enterprises. Two of the enterprises are eligible for funding under the Multilateral Fund and have been converted in Stage I: Pyongyang Sonbong PU Foam (PU rigid foam) and Puhung Building Material (spray foam for building insulation). The third enterprise, Chongjin Sonbong PU Foam will convert with its own resources.

Investment projects linked to the use of HCFC-141b in the PU foam manufacturing sector have made substantial progress as follows:

Equipment and related services for conversion of the Puhung Building Materials Factory, specialized in building spray insulation, to methyl formate have been procured and had been delivered to the beneficiary in December 2015. Installation and commissioning had to be postponed because of missing auxiliary equipment and tools required for the continuous smooth operation of the main equipment, namely air compressor and electricity generator. The auxiliary equipment had been procured in July 2016, however, the contract award and shipment of the auxiliary equipment was delayed since a request for clearance had to be submitted to the UN Security Council Committee 1718. The approval of the UNSCC was finally obtained on 1 September 2016. The shipment was delayed since the Chinese Customs required submission of Application for Export License of Sensitive Items and Technologies to the Bureau of Industry, Security, Import and Export Control at the Ministry of Commerce of the People's Republic of China. The decision of BISIEC is expected in early May 2017.

Procurement for conversion of the Pyongyang Sonbong Foam Factory, manufacturing rigid PU foam, to methyl formate technology had been conducted in March-October 2016. Clearance from the UNSCC for export of the conversion equipment, composed of a premixing station, methyl formate buffer tank; polyol and MDI tanks, mixed polyol-MDI buffer tank, a high-pressure foaming machine suitable for methyl formate foam blowing agent, was obtained in September 2016. The supplier indicates that shipment will be initiated at the end of May 2017.

Implementation of the non-investment component was severely hampered by the closure of the funds transfer channel to DPR Korea during 2015 and 2016 that prevented UNEP and later, after the ExCom decision on funds transfer from UNEP to UNIDO, also the latter agency to implement in-country activities such as training and establishment of Project Management Unit (PMU). Nevertheless, procurement of equipment to support training activities was conducted according to the work plan. Three units of advanced refrigerant identifiers were delivered in May 2015 and one set of training equipment for RAC service technicians was delivered to the country in September 2016. On expectation of establishment of a new funds transfer modality, a train-the-trainers workshop for 40 RAC service technicians was organized in August/September 2016. Moreover, a study tour to India for a core group of RAC trainers was organized in December 2016.

Opening of a new dedicated funds transfer modality for UN agencies in early 2017 enabled the organization of the first train-the-trainers workshop for 30 customs officers in May 2017 as well as the establishment of the PMU according to the HPMP project. Also, follow-up workshops for RAC service technicians are being planned and procurement of equipment for upgrade of existing R&R centers has been initiated.

## **Overarching strategy 2019 – 2024**

### Current HCFC consumption

Progress of HCFC consumption in the last five years is shown in the following Table 1.

**Table 1:** HCFC consumption in the DPR Korea in 2009-2015 (Article 7 data)

HCFC	2009	2010	2011	2012	2013	2014	2015	Baseline
<b>Metric tonnes</b>								
HCFC-22	865.1	1387.4	1301.0	1275.5	1282.6	1153.0	1083	1126.2
HCFC-141b	129.0	162.0	168.0	171.0	182.0	145.0	95	145.5
<b>Total (MT)</b>	<b>994.1</b>	<b>1549.4</b>	<b>1469.0</b>	<b>1446.5</b>	<b>1464.6</b>	<b>1298.0</b>	<b>1178</b>	<b>1271.7</b>
<b>ODP tonnes</b>								
HCFC-22	47.6	76.3	71.6	70.2	70.5	63.4	59.6	62.0
HCFC-141b	14.2	17.8	18.5	18.8	20.0	16.0	10.4	16.0
<b>Total (ODPt)</b>	<b>61.8</b>	<b>94.1</b>	<b>90.0</b>	<b>89.0</b>	<b>90.6</b>	<b>79.4</b>	<b>70.0</b>	<b>78.0</b>

Table 2 displays information on the import quotas as well as actual imports for 2015

**Table 2:** Actual import vs. quota by the authorized importers (source 2015 Verification Report)

HCFC type	Name of importer	Actual import (Mt)	Quota (Mt)
HCFC-22	Korea Duty Free General Trade Company	100	103
	Korea Electronics Industry General Trade Company	70	73
	Korea Chemistry External Economic Cooperation Co	115	117
	Samhung Kost J.V. Co	100	113
	Taedong Technology J.V. Co	200	179
	<b>Total</b>		<b>585</b>
HCFC-141b	Korea Samjin Trade Co	33	33
	Samhung Kost J.V. Co	42	42
	Korea Electronics Industry General Trade Company	20	20
	<b>Total</b>		<b>95</b>

According to the Updated Agreement between the Government of DPR Korea and the Executive Committee of the MLF for the reduction of the consumption of HCFCs in DPR Korea, the remaining eligible consumption of HCFC-22 after HPMP Stage I is 57.97 ODP tonnes.

#### Information to be gathered

For addressing the Stage II in the servicing sector, a comprehensive survey will be required to give response to the servicing needs after 2018, considering also the large number (more than 200) of registered refrigeration service workshops throughout the country. Servicing of residential and small commercial refrigeration and air-conditioning systems is provided by several small service workshops, while servicing of large installations is provided by in-house technicians.

Besides gathering and updating information on consumption of HCFCs according to sectors, additional information will be compiled and subsequently updated on all aspects related to the expected activities of Stage II.

Information will be collected on the number of RAC service workshops and service technicians in order to develop a plan for implementation of the servicing sector related activities to be integrated in the overall strategy (including assessment of steps required for introduction of a scheme for RAC service workshops licensing and certification).

Further activities will include several stakeholder consultation workshops:

- a) Inception workshop to sensitize the stakeholders on all issues related to the conversion

- b) Mid-term workshop to review the results of the field surveys and to get the stakeholders views and comments on the possible ways forward
- c) Final workshop to agree on the phase-out strategy for the RAC sector taking into consideration the overall phase-out possibilities in other sectors as well.

Furthermore, there will be several ad-hoc consultation meetings according to the needs to discuss technology options taking into consideration global technology development and availability of advanced technologies for HCFC-22 phase-out.

Stage II will also include investment project to address consumption of HCFC-22 at two manufacturers of commercial refrigeration equipment and compressors as described below.

## Investment Project

### Information on Enterprises

According to information obtained during HPMP preparation there are two commercial refrigeration equipment and compressor manufacturers in the country, namely Hamhung Commercial Machinery Factory and Pyongyang Automation Equipment Factory. No activities for these enterprises have been included in Stage I.

Table 3 shows consumption of HCFC-22 in the commercial refrigeration and compressors manufacturing sector by the existing two companies.

**Table 3.** Consumption of HCFC-22 in commercial refrigeration and compressor manufacturing (source HPMP Project Document)

	Consumption of HCFC-22					
	2009	2010	2011	2012	2013	Baseline
<b>Metric tonnes (mt)</b>						
Commercial refrigeration and compressors manufacturing (Hamhung)	149.0	139.2	111.9	120.3	123.8	144.1
Commercial refrigeration and compressors manufacturing (Pyongyang Automation)	69.9	81.2	89.2	70.6	71.5	75.6
<b>ODP tonnes</b>						
Commercial refrigeration and compressors manufacturing (Hamhung)	8.2	7.7	6.2	6.6	6.8	7.9
Commercial refrigeration and compressors manufacturing (Pyongyang Automation)	3.8	4.5	4.9	3.9	3.9	4.2

### Information to be gathered

In light of the above and in order to properly develop a sustainable Stage II strategy in the commercial refrigeration and compressor manufacturing sub-sector, the project preparation will focus, but will not be limited to the following main activities:

- a) Update of information on consumption in the refrigeration manufacturing and compressor sub-sector for the recent 3 years
- b) Visits to the two enterprises by a team of national experts under guidance of an international expert. When visiting enterprises, the team will examine production processes at the enterprises, their competence and capabilities and will collect information on the HCFC consumption, production lines, applications, market share, etc.

- c) Consultations with the two manufacturers on availability and acceptance of future technology options in order to identify any difficulties and challenges to be faced by the enterprises in the conversion

### **Funding requirement for PRP**

In accordance with the guideline MLF/IACM.2016/2/18 the preparatory activities and the corresponding funds requested for UNIDO, are as follows:

**Table 4:** Funding requirements for the overarching strategy and refrigeration manufacturing sector

<b>Activities</b>	<b>Total [USD]</b>
<b>Preparation of Overarching Strategy</b>	<b>70,000</b>
Survey to update consumption all over the country	10,000
Survey to update numbers of technicians (including visits of all provinces)	10,000
Stakeholders workshops	15,000
International consultant (guidance to national experts, data collection/analysis)	15,000
National consultants and data validation	10,000
International travel for stakeholders workshops	10,000
<b>Preparation of investment activities in refrigeration equipment and compressor manufacturing</b>	<b>60,000</b>
Survey on update of information	10,000
Visits of the enterprises	10,000
Stakeholders consultation meetings	15,000
International consultant (guidance to national experts, data collection/analysis)	15,000
International travel for national experts for technology consultations	10,000
<b>Grand total</b>	<b>130,000</b>

## PROJECT CONCEPT

<b>Country:</b>	<b>Ecuador</b>
<b>Title:</b>	Project preparation for HFC-related projects in the manufacturing sector at Ecasa and Indurama enterprises to gain experience in ICCs and IOCs associated with the phase-down of HFCs
<b>Project Duration:</b>	12 months
<b>Project Budget:</b>	US\$ 60,000 (excl. 7.0% Agency Support Costs)
<b>Implementing Agency:</b>	UNIDO
<b>Coordinating Agency:</b>	MIPRO - National Ozone Unit

---

### Project Summary

The Executive Committee has decided in Decision 78/3 (g) *“To consider approving a limited number of HFC-related projects in the manufacturing sector only, without prejudice to different kinds of technology, no later than at the first meeting of 2019, to allow the Committee to gain experience in the ICCs and IOCs that might be associated with phasing down HFCs in Article 5 countries...”*

In response to that above decision, UNIDO has received an official request from the Government of Ecuador for the preparation of an umbrella project in the manufacturing sector in order to convert from HFCs to low-GWP alternatives and to gain relevant experience in the associated ICCs and IOCs.

Ecuador is planning to ratify the Kigali Amendment as soon as possible.

Two enterprises, Ecasa and Indurama, have been identified, which would be willing to initiate early actions and convert from HFCs to low-GWP alternatives in the commercial refrigeration sector, where alternative technology is mature and readily available, in order to gain experience in ICCs and IOCs.

The strategy followed by Ecuador is based on the following criteria and priorities:

- I. Application of well-known, affordable, available and widely used replacement alternatives and related technologies, while supporting efforts for identification and selection of such alternatives.
- II. To start phasing-down HFCs in those HFC consuming manufacturing sectors, where low-GWP and mature alternatives are available.
- III. Through adoption of appropriate alternative technologies, limit climate and adverse environmental impact of converted enterprises and comply with safety, economic and sustainability requirements.

### Background on Ecasa and Indurama (Induglob)

Ecasa and Indurama are 100% Ecuadorian-owned enterprises.

Both enterprises manufacture self-contained domestic refrigeration, vertical and horizontal coolers, typically used to cool soda, water, energy drinks, juices, beer, milk, dairy products. Each of them with different temperature range.

Both enterprises use metal mechanical process for cabinets with cyclopentane insulation. Ecasa uses premixed polyol with cyclopentane and Indurama was converted by UNIDO from HCFC-141b to cyclopentane. The refrigerants used are R-134a and R-404A.

<b>Item</b>	<b>Ecasa</b>	<b>Indurama</b>
Maximum charge R-134a		
Number of units produced	Average per unit 115 gr of R-134a Average per unit 330 gr of R-404A	Average per unit 115 gr of R-134a
HFC consumption in 2016 R-134a	56,590 units produced in 2016 6.5 tons of R-134a in 2016	158,578 units produced in 2016 18.23 tons of R-134a in 2016
R-404A	6,587 units of R-404A 2.17 tons of R-404A	

In the framework of the proposed project, it is planned that the R134a based products will be converted to R600a.

### **Standards compliance for the use of hydrocarbons as refrigerant**

For R600a refrigerant, the recommended charge limit is 150 grams, according to standard IEC 60335-2-89. The manufacturing facility for R600a is special to prevent explosions of refrigerant.

### **Funding Requirements**

The preparatory funds are requested for UNIDO, as follows:

<b>Activities</b>	<b>Cost US\$</b>
Local activities (national expert, local travel costs, coordination meetings etc.)	15,000
International consultant (project preparation and development)	35,000
International travel costs (staff)	10,000
<b>TOTAL</b>	<b>60,000</b>

### **Activities to be undertaken to develop the umbrella project**

- Detailed data collection, verification and validation at the enterprises
- Technology review of available, mature alternatives and discussion with the enterprises and the Government on the selection of a suitable low-GWP alternatives
- Cost assessment of conversion (ICC and IOC)
- Evaluation of the climate co-benefits of the selected alternative and possible interventions and related costs for additional climate benefits
- Preparation, review, endorsement and submission of the project document

## PROJECT CONCEPT

<b>Country:</b>	<b>Lebanon</b>
<b>Title:</b>	Project preparation for HFC-related project in the manufacturing sector at Lematic Industries to gain experience in ICCs and IOCs associated with the phase-down of HFCs in domestic refrigeration
<b>Project Duration:</b>	12 months
<b>Project Budget:</b>	US\$ 30,000 (excl. 7.0% Agency Support Costs)
<b>Implementing Agency:</b>	UNIDO
<b>Coordinating Agency:</b>	National Ozone Unit

---

### Project Summary

The Executive Committee has decided in Decision 78/3 (g) *“To consider approving a limited number of HFC-related projects in the manufacturing sector only, without prejudice to different kinds of technology, no later than at the first meeting of 2019, to allow the Committee to gain experience in the ICCs and IOCs that might be associated with phasing down HFCs in Article 5 countries...”*

In response to that above decision, UNIDO has received an official request from the Government of Lebanon for the preparation of an investment project in the domestic refrigeration sector in order to convert from HFC-134a to R-600a (isobutane) to gain relevant experience in actual ICCs and IOCs.

Lebanon is planning for a quick ratification of the Kigali Amendment by the end of 2017.

The enterprise, Lematic Industries, has been identified, being willing to initiate early actions and convert from HFC-134a to R-600a in the domestic refrigeration sector, where alternative technology is mature and readily available, in order to gain experience in ICCs and IOCs.

The strategy followed by Lebanon is based on the following criteria and priorities:

- I. Application of well-known, affordable, available and widely used replacement alternatives and related technologies, while supporting efforts for identification and selection of such alternatives.
  - II. To start phasing-down HFCs in those HFC consuming manufacturing sectors, where low-GWP and mature alternatives are available.
  - III. Through adoption of appropriate alternative technologies, limit climate and adverse environmental impact of converted enterprises and comply with safety, economic and sustainability requirements.
3. Background

Lematic is a 100% Lebanese company that is specialized in the production of household appliances and appliance industries. Lematic is now one of the major producers of appliances and equipment as a result of steady international growth over the last 50 years.

Lematic products are world leader in design and among the most competitive in the market. The range of household domestic and industrial appliances has resulted in the reputation for manufacturing top quality products.



The company began operation in the 1940s, has accumulated considerable experience, especially in the technology and production of all types of refrigeration and air-conditioning appliances.

Lematic has several factories located in Lebanon, Saudi Arabia and Syria, over 1800 employees and annual sales exceeding half a million units/per year.

Lematic's expertise also extends to the establishment of appliance industries in the countries where often little manufacturing activity exists specially in the Middle East, Africa, Central Asia and South America.

Lematic takes full responsibility for complex, logistical tasks such as design, construction, installation and commissioning up to optimum production so that maximum efficiency and profitability is achieved.



Lematic subsequently offers a complete service package since the company believes that an ongoing commitment is of a great importance to the plant operation. These services range from engineering support to the supply of raw materials, semi-finished components and spare parts as well as the coordination of all the support facilities needed for any type of projects.

Lematic produces products branded as Concorde such as:

- ❖ Refrigerators:
  - Side by Side
  - NoFrost Two Doors
  - DeFrost Two Doors
  - Single Door
- ❖ Freezers:
  - Chest Freezers
  - Vertical Freezers
- ❖ Coolers:
  - Chest Bottle Cooler
  - Vertical Bottle Cooler

In year 2000, Lematic has received assistance under the Montreal Protocol in the refrigeration production sector through the conversion of the insulation foam blowing system, redesign of the refrigeration system prototype, performance testing, trial manufacturing and adaptation, reliability tests, and HFC 134a recovery/recycling at the repairing line within the plant only. The adopted alternatives were:



- Refrigerant: HFC-134a
- Blowing Agent: Hydrocarbons (Pentane)

### **Funding Requirements**

The preparatory funds are requested for UNIDO, as follows:

<b>Activities</b>	<b>Cost US\$</b>
Local activities (national expert, local travel costs, coordination meetings etc.)	15,000
International consultant (project preparation and development)	10,000
International travel costs (staff)	5,000
<b>TOTAL</b>	<b>30,000</b>

### **Activities to be undertaken to develop the project**

- Detailed data collection, verification and validation Lematic Industries.
- Cost assessment of conversion (ICC and IOC).
- Evaluation of the climate co-benefits of the selected alternative and possible interventions and related costs for additional climate benefits
- Preparation, review, endorsement and submission of the project document

## PROJECT CONCEPT

<b>Country:</b>	<b>Mexico</b>
<b>Title:</b>	Project preparation for HFC-related projects in the manufacturing sector at Fersa and Imbera enterprises to gain experience in ICCs and IOCs associated with the phase-down of HFCs
<b>Project Duration:</b>	12 months
<b>Project Budget:</b>	US\$ 60,000 (excl. 7.0% Agency Support Costs)
<b>Implementing Agency:</b>	UNIDO
<b>Coordinating Agency:</b>	SEMARNAT - National Ozone Unit

---

### Project Summary

The Executive Committee has decided in Decision 78/3 (g) “*To consider approving a limited number of HFC-related projects in the manufacturing sector only, without prejudice to different kinds of technology, no later than at the first meeting of 2019, to allow the Committee to gain experience in the ICCs and IOCs that might be associated with phasing down HFCs in Article 5 countries...*”

In response to that above decision, UNIDO has received an official request from the Government of Mexico for the preparation of an umbrella project in the manufacturing sector in order to convert from HFCs to low-GWP alternatives and to gain relevant experience in the commercialization of low-GWP alternatives and the associated ICCs and IOCs.

Mexico was one of the proponents of the HFC phase-down under the Montreal Protocol and is planning to ratify the Kigali Amendment by July 2018.

Two enterprises, Fersa and Imbera, have been identified, which would be willing to initiate early actions and convert from HFCs to low-GWP alternatives in the commercial refrigeration sector, where alternative technology is mature and readily available, in order to gain experience in ICCs and IOCs.

The strategy followed by Mexico is based on the following criteria and priorities:

- I. Application of well-known, affordable, available and widely used replacement alternatives and related technologies, while supporting efforts for identification and selection of such alternatives.
- II. To start phasing-down HFCs in those HFC consuming manufacturing sectors, where low-GWP and mature alternatives are available.
- III. Through adoption of appropriate alternative technologies, limit climate and adverse environmental impact of converted enterprises and comply with safety, economic and sustainability requirements.

### Background on Fersa and Imbera

FERSA and IMBERA are 100% Mexican-owned enterprises.

Both enterprises manufacture self-contained commercial refrigeration equipment (self-contained equipment, is one that incorporates the condensing unit as its part), such as glass door refrigerators, show cases, solid door refrigerators, solid door freezers, display cases, glass door freezers. More specifically they produce:

- Vertical and horizontal coolers, counter top, and specialties, typically used to cool soda, water, energy drinks, juices, bear, milk, dairy products. Each of them, with different temperature range.
- Vertical and horizontal freezers of low temperature (-23 °C), used for storage of ice cream.
- Vertical and horizontal freezers of medium temperature (-18 ° C), used for preserving meats and other frozen food.
- Refrigerated Deli-cases, for preservation of beverages, dairy products and meats.
- Open air merchandisers, used for storage of refrigerated products for easy display and easy access.
- Special refrigeration equipment for storage for: drugs and vaccines, wine, etc.

Both enterprises use metal mechanical process for cabinets with cyclopentane PU insulation. The refrigerants used are R134a, R404a and Imbera also uses R744.

Item	Fersa	Imbera
Maximum charge R-134a	530g (manual) - 600g (machine)	850g
Maximum charge R-404a	1,125g (manual)	500g
Number of units produced		
HFC consumption in 2016		
R-134a based:	19,744 units    11,116 kg of R134a	102,111 units    33,640 kg of R134a
R-404a based:	2,243 units    2,094 kg of R404a	5,370 units    1,700 kg of R404a

In the framework of the proposed project, it is planned that the R134a based products will be converted to R290.

### Standards compliance for the use of hydrocarbons as refrigerant

For R290 refrigerant, the recommended charge limit is 150 grams, according to standard IEC 60335-2-89. It is to be noted however, that the amount of R290 refrigerant charged into the appliance only around 40%-50% of the same for R134a.

The manufacturing facility for charging and handling of R290 refrigerant is designed and manufactured specifically to prevent explosions of refrigerant during the manufacturing process.

Use of R744 needs reinforced components of the refrigerant system and special manufacturing facilities, to handle the high pressure of the refrigerant. The maintenance and servicing of appliances using both types of refrigerants must be performed by qualified personnel.

In Mexico, there are no regulations for R290 and R744. Development of more equipment is limited by the availability and variety of specialized compressors, however compressors for R290 are easy to find and the range of R744 is developing rapidly.

### Funding Requirements

The preparatory funds are requested for UNIDO, as follows:

Activities	Cost US\$
Local activities (national expert, local travel costs, coordination meetings etc.)	15,000
International consultant (project preparation and development)	35,000
International travel costs (staff)	10,000
<b>TOTAL</b>	<b>60,000</b>

### **Activities to be undertaken to develop the umbrella project**

- Detailed data collection, verification and validation at the enterprises
- Technology review of available, mature alternatives and discussion with the enterprises and the Government on the selection of a suitable low-GWP alternatives
- Cost assessment of conversion (ICC and IOC)
- Evaluation of the climate co-benefits of the selected alternative and possible interventions and related costs for additional climate benefits
- Preparation, review, endorsement and submission of the project document

## PROJECT CONCEPT

<b>Country:</b>	<b>Viet Nam</b>
<b>Title:</b>	Project preparation for HFC-related projects in the manufacturing sector at Nagakawa Vietnam Company to gain experience in ICCs and IOCs associated with the phase-down of HFCs
<b>Project Duration:</b>	12 months
<b>Project Budget:</b>	US\$ 30,000 (excl. 7.0% Agency Support Costs)
<b>Implementing Agency:</b>	UNIDO
<b>Coordinating Agency:</b>	National Ozone Unit - Ministry of Natural Resources and Environment

---

### Project Summary

The Executive Committee has decided in Decision 78/3 (g) *“To consider approving a limited number of HFC-related projects in the manufacturing sector only, without prejudice to different kinds of technology, no later than at the first meeting of 2019, to allow the Committee to gain experience in the ICCs and IOCs that might be associated with phasing down HFCs in Article 5 countries...”*

In response to that above decision, UNIDO has received an official request from the Government of Viet Nam for the preparation of a demonstration project in the manufacturing sector in order to convert from HFCs to low-GWP alternatives and to gain relevant experience in the associated ICCs and IOCs.

The enterprise Nagakawa Vietnam Company has been identified, which would be willing to initiate early actions and convert from HFCs to low-GWP alternatives in the commercial refrigeration sector, where alternative technology is mature and readily available, in order to gain experience in ICCs and IOCs.

The strategy followed by Viet Nam is based on the following criteria and priorities:

- I. Application of well-known, affordable, available and widely used replacement alternatives and related technologies, while supporting efforts for identification and selection of such alternatives.
- II. To start phasing-down HFCs in those HFC consuming manufacturing sectors, where low-GWP and mature alternatives are available.
- III. Through adoption of appropriate alternative technologies, limit climate and adverse environmental impact of converted enterprises and comply with safety, economic and sustainability requirements.

### Background on Nagakawa Vietnam Company

Nagakawa Vietnam Company is a 100% Viet Nam-owned enterprise.

The enterprise manufactures self-contained commercial refrigeration equipment (self-contained equipment, is one that contains within its own body, the condensing unit.

	<b>Nagakawa Vietnam Company</b>
<b>Ownership</b>	100% national
<b>HFC-based equipment</b>	- single chamber freezers

	<ul style="list-style-type: none"> <li>- two chamber freezers</li> <li>- ice-cream freezers</li> <li>- bottle coolers</li> </ul>
<b>Baseline equipment</b>	<ul style="list-style-type: none"> <li>- R-134a charging machine</li> <li>- vacuum pump</li> <li>- fixed gas detector</li> <li>- portable gas detector</li> <li>- mold for heat exchanger</li> </ul>

In the framework of the proposed project, it is planned that the HFC-134a (or R-404a) based products will be converted to R-290.

The company is still using HCFC-141b foam insulation, but a conversion under the HPP is currently taking place. However, a conversion of the refrigerants used has never been carried out under the HPMP stages yet.

### **Standards compliance for the use of hydrocarbons as refrigerant**

Because of their flammability, HCs are subject to international safety guidelines and legislation. Their use is limited to a per-system charge of no more than 150 grams according to standard IEC 60335-2-89. All manufacturers of HC systems must follow equipment safety guidelines, and service personnel must understand and comply with specified safe handling procedures. Safety legislation demands leakage-simulation testing, and strict specifications govern the sealing of electrical components in the vicinity of HC flows. Furthermore, many common domestic and commercial appliances, such as domestic fridges and freezers, heat pumps, commercial refrigerators, and motor compressors are subject to international safety directives.

### **Funding Requirements**

The preparatory funds are requested for UNIDO, as follows:

<b>Activities</b>	<b>Cost US\$</b>
Local activities (national expert, local travel costs, coordination meetings etc.)	10,000
International consultant (project preparation and development)	15,000
International travel costs (staff)	5,000
<b>TOTAL</b>	<b>30,000</b>

### **Activities to be undertaken to develop the project**

- Detailed data collection, verification and validation at the enterprises
- Technology review of available, mature alternatives and discussion with the enterprises and the Government on the selection of a suitable low-GWP alternatives
- Cost assessment of conversion (ICC and IOC)
- Evaluation of the climate co-benefits of the selected alternative and possible interventions and related costs for additional climate benefits
- Preparation, review, endorsement and submission of the project document

## PROJECT CONCEPT

<b>Country:</b>	<b>Mexico</b>
<b>Title:</b>	Extension of Institutional Strengthening for the implementation of Montreal Protocol in Mexico – Phase XIII
<b>Project Duration:</b>	24 months (1 July 2017 – 30 June 2019)
<b>Project Budget:</b>	USD 316,160 (excluding USD 22,131 representing 7.0% Agency Support Costs)
<b>Implementing Agency:</b>	UNIDO
<b>Coordinating Agency:</b>	National Ozone Unit, Environmental and Natural Resources Secretariat (SEMARNAT)

---

### Project Summary

The project aims to support the institutional strengthening and capacity building of the National Ozone Unit in Mexico and will ensure in helping the Government meet its obligations under the Montreal Protocol on the substances that deplete the ozone layer.

The NOU office in Mexico is under the direct supervision of the General Direction of Air Quality Management and by the Vice Minister for Environmental Protection of SEMARNAT (Ministry of Environment); this enables the central authority for environment to direct the policies, strategies and priorities for the ODSs phase-out as an integrated component of the environmental policies of México. The NOU will continue its role and responsibilities as a driver for the implementation of the Montreal Protocol and for the compliance of the country with its ODS phase-out obligations. The NOU is the focal point for Montreal Protocol activities and mainly coordinates the whole Montreal Protocol programme in the country and prepares the basis for legislative and regulatory measures to be adopted by the responsible government authorities with an emphasis on the HCFC phase-out and HFC phase-down targets. The programme of activities relating to the Montreal Protocol forms part of Mexico's commitment to phase out the consumption of HCFCs in a controlled and cost-effective manner. The strategic objective of the Government is to ensure the sustainability of the NOU office and to increase its visibility.

The NOU is also responsible for monitoring the ODS import and consumption data and has for this purpose developed the Information and Monitoring System (SISSAO).

The NOU will follow-up with priority to improve the control of HCFCs, and to implement projects and the quota system in order to meet the 35% reduction target in 2018, as per the approved phase-out schedule in the HPMP stage II, or any other reduction targets agreed with the Executive Committee of the Montreal Protocol, depending on a further approval of HPMP stage III and / or HFC conversion projects.

## PROJECT CONCEPT

<b>Country:</b>	<b>State of Qatar</b>
<b>Title:</b>	Extension of Institutional Strengthening for the implementation of Montreal Protocol in Oman – Phase IV
<b>Project Duration:</b>	24 months (1 August 2017 – 31 July 2019)
<b>Project Budget:</b>	121,894 USD (including 7,974 USD representing 7.0% Agency Support Costs)
<b>Implementing Agency:</b>	UNIDO
<b>Coordinating Agency:</b>	Ministry of Municipality and Environment, Ozone Unit

---

### Project Summary

Three phases of institutional strengthening support have been approved for Qatar. The NOU is located under Department of Radiation and Chemicals Protection, under the supervision of the office of Under-Secretary for Environmental Affairs, Ministry of Municipality and Environment. Its roles are:

- Integrate ozone issues within the National Action Plan.
- Monitoring and controlling import and uses of ODS
- Implementing and updating the existing national ODSs regulations.
- Continue implementation of HPMP.
- Follow up the parties and ExCom action
- Coordinating and managing the activities of the implementing agencies
- Outreach and regional/international co-operation
- Promoting and organizing awareness activities

In spite of the delay in the implementation of the IS Phase III, due to administrative restructuring and changes in the responsibilities for staff in charge of NOU, the NOU was maintained and the country is in compliance with the MP phase-out targets. The IS Phase IV will further support the HCFCs Phase out process by ensuring coordination for the HPMP components implementation and cooperation with the relevant stakeholders in the country. In addition, the IS project will support the initiation of the administrative procedures for the ratification of the Kigali Amendment, and will promote awareness activities for the newly controlled group of ODSs, the HFCs.

The project aims at further institutional strengthening and capacity building of the Ozone Unit with a view to the HFCs and will ensure helping the Government meet its obligations under the Montreal Protocol on the substances that deplete the Ozone Layer.

The NOU will continue to actively cooperate with ministries and inter-ministerial bodies as well as with advisory groups such as NGOs, RAC and others.