



**United Nations Development Programme**  
**Country: Trinidad and Tobago**  
**Project Document**

**Project Title** TRI/PHA/64/INV/26/27 HCFC phase-out management plan (HPMP)

**UNDAF Outcome(s):** UNDAF Outcome 1: Effective public participation in governance structures at all levels.  
 Increased environmental sustainability to achieve sustainable development through environmental management, compliance with international treaties, adaptation to climate change and improvement in capacity for policy and strategy development:

**Expected CP Outcome(s):**  
*(Those linked to the project and extracted from the CP)*

**Expected Output(s):**  
*(Those that will result from the project)*

1. HCFC phase out strategy established with maximum allowable consumption 46.2 ODP tonnes by 2013
2. Polyurethane foam enterprises converted to low GWP, non ODS alternatives

**Executing Entity:** The National Ozone Unit, Ministry of Environment and Water Resources (NOU)

**Implementing Agencies:** The National Ozone Unit, Ministry of Environment and Water Resources (NOU) and the UNDP

**Brief Description**

At the 19th Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer held in Montreal in 2007, the Parties agreed to accelerate the phase-out of production and consumption of hydro chlorofluorocarbons HCFCs. Subsequently, in 2008 the Executive Committee approved funding to prepare this Hydro fluorocarbon Phase out Management Plan (HPMP) with UNDP as the implementing agency. This HPMP covers all HCFCs consumed in Trinidad and Tobago either as pure substances or contained in blends. Whereas the servicing of refrigeration and air conditioning equipment constitutes the major consumption sector, there are also refrigeration assembly and foam blowing operations which account for some consumption. These are also addressed in this proposal, which covers the country's obligations through to 2020 under the accelerated phase out targets set by Decision XIX/6 of the Nineteenth Meeting of the Parties to the Protocol

Programme Period:	2012-2020	Total resources required	US\$ 559,900
Project Period	2012-2014	Total allocated resources:	_____
Key Result Area (Strategic Plan)	Energy and Environment	Other:	
Atlas Award ID:	_____	Donor MLF/Montreal Protocol	US\$ 559,900
Project # 1	_____		
Start date:	2012		
End Date	2014		
PAC Meeting Date	14/Mar/2012		

Agreed by (Government) Senator, the Honourable Mr. Ganga Singh, Minister, Ministry of the Environment and Water Resources. Date: 14/09/12

*Ganga Singh*

Agreed by Ms. Joy Creese, Permanent Secretary (Ag), Ministry of the Environment and Water Resources. Date: 20/20/14

*Joy Creese*

Agreed by UNDP Resident Representative. Date: 19/9/12

*Herni E. Manuel D.R.*

## ABBREVIATION LIST

---

CFCs –	chloro-fluorocarbons
HCFCs –	hydro-chlorofluorocarbons
ExCom –	Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol
GWP –	Global Warming Potential
HPMP –	HCFC phase out management plan
MLF –	Multilateral Fund for the Implementation of the Montreal Protocol
MFS -	Multilateral Fund Secretariat
ODP t –	Ozone Depleting Potential tonnes
ODS –	Ozone Depleting Substance
Mt -	Metric tonnes
NOU -	National Ozone Unit

## LIST OF TABLES

- Table 1 – HCFCs Consumption Levels for Trinidad & Tobago
- Table 2 – Consumption of HCFC-22 in Servicing Sector
- Table 3 – Surveyed companies in Foam Sector with HCFC-141b Consumption
- Table 4 – Consumption Baseline and Starting Point for Aggregated Reductions
- Table 5 – HPMP Over-arching phase-out strategy until 2030
- Table 6 – Funding Approved for the HPMP Implementation (Stage 1)
- Table 7 – HPMP Implementation Timeline (Stage 1)

## LIST OF ANNEXES

- Annex 1 – Excom Decision 64/46: Approval of the HPMP for Trinidad and Tobago
- Annex 2 – Agreement between the Multilateral Fund and the Government of Trinidad and Tobago
- Annex 3 – Delegation of Authority (DOA) Letter
- Annex 4 – Letter of Submission of the HPMP for Trinidad and Tobago to the Excom.
- Annex 5 – Investment Project for the Polyurethane Foam Sector.
- Annex 6 – Terms of Reference (TOR) for Project Manager
- Annex 7 – Terms of Reference (TOR) for Project Assistant
- Annex 8 – Minutes of LPAC Meeting
- Annex 9- Standard letter of Agreement between UNDP and the government for the provision of support services

---

## I. SITUATION ANALYSIS

Chlorofluorocarbons (CFCs) and Hydrochlorofluorocarbons (HCFCs) are relatively non-toxic and non-flammable gases formerly used as propellants in aerosol spray cans, as refrigerant fluids in refrigeration and air conditioning units, as solvents and cleaning agents, and as blowing agents in polyurethane foam. It has been determined that these chemicals destroy the ozone layer that protects the earth from harmful radiation. The policy is to implement the Vienna Convention for the Protection of the Ozone Layer and its Montreal Protocol, for the phase-out of substances that affect the Ozone layer, which Trinidad and Tobago acceded to in August 1989. Trinidad and Tobago was the first country of the Caribbean Commonwealth to become a party to this multilateral environmental agreement.

Trinidad and Tobago has successfully implemented a comprehensive management plan to phase-out the CFC consumption to meet the 2010 Montreal Protocol obligations and now it is starting activities to phase-out the HCFCs consumption to comply with the Decision XIX/6 of the Nineteenth Meeting of the Parties to the Protocol. The implication of this amendment is that there are regulations to control trade in HCFCs as well as equipment controlling HCFCs in place and will now require activation along with investment and non-investment activities to take place until 2020.

Trinidad and Tobago is signatory to a number of conventions that address climate change and global warming. In this context UNDP is partnering with the government of Trinidad and Tobago to develop a strategy that addresses carbon emissions related to the transportation, power generation and industrial sectors. There is also continued UNDP support for the institutional strengthening of the unit responsible for coordinating, reporting on and implementing the plan to phase out ODS nationally. This complements the current project which is designed to focus on the phasing out of a particular class of ozone depleting substances that also have a relatively high global warming potential.

In addition to its obligations under global conventions, the government of Trinidad and Tobago has recently approved a national climate change policy in February 2011 which has among its objectives, the reduction or avoidance of greenhouse gases from all emitting sectors. This policy also applies, to the extent feasible, to the selection of replacement technologies for HCFCs.

Trinidad and Tobago does not produce HCFCs therefore all HCFCs in the country are imported. HCFC-22 is the main HCFC imported into the country, used predominantly for servicing refrigeration and air-conditioning equipment (RAC). Some small quantities of pure HCFC-141b are also imported. In addition, HCFC-141b contained in imported pre-blended polyols, which is not reported under Article 7 of the Montreal Protocol, is used by small foam manufacturing enterprises in the country. The HPMP survey identified 12 licensed importers that bring HCFC into Trinidad and Tobago. These importers retail refrigerants on the local market and two of them also export to neighbouring islands.

The country survey revealed that, in 2009, the demand for refrigerants was 692.2 metric tonnes (mt), 9.31 mt of which was used to fill locally assembled domestic small commercial air-conditioning (AC) systems. Small amounts of HCFCs contained in blends and HCFC-141b (pure) used for flushing and cleaning in the servicing sector were also identified. This data is summarized in the table below.

Table 1: HCFC level of consumption

	Article 7 reports								Survey Results								
	HCFC 22		HCFC 123		HCFC 141b		HCFC 124		HCFC 22		HCFC 123		HCFC 141b		HCFC 142b		
	mt	ODPt	mt	ODPt	mt	ODPt	mt	ODPt	mt	ODPt	mt	ODPt	mt	ODPt	mt	ODPt	
2006	1267	69.7	-	-	-	-	-	-	-	1282	70.51	-	-	-	-	-	-
2007	825	45.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	1025	56.4	-	-	-	-	-	-	997	54.8	-	-	-	-	-	-	-
2009	683.9	37.6	13.4	0.27	0.27	0.02	4.2	0.09	622.8	34.26	2.03	0.04	21.6	2.36	1.03	0.67	-
2010*	-	-	-	-	-	-	-	-	914	50.27	-	-	24.9	2.74	-	-	-

\* 2010 data is estimated

There are nineteen large refrigeration and air-conditioning service enterprises in Trinidad and Tobago employing between 5 and 40 technicians each, and a number of smaller, one or two person operations. In addition, several of the large office buildings and commercial enterprises have in-house maintenance services with refrigeration expertise, but rely on the larger service agencies for major services. These comprise the formal sector, which has about eight hundred (800) technicians, 435 of whom received some level of training under the refrigeration management plan (RMP) or terminal phase-out management plan (TPMP), or both. The informal sector is estimated to include about 400 technicians. The survey data suggested that in 2009, 18,979 pieces of HCFC based equipment were serviced in the country, 74 per cent of which were small split air conditioning systems.

Some HCFC-22 is also used to charge refrigeration equipment which is assembled from equipment kits (residential split type units). A summary of HCFC consumption, excluding HCFC-141b in imported pre-blended polyols, by sector is shown in Table 2.

Table 2: Consumption of HCFC-22 in the servicing sector

SECTOR	Total number of units	Total charge of refrigerant (tonnes)	Service frequency per annum	% of equipment requiring charge annually	Average recharge amount (kg)	Service demand (tonnes)	
						mt	ODP
Residential & small Commercial	375,000	562,500	2	30	2	168.75	9.28
Transport	60	90	1	10	2.5	0.02	0
Commercial ref	12,235	18,352.5	1.5	25	20	61.18	3.36
Commercial ac	49,440	74,160	1.5	10	50	247.20	13.60
Marine	30	45	1.5	25	3.75	0.03	0
Industrial Refrigeration	35,000	52,500	1.5	20	4	28	1.54
A c Chillers	10,390	15,585	1.5	10	180	187.02	10.29
TOTAL DEMAND	482,155	723,233				692.20	38.07

Based on the HCFC survey, six enterprises were identified as foam manufacturers in Trinidad and Tobago, but only five of them use HCFC-141b in imported pre-blended polyols for the manufacturing sector and are included in the request for conversion for the foam sector. The process of production is mainly hand mixing and only basic equipment is involved. The 2009-2010 average aggregate HCFC-141b contained in pre-blended polyols by these enterprises is 23.25 mt. An overview of the surveyed companies and their HCFC-141b consumption is presented below:

Table 3: Overview of the surveyed companies and HCFC-141b consumption

#	Company	Application	HCFC-141b use (Average (2009-2010) (mt)
1	Vetter Boxes	Fish boxes	7.75
2	Tropical Marine	Fish boxes	1.7
3	Ice Connection	Fish boxes	6.3
4	Seal	Sprayfoam	4.5
5	Ice Fab	Ice makers, truck bodies	3.0
6	Mecalfab	Panels, truck bodies	0
TOTAL			23.25

The baseline for HCFC consumption was estimated at 807.9 mt (44.1 ODP tonnes) by using the average of the reported 2009 consumption of 701.8 mt (38 ODP tonnes) consumption and the estimated 2010 consumption of 914 mt (50.3 ODP tonnes) excluding HCFC-141b consumption based on customs data available for this year. This would represent a 30 per cent increase as compared to consumption in 2009.

However, during the HPMP submission and the negotiation process with the Multilateral Fund, Trinidad and Tobago had officially submitted its official 2010 data under Article 7. In this sense using the average reported consumption for 2009 and 2010 as the starting point in line with decision 60/44(d). Accordingly, the starting point is adjusted to 838.9 mt (46.2 ODP tonnes). Out of this, since stage 1 of the HPMP will meet the 2020 35 per cent reduction in HCFC consumption, the amount of HCFC that is required to be phased out for the country to comply with the Protocol would be 309.65 mt based on their starting point of 838.9 mt, with reductions named as:

**Table 4 – Consumption Baseline and Starting Point for Aggregated Reductions**

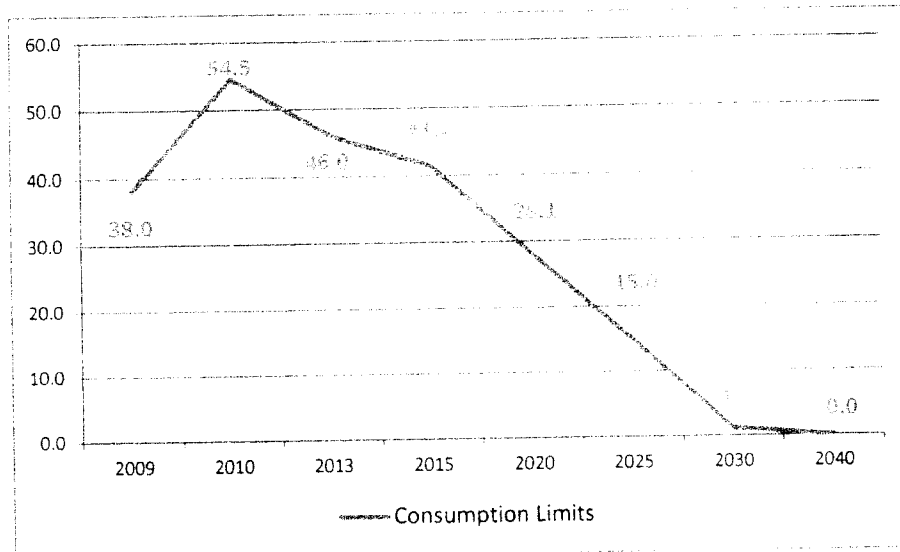
		<b>Metric tonnes</b>	<b>ODP tonnes</b>
Consumption 2009		701.80	38.00
Consumption 2010		934.00	54.50
<b>Starting Point for Aggregate Reductions</b>		<b>838.90</b>	<b>46.02</b>
Reductions to meet 2020 Protocol reduction target (35%)		309.65	17.90
<i>To be achieved through the following Sectors:</i>	Foams (HCFC-141b)	23.32	2.50
	Refrigeration (HCFCs-22, 123 and 125)	286.33	15.40

The calculation of the impact on the climate of the HCFC-141b used in imported pre-blended polyols by foam enterprises in Trinidad and Tobago based only on the GWP values of the blowing agents and their level of consumption before and after conversion is as follows: 23.32 mt of HCFC-141b will be phased-out, 11.6 tonnes of MF will be phased in, and 16,544 tonnes of CO<sub>2</sub> that would have been emitted into the atmosphere will have been avoided.

## **II. STRATEGY**

The Government is proposing to follow the Montreal Protocol schedule and adopt a staged approach to achieve the complete phase-out of HCFCs by 2030 with a service tail to 2040. The current proposal which was submitted to the ExCom consists of the over-arching strategy, which outlines the overall activities to meet Trinidad and Tobago's obligations until 2030 (see Table 4, below).

The project approved by the ExCom consists of stage I of the HPMP to achieve a 10 per cent reduction by 2015 plus 35 per cent reduction by 2020, and focuses on activities for the servicing sector using HCFC-22, as well as an investment component covering the foam enterprises using HCFC-141b contained in imported pre-blended polyols as part of stage 1.



**Fig 1. HCFC Consumption Limits, ODP tonnes**

In stage I of the HPMP, the country will control the imports of bulk HCFCs through applying a strict licensing and quota system consistent with the reduction schedule in the Montreal Protocol. The country will also reduce the demand for HCFCs for servicing existing equipment through refrigerant recovery and reuse, and the capacity building of technicians in better servicing practices. The summary of activities and proposed implementation period is shown in Table 4.

**Table 5: HPMP overall phase out strategy Stage 1 and 2:**

Interventions	Implementation Time line			
	Stage 1		Stage 2	
	2012 - 2015	Up to 2020	Up to 2025	Up to 2030
<b>Technical support to the service industry</b>				
Training in good service practices, Retrofitting and R&R				
Training in low GWP refrigerant technology				
General equipment retrofits				
Specific Equipment Retrofits				
Provision of recovery equipment, recovery cylinders and service tools for natural refrigerants				
Upgrade of training institutions				
Commercial AC and Chiller Conversion				

*To be continued...*

Interventions	Implementation Time line			
	Stage 1		Stage 2	
	2012 - 2015	Up to 2020	Up to 2025	Up to 2030

<b>Foams sector</b>				
Conversion of HCFC based Foams production				
<b>Equipment Assembly</b>				
Conversion of Air-conditioning Assembly Operations				
<b>Policy, Legal and Institutional</b>				
Expansion of current licensing system to include HCFCs				
Expansion of current licensing system to cover labeling of containers and equipment				
Establish standards for the transportation, handling and storage of refrigerants				
Develop policies and regulations for the labeling of refrigerant containers and HCFC-based equipment offered for sale.				
Certification of technicians				
Technician certification to be made a condition to purchase refrigerants and equipment				
Establish and implementation mechanism for disposal of illegal imports of refrigerants and equipment				
Establish controls over exports of refrigerants and related equipment.				
Training of enforcement personnel				
Introduction of market based incentives/ disincentives				
Procedures to monitor servicing of Trinidadian flagged vessels				
Phased prohibition of imports of HCFC charged equipment				
Policies to prohibit importation of HCFC based equipment without charge				
New installations over 100 tonnes to include recovery machine capable of recovering at 10 lbs/minute and recovery cylinders with capacity of twice the charge of the largest unit.				
Requirements for data capture and reporting				
Control of sales of equipment over 5 tonnes to certified technicians				
<b>Education and Awareness</b>				
General public education and information dissemination				
Education and awareness programmes to promote specific projects				
<b>Monitoring, Evaluation and Reporting</b>				
Continuous monitoring, evaluation and reporting on project execution				

## II.1 First Stage Implementation

With regards to the first implementation stage which is the subject of this project document, the country has decided to pursue the 2013, 2015 and 2020 consumption reduction targets agreed to under Decision XIX/6. To this end, it is proposed to execute the following project activities in keeping with stakeholder recommendations and government level agreement, as laid out in Table 4 above.

In this sense, the following funding chronogram was established under the Decision 64/46.

**Table 6: Funding Approved for the HPMP Implementation (1<sup>st</sup> Stage of Commitments)**

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Tranche	1 <sup>st</sup>	-	2 <sup>nd</sup>	-	3 <sup>rd</sup>	-	4 <sup>th</sup>	-	-	5 <sup>th</sup>
Funding USD	559,500	0	198,000	0	471,833	0	145,000	0	0	88,000

This Project Document reflects the approval of the First Tranche available for implementation in 2011/2013 period. The subsequent tranches that are to be received under the Agreement (ANNEX XXX) will be based on the performance achieved during its implementation and are subject to separate approval, after evaluation of the project delivery in the upcoming Excom Meetings.

## **II.2 Technical Support:**

The overall goal of this sub-component is to develop service industry expertise to reduce demand for HCFC refrigerants through improved servicing techniques, retrofitting HCFC based equipment to non-ODS alternatives and the recovery and reuse of refrigerants. This will be achieved through general technicians training, the provision of tools and equipment necessary to put the training into practice and developing local capacity to retrofit systems based on emerging technologies, with a preference for zero or low GWP refrigerants. Given the long lead time for this project, an assessment of the need to retrofit high consuming commercial refrigeration and Air conditioning systems and chillers will be undertaken and appropriate interventions made to ensure compliance with the agreed consumption reduction targets, should this become necessary.

## **II.3 Policy, Legal and Institutional Support**

This sub project supports compliance with the Protocol's phase out schedule for Annex C group 1 HCFCs by creating the supporting Institutional, Policy and Regulatory framework to control consumption and future demand.

## **III.4 Foams Sector Conversion:**

The objective of this project is to phase out the use of HCFCs in the foam manufacturing sector of Trinidad & Tobago .

While each company made its own technology choice for the conversion, the government's strategy was to apply where possible low-global warming potential (GWP) alternatives as the technology replacement, bearing in mind that these would need to be cost-effective for these small foam enterprises. In reviewing the various technology options, the Government did not consider HFC options as these were global warming gases. It also considered that hydrocarbons were too expensive for the small companies and water based systems did not meet the companies' requirements.

Based on technical and economic considerations of available non-HCFC technologies, the five enterprises decided to replace HCFC-141b used as a blowing agent by methyl formate (MF) in pre-blended polyol systems that will be purchased from systems houses in Mexico.

## **II.5 Education and Awareness:**

The objectives of these activities are to:

- a) Inform the public about the HCFC phase out;
- b) Provide information about emerging technology options to reduce HCFC consumption;



- c) Provide information about the economic and environmental benefits of HCFC phase out;
- d) Raise awareness of the health and safety issues related to the use of natural refrigerants and how these are to be handled; and
- e) Provide information about the specific activities to be pursued to achieve the targeted consumption reductions.

## **II.6 Project Coordination, Monitoring, Evaluation and Reporting**

This component of the HPMP will provide for the day to day implementation, and periodic monitoring, evaluation and reporting on project activities, targets achieved, deadlines missed and remedial actions to be taken, if necessary.

Table 7 below outlines the timeline of implementation for the Stage 1 of the agreed commitments:

Table 7: HPMP Implementation Timeline (Stage 1)

Output	Sector	Activity	2012	2013	2014	2015	2016	2017	2018	2019	2020	
1	Technical Support	Training in good service practices, Retrofitting and R&R										
		Training in low GWP refrigerant technology										
		Equipment procurement/retrofits										
	Policy, Legal and Institutional Framework	Procurement of RRR equipment, cylinders and servicing tools for natural refrigerants										
		Upgrade of training institutions (train the trainers)										
		Commercial AC and Chiller Conversion										
		Licensing system to include HCFCs										
		Licensing system to cover labeling of containers and equipment										
		Standards for the transportation, handling and storage of refrigerants										
		Policies and regulations for the labeling of containers and HCFC-based equipment										
		Certification System of technicians										
		Policy on the procurement requisition of Certification technicians										
		Mechanism for disposal of illegal imports of refrigerants and equipment										
		Controls over exports of refrigerants and related equipment										
		Training of enforcement personnel										
		Introduction of market based incentives/ disincentives										
		Procedures to monitor servicing of Trinidadian flagged vessels										
Phased prohibition of imports of HCFC charged equipment												
Education and Awareness	Policies to prohibit importation of HCFC based equipment without charge											
	Policy on need of recovery equipment for installations over 100 MT											
M&E	Requirements for data capture and reporting											
	Control of sales of equipment over 5 tonnes to certified technicians											
	General public education and information dissemination											
Foams sector	Education and awareness programmes to promote specific projects											
	Continuous monitoring, evaluation and reporting											
		Conversion of HCFC based Foams production										
		<b>Funding</b>	559,900	198,000	471,833	145,000	88,000					

### III. RESULTS AND RESOURCES FRAMEWORK

#### Intended Outcome as stated in the Country Programme Results and Resource Framework:

Outcome 3 Increased environmental sustainability to achieve sustainable development through environmental management, compliance with international treaties, adaptation to climate change, and improvement in capacity for policy and strategy development

#### Outcome indicators as stated in the Country Programme Results and Resources Framework, including baseline and targets:

Compliance with international treaties, decrease of CO2 emissions per capita, and effective implementation of policies for improved SLM and reduction of POPS

#### Applicable Key Result Area (from 2008-11 Strategic Plan): 4.3. Promoting climate change adaptation

#### Project title and ID (ATLAS Award ID):

INTENDED OUTPUTS	OUTPUT TARGETS FOR FIRS TRANCHE (2012-2013)	INDICATIVE ACTIVITIES	RESPONSIBLE PARTIES	INPUTS
Output 1 - HCFC phase-out strategy established with Maximum allowable consumption 46.2 ODP tonnes by 2013	Target year 2 (2013) reduction of 1.8 ODP tonnes in ODS consumption.	<p>Actions:</p> <ul style="list-style-type: none"> <li>▪ Technical support to the refrigeration service industry.</li> <li>▪ Policy, legal and institutional framework</li> <li>▪ Public education and awareness.</li> <li>▪ Project management and monitoring.</li> </ul>	National Unit/Ministry of Housing and the Environment MHE	International Experts National Consultants Project Staff Missions and Travels Audit Services Procurement of Equipment Meetings Training
Output 2 - 5 Polyurethane (PU) foam enterprises converted to low-GWP, non-ODS alternatives	Target year 2 (2013) ODS phase out of 2.5 ODP tonnes	<p>Actions:</p> <p>Conversion of five foam enterprises.</p> <ol style="list-style-type: none"> <li>1) Ice con</li> <li>2) Ice Fab</li> <li>3) Seal</li> <li>4) Tropical Marine</li> <li>5) Vetter Boxes</li> </ol>	National Unit/Ministry of Housing and the Environment MHE	International Experts National Consultants Missions and Travels Verification of Compliance Procurement of Equipment

## IV. ANNUAL WORK PLAN

Year 1

EXPECTED OUTPUTS And baseline, indicators including annual targets	PLANNED ACTIVITIES List activity results and associated actions	TIMEFRAME				RESPONSIBLE PARTY	Funding Source	Budget Description	Amount (\$US)	
		Q1	Q2	Q3	Q4					
<b>OUTPUT 1</b>  HCFC phase-out strategy established with Maximum allowable consumption 46.2 ODP tonnes by 2013  Target: ODS phase out 1.8 ODP tonnes	Training in Good Practices of RAC Train the trainer program -TORS developed -Consultant hired - Training content developed - Training schedule in place			X	X	Ministry of Housing and the Environment MHE Project manager	MP / MLF	International Consultant National Consultant Travel Expenses	20,000 10,000 10,000	
	Technical support to the service industry & Development of syllabus -TORS developed -Consultant hired -Procurement initiated -Procurement completed		X	X				National Consultant Equipments Travel Expenses Miscellaneous	15,000 158,880 10,000 5,000	
	Legal policy and institutional framework developed -TORS developed -Consultant hired	X	X	X	X			National Consultant Travel Expenses	15,000 0	
	Publications -TORS developed -Consultant hired		X	X	X			Printing Awareness	7,500 7,500	
	Implementation & Monitoring -TORS developed -Auditor Hired - Continuous Monitoring		X	X	X			Project Manager Project Assistant	30,000 15,000	
	Conversion of five foam enterprises. -TORS developed -Consultant hired -Procurement initiated -Procurement completed -Verification of Consumption - Closure of the project							International Consultant National Consultant Travel Expenses Equipments Miscellaneous	30,000 20,000 5,000 79,040 5,000	
	<b>OUTPUT 2</b>  Polyurethane (PU) foam enterprises converted to low-GWP, non-ODS alternatives  Target: 5 foam enterprises converted									
<b>TOTAL</b>								<b>447,920</b>		

Year: 2

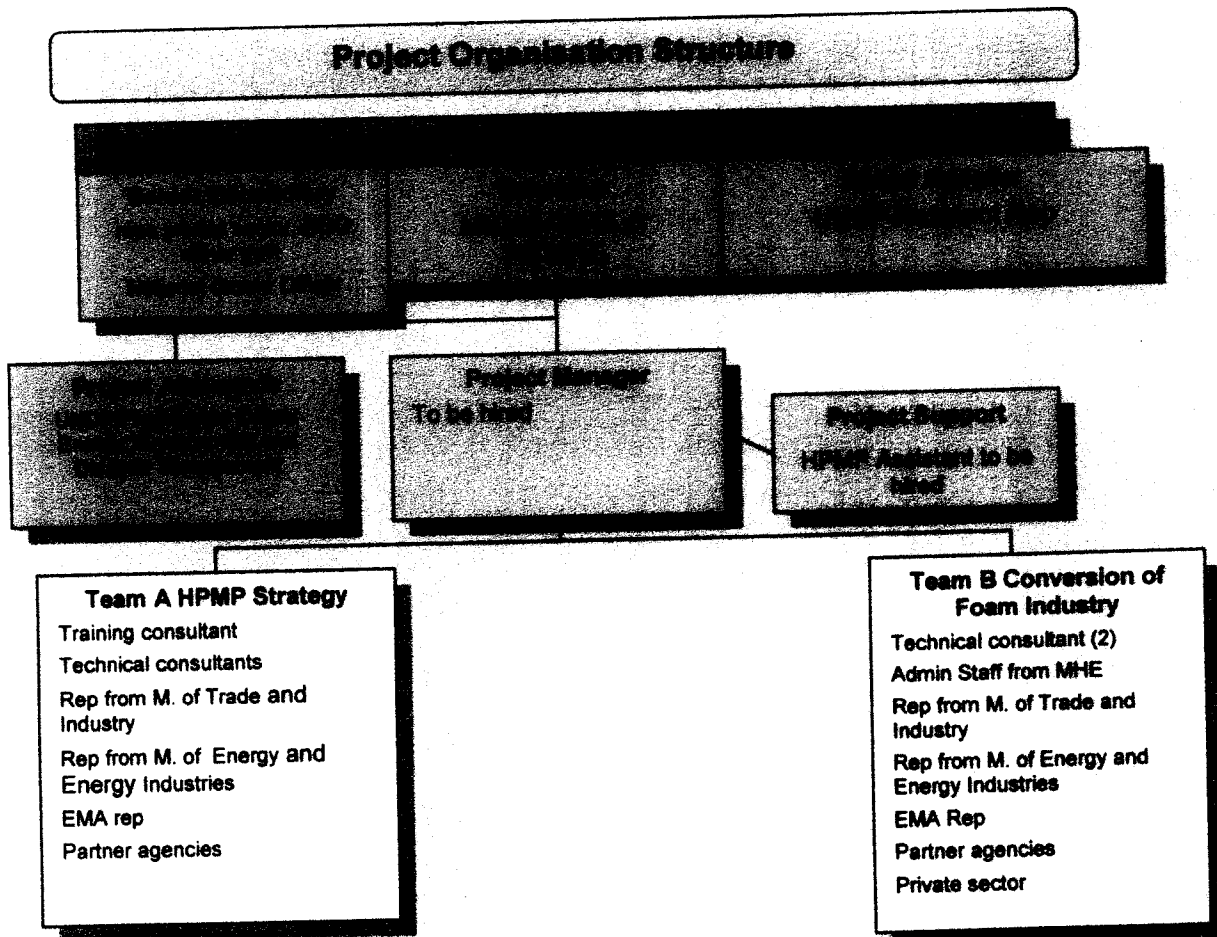
EXPECTED OUTPUTS And baseline, indicators including annual targets	PLANNED ACTIVITIES List activity results and associated actions	TIMEFRAME				RESPONSIBLE PARTY	Funding Source	PLANNED BUDGET	
		Q1	Q2	Q3	Q4			Budget Description	Amount (\$US)
OUTPUT 1  HCFC phase-out strategy established with Maximum allowable consumption 46.2 ODP tonnes by 2013	Training in Good Practices of RAC Train the trainer program -TORS developed -Consultant hired - Training content developed - Training schedule in place	X	X			National Ozone Unit/Ministry of Housing and the Environment MHE Project manager	MP / MLF	International Consultant	0
	Technical support to the service industry & Development of syllabus -TORS developed -Consultant hired -Procurement initiated -Procurement completed	X	X					National Consultant Equipments Travel Expenses Miscellaneous	8,000 0 1,820 0
	Legal policy and institutional framework development -TORS developed -Consultant hired	X	X	X	X			National Consultant Travel Expenses	0 2,000
	Publications -TORS developed -Consultant hired	X	X					Printing Awareness	0 2,000
OUTPUT 2  Polyurethane (PU) foam enterprises converted to low- GWP, non-ODS alternatives  Target: 5 foam enterprises converted	Implementation & Monitoring -TORS developed -Auditor Hired - Continuous Monitoring		X					Project Manager Project Assistant Audit Services Miscellaneous	30,000 15,000 8,000 0
	Conversion of five foam enterprises -TORS developed -Consultant hired -Procurement initiated -Verification completed - Closure of the project	X	X	X	X			International Consultant National Consultant Travel Expenses Equipments Miscellaneous	10,000 10,000 0 13,380 1,380
<b>TOTAL</b>									<b>111,580</b>

## V. MANAGEMENT ARRANGEMENTS

The Ministry of Housing and Environment is the national body responsible for the implementation of the Montreal Protocol in the country. The National Ozone Unit (NOU), operating under this ministry since 1997, is responsible for coordinating and implementing activities to comply with the Montreal Protocol. The overall policy and legal framework to support the phase-out of ozone depleting substances (ODS) embodies the country's commitment to the Montreal Protocol and is defined in the National Environmental Policy of Trinidad and Tobago.

The national import and export control regulations adopted initially in 1941 was amended in 1999 to include ODS and mixtures containing ODS. This is implemented through an institutional framework for cooperation between and among other government ministries led by the NOU to control the import, export and consumption of ODS, and has allowed the country to permanently phase out CFCs. These amended regulations also include HCFCs, however, a number of specific guidelines for HCFCs still need to be defined, including the establishment of a quota system for HCFC imports by 2012.

The implementing agency for the project will be the National Ozone Unit, Ministry of Housing and the Environment (MHE). This project will be managed using the Country Office Support to National Execution (NEX) modality, and the Project Manager will be hired and report to the Project Coordinator MHE.



## **Project Assurance**

UNDP will assume the major project assurance role. (See roles and responsibilities of UNDP below)

### **Implementing Agency – National Ozone Unit, Ministry for Housing and the Environment**

- Obtain and allocate resources for the project in a timely manner
- Certification of all payments
- Participation in the Project's Steering Committee Meeting
- Certification of annual expenditure reports prepared by UNDP
- Convening of and participation in Project Board meetings
- Preparation of Annual project Report
- Provides guidance to the project manager in the execution of monitoring and evaluation activities
- Participation in monitoring and evaluation of project activities and outcomes
- Collaborate with the project manager and UNDP in drafting Terms of Reference for any expert or adviser

### **UNDP – Senior Supplier**

To facilitate implementation of the project, UNDP's Trinidad and Tobago Country office will provide the following services in accordance with UNDP procedures:

- Identification and recruitment of both national and international experts with prior agreement of the Executing Agency, MHE. The MHE will liaise with UNDP on any matters of concern.
- Participate in meetings of the Project Board
- Provide thematic and technical backstopping
- Payment of experts upon certification by the project manager
- Regularly review the status of project objectives, activities, outputs, risks and emerging issues and when necessary convey concerns to relevant parties
- Financial management of the project and preparation of financial reports
- UNDP will process payments after confirming the following:
  - Activities financed are within the scope of the project
  - The project manager has certified payment within an appropriate time frame
  - Project funds are available to facilitate disbursements

In accordance with the decisions and directives of UNDP's Executive Board reflected in its Policy on Cost Recovery this Contribution, sourced from Other Resources, shall be subject to cost recovery by UNDP for indirect costs incurred by UNDP Headquarters (UNDP HQ) and Country Office (CO) structures in providing General Management Support (GMS) services. GMS encompasses general oversight and management functions of UNDP HQ and CO units, and include the following specific services:

- Project identification, formulation and appraisal
- Determination of execution modality and local capacity assessment
- Procurement of consultants
- Briefing and de-briefing of project staff and consultants

- General oversight and monitoring, including participation in project reviews and the Project Board
- Receipt, allocation and reporting to the donor of financial resources
- Thematic and technical backstopping through the UNDP Country Office
- Systems, IT infrastructure, branding and knowledge transfer

### **Project Manager**

The Project Manager will be recruited through a transparent process. He/She will have the following core tasks and duties:

- Manage the realization of project outputs through activities
- Provide direction and guidance to project team /responsible parties
- Receive strategic guidance from and liaise with the Project Board to ensure overall direction and integrity of the project
- Responsible for project administration
- Liaise with UNDP, Project Supplier
- The supervision of project consultants
- Reporting to the Project Board
- Preparation of Annual project Report

### **Cost Recovery Policy**

In accordance with the decisions and directives of UNDP's Executive Board reflected in its Policy on Cost Recovery, this contribution, sourced from Other Resources, shall be subject to cost recovery by UNDP for indirect costs incurred by UNDP Headquarters (UNDP HQ) and Country Office (CO) structures in providing General Management Support (GMS) services. GMS encompasses general oversight and management functions of UNDP HQ and CO units.

The General Management Support (GMS) is managed centrally by the BDP-HQ and the contribution of 3% covering the GMS shall be rendered by the Country Office and credited directly in the XB account based on delivery. Therefore, in ATLAS no GMS should be charged in the F/A field.

Implementation Support Services (ISS) should be charged directly to the project budget following the 2004 UNDP Guidelines on the Cost Recovery Policies using the Universal Price List (UPL).



## VI. MONITORING FRAMEWORK AND EVALUATION

In accordance with the programming policies and procedures, follow up and monitoring requirements will follow the annual requirements detailed under the Montreal Protocol Rules as per described in the Agreement between the Government of Trinidad and Tobago and the Executive Committee of the Multilateral for the Reduction in Consumption of Hydro chlorofluorocarbons (please refer to Annex I).

### Quality Management for Project Activity Results

OUTPUT 1: HCFC phase-out strategy		
Activity Result 1 (Atlas Activity ID)	HCFC phase-out strategy HPMP tranche 1	Start Date: March 2012 End Date: April 2014
Purpose	<i>What is the purpose of the activity?</i> To adopt a staged approach to achieve the complete phase-out of HCFCs by 2020	
Description	<i>Planned actions to produce the activity result.</i> In stage I of the HPMP, the country will control the imports of bulk HCFCs through applying a strict licensing and quota system consistent with the reduction schedule in the Montreal Protocol. The country will also reduce the demand for HCFCs for servicing existing equipment through refrigerant recovery and reuse, and the capacity building of technicians in better servicing practices.	
Quality Criteria	Quality Method	Date of Assessment
<i>how/with what indicators the quality of the activity result will be measured?</i>	<i>Means of verification. what method will be used to determine if quality criteria has been met?</i>	<i>When will the assessment of quality be performed?</i>
<ol style="list-style-type: none"> <li>1. Inception workshop</li> <li>2. Regulatory Framework</li> <li>3. Train-the-trainers activities</li> <li>4. Purchase of Servicing Equipment</li> </ol>	<ol style="list-style-type: none"> <li>1. Date of realization and number of attendants;</li> <li>2. Legal Framework establishing HCFC importing quotas and controlling system</li> <li>3. Number of trainers qualified</li> <li>4. POs issued and equipment delivered.</li> </ol>	July, 2013, for the request of the 2nd Tranche in the 70th ExCom

**OUTPUT 2: Conversion of the foam sector**

<b>Activity Result 1 (Atlas Activity ID)</b>	Conversion of the foam enterprises	Start Date: March 2012 End Date: April 2014
<b>Purpose</b>	<i>What is the purpose of the activity?</i> To apply where possible low-global warming potential (GWP) alternatives as the technology replacement, bearing in mind that these would need to be cost-effective for these small foam enterprises.	
<b>Description</b>	<i>Planned actions to produce the activity result.</i> Foam project for retrofitting all systems houses to allow the production of methyl formate based polyols. Capital costs are requested for retrofitting the existing four spray foam dispensers; trials, testing and training; technology transfer and contingencies.	
<b>Quality Criteria</b> <i>how/with what indicators the quality of the activity result will be measured?</i>	<b>Quality Method</b> <i>Means of verification. what method will be used to determine if quality criteria has been met?</i>	<b>Date of Assessment</b> <i>When will the assessment of quality be performed?</i>
<ul style="list-style-type: none"> <li>5. Purchase of equipment</li> <li>6. Trials and Training with new technology</li> <li>7. Payment of IOCs</li> <li>8. Audit</li> <li>9. Closure of Project</li> </ul>	<ul style="list-style-type: none"> <li>1. All production equipment installed/retrofitted</li> <li>2. Number of trials with new technology</li> <li>3. Production line in operational conditions</li> <li>4. Financial transfer of IOCs</li> <li>5. Audit Report concluded</li> <li>6. Project Closure Report emitted</li> </ul>	<p>July, 2013, for the request of the 2<sup>nd</sup> Tranche in the 70<sup>th</sup> ExCom</p>

---

## VII. LEGAL CONTEXT

This project document shall be the instrument referred to as such in Article 1 of the SBAA between the Government of (country) and UNDP, signed in 1976.

Consistent with the Article III of the Standard Basic Assistance Agreement, the responsibility for the safety and security of the executing agency and its personnel and property, and of UNDP's property in the executing agency's custody, rests with the executing agency.

The executing agency shall:

- a) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
- b) assume all risks and liabilities related to the executing agency's security, and the full implementation of the security plan.

UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this agreement.

The executing agency agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via <http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm>. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

## VIII. RISK LOG

Project Title: TRI/PHA/64/INV/26/27 HCFC phase-out management plan (HPMP)						ATLAS Award ID: TBD ATLAS Project ID: TBD	
#	Description of the Risk	Date Identified	Type	Impact on the Project	Control Measures / Mitig.	Owner	Substantive Impact
1	Delays in prodoc signature by host country	May 2012	Political	Two Ministries are required to approve project document. Delays in project start up can affect ability to meet phase out targets  I = 4 P = 3	Regular follow up with national counterparts on process and timing of approvals	Project manager	UNDP
1	Uneven engagement of project stakeholders.	May 2012	Operational	Due to lack of time or lack of interest, the project might lose effectiveness  I = 4 P = 2	Project staff will regularly engage with project stakeholders	Project manager	UNDP
3.	Delays in establishing Cabinet appointed project board.	May 2012	Operational	Project start up timelines may slip.  I = 4 P = 2	Liaise closely with implementing partners to ensure traction is maintained on establishing project board.	Project manager	UNDP

## ANNEX 1 – EXCOM DECISION 64/46: APPROVAL OF THE HPMP FOR TRINIDAD AND TOBAGO

UNEP/OzL.Pro/ExCom/64/53

- (d) To note the deduction of 66.8 ODP tonnes of HCFCs from the starting point for sustained aggregate reduction in HCFC consumption for two projects approved at the 59<sup>th</sup> and 63<sup>rd</sup> meetings, and the deduction of a further 350.3 ODP tonnes of HCFCs for the implementation of stage I of the HPMP;
- (e) To note that approval of stage I of the HPMP did not preclude Mexico from submitting, prior to 2015, a proposal to achieve phase-out of HCFCs beyond that addressed in stage I of the HPMP;
- (f) To approve the draft Agreement between the Government of Mexico and the Executive Committee for the reduction in consumption of HCFCs, as contained in Annex XXV to the present report;
- (g) To request the Fund Secretariat, once the baseline data were known, to update Appendix 2-A to the Agreement to include the figures for maximum allowable consumption, and to notify the Executive Committee of the resulting levels of maximum allowable consumption accordingly; and
- (h) To approve the first tranche of stage I of the HPMP for Mexico, and the corresponding implementation plan, at the amount of US \$5,132,196, consisting of US \$2,271,610 plus agency support costs of US \$170,371 for UNIDO, and US \$2,502,526 plus agency support costs of US \$187,689 for UNDP.

**(Decision 64/45)**

### Trinidad and Tobago: HCFC phase-out management plan (first tranche) (UNDP )

161. The representative of the Secretariat introduced documents UNEP/OzL.Pro/ExCom/64/46 and Corr.1, and said that the HPMP covered activities to meet the 35 per cent reduction in consumption by 2020 in line with decision 60/44. One member reminded the meeting that decision 62/11 that allows former LVC countries with HCFC consumption in the refrigeration servicing sector only, that was above 360 mt, to meet control measures up to 2020, which had been noted in the document, did not apply to Trinidad and Tobago as it was no longer an LVC country and had also consumption in the manufacturing sector. However, given the specific circumstances of the country, stage I of the HPMP could still be approved on an exceptional basis.

162. The Executive Committee decided:

- (a) To approve, in principle and on an exceptional basis, stage I of the HCFC phase-out management plan (HPMP) for Trinidad and Tobago for the period 2011 to 2020 to meet the 35 per cent reduction in HCFC consumption, at the amount of US \$1,462,733 plus agency support costs of US \$109,705 for UNDP, on the understanding that:
  - (i) US \$1,288,933 were provided to address HCFC consumption in the refrigeration servicing sector to reach up to and include the 35 per cent reduction in 2020 in line with decision 60/44; and
  - (ii) US \$173,800 were provided for the investment component for the phase-out of 2.5 ODP tonnes of HCFC-141b used in the foam manufacturing sector;

- (b) To note that the Government of the Trinidad and Tobago had agreed to establish as its starting point for aggregate reduction in HCFC consumption an estimated baseline of 46.2 ODP tonnes, calculated using actual consumption of 38.0 ODP tonnes and 54.5 ODP tonnes reported for 2009 and 2010, respectively, under Article 7 of the Montreal Protocol;
- (c) To deduct 17.9 ODP tonnes of HCFCs from the starting point for sustained aggregate reduction in HCFC consumption;
- (d) To approve the draft Agreement between the Government of the Trinidad and Tobago and the Executive Committee for the reduction in consumption of HCFCs, as contained in Annex XXVI to the present report;
- (e) To request the Secretariat, once the baseline data were known, to update Appendix 2-A to include the Agreement with the figures for maximum allowable consumption, and to notify the Executive Committee of the resulting change in the levels of maximum allowable consumption accordingly; and
- (f) To approve the first implementation plan for 2011-2012, and the first tranche of the HPMP for the Trinidad and Tobago at the amount of US \$559,900 plus agency support costs of US \$41,993 for UNDP.

**(Decision 64/46)**

Uruguay: HCFC phase-out management plan (first tranche) (UNDP/UNIDO)

163. The representative of the Secretariat introduced document UNEP/OzL.Pro/ExCom/64/47, explaining that UNDP, as the lead agency, had requested on behalf of the Government of Uruguay that consideration of the HPMP be deferred to a future meeting.

164. One country requested UNDP to explain the reason for deferral. UNDP indicated that the Government of Uruguay had advised that it “had carefully reviewed the proposal that the Multilateral Fund Secretariat was willing to accept and put forward to the ExCom, and had come to the conclusion that Uruguay needs to phase out more consumption in stage I of the HPMP in order to be able to comply with the 2013 freeze and 10% reduction in 2015. This was clearly reflected in the original HPMP proposal for Uruguay that was submitted to the Multilateral Fund Secretariat on April 4<sup>th</sup>, 2011. After Secretariat revision, the adjusted HPMP proposal for Uruguay will not allow the country to comply with its Montreal Protocol compliance obligations without imposing a high cost on the country”.

165. The Executive Committee noted that the submission of stage I of the HCFC phase-out

management plan for Uruguay had been deferred by UNDP at the request of the Government of Uruguay.

#### **HCFC phase-out activities in China**

166. The representative of the Secretariat introduced document UNEP/OzL.Pro/ExCom/64/29 and said that the Governments of Germany and Japan, as well as UNDP, the lead implementing agency, and UNEP, UNIDO and the World Bank, on behalf of the Government of China, had re-submitted several documents for consideration by the Executive Committee at the present meeting, as well as additional documents that dealt with: its HPMP; a sector plan for the phase-out of HCFCs in the solvent sector; a national enabling programme for the HPMP for China, addressing activities in the refrigeration servicing sector; and national coordination for the HPMP. He said that the Secretariat had circulated the documents because it had been felt that they were important to give the Executive Committee all the relevant elements when considering approval of stage I of the HPMP. The observer for the Environmental Investigation Agency urged China to consider alternative technologies to the use of HFC-410a in the RAC sector and HFC-245fa in foam applications in order not to invest in outdated technologies.

---

## **ANNEX 2 – AGREEMENT BETWEEN THE MULTILATERAL FUND AND THE GOVERNMENT OF TRINIDAD AND TOBAGO**

### **Annex XXVI**

#### **AGREEMENT BETWEEN THE GOVERNMENT OF TRINIDAD AND TOBAGO AND THE EXECUTIVE COMMITTEE OF THE MULTILATERAL FUND FOR THE REDUCTION IN CONSUMPTION OF HYDROCHLOROFLUOROCARBONS**

1. This Agreement represents the understanding of the Government of Trinidad and Tobago (the “Country”) and the Executive Committee with respect to the reduction of controlled use of the ozone-depleting substances (ODS) set out in Appendix 1-A (“The Substances”) to a sustained level of 28.5 ODP tonnes by 1 January 2020 in compliance with Montreal Protocol schedules, with the understanding that this figure is to be revised one single time, once the baseline consumption for compliance has been established based on Article 7 data, with the funding to be adjusted accordingly, as per decision 60/44.
2. The Country agrees to meet the annual consumption limits of the Substances as set out in row 1.2 of Appendix 2-A (“The Targets, and Funding”) in this Agreement as well as in the Montreal Protocol reduction schedule for all Substances mentioned in Appendix 1-A. The Country accepts that, by its acceptance of this Agreement and performance by the Executive Committee of its funding obligations described in paragraph 3, it is precluded from applying for or receiving further funding from the Multilateral Fund in respect to any consumption of the Substances which exceeds the level defined in row 1.2 of Appendix 2-A (“Maximum allowable total consumption of Annex C, Group I Substances”) as the final reduction step under this Agreement for all of the Substances specified in Appendix 1-A, and in respect to any consumption of each of the Substances which exceeds the level defined in rows 4.1.3 and 4.2.3 (remaining eligible consumption).
3. Subject to compliance by the Country with its obligations set out in this Agreement, the Executive Committee agrees in principle to provide the funding set out in row 3.1 of Appendix 2-A (“The Targets, and Funding”) to the Country. The Executive Committee will, in principle, provide this funding at the Executive Committee meetings specified in Appendix 3-A (“Funding Approval Schedule”).
4. In accordance with sub-paragraph 5(b) of this Agreement, the Country will accept independent verification of the achievement of the annual consumption limits of the Substances as set out in row 1.2 of Appendix 2-A (“The Targets, and Funding”) of this Agreement. The aforementioned verification will be commissioned by the relevant bilateral or implementing agency.
5. The Executive Committee will not provide the Funding in accordance with the Funding Approval Schedule unless the Country satisfies the following conditions at least 60 days prior to the applicable Executive Committee meeting set out in the Funding Approval Schedule:
  - (a) That the Country has met the Targets for all relevant years. Relevant years are all years since the year in which the hydrochlorofluorocarbons phase-out management plan (HPMP) was approved. Exempt are years for which no obligation for reporting of country programme data exists at the date of the Executive Committee Meeting at which the funding request is being presented;
  - (b) That the meeting of these Targets has been independently verified, except if the Executive Committee decided that such verification would not be required;



- (c) That the Country had submitted annual implementation reports in the form of Appendix 4-A (“Format of Implementation Reports and Plans”) covering each previous calendar year, that it had achieved a significant level of implementation of activities initiated with previously approved tranches, and that the rate of disbursement of funding available from the previously approved tranche was more than 20 per cent;
- (d) That the Country has submitted and received approval from the Executive Committee for an annual implementation plan in the form of Appendix 4-A (“Format of Implementation Reports and Plans”) covering each calendar year until and including the year for which the funding schedule foresees the submission of the next tranche or, in case of the final tranche, until completion of all activities foreseen; and
- (e) That, for all submissions from the 68<sup>th</sup> Meeting onwards, confirmation has been received from the Government that an enforceable national system of licensing and quotas for HCFC imports and, where applicable, production and exports is in place and that the system is capable of ensuring the Country's compliance with the Montreal Protocol HCFC phase-out schedule for the duration of this Agreement.

6. The Country will ensure that it conducts accurate monitoring of its activities under this Agreement. The institutions set out in Appendix 5-A (“Monitoring Institutions and Roles”) will monitor and report on implementation of the activities in the previous annual implementation plans in accordance with their roles and responsibilities set out in Appendix 5-A. This monitoring will also be subject to independent verification as described in paragraph 4 above.

7. The Executive Committee agrees that the Country may have the flexibility to reallocate the approved funds, or part of the funds, according to the evolving circumstances to achieve the smoothest reduction of consumption and phase-out of the Substances specified in Appendix 1-A.

- (a) Reallocations categorized as major changes must be documented in advance in an annual implementation plan and approved by the Executive Committee as described in sub-paragraph 5(d) above. Major changes would relate to issues potentially concerning the rules and policies of the Multilateral Fund; changes which would modify any clause of this Agreement; changes in the annual levels of funding allocated to individual bilateral or implementing agencies for the different tranches; and provision of funding for programmes or activities not included in the current endorsed annual implementation plan, or removal of an activity in the annual implementation plan, with a cost greater than 30 per cent of the total cost of the tranche;
- (b) Reallocations not categorized as major changes may be incorporated in the approved annual implementation plan, under implementation at the time, and reported to the Executive Committee in the annual implementation report; and
- (c) Any remaining funds will be returned to the Multilateral Fund upon closure of the last tranche of the plan.

8. Specific attention will be paid to the execution of the activities in the refrigeration servicing sub-sector, in particular:

- (a) The Country would use the flexibility available under this Agreement to address specific needs that might arise during project implementation; and

- (b) The Country and the bilateral and implementing agencies involved will take full account of the requirements of decisions 41/100 and 49/6 during the implementation of the plan.

9. The Country agrees to assume overall responsibility for the management and implementation of this Agreement and of all activities undertaken by it or on its behalf to fulfil the obligations under this Agreement. UNDP has agreed to be the lead implementing agency (the "Lead IA") in respect of the Country's activities under this Agreement. The Country agrees to evaluations, which might be carried out under the monitoring and evaluation work programmes of the Multilateral Fund or under the evaluation programme of any of the agencies taking part in this Agreement.

10. The Lead IA will be responsible for carrying out the activities of the overall plan with the changes approved as part of the subsequent submissions, including but not limited to independent verification as per sub-paragraph 5(b). The Executive Committee agrees, in principle, to provide the Lead IA with the fees set out in row 2.2.

11. Should the Country, for any reason, not meet the Targets for the elimination of the Substances set out in row 1.2 of Appendix 2-A or otherwise does not comply with this Agreement, then the Country agrees that it will not be entitled to the Funding in accordance with the Funding Approval Schedule. At the discretion of the Executive Committee, funding will be reinstated according to a revised Funding Approval Schedule determined by the Executive Committee after the Country has demonstrated that it has satisfied all of its obligations that were due to be met prior to receipt of the next tranche of funding under the Funding Approval Schedule. The Country acknowledges that the Executive Committee may reduce the amount of the Funding by the amount set out in Appendix 7-A in respect of each ODP kg of reductions in consumption not achieved in any one year. The Executive Committee will discuss each specific case in which the Country did not comply with this Agreement, and take related decisions. Once these decisions are taken, this specific case will not be an impediment for future tranches as per paragraph 5 above.

12. The Funding of this Agreement will not be modified on the basis of any future Executive Committee decision that may affect the funding of any other consumption sector projects or any other related activities in the Country.

13. The Country will comply with any reasonable request of the Executive Committee and the Lead IA to facilitate implementation of this Agreement. In particular, it will provide the Lead IA with access to information necessary to verify compliance with this Agreement.

14. The completion of the HPMP and the associated Agreement will take place at the end of the year following the last year for which a maximum allowable total consumption has been specified in Appendix 2-A. Should at that time activities be still outstanding which were foreseen in the Plan and its subsequent revisions as per sub-paragraph 5(d) and paragraph 7, the completion will be delayed until the end of the year following the implementation of the remaining activities. The reporting requirements as per sub-paragraphs 1(a), 1(b), 1(d), and 1(e) of Appendix 4-A continue until the time of the completion if not specified by the Executive Committee otherwise.

15. All of the conditions set out in this Agreement are undertaken solely within the context of the Montreal Protocol and as specified in this Agreement. All terms used in this Agreement have the meaning ascribed to them in the Montreal Protocol unless otherwise defined herein.



### **APPENDIX 3-A: FUNDING APPROVAL SCHEDULE**

1. Funding for the future tranches will be considered for approval not earlier than the second meeting of the year specified in Appendix 2-A.

### **APPENDIX 4-A: FORMAT OF IMPLEMENTATION REPORTS AND PLANS**

1. The submission of the Implementation Report and Plan for each tranche request will consist of five parts:

- (a) A narrative report regarding the progress since the approval of the previous tranche, reflecting on the situation of the Country in regard to phase out of the Substances, how the different activities contribute to it and how they relate to each other. The report should further highlight successes, experiences and challenges related to the different activities included in the Plan, reflecting on changes in the circumstances in the Country, and providing other relevant information. The report should also include information about and justification for any changes vis-à-vis the previously submitted tranche plan, such as delays, uses of the flexibility for reallocation of funds during implementation of a tranche, as provided for in paragraph 7 of this Agreement, or other changes. The narrative report will cover all relevant years specified in sub-paragraph 5(a) of the Agreement and can in addition also include information about activities in the current year;
- (b) A verification report of the HPMP results and the consumption of the Substances mentioned in Appendix 1-A, as per sub-paragraph 5(b) of the Agreement. If not decided otherwise by the Executive Committee, such a verification has to be provided together with each tranche request and will have to provide verification of the consumption for all relevant years as specified in sub-paragraph 5(a) of the Agreement for which a verification report has not yet been acknowledged by the Committee;
- (c) A written description of the activities to be undertaken until the planned submission of the next tranche request, highlighting their interdependence, and taking into account experiences made and progress achieved in the implementation of earlier tranches. The description should also include a reference to the overall plan and progress achieved, as well as any possible changes to the overall plan foreseen. The description should cover the years specified in sub-paragraph 5(d) of the Agreement. The description should also specify and explain any revisions to the overall plan which were found to be necessary;
- (d) A set of quantitative information for the report and plan, submitted into a database. As per the relevant decisions of the Executive Committee in respect to the format required, the data should be submitted online. This quantitative information, to be submitted by calendar year with each tranche request, will be amending the narratives and description for the report (see sub-paragraph 1(a) above) and the plan (see sub-paragraph 1(c) above), and will cover the same time periods and activities; it will also capture the quantitative information regarding any necessary revisions of the overall plan as per sub-paragraph 1(c) above. While the quantitative information is required only for previous and future years, the format will include the option to submit in addition information regarding the current year if desired by the Country and the Lead IA; and
- (e) An Executive Summary of about five paragraphs, summarizing the information of above sub-paragraphs 1(a) to 1(d).

## **APPENDIX 5-A: MONITORING INSTITUTIONS AND ROLES**

1. The monitoring activities will be carried out within the HPMP implementation, monitoring and control project, and will include the implementation of all the projects within the HPMP, the regular monitoring of the project implementation and results, the production of periodic reports on project results in order to facilitate corrective actions, the production of timely project progress reports to the Executive Committee, and regular monitoring of market developments and trends at the national and international levels.

## **APPENDIX 6-A: ROLE OF THE LEAD IMPLEMENTING AGENCY**

1. The Lead IA will be responsible for a range of activities. These can be specified in the project document further, but include at least the following:

- (a) Ensuring performance and financial verification in accordance with this Agreement and with its specific internal procedures and requirements as set out in the Country's HPMP;
- (b) Assisting the Country in preparation of the Implementation Plans and subsequent reports as per Appendix 4-A;
- (c) Providing verification to the Executive Committee that the Targets have been met and associated annual activities have been completed as indicated in the Implementation Plan consistent with Appendix 4-A;
- (d) Ensuring that the experiences and progress is reflected in updates of the overall plan and in future annual implementation plans consistent with sub-paragraphs 1(c) and 1(d) of Appendix 4-A;
- (e) Fulfilling the reporting requirements for the annual implementation reports, annual implementation plans and the overall plan as specified in Appendix 4-A for submission to the Executive Committee;
- (f) Ensuring that appropriate independent technical experts carry out the technical reviews;
- (g) Carrying out required supervision missions;
- (h) Ensuring the presence of an operating mechanism to allow effective, transparent implementation of the Implementation Plan and accurate data reporting;
- (i) In case of reductions in funding for failure to comply in accordance with paragraph 11 of the Agreement, to determine, in consultation with the Country, the allocation of the reductions to the different budget items and to the funding of each implementing or bilateral agency involved;
- (j) Ensuring that disbursements made to the Country are based on the use of the indicators; and
- (k) Providing assistance with policy, management and technical support when required.

2. After consultation with the Country and taking into account any views expressed, the Lead IA will select and mandate an independent organization to carry out the verification of the HPMP results and the consumption of the Substances mentioned in Appendix 1-A, as per sub-paragraph 5(b) of the Agreement and sub-paragraph 1(b) of Appendix 4-A.

#### **APPENDIX 7-A: REDUCTIONS IN FUNDING FOR FAILURE TO COMPLY**

1. In accordance with paragraph 11 of the Agreement, the amount of funding provided may be reduced by US \$180 per ODP kg of consumption beyond the level defined in row 1.2 of Appendix 2-A for each year in which the target specified in row 1.2 of Appendix 2-A has not been met.

---

**ANNEX 3 – DELEGATION OF AUTHORITY (DOA) LETTER**



30 September 2011

Dear Ms. Marcia de Castro:

Subject: Project approved at the 64<sup>th</sup> Executive Committee Meeting – Montreal, Canada

We are pleased to inform you that the following project was approved for Trinidad and Tobago at the 64<sup>th</sup> Meeting of the Executive Committee of the Multilateral Fund, held in **Montreal, Canada** in July 2011.

MLF Reference*	Project Title	US\$
TRI/PHA/64/INV/26	HCFC phase-out management plan (stage I, first tranche) conversion of foam the enterprises	\$173,800
TRI/PHA/64/INV/27	HCFC phase-out management plan (stage I, first tranche) HPMP	\$386,100
Award Total:		<b>\$559,900</b>

Note\*: Please set up one award and two atlas projects and indicate the above reference numbers in the cover sheet of the project document and in the ATLAS short project titles

Background: This funding is approved in-principle by the MLF Executive Committee, to assist Trinidad and Tobago in complying with the 2013 and 2015 control measures for HCFCs under the Montreal Protocol and is subject to the provisions of the performance-based agreement between the MLF Executive Committee and Trinidad and Tobago (attached as Annex-II), comprising of annual/biennial HCFC consumption and phase-out targets. Approval of future funding tranches is contingent upon achievement of these targets, failing which Iran could be liable for penalty for non-compliance. Considering the performance-based nature of this programme, the project components would need to be implemented through performance-based agreements involving the beneficiary enterprises and/or the Government.

1. Implementation Modality. We are suggesting that this project will be implemented through the **NIM** modality.

2. Project Document Format. We are attaching herewith the Iran HPMP Stage-I document as approved by the MLF Executive Committee (Annex-III). It is important to annex these documents, without any change, to the project document that will be signed between UNDP and the Government. No outputs, activities or inputs can be added or modified or ~~deleted~~ in the attached documents that were approved by the Executive Committee.

**Ms. Marcia de Castro**  
Resident Representative,  
UNDP – Trinidad and Tobago  
Port of Spain, Trinidad and Tobago



3. Entering the Budget into ATLAS. Your office is requested to enter the budget into ATLAS, using the Annual Work Plan table, provided as Annex-I to this letter. Please set up one award and two outputs (atlas project ids) corresponding to the two approved MLF project titles. The Multilateral Fund guidelines do not give us flexibility to shift funds between specific budget categories. Please ensure that in view of the UNDP requirement for multi-year project budgeting, the total approved budget per the work plan table attached should be entered in ATLAS for the current and future years as indicated. Authorized Spending Limits will not be issued where this action has not been taken.

4. Support Cost. The General Management Support Services (GMS) fee received by UNDP in relation to these projects is managed centrally at BDP-HQ, and should NOT be part of the project budget. In ATLAS, please therefore leave the F/A field % at zero. GMS, at 3% covering management support rendered by your office, will be credited directly to your XB income based on delivery. Implementation Support Services (ISS) should be charged to the project budget, following the 2004 UNDP guidelines on Cost Recovery Policy using the Universal Price List.

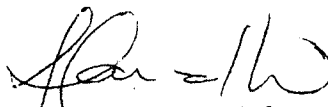
5. Government Counterpart. Just as a reminder, kindly note that the National Ozone Focal Point in your country is Marissa Gowrie ([marissa.gowrie@phe.gov.tt](mailto:marissa.gowrie@phe.gov.tt)). While s/he may not be the one to sign the project document on behalf of the Government, kindly make sure that s/he is copied on every correspondence related to this matter.

6. Over-Expenditures. We wish to remind you that over-expenditures are absolutely not allowed in Montreal Protocol projects. Please therefore ensure that total expenditures never exceed the budget total.

Based on the above points, kindly finalize the project documentation and enter the proposal into ATLAS. Please inform Kasper Koefoed ([Kasper.Koefoed@undp.org](mailto:Kasper.Koefoed@undp.org)) using the "email notification" feature within ATLAS. After this last clearance from us, you are then authorized to sign the project document on behalf of UNDP. Please do not send the budget to KK before the project document has been signed. Once the project document has been signed please send the **total approved budget, including future years, where applicable** to "Commitment Control" and send a copy of the cover page and request for ASL to MPU.

Thank you very much for your important partnership in the implementation of this programme.

Yours sincerely,



Dr. Suely Carvalho, Chief  
Montreal Protocol –Chemicals Unit  
Environment and Energy Group  
Bureau for Development Policy

**Award Title: HCFC phase-out management plan**  
**Award Total US\$ 559,900**

**ATLAS Project: TRI/PHA/64/INV/26 - HCFC phase-out management plan (stage I, first tranche) conversion of foam the enterprises**

		5,000	30,000	5,000	TBD
71200	International consultants for technical assistance during the conversion of foam enterprises	5,000	30,000	5,000	TBD
72200	Equipment	6,000	79,040	6,000	CO Department
74500	Miscellaneous contingencies	6,380	30,000	6,380	CO Department
	<b>TOTAL</b>	<b>17,380</b>	<b>139,040</b>	<b>17,380</b>	<b>173,800</b>

**ATLAS Project: TRI/PHA/64/INV/27 - HCFC phase-out management plan (stage I, first tranche) HPMP**

		Amount(USD) 2011	Amount(USD) 2012	Amount(USD) 2013	Department
	<b>ATLAS Budget Description</b>				
71200	International Consultants for training in good refrigeration practices and technical support to the service industry. train the trainer program and development of syllabus.	6,000	30,000	6,000	TBD
71300	Local consultants for assistance with training workshops and monitoring. The elaboration of legal policy and institutional framework	6,000	70,000	6,000	TBD
7250	Dissemination of information, printing and consumables, publications and public awareness campaigns	5,610	30,000	5,610	CO Department
72200	Equipment	16,000	158,880	16,000	CO Department
74500	Miscellaneous contingencies	5,000	20,000	5,000	CO Department
	<b>TOTAL</b>	<b>38,610</b>	<b>308,880</b>	<b>38,610</b>	<b>386,100</b>

---

**ANNEX 4 –LETTER OF SUBMISSION OF THE HPMP FOR TRINIDAD AND TOBAGO TO  
THE EXCOM.**



## MINISTRY OF HOUSING AND THE ENVIRONMENT

#44-46 South Quay, Port-of-Spain, Trinidad, West Indies  
P.O. Box 834

Telephone: (868) 623 4663 (HOME)

Fax: (868) 625 5877

HE(Env.): 14/1/3

April 28, 2011

Dr. Suely Carvalho,  
Chief  
Montreal Protocol Unit  
United Nations Development Programme  
304 East 45th Street, 9th floor  
New York  
NY 10017  
United States

Dear Dr. Carvalho


**Re: Request for Submission of the HCFC Phase out Management Plan (HPMP) for the Republic of Trinidad and Tobago to the Multilateral Fund of the Montreal Protocol**

The subject at caption refers.

The Ministry of Housing and the Environment as focal point for the Montreal Protocol remains committed to assisting in the fulfillment of all national obligations under the Protocol for the ultimate protection of the ozone layer.

In an effort to continue the efforts of Trinidad and Tobago to phase out ozone depleting substances, the Ministry wishes to request that the United Nations Development Programme submit to the MultiLateral Fund of the Montreal Protocol the HCFC Phase out Management Plan (HPMP) for the Republic of Trinidad and Tobago.

Sincerely,

  
Veronica Belgrave  
*Permanent Secretary*

## ANNEX 5 – INVESTMENT PROJECT FOR THE POLYURETHANE FOAM SECTOR.

### PROJECT COVER SHEET – NON-MULTI-YEAR INVESTMENT PROJECTS

COUNTRY: TRINIDAD & TOBAGO

PROJECT TITLE

IMPLEMENTING AGENCY

Sector Phaseout Project for the Use of HCFCs in the Foam Manufacturing Sector of Trinidad & Tobago

UNDP

NATIONAL CO-ORDINATING AGENCY: Ministry of Housing and Environment, Environment and Planning Division, National Ozone Office

#### LATEST REPORTED CONSUMPTION DATA FOR ODS ADDRESSED IN PROJECT – 2009

A: ARTICLE-7 DATA (2009, ODS TONNES)

HCFCs-141b	0	HCFC-22	686.00
HCFCs-142b 10.30	10.30	HCFC-123	2.03
		HCFC-124	--

B: SECTORAL DATA (2009, ODP t)

ODS Name	Sector: Foams	Sector: Other sectors
HCFC-141b	23.32	0
HCFC Consumption remaining eligible for funding: 529.25 (assuming 2009/10 baseline to be 838.90ODP t <sup>2</sup> )		

#### CURRENT YEAR BUSINESS PLAN:

yes

ODS USE AT PHASE-I ENTERPRISES	ODS t	23,250
ODS TO BE PHASED OUT IN THIS PROJECT:	ODP t	23,250
ODS TO BE PHASED IN:	ODP t	None
PROJECT DURATION:	Months	18
PROJECT COSTS:		
Incremental Capital Cost	US\$	151,200
Contingency	US\$	17,450
Incremental Operating Cost	US\$	22,600
Total Project Cost	US\$	173,800
LOCAL OWNERSHIP:		100%
A2 EXPORT COMPONENT:		None
REQUESTED GRANT:	US\$	173,800
IMPLEMENTING AGENCY SUPPORT COST (7.5%):	US\$	13,035
TOTAL COST OF PROJECT TO MULTILATERAL FUND:	US\$	186,835
COST-EFFECTIVENESS - ACTUAL	US\$	7.49

- THRESHOLD (low GWP RPF US\$/kg ODS

9.79

n/a

yes

foam)

STATUS OF COUNTERPART FUNDING

PROJECT MONITORING MILESTONES INCLUDED:

**PROJECT SUMMARY**

Trinidad & Tobago will, through this project, phase-out the currently identified HCFC-141b use in its foam sector. Because all HCFCs in PU applications come from imported, fully formulated systems, this activity has to be implemented in close cooperation with the system suppliers/importers. All HCFC-containing foams are rigid foams for insulation. The project costs are based on methyl formate but freedom of technology within the established budget and MLF rules (such as non ODS/low GWP) low is assumed. These costs include equipment retrofit, trials, training, technology transfer and incremental operating costs for one year.

**IMPACT OF THE PROJECT ON COUNTRY'S MONTREAL PROTOCOL OBLIGATIONS:**

This project eliminates 2.56 t ODP (23.25 t ODS) which contributes to Trinidad & Tobago's phaseout obligations through 2015 under the Montreal Protocol.

Prepared by: Bert Veenendaal

April 8, 2011

Date:

Reviewed by Mary. C. Courtney

Date:

**PROJECT OF THE GOVERNMENT OF TRINIDAD & TOBAGO**

**PHASEOUT PROJECT FOR THE USE OF HCFCs IN THE FOAM MANUFACTURING SECTOR  
IN TRINIDAD & TOBAGO**

**1. PROJECT OBJECTIVE**

The objective of this project is to phaseout the use of HCFCs in the foam manufacturing sector of Trinidad & Tobago and, in this way, contribute to the compliance of the country with the 2013 ("freeze") and 2015 (10% reduction) targets in the Montreal Protocol as stipulated for Article 5 countries.

**2. SECTOR BACKGROUND**

Trinidad & Tobago (T&T) reported its 2009 HCFC consumption as follows:

SUBSTANCE	ODS t	ODP t
HCFC-123	2.03	0.024
HCFC-124	--	--
HCFC-141b	--	--
HCFC-142b	10.30	0.067
HCFC-22	686.00	37.730
<b>TOTAL</b>	<b>788.33</b>	<b>37.821</b>

This report does not include HCFC-141b data from imported fully formulated polyurethane (PU) systems. The NOO provided a customs list with code 3909.50 imports—the common import/export identification for polyurethanes. These data were filtered based on information from

- PU users;
- Known FFS producers/exporters (in particular in Mexico), and
- Reviewing products made by the importing companies

This led to the registration of the following imports of HCFC containing fully formulated systems (FFS):

ChemControl <sup>1</sup>	36,990	Mexico	
Land Ice & Fish <sup>2</sup>	8,692	Mexico	Sister company of Vetter Boxes
Vetter Boxes <sup>2</sup>	8,670	Mexico	
<b>2008 Total</b>	<b>54,352</b>		<b>Reflects 7,337 kg HCFC-141b</b>
ChemControl <sup>1</sup>	36,058	Mexico	
The Connection <sup>2</sup> Ice	627	USA	
Vetter Boxes <sup>2</sup>	8,647	Mexico	
<b>2009 Total</b>	<b>45,332</b>		<b>Reflects 6,120 kg HCFC-141b</b>

2010	NET WEIGHT	ORIGIN	
ChemControl <sup>1</sup>	135,154	Mexico	
Vetter Boxes <sup>2</sup>	40,943	Mexico	
Vetter Boxes <sup>2</sup>	18,644	Mexico	
<b>2010 Total</b>	<b>194,741</b>		<b>Reflects 26,390 kg HCFC-141b</b>

<sup>1</sup> Importer/trader <sup>2</sup> Importer/user

The data review was complicated by the fact that since July 2009, most developed countries did not allow companies anymore to export HCFC-containing systems (ref. HPMP Nigeria). Therefore it is well possible that there have been FFS imports in 2008 and 2009 from such countries that have not been identified and that 2010 better reflects the actual FFS import than the previous years. Anyway, following pertinent ExCom rules, the average 2009/2010 HCFC-141b consumption from fully formulated PU systems derived from Customs data ("**Top-Down**" Data) is determined to be

**16,255 ODS kg (1,788 ODP kg)**

The foam survey ("**Bottom-Up**" Data), on the other side, found the following consumption data:

- 2008 20,600 kg HCFC-141b
- 2009 21,600 kg HCFC-141b
- 2010 24,900 kg HCFC-141b

This would amount to an average 2009/2010 of

**23,250 ODS kg (2,558 ODP kg)**

As mentioned before, the 2008 and 2009 customs data may be imprecise because of possible import from Europe and the USA, it is proposed to take the latter amount as aggregate consumption against which HCFC phaseout will be counted.

From the total of six companies that were identified in the survey, five provided quantitative information while the sixth one stated that it has divested from most of its PU operations and thinks that the remaining use (adhesives) is HCFC-free. Following is a complete overview of the identified companies with short summaries about the outcome of the visits:

#	Company	Application	141b use 2008/10	Comments
1	Vetter Boxes	Fish boxes	7.75	Questionnaire provided
2	Tropical Marine	Fish boxes	1.7	141b use confirmed but no data received. Took over this business from Mecalfab
3	Ice Connection	Fish boxes	6.3	141b use confirmed but no data received
4	Seal	Sprayfoam	4.5	Questionnaire provided
5	Ice Fab	Ice makers Truck bodies	3.0	Questionnaire provided
6	Mecalfab	Panels Truck	0	Stated that PU use has declined because of product shifts and business sell out and that only PU



	bodies		adhesives remain
<b>TOTAL</b>		<b>23.250</b>	

The Government will report on the additional HCFC consumption from fully formulated systems directly to the Ozone and the MLF Secretariats. Because all PU systems are imported as fully formulated systems, system suppliers will play a pivotal role in the phaseout efforts. They are

#### IMPORTERS/DISTRIBUTORS

#	Importer	Imports from	Country of Origin
1	ChemControl	Poliol	Mexico
2	Vetter Boxes	Pumex	Mexico
3	Seal	Pumex or Dow	Mexico and/or USA

### 3. PROJECT DESCRIPTION

For the sake of confidentiality in this small market, individual sub-projects have been developed and these sub-projects will be shared, apart from the Government, the MFS and the UNDP with the recipient only. Every company has made their own technological choice within the Government strategy to apply where possible only non-ODS/low-GWP options. These choices have been discussed with the suppliers and have been cleared for supply by them—subject to their own projects being approved by the MLF. This reduces costs substantially but, as the provision of HCFC-free fully formulated systems is not 100% guaranteed, an "escape" clause is proposed as follows:

**While the HCFC phaseout plan for the foam sector in Trinidad & Tobago is based on the supply of fully formulated non-ODS/low-GWP systems, this can be reconsidered in case such systems will not be available in the Trinidad & Tobago market**

The companies are all "first" conversions. The sub-projects include the usual non-recurrent costs for retrofit, trials and technology transfer as well as a one year compensation for increased operation costs. They will be implemented in tandem with similar projects and system house conversions in the main country of supply, Mexico.

### 4. TECHNOLOGY OVERVIEW AND SELECTION

#### 4.1 INTRODUCTION

To replace HCFCs in the production of PU insulation foams, following criteria would ideally apply:

- Low vapor thermal conductivity,
- Non flammable,
- Low toxicity,
- Zero ODP,
- Low GWP,
- Chemically/physically stable,
- Soluble in the formulation,
- Low diffusion rate,
- Based on validated technology,
- Commercially available,
- Acceptable in processing, and
- Economically viable.

No current replacement technology meets all of these criteria and compromises will be necessary.

#### 4.2 ALTERNATIVES

Following is a list of most important alternatives to replace HCFCs in rigid insulation foams:

SUBSTANCE	GWP <sup>1</sup>	MOLECULAR WEIGHT	INCREMENTAL GWP <sup>2</sup>	COMMENTS
HCFC-141b	725	117	Baseline	
CO <sub>2</sub>	1	44	-725	Used direct/indirect (from water)
Cyclopentane	Negligible	72	-718	Extremely flammable
HFC-245fa	1,030	134	443	
HFC-365mfc	794	148	279	
HFC-134a	1,430	102	522	
Methyl formate	Negligible	60	-725	
Methylal	Negligible	76	-725	Reported for co-blowing only

<sup>1</sup> taken from IPCC's Fourth Assessment (2007)

<sup>2</sup> derived from comparing GWPs on an equimolar base. In practice formulators may make changes in water or ABA blends that impact the global warming effect

In addition, there is some use of 2-chloropropane and formic acid but these technologies are not offered in the regional area. The technologies are described in more detail below.

## CARBON DIOXIDE (CO<sub>2</sub>)

Carbon dioxide is derived from water and or directly injected. It is used as co-blowing agent in almost all PU foam applications and as sole blowing agent in many cases that have no or minor thermal insulation requirements. The high diffusion of CO<sub>2</sub> in closed-cell foam is a challenge. To avoid shrinkage, densities need to be increased which hurts operating costs and insulation values are poor. Nevertheless, increased use of water/CO<sub>2</sub> has been and still is an important tool in the HCFC phaseout in cases where HCs cannot be used for economic or technical reasons.

Carbon dioxide can also be added directly as a physical blowing agent through the use of super-critical CO<sub>2</sub>. This technology is currently under assessment for application in A5 projects.

There is ongoing work on further upgrade of water-blown PU foam systems as well. Dow recently reported on work leading to reduced density and improved insulation values. There also has been a recent announcement by Bayer of the development of so-called "nano foams", with an extremely fine cell structure that might allow water-blown to match HCFC-141b standards for density and insulation value. However, none of these developments have as of yet led to commercially available systems that bridge the gap with HCFC-141b and other replacement technologies.

## HYDROCARBONS (HCs)

There have been many HC-based/MLF-supported CFC-phaseout projects in refrigeration and panel applications. The minimum economic size has been typically ~50 ODP t/ or US\$ 400,000 with a higher threshold for domestic refrigeration. Smaller projects were discouraged. There is no use of HCs in SMEs. The technology is deemed unsafe for spray and in-situ foams. Generally, cyclopentane has been used for refrigeration and n-pentane for panels. Fine-tuning through HC blends, which are now standard in A2 countries, is not widely spread in A5's. Consequently, investment costs are the same as at time of phasing out CFCs and the technology will continue to be too expensive for SMEs. There are, however, options for fine-tuning are under investigation such as (objectives in parentheses):

- The introduction of HC blends that will allow lower densities (lower operating costs)
- Additives to decrease cell size and improve insulation value (better performance)
- Direct injection (lower investment)
- Centralized preblending by system houses (lower investment)

UNDP has initiated a study of these options with the goal to decrease the minimum economic size to ~25 t/y or US\$ 200,000. An interim report shows good properties for preblended and directly injected systems but these optimization efforts have not yet been concluded.

### Hydrofluorocarbons (HFCs)

There are currently three HFCs used in foam applications:

Parameter	HFC-134a	HFC-245fa	HFC-385mfc
Chemical Formula	CH <sub>2</sub> FCF <sub>3</sub>	CF <sub>3</sub> CH <sub>2</sub> CHF <sub>2</sub>	CF <sub>3</sub> CH <sub>2</sub> CF <sub>2</sub> CH <sub>3</sub>
Molecular Weight	102	134	148
Boiling point (°C)	-26.2	15.3	40.2
Gas Conductivity (mWm <sup>0</sup> K at 10 °C)	12.4	12.0 (20 °C)	10.6 (25 °C)
Flammable limits in Air (vol. %)	None	None	3.6-13.3
TLV or OEL (ppm)	1,000	300	Not established
GWP (100 y)	1,410	1,020	782
ODP	0	0	0

Current HFC use in A5 countries is low because of their high price. The lower cost of HCFC-141b is just too compelling! On the other hand, these chemicals have played a major role in the replacement of HCFCs in foam applications in non-A5 countries—despite their high GWP potentials. Formulations are not straightforward molecular replacements. Generally, the use of water has been maximized and sometimes other co-blowing agents have been added. Therefore, an assessment of its environmental impact has to be based on actual, validated, commercial blends.

### METHYL FORMATE (MF)

Methyl-formate is a low molecular weight substance. Foam Supplies, Inc. (FSI) in the USA has pioneered and patented its use as a blowing agent in PU foams under the name ecomate®. Following physical properties have been reported:

Property	Methyl Formate	HCFC-141b
Boiling point	31.3 °C	32 °C
LEL/UEL	5-23 %	7.6-17.7
Lambda, gas	10.7 mW/m.k @ 25 °C	10.0 mW/m.k @ 25 °C
Auto ignition	>450 °C	>200 °C
Molecular weight	60	117
GWP	Negligible	630
ODP	0	0.11
TLV (USA)	100 ppm TWA/150 ppm STEL	500 ppm TWA/500 ppm STEL

In the USA, ecomate<sup>®</sup> is SNAP cleared for all PU foam applications. In Europe it is compliant with the RoHS and WEEE directives. Acute toxicity is reported low with no special hazards. The MSDS mentions R12 (flammable but not explosive); R20/22 (harmful by inhalation and if swallowed) and R36/37 (irritating to eyes and respiratory system). Process emission surveys consistently show such emissions to be far below applicable industrial hygienic and flammability limits even under most severe conditions (indoor sprayfoam application). The ExCom supports the use of MF among other technologies, as replacement for HCFC-141b in most PU applications.

## METHYLAL

Methylal is a flammable liquid with a relatively low boiling point. Its primary uses are as a solvent and in the manufacture of perfumes, resins, adhesives, paint strippers and protective coatings. It is soluble in three parts water and miscible with the most common organic solvents.

Property	Methylal	HCFC-141b
Appearance	Clear liquid	Clear liquid
Boiling point	42 °C	32 °C
LEL/UEL	2.2-19.9 %	7.6-17.7
Vapor pressure	400 mm Hg @ 20 °C	593 mm Hg @ 25 °C
Lambda, gas	Non available	10.0 mW/m.k @ 25 °C
Auto ignition	235 °C	>200 °C
Specific gravity	0.821 @ 20 °C	1.24
Molecular weight	76.09	117
GWP	Negligible	630
TLV (USA)	1000 ppm TWA	500 ppm TWA/500 ppm STEL

Methylal can be used as a co-blowing agent in conjunction with hydrocarbons and HFCs. Methylal's industrial performance as blowing agent is currently limited. The ExCom approved in July 2009 a pilot project to assess its use as a possible replacement of HCFCs for MLF projects in developing countries. This has resulted in some commercial production of ISF and microcellular products but the assessment of methylal in rigid insulation foams is still ongoing.

### 4.3 DISCUSSION/SELECTION

Following considerations have been applied in choosing a suitable HCFC replacement technology:

- The Government of Trinidad & Tobago has indicated that it wants, to the extent feasible, not to pursue replacement technologies with large GWPs, which effectively eliminates HFCs as candidates;
- HCs are too expensive in investment costs to be applied
- Water-based systems do not meet the recipients' requirements;
- The assessment of methylal has not been completed and is therefore not considered.

This leaves methyl formate. The enterprises agree with the use of MF.

### 4.4 IMPACT ON THE PRODUCTION PROCESS

Following impact on the production process is expected:

- Retrofit the foam dispensers to make these acid proof
- Trials
- Technology transfer
- A one year compensation for increased operation costs. These costs have been calculated in the Mexican FFS project as follows and are applied accordingly:

CHEMICAL	BASELINE (US\$/kg)	%	NEW (US\$/kg)	%	DIFFERENCE (US\$/kg)	NOTES
Polyol	3.20	38	3.20	44	0.19	
Isocyanate	3.00	50	3.00	50	--	
HCFC-141b	2.40	12	4.00	66	-0.05	
<b>Price change /kg system</b>					<b>0.14</b>	<b>Based on same density</b>

Baseline prices and formulations from system houses and replacement formulations from technology providers and UNDP developed information from the validation project). In addition, there will be phase-in costs, leading to initial higher reject rates. This leads to a proposed **US\$ 0.15/kg system** as base for IOCs in this project:

## 5.0 PROJECT COSTS

### 5.1 CALCULATION OF INCREMENTAL CAPITAL COST

The total actual investment costs are **US\$ 183,150**. This includes a 10% contingency. Details of incremental capital costs are provided in the individual sub-projects.

### 5.2 CALCULATION OF INCREMENTAL OPERATING COST

*IOCs are **US\$ 22,600 (US\$ 0.97/kg ODS)** for one year of operation. The amount per recipient is detailed in the individual sub-projects. The ExCom requirement for IOCs (<1.60/kg ODS) is met.*

### 5.3 COST EFFECTIVENESS (CE)

The project shows an overall cost-effectiveness of **US\$ 9.51/kg ODS**. With the replacement technology having a negligible GWP, this compares with a threshold of **US\$ 9.79/kg ODS**. The ExCom requirement for maximum allowable project costs is met.

### 5.4 PROPOSED MULTILATERAL FUND GRANT

The proposed grant request is **US\$ 205,750**. Letters from recipients stating their agreement will be provided separately. The Government of Trinidad & Tobago will provide a formal endorsement letter.

## 6.0 PROJECT IMPLEMENTATION AND MONITORING

Implementation is targeted as follows:

Activity (per quarter)	1	2	3	4	5	6	7	8
MF Project approval	x							
Submit Project doc. for signatures	x							
Project document signatures	x							
Equipment specification		x						
Equipment procurement		xxx						
Installation of equipment			x					
Training			x					
Testing and trials			x					
Production Start-up				xx				
Phase-In				xx	xxx			
Project completed					x			
HOP signature						x		
Project Completion Report						x		

#### MILESTONES

TASK	MONTH
(a) Project document submitted to beneficiary	2
(b) Project document signature	3
(c) Bids prepared and requested	4
(d) Contracts Awarded	5
(e) Equipment Delivered	10
(f) Training Testing and Trial Runs	15
(g) Commissioning	16
(h) HOP signature	18

## 7.0 PROJECT IMPACT

**Direct Benefits:** This project will eliminate the use of 2.56 t HCFC-141b at baseline (2009/10) conditions. The project employs commercially available and environmentally acceptable technology.

**Indirect Benefits:** By working through regional system houses, more effective technical transfer ("train the trainer") at lower cost is achieved.

**Environmental Impact:** MF and HCs have zero ODPs and provide, in addition, considerable reductions in global warming potential as the following table shows:

SUBSTANCE	GWP <sup>1</sup>	MOLECULAR WEIGHT	INCREMENTAL GWP <sup>2</sup>
HCFC-141b	630	117	Baseline
Methyl Formate	Negligible	60	-725
Hydrocarbons	Negligible	72	-718

<sup>1</sup> Taken from IPCC's Fourth Assessment (2007)

<sup>2</sup> Derived from comparing GWPs compared to the baseline on an equimolar base. It should be noted that in practice formulators may make

changes such as increased water or ABA blends that impact the global warming effect

The technology complies so with MOP decision XIX/6 in view of the desire to minimize negative environmental side-effects.

**ATTACHMENT-1**

**SUB-PROJECT ICECON**

Name: Ice Connexion Industries Ltd.  
 Year of Foundation: 1984  
 Address: 15 Samford Road, Piarco  
 Contact: Prakash Anandee  
 Tel/Fax: 669-1488/1420  
 Email: iceconnectionindustries@gmail.com  
 Employees: 12  
 Country of Ownership: Trinidad  
 Export: ~10% to Barbados, Grenada  
 Activities: Production of PU and EPS tuna boxes and truck bodies with PU insulation  
 Chemical Consumption: Data below are in kg per year

Year	Polyol	Iso	HCFC-141b
2007	not provided	not provided	6,750
2008	not provided	not provided	7,875
2009	not provided	not provided	6,057
2009/2010	not provided	not provided	6,300

Baseline Equipment:

Equipment	Manufacturer	Serial	Capacity	Year
Hand-mix	n/a	n/a	n/a	n/a

Proposed budget and C/E:

ENTITY	ACTION	CALCULATION	COSTS (US\$)
Equipment	LP Dispenser (75% funding)	0.75 x 30,000	17,050
	Trials, testing, training,		3,000
	UNDP technical Assistance		6,000
	Contingencies	10%	2,550
	Incremental operating Costs	6,300/0.135 x 0.15	7,000
		<b>TOTAL</b>	<b>35,600</b>
		<b>C/E (US\$/kg/ODS)</b>	<b>5.65</b>

**ANNEX-2**

**SUB-PROJECT ICE FAB**

Name: Ice Fab Air Conditioning and refrigeration Service Ltd.  
 First year of HCFC use: 2002  
 Address: October Street, NC2, Port of Spain  
 Responsible>Title: Mr. Taradeeth Deanosine/Manager  
 Tel/Fax: + 868-656-3455/3455  
 Email: shabhadeanosine@yahoo.com  
 Employees: 10  
 Capital: 1005 Trinidad  
 Activities: Apart from A/C and refrigeration installation/repair, IceFab manufactures ice machines and truck bodies. Suppliers are

Chemical Consumption: Data below are in kg/year

Year	Polyol	Iso	HCFC-141b
2007	not provided	not provided	2,400
2008	not provided	not provided	2,400
2009	not provided	not provided	2,400
2009/2010	not provided	not provided	3,000

Baseline Equipment:

Equipment	Manufacturer	Serial	Capacity	Year
Handmix				

Proposed budget and C/E:

ENTITY	ACTION	CALCULATION	COSTS (US\$)
Equipment	PIP dispenser (75 % funding)	0.75 x 30,000	17,000
	Trials, testing, training,		3,000
	Technology transfer		6,000
	Contingencies	10% of 35,500	2,600
	Incremental operating Costs	3,000/0.135 x 0.15	3,300
		<b>TOTAL</b>	<b>31,900</b>
		<b>C/E (US\$/kg/ODS)</b>	<b>10.63</b>



**ATTACHMENT-3**

**SUB-PROJECT SEAL**

Name: Seal Sprayed Solutions (TT) Ltd.  
 First year of HCFC use: 2006  
 Address: 17 Aranguez Main Road, Sanjuan, Trinidad  
 Responsible/Title: Dr. Mark Williams/Director  
 Tel/Fax: +868-681-5289/681-5289  
 Email: sealspray@cwjamaica.com  
 Employees: 7  
 Capital: 25% T&T, 75% JAM  
 Export: Grenada (5%)  
 Activities: Seal (TT) is contractor of PU/Polyurea sprayfoam insulation. It is a sister company from Seal (Jamaica), which owns 75%. Activities are mainly on the Trinidad island but also includes the neighboring Caribbean islands. It uses two PU sprayfoam densities (30-35 kg/m<sup>3</sup> and 40-45 kg/m<sup>3</sup>) and seals with polyurea. Typical contracts are construction, tank and pipe insulation.

Chemical Consumption: Data below are in kg/year

Year	Polyol	Iso	HCFC-141b
2007	5,560	6,670	1,500
2008	8890	10,670	2,400
2009	14,815	17,780	4,000
2009/2010	16,670	20,000	4,500

Baseline Equipment:

Equipment	Manufacturer	Serial	Capacity	Year
Sprayfoam dispenser	Gusmer	H20 Pro	12 kg/min	2006
Sprayfoam dispenser	Gusmer	H25	12 kg/min	2003

Proposed budget and C/E:

ENTITY	ACTION	CALCULATION	COSTS (US\$)
Equipment	Retrofit packages	2 x 5,000	10,000
	Trials, testing, training	2 x 3,000	6,000
	Technology transfer	6,000	6,000
	Contingencies	10%	4,400
	Incremental operating Costs	4,500/0.135 x 0.15	5,500
		<b>TOTAL</b>	<b>31,900</b>
		C/E (US\$/kg/ODS)	7.09

**ATTACHMENT-4**

**SUB-PROJECT TROPICAL MARINE**

Name: Tropical Marine Limited  
 Year of Foundation: 1974 (HCFCs since 2006)  
 Address: 51, Cedar Avenue, Bayshore, Pt. Cumana, Trinidad  
 Contact: John Lanser  
 Tel/Fax: (868) 634-4502/4453  
 Email: tropicalmarineltd@hotmail.com  
 Employees: n/a  
 Ownership: 100% Trinidad  
 Export: none  
 Activities: production of tuna boxes to pack and transport seafood  
 Chemical Consumption: Data below are in kg per year

Year	Polyol	Iso	HCFC-141b
2007	not provided	not provided	1,800
2008	not provided	not provided	1,400
2009	not provided	not provided	1,600
2009/2010	not provided	not provided	1,700

Baseline Equipment:

Equipment	Manufacturer	Serial	Capacity	Year
Hand mix	n/a	n/a	n/a	n/a

Proposed budget and C/E:

ENTITY	ACTION	CALCULATION	COSTS (US\$)
Equipment	PIP Dispenser (75% funding)	$0.75 \times 30,000$	17,000
	Trials, testing, training,		3,000
	Technology transfer		6,000
	Contingencies	10%	2,600
	Incremental operating Costs	$1,700/0.135 \times 0.15$	1,900
	<b>TOTAL</b>		<b>30,500</b>
	<b>C/E (US\$/kg/ODS)</b>		<b>17.94</b>

## ATTACHMENT-5

### SUB-PROJECT VETTER BOXES

Name: Vetter Boxes Ltd.  
 Year of Foundation: 2003/since 2007 as Vetter Boxes  
 Address: 1<sup>st</sup> Ave South, Grandwood Marina, Chaquatavas, Trinidad  
 Contact: Gerhard Vetter/John Duberg/Owners  
 Tel/Fax: 868-635-2142/2242  
 Email: jhduberg@hotmail.com/gerryvetter@earthlink.net  
 Employees: 6  
 Capital: 100% Trinidad  
 Activities: Vetter manufactures insulated seafood containers ("tuna boxes").  
 The fish is packed with ice in the harbor and shipped by plane overseas.  
 Chemical Consumption: Data below are in kg per year

Year	Polyol	Iso	HCFC-141b
2007	not provided	not provided	2,000
2008	not provided	not provided	6,500
2009	not provided	not provided	7,500
2009/2010	not provided	not provided	7,750

Baseline Equipment:

Equipment	Manufacturer	Serial	Capacity	Year
High-pressure dispensers (PIP type)	Graco	Duraflo	n/k	1997
	TAH	Autovalve	n/k	1997
	Graco	Bulldog	n/k	1997

Proposed budget and C/E:

ENTITY	ACTION	CALCULATION	COSTS (US\$)
Equipment	Retrofit package	3 x 5,000	15,000
	Trials, testing, training.	2 x 3,000	9,000
	Technology transfer		6,000
	Contingencies		5,300
	Incremental operating Costs	7,750/0.135 x 0.15	8,600
		<b>TOTAL</b>	<b>43,900</b>
		<b>C/E (US\$/kg/ODS)</b>	<b>5.66</b>

---

## ANNEX 6 – TERMS OF REFERENCE (TOR) FOR PROJECT MANAGER

UNITED NATIONS DEVELOPMENT PROGRAMME

TERMS OF REFERENCE

PROJECT MANAGER for the HCFC PHASE-OUT  
MANAGEMENT PLAN, TRINIDAD AND TOBAGO.



### 1. Background:

The United Nations Development Programme (UNDP) is one of the 4 Implementing Agencies (IA) designated by the Multilateral Fund (MLF) to implement the Montreal Protocol's Ozone Depletion Substances (ODS) phase-out projects.

Under this International Treaty, the Parties to the Montreal Protocol agreed under the Decision XIX/6 on the "Adjustment to the Montreal Protocol with regard to Annex C, Group I substances (HCFCs)" to "accelerate the phase-out of production and consumption of the hydrochlorofluorocarbons (HCFCs)", and the Article 5 (A5) countries have been requested by the ExCom to adopt a staged approach to the implementation of their HCFC Phase-out Management Plans (HPMP).

In this sense, Trinidad & Tobago has chosen UNDP as Lead Agency for the implementation of its HPMP that will cover activities of:

- Industrial conversion in the Polyurethane (PU) Foam sector;
- Technical assistance in the refrigeration sector;
- Retrofit incentive programme;
- Support in the establishment of a comprehensive institutional and regulatory framework;
- and
- Implementation and monitoring of the HPMP.

This Terms of Reference (TOR) identifies and specifies the scope of services required for the fulfillment of the above components and, therefore, a Project Manager is required to lead execution of the HPMP for Trinidad & Tobago.

### 2. Duties and Responsibilities:

The Project Manager will work under the guidance and supervision of the National Ozone Officer of Trinidad and Tobago and will liaise with Programme Officer- Energy, Environment and Disaster Management of the UNDP as required to execute, monitor and report on the implementation activities of the HPMP. The Project Manager will be based at the Ministry of Housing and the Environment, Trinidad and Tobago.

The Project Manager will promote and ensure a client-oriented approach in the execution of his/her functions, consistent with UNDP policies, rules and procedures.

Project Manager shall work with close collaboration with the Senior Expert in charge of the industrial conversion projects, will lead a team of national consultants for the HPMP execution.

### **3. Description of Responsibilities :**

#### **3.1. Summary of Key Functions:**

- Implementation of project activities
- Management of the sector programme in Trinidad & Tobago
- Support the development of strategic partnerships for the execution of project activities
- Provision of top quality policy advice services to the Country Offices and Government and facilitation of knowledge building and management
- Participation in Cross Programme/Practice and Mainstreaming

#### **3.2. Supports the implementation of the HPMP programme strategies focusing on achievement of the following results:**

- Interact with private sector and civil society partners;
- Coordinate inputs from various stakeholders and partners in the project execution;
- Research and compile background resources, such as statistical and historical data, relevant studies, papers and publications and presentations;
- In close coordination with the UNDP country office and government prepare and submit Progress Report and Annual Working Plans to the related funding sources/secretariats, which comply with relevant formats and guidelines; ensure governmental focal points and Country Office engagement in the process, assist in ensuring timely submission of proposals when required.
- Follow-up on audit recommendations. All exceptions are timely reported
- Substantive monitoring, evaluation and reporting on implementation milestones, including identifying and monitoring potential risks and challenges in implementation and suggesting responses and remedial actions as needed;
- Backstop and follow-up procurement processes pertaining to recruitment of national consultants and to procuring equipment and related services;
- Other tasks to ensure proper project implementation, as may be required or requested.

#### **3.3. Ensures provision of top quality advisory services and facilitation of knowledge building and management focusing on achievement of the following results:**

- Extract and codify lessons learned during programme development, implementation, monitoring and evaluation;
- Manage databases, information and resource materials and knowledge products
- Identification of sources of information related to policy-driven issues. Identification and synthesis of best practices and lessons learnt directly linked to Montreal Protocol goals.
- Share information and bring practical and usable ideas and experience, within the Project Steering Committee (PSC)

## **4. Competencies**

### **4.1 Corporate Competencies:**

- Demonstrates integrity by modeling the UN's values and ethical standards
- Promotes the vision, mission, and strategic goals of UNDP
- Displays cultural, gender, religion, race, nationality and age sensitivity and adaptability
- Treats all people fairly without favoritism

### **4.2 Functional Competencies:**

#### Knowledge Management and Learning

- Promotes a knowledge sharing and learning culture in the office
- Ability to advocate and provide policy advice
- Actively works towards continuing personal learning and development in one or more technical areas, acts on learning plan and applies newly acquired skills

#### Development and Operational Effectiveness

- Substantive knowledge and understanding of concepts and approaches relevant to supporting results-based programme management and implementation;
- Ability to perform a variety of specialized tasks including development, planning and implementation of projects/programme, managing information and data and reporting;
- Good research, analytical and problem-solving skills, including ability to identify and participate in the resolution of programme-related issues/problems;
- Familiarity with and experience in the use of various research methodologies and sources, including electronic sources on the internet, intranet and other databases;
- Ability to apply good judgment in the context of assignments given;
- Ability to plan own work and manage conflicting priorities;
- Ability to lead strategic planning, results-based management and reporting
- Ability to lead formulation, implementation, monitoring and evaluation of development programmes and projects, mobilize resource
- Strong IT skills

#### Management and Leadership

- Focuses on impact and result for the client and responds positively to feedback
- Consistently approaches work with energy and a positive, constructive attitude
- Demonstrates strong oral and written communication skills
- Builds strong relationships with clients and external actors
- Remains calm, in control and good humored even under pressure
- Demonstrates openness to change and ability to manage complexities
- Open to challenges and change, and demonstrated ability to manage complex issues and situations.
- Good interpersonal skills and ability to establish and maintain effective partnerships and working relations in a multi-cultural, multi-ethnic environment;
- Ability to work positively to contribute to team morale and to build consensus.

## **5. Qualifications and Requirements:**

- A post graduate degree in Physical Sciences or Environmental Sciences or Chemical or Environmental Engineering with an emphasis on environmental policy and planning, together with three or more years experience in project management and implementation or any equivalent combination of education and experience.
- Desirable Experience in the application and uses of non-ODS substitutes and in technology transfer focused on ODS substitution.
- Knowledge of the institutions of the UN system, and/or of international chemical conventions
- General experience in UNDP operational procedures (i.e. NEX/NIM) at the national level is desirable.

Language Requirements:

- Fluency in English with strong writing and communication skills being essential.

---

## ANNEX 7 – TERMS OF REFERENCE (TOR) FOR PROJECT ASSISTANT

UNITED NATIONS DEVELOPMENT PROGRAMME

TERMS OF REFERENCE

PROJECT ASSISTANT for the HCFC PHASE-OUT  
MANAGEMENT PLAN



### 1. Background:

The United Nations Development Programme (UNDP) is one of the 4 Implementing Agencies (IA) designated by the Multilateral Fund (MLF) to implement the Montreal Protocol's Ozone Depletion Substances (ODS) phase-out projects.

Under this International Treaty, the Parties to the Montreal Protocol agreed under the Decision XIX/6 on the "Adjustment to the Montreal Protocol with regard to Annex C, Group I substances (HCFCs)" to "accelerate the phase-out of production and consumption of the hydrochlorofluorocarbons (HCFCs)", and the Article 5 (A5) countries have been requested by the ExCom to adopt a staged approach to the implementation of their HCFC Phase-out Management Plans (HPMP).

In this sense, Trinidad & Tobago has chosen UNDP as Lead Agency for the implementation of its HPMP that will cover activities of:

- Industrial conversion in the Polyurethane (PU) Foam sector;
- Technical assistance in the refrigeration sector;
- Retrofit incentive programme;
- Support in the establishment of a comprehensive institutional and regulatory framework; and
- Implementation and monitoring of the HPMP.

Therefore, this Terms of Reference (TOR) identifies and specifies the scope of services required for the fulfillment of the above components and, therefore, a Project Assistant is required to support the execution of the HPMP for Trinidad & Tobago.

### 2. Duties and Responsibilities:

The Project Assistant will work under the guidance and supervision of the Project Manager and will liaise with the local and international consultants to execute, monitor and report on the implementation activities of the HPMP

The Project Assistant will promote and ensure a client-oriented approach in the execution of his/her functions, consistent with UNDP policies, rules and procedures.



### **3. Description of Responsibilities :**

#### **3.1 Summary of Key Functions:**

- Support implementation of project activities
- Assist with management of the sector programme in Trinidad & Tobago
- Support the development of strategic partnerships for the execution of project activities
- Participation in Cross Programme/Practice and Mainstreaming

#### **3.2 Supports the implementation of the HPMP programme strategies focusing on achievement of the following results:**

- Interact with private sector and civil society partners;
- Coordinate inputs from various stakeholders and partners in the project execution;
- Research and compile background resources, such as statistical and historical data, relevant studies, papers and publications and presentations;
- In close coordination with the UNDP country office and government prepare and submit Progress Report and Annual Working Plans to the related funding sources/secretariats, which comply with relevant formats and guidelines; ensure governmental focal points and Country Office engagement in the process, assist in ensuring timely submission of proposals when required.
- Follow-up on audit recommendations. All exceptions are timely reported
- Substantive monitoring, evaluation and reporting on implementation milestones, including identifying and monitoring potential risks and challenges in implementation and suggesting responses and remedial actions as needed;
- Backstop and follow-up procurement processes pertaining to recruitment of national consultants and to procuring equipment and related services;
- Other tasks to ensure proper project implementation, as may be required or requested.

#### **3.3 Ensures provision of top quality advisory services and facilitation of knowledge building and management focusing on achievement of the following results:**

- Extract and codify lessons learned during programme development, implementation, monitoring and evaluation;
- Manage databases, information and resource materials and knowledge products
- Identification of sources of information related to policy-driven issues. Identification and synthesis of best practices and lessons learnt directly linked to Montreal Protocol goals.
- Share information and bring practical and usable ideas and experience, within the Project Steering Committee (PSC)

## **4. Competencies**

### **4.1 Corporate Competencies:**

- Demonstrates integrity by modeling the UN's values and ethical standards
- Promotes the vision, mission, and strategic goals of UNDP
- Displays cultural, gender, religion, race, nationality and age sensitivity and adaptability
- Treats all people fairly without favoritism

### **4.2 Functional Competencies:**

#### Knowledge Management and Learning

- Promotes a knowledge sharing and learning culture in the office
- Ability to advocate and provide policy advice
- Actively works towards continuing personal learning and development in one or more technical areas, acts on learning plan and applies newly acquired skills

#### Development and Operational Effectiveness

- Substantive knowledge and understanding of concepts and approaches relevant to supporting results-based programme management and implementation;
- Ability to perform a variety of specialized tasks including development, planning and implementation of projects/programme, managing information and data and reporting;
- Good research, analytical and problem-solving skills, including ability to identify and participate in the resolution of programme-related issues/problems;
- Familiarity with and experience in the use of various research methodologies and sources, including electronic sources on the internet, intranet and other databases;
- Ability to apply good judgment in the context of assignments given;
- Ability to plan own work and manage conflicting priorities;
- Ability to assist with strategic planning, results-based management and reporting
- Ability to assist with formulation, implementation, monitoring and evaluation of development programmes and projects, mobilize resource
- Strong IT skills

#### Management and Leadership

- Focuses on impact and result for the client and responds positively to feedback
- Consistently approaches work with energy and a positive, constructive attitude
- Demonstrates strong oral and written communication skills
- Builds strong relationships with clients and external actors
- Remains calm, in control and good humored even under pressure
- Demonstrates openness to change and ability to manage complexities
- Open to challenges and change, and demonstrated ability to manage complex issues and situations.
- Good interpersonal skills and ability to establish and maintain effective partnerships and working relations in a multi-cultural, multi-ethnic environment;
- Ability to work positively to contribute to team morale and to build consensus.

## 5. Qualifications and Requirements:

### Education:

- First Degree or equivalent qualifications in Environmental Biology or related discipline

### Experience:

- Minimum 2 years of professional experience in administrative and financial aspects of project management
- Familiar with relevant legal regulations.
- Working knowledge of Microsoft suite of productivity tools and with Peachtree Accounting software.
- Good interpersonal relations.

### Language Requirements:

- Fluency in English with strong writing and communication skills being essential.

---

## ANNEX 8- MINUTES OF LPAC MEETING

### MINUTES OF THE LPAC MEETING TO REVIEW UNDP PROJECT:

#### “HCFC phase-out management plan (HPMP)”

##### Purpose:

The PAC meeting was convened to review a project document prepared by UNDP to assist the Government in phasing out of the consumption of hydrochlorofluorocarbons (HCFCs) through a HCFC Management Plan with UNDP as the implementing agency.

This HPMP covers all HCFCs consumed in Trinidad and Tobago either as pure substances or contained in blends. Whereas the servicing of refrigeration and air conditioning equipment constitutes the major consumption sector, there are also refrigeration assembly and foam blowing operations which account for some consumption.

This LPAC was convened to review activities planned for the first two years of the HPMP (2012-2014). However, the funding approved in 2008 by the Executive Committee of the Multilateral Fund covers the country's obligations through to 2020.

##### Attendance:

The meeting took place at the UNDP Trinidad Country office on March 14<sup>th</sup>, 2012 at 3.00 pm.

The following persons participated in the meeting:

Edo Stork	- Deputy Resident Representative and Chair of the PAC
Rosemary Lall	- Programme Officer, Energy, Environment and Disaster Management
Jens-Ulrich Poppen	- Programme Officer
Beverly Charles	- Operations Manager
Sharda Kanhai-Lal	- Procurement Specialist
Nesha Beharry-Borg	- National Coordinator, GEF-SGP
Marissa Gowrie	- Deputy Environmental Manager, Environmental Policy Planning Division, Ministry of Housing and the Environment and Project Coordinator HPMP
Neera Singh	- National Ozone Assistant, Environmental Policy Planning Division, Ministry of Housing and the Environment
Anastasia Gordon	- Associate Professional, Environmental Policy Planning Division, Ministry of Housing and the Environment

---

## Review of Proposal:

Rosemary Lall welcomed the Ministry representatives and introduced the representative from Panama Anderson Alves. She indicated that this project document was a joint project formulated by the Panama office with the project document being compiled between the Panama office and the Trinidad and Tobago country office.

This project addresses the second phase of the phase out of ozone depleting substances with the first phase being the phase out of CFCs. It involves working with the local refrigeration and air conditioning sector to retrofit and train users in the use of the new technologies. While Trinidad and Tobago do not manufacture HCFCs the country imports and uses these chemicals. This project supports the replacement of HCFCs with hydrocarbons in an accelerated phase out approach.

The interventions covered by this project are 1. technical support to the service industry 2. policy, legal and institutional interventions by expanding the current licensing system and standards, among others. 3. education and awareness raising for the general public 4. monitoring, evaluation and reporting.

Edo Stork introduced the LPA C process and the need to link environmental and other development issues.

This project deals with the private sector replacing HCFCs with hydrocarbons in an accelerated phase out approach.

Questions from the floor:

Qu: Is there funding past the end of the project to ensure the continued engagement of the private sector?

Ans: This project goes to the end of 2020. In addition there is scope of continued support from the government and the national environmental fund the Green Fund.

Qu: What is the reaction on the part of ARIA to this project- what level of engagement with the private sector?

Ans: There is a lot of interest and support from the private sector for this since they benefit from new technology from the developed countries which increases capacity at little cost. The HCFC plan was developed in consultation with the private sector

## Front page

Please ensure the Ministry of Planning and the Economy signs off on documents because they are the executing agency i.e. have overall responsibility for UNDP projects.

There is also the need to add more text on the cover page in terms of what is our contribution to this project to develop the outcome and what are the two major outputs.

Expected outputs should match with outputs in the project document.

The Multilateral Fund of the Montreal Protocol (MLF) requests that their reference no. be placed on the cover page.

---

## Situation Analysis

The 3<sup>rd</sup> paragraph should read "has approved climate change policy in February 2011." There should be text on how this project fits into the general environmental programme of the UNDP.

## Strategy

Clarification was sought on whether any changes could be made to the project document activities. It was confirmed that no major changes could be made to the project document since it was based on a pre approved plan from the Executive Committee (ExCom) of the MLF.

The Terminal Phase Out Plan (TPMP) contained a large training component and this project document is a continuation of this training.

## Results and Resources Framework

Clarification was sought on whether the baseline HCFC consumption was 807 metric tonnes or 838 metric tonnes. The baseline amount that forms the basis for consumption reductions consist of the average of 2009 and 2010 consumption amounts. There was a discussion on whether the figures that are being used reflect the projected 2010 amounts (807 metric tonnes) or the actual 2010 amounts (838 metric tonnes) which were subsequently submitted. It was agreed that the baseline is the adjusted 838 metric tonnes. Panama to submit official correspondence that reflects this and this correspondence will be included as an appendix on the project document.

Baseline year 2013 which means that consumption in this year should reflect the average of 2009 and 2010 consumption amounts. In 2015 and 2020 Trinidad and Tobago will have to adhere to reduction targets which are based on the 2013 amounts with 2015 being 10% reduction of 2013 amounts; target for 2020 being 35% of 2013 amounts. In 2013 Trinidad and Tobago are only allowed to imprt at baseline levels.

Under the Results and Resources Framework it is not appropriate to refer to text in the annexes as UNDP's contribution. While this is included in the Annual Work Plan it needs to be highlighted in this section.

Under the column of intended outputs, output 2 needs to be clarified. How are we converting foam enterprises? What is the result the project aims to achieve. This would help track whether the project is engaging in the correct activities.

The question was raised as to whether an audit was required. Beverly Charles indicated that since this project would be conducted using direct payments, not advances, we may not be required to audit during an NGO/NIM audit exercise. If an audit is not required this would have to be budgeted for from project funds. In subsequent discussions with Beverly Charles it was confirmed that a NGO/NIM audit will not be required once the implementing partner agrees, by signature, to the letter of agreement between the government and a United Nations agency under national implementation. This is included as an appendix for signature in the prodoc.

Anderson Alves indicated that the funds for an audit are budgeted for in Year 2 of the project. This audit is required by MLF prior to the release of the second tranche of funds. It includes an audit of consumption amounts as well as the implementation of the project, including financial procedures.

---

Marissa Gowrie questioned whether under Output 2 five was the correct number of companies. Five companies are referred to in the project document and there are only three in other background documents. Anderson Alves to check on current number.

### **Annual Work Plan**

Year 2- under output 1 no funds are allocated for international consultants. Therefore there should be a zero there (not left blank as is currently).

Beverly Charles- the Designation of Authority (DOA) should state clearly how the AWP should be spread. It should also state clearly that the AWP of the project does not have to necessarily mirror the AWP of the DOA. A new DOA should be issued with the new start date of 2013 as well as the assurance that there would be no difficulty in accessing funds should the Country Office not hold rigidly to the spread of the workplan as highlighted in the DOA.

Update: A new DOA could not be signed. However an email from Panama was received confirming the flexibility in the AWP and providing assurance that there will be no delays on this point in confirming the approved spending limits for the project.

There needs to be a specific allocation for the project manager. In this case the project manager cannot be a consultant because they are required for a period above a year which requires a service contract. Marissa Gowrie emphasized that a project of this size and complexity requires a project manager dedicated to it with a specific set of duties- it cannot be a project manager paid out of institutional strengthening funds.

Cost recovery (GMS) is a transaction outside of the project. In this case it is handled by headquarters but this needs to be stated in the project document.

Implementation Support Services (ISS) (DOA item 4) needs to be included. When transactions are carried out for the project there is this cost attached which comes out of current budget funds. The Multilateral Fund is aware of this and it is highlighted in the DOA. MLF is aware that these costs must be attached to the project. The ISS portion will be charged to the project. However, if the implementing partner follows their procurement process the project will not be charged.

The budget for the HPMP assistant needs to be recalculated and inserted under a particular output.

### **Management Arrangements**

One terminology should be used- either Project Board or Project Steering Committee.

The fact that the project manager will be a services contract holder if hired by UNDP should be mentioned in the project document.

A standard TOR for a project manager for this kind of project needs to be appended.

---

There was no project board in place for the previous phase out project which addressed CFCs (TPMP). Marissa Gowrie explained that there was a coordinating committee at one point in the project's history but that this was disbanded. There is currently a note to reformulate this cabinet appointed committee to facilitate implementation.

A concern was raised that the Project Board would add an additional layer of bureaucracy. Edo Stork indicated that this would be counter-productive and that the project board is not designed to be a protracted process but is meant to ensure strategic goals of the project are met. Anderson Alves agreed that in other countries with Montreal Protocol projects the Project Board was useful in addressing the cross cutting issues that emerge in attempts to address ozone depleting substances.

The Senior Beneficiary is the Ministry of Housing and the Environment, not the project coordinator. In the project document Marissa Gowrie should be replaced with national ozone officer. This role functions as coordinator of Montreal Protocol projects with individual managers under them. The term Ozone Assistant should be replaced with HPMP Assistant.

There is flexibility to change the budget within outputs but not between outputs. Anderson Alves to include a line for the ozone assistant and adjust the budget in output 1. This can be done since this output covers implementation arrangements generally.

Marissa Gowrie indicated that the project assistant should be paid from the HPMP budget since this is a large project and will require significant expertise and attention. The institutional strengthening project funds are not sufficient to accommodate this. It was pointed out that a service contract holder will not be able to be hired for longer than a year and that the project manager will require a different modality.

## **Annexes**

The monitoring and evaluation framework requires cleared text and not just reference to the quality criteria of the Montreal Protocol which is too vague. The project board usually uses this to evaluate progress.

If the annexes are pdf we need to include a page and at least refer to them by title.

A risk log is required.

## **Other**

Another LPAC will have to be done in 2015 for the rest of the period. Doing this current LPAC now will allow us to initiate implementation so that in 2015 we will have a clearer idea of the activities for the rest of the period.

Table 5 is actually Table 4.

Page numbers need to be inserted.

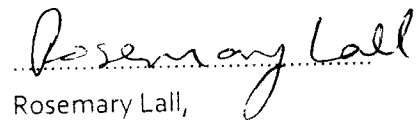


---

We should say that the trainings were decided on in conjunction with the private sector.

All agree that the project document can go forward as it once the changes are made.

Prepared and submitted by:

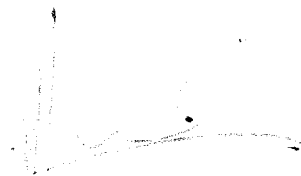


Rosemary Lall,

Programme Officer, Energy, Environment and Disaster Management

June 22nd, 2012

Signed:



.....  
Henri Francois Morand, Deputy Resident Representative on behalf of Edo Stork, Chairman, PAC

June 22nd, 2012

---

## ANNEX 9- STANDARD LETTER OF AGREEMENT BETWEEN UNDP AND THE GOVERNMENT FOR THE PROVISION OF SUPPORT SERVICES

Dear Minister Singh,

Reference is made to consultations between officials of the National Ozone Unit, Ministry of Housing and the Environment (hereinafter referred to as "the Ministry") and officials of the UNDP with respect to the provision of support services by the UNDP Country Office for the HCFC phase out management plan (HPMP) to be managed by the Government. The latter shall be represented for the purpose of such management by the National Ozone Unit, Ministry of Housing and the Environment. UNDP and the Government hereby agree that the UNDP country office may provide such support services at the request of the Government through its institution designated in the relevant programme support document or project document, as described below.

2. The UNDP country office may provide support services for assistance with reporting requirements and direct payment. In providing such support services, the UNDP country office shall ensure that the capacity of the Government-designated institution is strengthened to enable it to carry out such activities directly. The costs incurred by the UNDP country office in providing such support services shall be recovered from the administrative budget of the office.

3. The UNDP country office may provide, at the request of the designated institution, the following support services for the activities of the programme/project:

- (a) Identification and/or recruitment of project and programme personnel;
- (b) Identification and facilitation of training activities;
- (c) Procurement of goods and services;

4. The procurement of goods and services and the recruitment of project and programme personnel by the UNDP country office shall be in accordance with the UNDP regulations, rules, policies and procedures. Support services described in paragraph 3 above shall be detailed in an annex to the programme support document or project document, in the form provided in the Attachment hereto. If the requirements for support services by the country office change during the life of a programme or project,

the annex to the programme support document or project document is revised with the mutual agreement of the UNDP resident representative and the designated institution.

5. The relevant provisions of the Standard Basic Assistance Agreement with the Government of Trinidad and Tobago, signed in 1976, including the provisions on liability and privileges and immunities, shall apply to the provision of such support services. The Government shall retain overall responsibility for the nationally managed programme or project through its designated institution. The responsibility of the UNDP country office for the provision of the support services described herein shall be limited to the provision of such support services detailed in the annex to the programme support document or project document.

6. Any claim or dispute arising under or in connection with the provision of support services by the UNDP country office in accordance with this letter shall be handled pursuant to the relevant provisions of the SBAA.

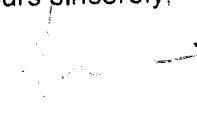
7. The manner and method of cost-recovery by the UNDP country office in providing the support services described in paragraph 3 above shall be specified in the annex to the programme support document or project document.

8. The UNDP country office shall submit progress reports on the support services provided and shall report on the costs reimbursed in providing such services, as may be required.

9. Any modification of the present arrangements shall be effected by mutual written agreement of the parties hereto.

10. If you are in agreement with the provisions set forth above, please sign and return to this office two signed copies of this letter. Upon your signature, this letter shall constitute an agreement between your Government and UNDP on the terms and conditions for the provision of support services by the UNDP country office for nationally managed programmes and projects.

Yours sincerely,

  
\_\_\_\_\_  
Signed on behalf of UNDP

*Mr. Henri-Francois Morand*

*Title: Deputy Resident Representative, Trinidad and Tobago*

Date:

  
\_\_\_\_\_  
For the Government

*Senator The Honourable Ganga Singh, Minister, Ministry of Environment and Water Resources*

Date:

