

EXECUTIVE COMMITTEE
OF THE
MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL
PROTOCOL
64th MEETING

HCFC PHASE OUT MANAGEMENT
PLAN FOR ANNEX C GROUP I
SUBSTANCES FOR
SAINT LUCIA

PREPARED BY
MINISTRY OF PHYSICAL DEVELOPMENT AND THE
ENVIRONMENT
IN COOPERATION WITH
THE UNITED NATIONS ENVIRONMENT PROGRAMME

MARCH 2011

PROJECT COVER SHEET	
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COUNTRY NAME	Saint Lucia
LEAD IMPLEMENTING AGENCY	United Nations Environment Programme
CO-OPERATING IMPLEMENTING AGENCY	United Nations Development Programme

SUBMISSION OF COMPLETE DOCUMENTATION		
Document	Yes/No	Comments
Letter of transmittal	Yes	
HPMP	Yes	
Draft agreement	Yes	
MYA tables (on-line)	n/a	
Technical review (where applicable)	n/a	
Executive summary	Yes	

DATES OF RATIFICATION OF AMENDMENTS TO THE PROTOCOL			
Copenhagen	24/8/1999	Beijing	12/12/2001
Comments:			

HCFC REGULATIONS IN PLACE		
Regulation	Yes/No	Comments
HCFC regulation	Yes	Passed under the 2001 Montreal Protocol Act
HCFC licensing system	No	Draft Regulations prepared and awaiting Ministerial approval
HCFC quota system	No	Draft Regulations prepared and awaiting Ministerial approval

SUBMISSION OF ODS DATA REPORTS			
Report	Yes/No	Year reported data	Comments
Country programme	Yes	All years	
Article 7 data	Yes	All years	
Calculated HCFC baseline (ODP tonnes)			0.916
Starting point for aggregate reductions in HCFC consumption (ODP tonnes)			0.916
Explain any data discrepancies: 2008 and 2009 Annex C Group 1 Data to be revised			

HPMP DOCUMENT			
Servicing only	x	Manufacturing only	
Freeze and 10%		Freeze, 10% and 35%	X
Main components included			Yes/No
Overarching strategy			Yes
Strategy and action plan for stage I			Yes
Co-financing included			No
Impact on the environment			Yes
Implementation work programme and timeframe included			Yes
Implementation modalities (project monitoring unit)			Yes

FUNDING	
Funding consistent with guidelines (servicing sector, cut-off date, second stage, HCFC-141b imported in polyols, cost effectiveness, technology upgrade, foreign ownership, export to non-Article 5 countries)	Yes
Funding of last tranche requested at the last year of implementation:	Yes
Priority given to manufacturing over servicing sector (if applicable)	n/a
Justification for not addressing first HCFC-141b (if applicable)	n/a

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EXECUTIVE SUMMARY:

St. Lucia acceded to the Vienna Convention and the Montreal Protocol on 28th July 1993 and subsequently ratified the London, Copenhagen and Montreal Amendments on 24th August 1999, and the Beijing Amendment on 12th December 2001.

The policy and regulatory framework developed to ensure that Saint Lucia complies with the phase out schedule under the Montreal Protocol were developed to support the phase out of Annex A CFCs. The key elements of the framework include the following:

- i. Montreal Protocol [*Substances that Deplete the Ozone Layer*] Act [No. 27 of 2001]
- ii. Substances that Deplete the Ozone Layer [*Control*] Regulations [No. 5 of 2002]
- iii. The Customs [*Control and Management*] Act [No 23 of 1990]
- iii. The Standards Act; and
- iv. The Pesticides and Toxic Chemical Control Act

Items (i) above included controls over trade in all Ozone Depleting Substances controlled by the protocol while item (ii) above created:

- a) Registration and licensing requirements for importers of Annex A CFC;
- b) A Quota system to control quantities of imports of CFCs;
- c) Prohibition of imports of equipment containing Annex A CFCs;
- d) Certification of technicians;
- e) Labelling standards for containers and equipment containing Annex A CFCs
- f) Methods for dealing with illegal imports of Annex A CFCs and related technologies.

Draft regulations to extend the licensing regime to include Annex C Group 1 HCFCs are prepared and awaiting Ministerial approval. At the time of preparing this HPMP the draft regulations are being reviewed by the office of the Attorney general. Whereas if is not possible to predict when this review will be completed, it generally takes up to six months to be completed. In any case, the original Montreal Protocol Act of 2001 already list HCFCs as controlled substances and the proposed amendments are intended to further strengthen the controls introduced by that instruments. Consequently, legislative measures to control trade in HCFCs and related technologies are already in place.

The Annex C Group 1 data reported to the Secretariat and the Survey data are presented in Table A below:

Table A: Annex C, Group I HCFCs Data (ODP tonnes)

Year/Consumption	2005	2006	2007	2008	2009	Baseline
Reported Consumption	0	0.1	0	0.1	0.4	
Survey Data	0.01	0.10	0.01	0.35	1.35	1.382

The sectoral distribution of HCFC consumption is presented in Table B below.

Table B: Sectoral distribution of Annex C Group 1 HCFCs Consumption (2009)

Sector	Equipment Stock	% Using HCFCs	Calculated demand (kg)
Domestic Refrigeration	83,000	0%	0.00
Residential Air conditioning	20,500	95%	6,305.03
Commercial refrigeration	2,500	40%	15.00
Commercial Freezers	1,800	20%	9.00
Commercial AC	12,070	95%	17,199.75
Industrial Refrigerators	150	65%	234.00
Industrial Freezers	75	80%	76.80
Chillers	200	95%	494.00
Cold Rooms and walk in Freezers	2,200	50%	220.00
Refrigerated Trucks	190	10%	0.07
Display cabinets	750	35%	21.00
Ice machines	1,100	20%	27.50
Total demand			24,602.15

The survey found that the Customs records did not classify HCFCs accurately, resulting in an under reporting of HCFC imports both from their records and trade statistics. In an effort to remedy this situation, all customs records for 2009 were retrieved and analysed to confirm the actual imports for that year. On this basis, the data for 2009 is considered the most reliable of all the years. As a consequence of the unreliability of consumption data prior to 2009, it is not feasible to use trend analysis to assess future demand for HCFCs. Instead, the approach used is to use the 2009 reported consumption of 7.55 Mt (0.42 ODPt) and the estimated 2010 consumption of 25.75 Mt (1.42 ODPt) as the basis for calculating the baseline and to apply a modest 5% growth rate up to 2020. On this basis, the baseline works out to be 16.65 Mt (0.916 ODPt). These values will be used as the starting point against which consumption reductions will be calculated. Further, it is expected to revise the baseline, if necessary following the country's Article 7 submission.

In designing its overall strategy to phase out Annex C Group 1 HCFCs, the government of Saint Lucia has committed to consider both the ozone layer and climate impacts in determining the choice of replacement technologies. To this end, in addition to Ozone Depleting Potential (ODP), issues such as Global Warming Potential (GWP), energy efficiency, toxicity, flammability and health and safety considerations will be factored into the choice of technologies to be incorporated. In addition, the emphasis will be on demand reductions through emissions reductions as well as education and awareness to win public support for the phase out effort. In this regard, the following summarises the key elements of the overall phase out strategy:

- i. Phase out will follow the schedule agreed to under Decision XIX/6, but this policy decision will be revisited in 2020 following the completion of the projects proposed in this first stage implementation programme.

- ii. A robust licensing regime will be put in place to keep supplies of HCFCs within the Protocol's consumption limits (supply side controls). This will include extending the current licensing regime for CFCs to cover HCFCs. To this end, draft regulations have been prepared for Ministerial approval.
- iii. Capacity development and investment interventions will be pursued to enable the service industry to meet demand through emissions reductions, recovery and retrofits of HCFC based equipment (demand side controls). In this regard, emphasis will be placed on the introduction of low-GWP technologies which have the best fit for the government's ozone protection and climate change mitigation policies.
- iv. Education and information tools and programmes will be used to gain the support of all players, including policy makers, technology suppliers, the service industry and the consumer to support the national phase out effort.
- v. To the extent possible, all existing equipment will be allowed in service to the end of their natural life.
- vi. Technology choices will be based on relative costs, total environmental benefits and the ease of transfer of the technology; and
- vii. The capacity of the National Ozone Unit should, at a minimum, be maintained to support execution of this project and a monitoring and evaluation mechanism will be established to oversee project execution.

Given the decision to pursue consumption reductions stipulated in Decision XIX/6 up to 2020, the first stage implementation plan includes the following key elements and related costs:

a) Technical Support to the Service Industry:

Goal:

The goal of this intervention is to strengthen the capability of the refrigeration service industry to reduce demand for virgin HCFCs. This will be achieved through the training of technicians in the technologies emerging to replace HCFCs, particularly natural refrigerants, as well as training in good practices, recovery and recycling, and retrofitting and the provision of specialized tools and equipment to facilitate the application of the acquired expertise to demand reduction initiatives. In this regard, there will be two mutually supporting interventions, as follows:

Component 1: Training in Good Refrigeration Practices, Recovery and Reuse of Refrigerants and Retrofitting of HCFC Systems to Alternative Technologies.

The objectives of this component are to:

- expand the scope of similar training undertaken under the RMP and TPMP by incorporating issues related to replacement refrigerants for HCFCs, including low GWP refrigerants;
- reduce demand for virgin HCFCs through improved servicing practices, the recovery and reuse of refrigerants and retrofitting of HCFC-based equipment to non-ODS and low GWP alternatives; and

- promote good health and safety practices when using natural refrigerants.

This component will be implemented by UNIDO at a cost of US\$ 67,000.

Component 2: Provision of Tools and Equipment

The objective of this Component is to provide some of the tools and equipment necessary to enable technicians to implement demand reduction practices

This component will be implemented by UNIDO at a cost of US\$ 60,350.

b) Policy, Legal and Institutional Framework

Objective:

The objective of this sub project is to create and enforce an enabling policy, legal and institutional framework to support the phase out of Annex C Group 1 HCFCs along timelines consistent with the Protocol control measures for this class of Ozone Depleting Substances and any future decisions which may be taken in relation to an accelerated phase out.

Execution will involve the enactment of the draft regulations to extend the CFC licensing system to cover HCFCs, training of enforcement personnel in the enforcement of the new regulations, consideration for the introduction of market based incentives/disincentives to encourage the transition to non-HCFC technologies as well as procedures for monitoring consumption on Saint Lucian flagged ships depending on the decision of the Parties regarding the allocation of this consumption.

This component will be implemented by UNEP at a cost of US\$ 37,650

c) Education and Awareness:

The objectives of this sub project 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.

Key activities proposed include:

- Production of leaflets posters, brochures and other materials with summary of HPMP, HCFC phase-out schedule and the policies and legal structure to be established to enable the transition to an HCFC free economy;

- Public awareness campaigns in schools and for general public, Press releases; TV spots; Radio broadcasts; and
- Technical papers and information leaflets for technicians and industry on emerging technologies, options to transition away from CFCs, low GWP refrigerants and health and safety issues.

This project will be implemented by UNEP at a cost of US\$ 24,000.

d) Monitoring Evaluation and Reporting

Objective: This component of the HPMP will provide for the day to day execution, periodic monitoring, evaluation and reporting on project activities, targets achieved, deadlines missed, and remedial actions to be taken, if necessary to ensure that targets are met.

Execution Plan

Given the limited funding available it will not be feasible to establish a formal M&E Unit. Hence, following the approval of the HPMP, a monitoring, evaluation and reporting protocol will be designed for all components of the project. In addition, consultants will be contracted as required to:

- Manage the implementation of the HPMP;
- Monitor the implementation of each sub project component against their objectives;
- Provide periodic reports on all sub-projects to the National Ozone Office, for review and onward transmission to UNEP, which is the lead Implementing Agency for this HPMP;
- Identify and report on deadlines missed, and recommend remedial actions;
- Assess and report on the impact of projects against expected impacts;
- Make recommendations on adjustments to projects to maximize their impact on consumption reduction;
- Assist UNEP and if required, the Multilateral Fund Secretariat to conduct verification of the HCFC consumption as needed;
- Provide input into, and assist with the preparation of Annual Implementation Plans;
- Conduct annual performance audits; and
- Prepare Annual Progress reports.

This component will be implemented by UNEP at a cost of US\$ 21,000

The total budget for this HPMP is US\$210,000, all of which is requested from the Multilateral Fund.

Under this HPMP, it is expected that that consumption of 20.08 Mt, or 1.10 ODP tonnes of Annex C Group 1 HCFCs. This will also avoid the direct emissions of the equivalent of 35,742 tonnes of carbon. (t CO₂ eq)

1. INTRODUCTION

1.1 Background information

Saint Lucia is the second largest of the Windward Islands in the Eastern Caribbean, with an area of 616 km² and in 2009 had an estimated population of 172,370, approximately 60% of whom live in the northern quarter of the island. The estimated number of households as of 2009 was 52,540, of which 99% are connected to the national electricity grid. In 2009 Saint Lucia's GDP, which declined by 5.2% compared with 2008, was estimated to be US\$ 501.37, of which 31.2% was contributed by the tourism sector and 10.25% by Agriculture.

1.2 ODS Policy Regulatory and Institutional Framework

1.2.1 Status of ratification of amendments to the Montreal

St. Lucia acceded to the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer on 28th July 1993 and subsequently ratified the London, Copenhagen and Montreal Amendments on 24th August 1999, and the Beijing Amendment on 12th December 2001.

1.2.2 ODS policy and regulations

The policy and regulatory framework developed to ensure that Saint Lucia complies with the Protocol's phase out schedule were developed to support the phase out of Annex A CFCs. The key elements of the framework include the following:

i. Cabinet Decisions

Cabinet Conclusion No. 1082 of 1999 allows duty free concessions for equipment imported to recover and recycle refrigerants.

ii. Montreal Protocol [*Substances that Deplete the Ozone Layer*] Act [No. 27 of 2001]

This Act incorporates the Montreal Protocol into the laws of Saint Lucia and authorizes the Minister of Environment to make Regulations under it to enable Saint Lucia to comply with its obligations under the Protocol.

iii. Substances that Deplete the Ozone Layer [*Control*] Regulations [No. 5 of 2002]

The Regulations under the *Montreal Protocol [Substances that Deplete the Ozone Layer] Act* entered into force on July 1, 2002. The key elements of the regulations are:

Section 3: prohibits the importation of an Ozone Depleting Substance (ODS) into Saint Lucia by any person who is not registered to do so.

Section 5: establishes a quota system to control imports at or below the national limit set by the Montreal Protocol.

The import quota is based on the national quota approved by the Montreal Protocol. At the beginning of each year the NOU assigns a proportion of the national quota, based on the historical average percentage of total imports (s)he imported, to each registered importer. This information is published in the Saint Lucia Gazette by January 15th each year and made available to both the Licensing Department of the Ministry of Commerce and the Customs Department.

Section 6: places a ban on imports of equipment requiring a supply of an ODS listed in Annex A of the First Schedule of the Protocol for their continued operation. This regulation does not apply to equipment to be used for medical purposes.

Section 7: authorizes the NOU to issue Retrofitters Licenses to qualified technicians. The names of all registered Retrofitters are published in the Saint Lucia Gazette.

Section 8: requires the importer to ensure that all ODS or equipment containing ODS imported into Saint Lucia to be labelled in a manner that identifies the active chemical.

Section 9: requires any equipment containing an ODS that is offered for sale locally, to have a label which is conspicuous and attached to it, and on which the ODS is identified.

Section 13: establishes an Ozone Fund under the control of the Accountant General, to be used for the advancement of the work of the National Ozone Unit.

iv. The Customs [*Control and Management*] Act [No 23 of 1990]

The powers conferred on the Comptroller of Customs under this Act apply to the Agency Functions the Comptroller will be called upon to perform under the Montreal Protocol (Substances that Deplete the Ozone Layer) Act and the Regulations made there under.

v. The Standards Act

Under this Act, the Bureau of Standards is authorized to develop and implement standards for the labelling of goods either imported into the country, or displayed for sale, or both. The Bureau has developed labelling standards to give effect to this provision of the Montreal Protocol Regulations.

vi. The Pesticides and Toxic Chemical Control Act

This Act controls the importation, storage, use and disposal of pesticides, including Methyl Bromide, an ODS listed in Schedule 5 (Extremely Hazardous Chemicals) of the Act. It also establishes a licensing system for the import of the substances that fall under its jurisdiction.

Section 31 of this Act states:

A person shall not import or export a pesticide or toxic chemical unless:

- (a) the importation or exportation is authorized by an import or export license respectively; and
- (b) the pesticide or toxic chemical is packaged and labelled as prescribed.

1.3 Stakeholders

The Government of Saint Lucia has received assistance from the Multilateral Fund to establish a National Ozone Unit (NOU) with responsibility for ensuring that Saint Lucia complies with its obligations under the Montreal Protocol. To this end, the NOU established a Country Team in 1994, comprising of representatives from both the public and private sectors to assist with the development of policies and programmes to ensure national compliance. It is through the work of this team, and with financial support from the Multilateral Fund that Saint Lucia was able to develop its Country Programme (CP), Refrigerant Management Plan (RMP), RMP Update and Terminal Phase our Management Plan (TPMP) to assist with its compliance obligations. The strategies and activities identified in these plans have been implemented by the NOU with the continued support of the Country Team and partner institutions both in the public and private sectors. The specific responsibilities of some of the agencies on the Country Team are:

- i. **Focal Point and NOU:** The NOU is responsible for the execution of approved projects, reporting requirements under the Protocol and all other activities necessary to ensure that Saint Lucia complies with the provisions of the Protocol.
- ii. **Ministry of Commerce and Consumer Affairs:** The Licensing Department of this Ministry issues licenses to registered importers based on the annual quotas assigned by the NOU.
- iii. **Saint Lucia Bureau of Standards:** This Agency is responsible for ensuring compliance with the labelling standards in Section 9 of the Montreal Protocol Regulations.
- iv. **Sir Arthur Lewis Community College:** This institution undertakes both the retraining of technicians in R&R and Good Refrigeration Management Practices and the training of its Refrigeration Technician students in those areas.
- v. **Customs Department:** The Customs Department is the main agency responsible for enforcing the Montreal Protocol Regulations. Their functions include inspection of cargo, seizure of illegal imports, the issuance of Orders to Retrofit any CFC-based equipment imported after July 1, 2002, and maintenance and reporting of data on all imports of ODSs.

- vi. **Statistics Department:** In collaboration with the Customs Department, this Department records all trade statistics. In this regard, it plays a key role in the compilation and reporting of consumption data.
- vii. **Development Control Authority:** Through the Environmental Impact Assessment process, this agency ensures that all major developments employ ozone friendly technologies.
- viii. **Marine Police:** This Agency may be called upon to execute searches and seizures at sea as required.
- ix. **The Royal St. Lucia Police Force:** The Police Department may be called upon to enter premises and make seizures and arrests as necessary under the Regulations.
- x. **Pesticides Control Board:** This Board is responsible for the issuing of import licenses for all Pesticides and Toxic Chemicals, including Methyl Bromide. However it has not issued a license for this chemical for several years.
- xi. **Importers:** The cooperation of importers of refrigerants and refrigeration equipment is an important component of any phase out strategy, and in particular, to assist with the procurement of equipment whose continued operations will not rely on ozone depleting substances.
- xii. **Service Sector:** This sector accounts for all refrigerants used in Saint Lucia and as such, plays a critical role in the phase out strategy. Technicians are expected to recover and recycle refrigerants and to undertake the retrofit of equipment to an ozone friendly technology.
- xiii. **National Air conditioning and Refrigeration Institute:** Established under the TPMP, this Association will play a major role in the execution of this HPMP and by extension, support the government in meeting its HCFC phase out obligations.
- xiv. **National Climate Change Committee:** Given the growing linkages between the Ozone Layer Protection and Climate Change treaties, this Committee will be called upon to help ensure that the dual goals of ozone layer protection and climate change mitigation are not in conflict.

1.4 ODS phase-out Programme

1.4.1 Country Programme and Institutional Strengthening.

Saint Lucia's Country Programme (CP) and Institutional Strengthening (IS) project were approved by the Executive Committee of the Multilateral Fund at its 17th meeting in July 1995. The CP was the first attempt to gain an understanding of the Refrigeration and Air-conditioning sector and ODS consumption in Saint Lucia. It focused mainly on the refrigeration and air-conditioning sector since it became clear that almost all consumption was confined therein.

Through an analysis of the service sector, the CP estimated consumption in 1993 as the base year, defined the unconstrained demand and elaborated a phase out plan to meet the Protocol objectives.

Under the IS Project the Multilateral Fund provided funding for one staff position within the National Ozone Unit (NOU) as well as funds to support public education and awareness activities, communications and equipment to facilitate the work of the NOU. This support made it possible for Saint Lucia to meet its reporting requirements under the Protocol as well as support to implement all projects under the RMP and its Update as well as the Terminal Phase out Management Plan (TPMP). Table 1 provides a summary status of the activities approved under the CP and IS projects.

Table 1: Status of Projects and Activities in the Country Programme

<i>Approved Projects</i>	Status	Comments
Institutional Strengthening Project	On-going	Phase 1: 1997 – 2000 (US\$ 36 580) Phase 2: 2000 – 2002 (US\$ 24 000) Phase 3: 2002 – 2004 (US\$ 31 200) Phase 4: 2004 – 2006 (US\$ 31 200) Phase 5: 2006 – 2008 (US\$ 60 000) Phase 6: 2008 – 2010 (US\$ 60 000) Phase 7: 2010 – 2011 (US\$ 60 000)
Policy and Regulatory measures	Ongoing	1. <i>Montreal Protocol [Substances the Deplete the Ozone Layer] Act No. 27</i> of 2001 approved and passed; 2. <i>The Substances the Deplete the Ozone Layer [Control] Regulations No. 5</i> of 2002 approved and passed; 3. Licensing System implemented as of 1 st July 2002; 4. Duty Free Concessions on equipment imported for R&R activities approved in August 1999. 5. “Environment” being continuously monitored to determine what additional initiatives may be necessary. 6. Monitoring of trade in ODSs and related Technologies ongoing.
Conversion of Assembly Operation to an Ozone Friendly Technology	Completed in 1996	Project financed by the owner of the operation
Public Education and Awareness	On-going	Programme of activities included the annual observance of Ozone Day; inclusion of ozone depletion issues into World Environment Day celebrations; publication of brochures, desk planners; distribution of UV and lens meters; presentation on ozone depletion issues to schools and participation in regional public awareness programmes, airing of public service announcements (PSAs), newspaper

		articles and advertisements etc.
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The importance of the IS projects to the successes achieved cannot be over emphasized as the availability of dedicated staff to execute the projects and initiatives agreed to facilitate the phase out of CFCs was central to the successes achieved. In addition, the public education and awareness programmes helped ensure public support for the phase out programmes at all levels of the economy.

1.4.2 Refrigerant Management Plan

Saint Lucia's Refrigerant Management Plan (RMP) was approved by the Executive Committee at its 23rd Meeting in 1998, with Environment Canada as the bilateral partner and UNEP serving as the Implementing Agency. The RMP included three projects which are elaborated in Table 2 below, along with the expected outcomes and results achieved:

Table 2: Status and Outcomes of Projects in RMP

PROJECT	EXPECTED OUTCOMES	RESULTS
Training of trainers in Good Management Practices	<ul style="list-style-type: none"> • Elimination of 0.158 MT of CFC-11 for purging by 1998. • At least 10% reduction of CFC-12 consumption by 1999. • At least 20% reduction in consumption of CFC-12 by 2005. • Elimination of R-502 from 2005 following prudent retrofitting and replacement 	<ul style="list-style-type: none"> • Use of CFC-11 eliminated in 1999. • Target surpassed. • Target surpassed • Retrofitting of equipment not funded under RMP. However the targeted zero consumption was achieved.
Monitoring and Control of trade in ODS and ODS based Equipment	<ul style="list-style-type: none"> • Compilation of statistics on national ODS consumption. • Identification of ODS and ODS-using equipment. • Early and effective formulation of appropriate legislation • Enactment and implementation of regulations and controls over the import of ODS and ODS-based 	<ul style="list-style-type: none"> • Ongoing under IS project • Ongoing under IS project. This outcome also encompasses the training of Custom officers in the enforcement of the import/export licensing system. 22 officers including 8 trainers have received training and the training of the remaining customs officers has started. • Completed in 2001. • Completed in 2000

PROJECT	EXPECTED OUTCOMES	RESULTS
	products and equipment.	
National Recovery and Recycling Project	<ul style="list-style-type: none"> • Creation of Recovery and recycling network in Saint Lucia • Increased awareness of the importance and benefits of R&R for technicians and consumers • Recovery of CFC-12 during maintenance and service. • Availability of recycled refrigerants to meet the requirements of the service tail, particularly for domestic equipment • Reduction of 3.192 MT of CFC-12 consumption per year. 	<ul style="list-style-type: none"> • One R&R center established and seven recovery machines distributed • Technicians exposed to the R&R and Good Practices training aware of the importance but cannot afford the equipment. • Ongoing among technicians with R&R equipment. • An estimated 0.515 ODP tonnes recovered and reused in 2002 • Target met

The Executive Committee approved US\$ 146, 900.00 to execute the RMP.

1.4.3 Refrigerant Management Plan Update

An updated RMP for Saint Lucia was approved by the 46th Meeting of the Executive Committee in December 2003. Under the RMP Update, the Multilateral Fund approved a total of US\$73,450.00 to undertake Technicians Training, Retrofit Demonstration, and Recovery and Recycling. These projects, along with their expected outcomes and results are summarized in Table 3 below.

Table 3: Status and Outcomes of Projects in the RMP Update

PROJECT	EXPECTED OUTCOMES	RESULTS
Training of technician in Good Practices and Recovery and recycling	<ul style="list-style-type: none"> • 100 new technicians trained • Regular reports from technician on quantities of CFCs and other ODSs recovered, recycled and re-used • Compliance with the import/export licensing system 	<ul style="list-style-type: none"> • 78 technicians trained • 12 reports received from technicians and companies provided with R&R equipment • Industry in compliance with all aspect of the import/export licensing system
Retrofit Demonstration	<ul style="list-style-type: none"> • Retrofit Demonstrations conducted • Systems that depend on CFCs will be retrofitted to use ozone friendly 	<ul style="list-style-type: none"> • Retrofit Demonstration conducted in November 2006. 13 technicians trained

PROJECT	EXPECTED OUTCOMES	RESULTS
	refrigerant <ul style="list-style-type: none"> • Reduction of dependence on virgin CFCs 	in the use of hydrocarbons to retrofit (air conditioning units, refrigerators and vehicles)
Recovery and Recycling	<ul style="list-style-type: none"> • R&R Equipment more accessible, especially to the larger service companies • Increase in R&R activities • Reduction in demand for virgin CFCs 	<ul style="list-style-type: none"> • 10 recovery and recycling machines and associated parts acquired and made available to technician at 50% of the cost price • 2.15 metric tonnes of CFCs HCFCs and HFCs were recovered between (January 2004) and December 2006. • As of 2009 it is estimated that an aggregate of 11,075 kg of refrigerants have been recovered.

1.4.4 Terminal Phase-Out Management Plan (TPMP):

Saint Lucia's TPMP was approved by the Executive Committee at its 52nd meeting with Environment Canada as the Implementing Agency. Funding of US\$ 205,000 was approved to execute the following:

Table 4: Progress Report

Work Item	Progress
Contract with local consultant for monitoring, evaluation and reporting.	Local consultant contracted in April 2010. Assistance provided to the NOU to develop projects for execution, including the finalization of tools and equipment to be acquired and the organization and execution of training workshops for technicians and customs officers. Dialogue initiated with local customs on the establishment of a local illegal trade prevention network with the view to expand the structure to other CARICOM countries..
Acquisition distribution of tools and equipment	List of tools and equipment finalized, tenders invited, proposals assessed and supplier selected. Tools received and distribution in progress.
Training of 20-40 technicians	Training workshops were conducted on February 8 – 13 th ; 22 nd – 26 th March; 6 th – 12 th April; 19 th – 24 th April and 12 th – 17 th July 2010. A total of 74 technicians were trained in Good Refrigeration Practices, Recovery and Recycling of Refrigerants and the use of Hydrocarbon refrigerants.
Training of 30-40	Three – one day workshops were conducted between 23 rd – 25 th

customs officers	August 2010 during which 71 Customs officers were trained in monitoring and control of trade in CFCs and related technologies. The trainees were also introduced to the HCFC phase out and related trade control issues.
Establishment and operation of Illegal Trade Prevention Network	Dialogue initiated with the local Customs Department on designing an illegal trade prevention network. It was indicated that this will be easier done following the roll out of the ASYCUDA World platform which is in progress. This matter is still being pursued with the Customs Department through an MOU to be established
Establishment of virtual warehouse for unwanted Refrigeration	The data collection exercise undertaken as part of the HPMP preparation included an assessment of the stocks of recovered CFCs in storage. Following the analysis of the data, which is ongoing, the information will be used to create the warehouse
National Air conditioning and Refrigeration Institute	The Institute was incorporated as a professional body in 2009 and is in operation

1.4.5 Enterprises Converted to an HCFC Technology

No manufacturing enterprise conversion projects were executed during the CFC phase out programme.

1.5 Refrigeration Servicing Sector

The refrigeration servicing sector in Saint Lucia comprises an estimated six hundred technicians, half of whom operate in the formal sector and the remainder in the informal sector. Those in the formal sector have had some formal training, mainly at the Sir Arthur Lewis Community College, but some have received higher level training overseas. These technicians work with the fifty large servicing workshops or with tourism and other enterprises with large stocks of refrigeration and air conditioning equipment, while those in the informal sector operate on their own.

Under the CFC phase out programme three hundred and twenty eight technicians trained in one or more of the following:

- Good refrigeration servicing practices;
- Recovery and reuse of refrigerants;
- Retrofitting of CFC based equipment to non-CFC alternatives.

In addition, under the TPMP twenty four technicians were introduced to Hydrocarbon (HC) refrigerants. Table 5 below captures the key results achieved with regards to the service sector under the CFC phase out:

Table 5: Key Results of the CFC Phase out Programmes

Area of Interest	Project	Key Results
Technicians training	RMP	139 Technicians trained
	RMP Update	78 technicians trained 13 technicians trained in retrofits using HC
	TPMP	74 technicians trained 24 trained in low GWP refrigerant applications
Equipment	RMP	1 recycling centre 7 R&R machines
	RMP Update	10 R&R machines distributed
	TPMP	15 R&R machines received and distributed

During the CFC phase out, there were eight registered importers of refrigerants in Saint Lucia, three of whom retail to technicians. Generally these importers make adjustments to their product lines based on market forces, particularly in the countries of origin of the imports. As such, the field technicians are technology takers who depend on the importers for alternative refrigerants.

1.5.1 Refrigerant Recovery and Reuse:

Under the CFC phase out projects, a total of six (6) MAC and twenty eight (28) fixed systems recovery machines were made available to the service industry. At the time of the HPMP national survey all six MAC recovery machines were in good working condition and in constant use. However, only six of the other machines were in service and an additional two were used to train service technicians at the Sir Arthur Lewis Community College. In addition, over the years 12 technicians have acquired their own recovery machines under the Customs Duty exemption incentive offered by government. The survey data indicate that between 2007 and 2009 inclusive, a total of 11,075 kg of refrigerants were recovered, of which 5,400 was HCFC 22.

1.5.2 Retrofits:

Technicians also practice retrofits, mainly of the remaining CFC based equipment, including MACs to HFC 134a. However, with the introduction of HC technology into the recent technicians training workshops, the conversion of CFC, HFC and HCFC based equipment to HC technology has begun, but on a rather limited scale. An expansion of this training programme will accelerate the retrofitting of HCFC based equipment and help to achieve the phase out targets for these chemicals.

1.5.3 CFC Phase out Legacy:

In addition to the actual and permanent phase out of CFCs consumption, the legacy of the CFC phase out can be summarised as follows:

- a) An informed public, aware of the ozone depletion issue, its consequences and efforts to mitigate them;
- b) An effective policy and regulatory framework which can be easily extended to cover trade controls for HCFCs and related technologies;

- c) The incorporation of modules in Good Refrigeration Servicing Practices, Recovery and Reuse of Refrigerants and Retrofitting of Refrigeration Systems into the curriculum of the Sir Arthur Lewis Community College;
- d) A better trained service sector which is demonstrating commitment to dealing with ozone depletion by putting the training provided to practical use;
- e) A National Air conditioning and Refrigeration Institute with members who are committed to the phase out of CFCs and HCFCs; and
- f) Collaboration between the NOU and the Customs Department to provide training to Customs Officers in the monitoring and control of trade in ODSs and related technologies.

All of these can be replicated to support the phase out of Annex C Group 1 HCFCs

2. HCFC CONSUMPTION DATA

2.1 Methodology and validation

In preparation for the development of this HPMP, a national consultant was contracted to conduct a comprehensive survey to:

- a) quantify historic imports of ODSs, sources, composition and prices;
- b) establish the HCFC baseline consumption and project consumption levels to 2020 under a do-nothing scenario;
- c) determine what refrigerants are in use in the country, for what applications and the amount of each refrigerant used for each application;
- d) determine what alternatives to HCFCs are used in the service industry and their costs;
- e) identify all refrigerant importers, the refrigerants they import and whether they export refrigerants;
- f) identify all refrigerant retailers and the refrigerants they retail;
- g) identify all importers of goods and equipment that use ODSs, and the countries of origin;
- h) determine the stock of refrigeration and air conditioning equipment, sources and the refrigerants they use;
- i) identify and describe all large refrigeration and air conditioning systems in the country;
- j) identify all the major service agencies, their range of service and skills level of employees;
- k) identify all (or as many as possible) technicians operating in the service industry and assess their competencies in relation to training and use of specialized tools; and
- l) identify local manufacturers of foams, aerosols and refrigeration equipment and obtain information on their operations.

The data capture questionnaires developed by UNEP were adapted and used for the surveys. The local consultant subcontracted field assistants to distribute about 1,200 questionnaires to service workshops, technicians, importers of refrigerants and equipment and enterprises with large in-

situ refrigeration and air conditioning equipment. Samples were selected based on information provided by the National Ozone Unit, the Yellow Pages of the local telephone directory and the national consultant's knowledge of the industry. Following the distribution of the questionnaires, the respondents were visited by the team of field assistants and the data analysed to produce the required outputs.

It was found that industry practitioners did not keep accurate records of their refrigerant imports, purchases and use. Records of the amount of equipment serviced, refrigerants used to recharge systems and recovery data were also difficult to find. As a consequence, the data collected were obtained through a search of any records that were available and in particular, through extrapolations and estimated based on the best recollection of the respondents.

In addition to the data collected through the questionnaires, the Trade Statistics maintained by the Department of Statistics were researched, as were the import records of the Customs Department and the data submitted by the NOU to the Ozone Secretariat. Data from these sources were cross referenced to ensure the accuracy of the findings.

Significant variations were found between the data submitted to the Secretariat and the survey results. As a consequence, the importers were revisited to verify the data they submitted, but this did not resolve the issue. It was therefore decided to research the 2009 Customs records for all entries for pressurised gases imported into the country. This was a tedious exercise which revealed that the HCFC consumption data submitted to the Ozone Secretariat understated the actual imports (consumption). As a consequence, the country has initiated steps to correct the data reported up to 2009.

2.2 HCFC Consumption Data

1. HCFC & ODS Imports:

Quantification of imports of refrigerants between 2005 and 2009 was arrived at from a number of sources, including the survey data, Customs and Trade Statistics and reports to the Ozone Secretariat. Based on the analysis of the data from these sources, the imports between 2005 and 2009 are presented in Table 6 below:

Table 6: Imports of Ozone Depleting Substances (kg)

<i>DESCRIPTION OF SUBSTANCE</i>	Years				
	2005	2006	2007	2008	2009
HCFC 22	0	1,818	0	6,200	23,045.63
HCFC 123	509	51	366	337	0
HCFC 415b					720
HCFC 408a					894
Various HFCs					22,825
CFC 11	0	0	0	0	0
CFC 12	2292	1079	0	0	0

CFC 113	0	114	0	0	0
CFC 13	355	755	935	0	0
CFC 111	218	0	0	0	0
HCFC 121	748	1084	606	333	724
CFC 211	319	0	0	0	0
CFC 214	14	0	0	0	0
Totals of all Refrigerants	4,455	4,901	4,123	6,870	48,208.63

It is to be noted that for the most part, the data for 2005 – 2008 were best estimates as records were not available for reference. Also, the HCFC imports for 2008 were based on a report from the Ozone Secretariat on exports to Saint Lucia also. For 2009, some records were available for verification but the analysis revealed great variation between the information received from importers and the Trade statistics. For this reason, all the 2009 Customs import records were retrieved and collated to give the figures for that year in Table 6 above. As a consequence, there is little confidence in the figures for 2005 – 2008, but given the robust verification undertaken for the 2009 data, the figures presented in Table 7 below are taken to be the actual consumption for that year.

Nineteen enterprises imported refrigerants in 2009, of whom only six were registered as importers (See Table 7 below) The reason for this discrepancy is that these six were traditionally importers of CFCs and were required to be registered under the Montreal Protocol legislation. It is expected that all importers will be registered after the draft legislation to create a licensing system for HCFC imports come into effect. Of the nineteen importers, four (Allied Services, Muff's Refrigeration, Glace Motors and Johnson's Hardware) were involved in retail sales to technicians, with the latter two involved in the retail of small cans of refrigerants. . The other two generally import refrigerants in 30 pound (13.6kg) cylinders, but they also deal in smaller, one pound cans as well.

Table 7: 2009 Refrigerant Imports (Kg)

Importers	HCFC 22	HCFC 415b	HCFC 409a	HCFC 408a	HFC 134a	HFC 404a	HFC 410a	HC 600
Allied Sales	10918	720	0	0	880	498.09	6615	122
Tropical Cooling	2721.16	0	0	0	0	0	0	0
MUFF's	8924	0	738.6	597.37	584.66	4462	4522	0
M & C Home Depot	0	0	0	0	344.99	0	0	0
Sandals Resort	358	0	0	40	207.5	118.2	2405	0
Calabash	72	0	0	0	0	38	0	0
Blue Coral	7.56	0	0	0	0	0	0	0
Beachcomber	0	0	0	0	413	0	0	0
South West Auto	30.71	0	0	0	0	0	0	0
Automotive Art	0	0	0	0	143.17	0	0	0
Marcellin Co. Ltd.	13.6	0	0	0	0	109.32	0	0
Glance Motors	0	0	0	0	1008.82	0	0	0
Leo General Services	0	0	0	0	30.24	0	0	0
St. Lucia Bangdad	0	0	0	0	83	0	0	0
Emdee	0	0	0	0	111	0	0	0
Dilly's Supermarket	0	0	0	0	0	162	0	0
St Klu Refrigeration	300	0	0	0	200	0	0	0
Lorde's Refrigeration	60	0	0	0	0	0	0	0
Johnsons Hardware	0	0	0	0	2730	0	0	0
Totals:	23405.63	720	738.6	637.37	6736.38	5387.61	13542	122
Total: All Refrigerants								51,167
Total: HCFCs and HCFC blends								25,501

Table 7 shows that of a total consumption of 51,167 Kg of all refrigerants in 2009, 25, 501 kg, or 49.7% was an HCFC or HCFC blends. Further, when the HCFC 22 components of the HCFC blends are computed (See Table 8 below), the total consumption of HCFC 22 in 2009 is 24.523 Mt.

Table 8: 2009 HCFC 22 Consumption

Refrigerant Imported	Amount (Kg)	HCFC 22 Equivalent(kg)
HCFC 22	23,406	23,406.00
HCFC 415b	720	374.40
HCFC 408a	637.4	299.6
HCFC 409a	738.6	443.2
Total		24, 522.75
ODP (ODP t)		1.35
GWP (tCO₂eq)		45,462.65

On this basis, the Government of Saint Lucia has initiated steps to correct the 2008 and 2009 Annex C Group 1 consumption reported to the Secretariat.

No consumption of HCFC 141b is reported.

As a consequence of the unreliability of consumption data prior to 2009, it is not feasible to use trend analysis to assess future demand for HCFCs. Instead, the approach used is to use the 2009 reported consumption of 7.55 Mt (0.42 ODPt) and the estimated 2010 consumption of 25.75 Mt (1.42 ODPt) as the basis for calculating the baseline and to apply a modest 5% growth rate up to 2020. On this basis, the baseline works out to be 16.65 Mt (0.916 ODPt). These values will be used as the starting point against which consumption reductions will be calculated. Further, it is expected to revise the baseline, if necessary following the country's Article 7 submission.

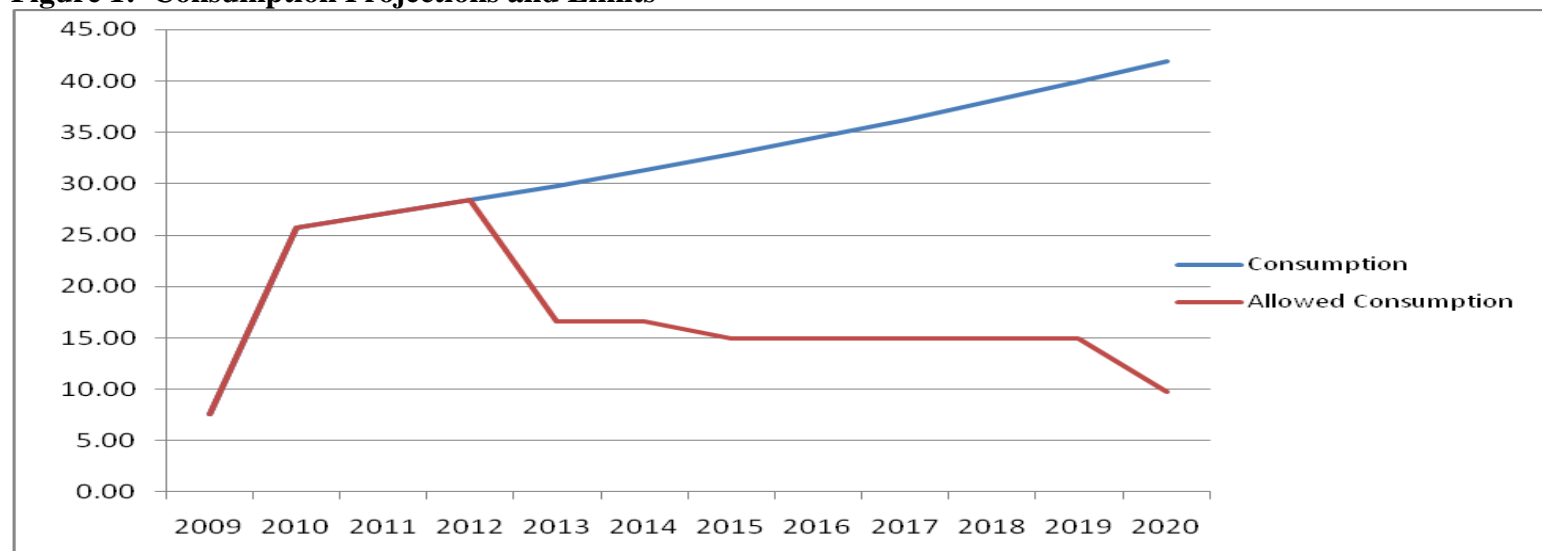
In addition to the baseline, Table 9 below also projects the consumption under a do nothing scenario and the reduction targets up to 2020, which aggregates to 21.56 Mt or 1.18 ODP tonnes of HCFCs, and which this HPMP is designed to achieve. As of 2020, the total HCFC to be phased out based on a zero growth scenario after 2010 and a baseline of 16.65 Mt will be 5.83 Mt or 0.32 ODPt.

Table 9: Consumption Projections and Reduction Targets (kg)

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Totals
Consumption	7550	25749	27037	28388	29808	31298	32863	34506	36232	38043	39945	41943	
Baseline/ Allowed consumption					16.65	16.65	14.99	14.99	14.99	14.99	14.99	9.74	
Target reductions					13.16	1.49	1.67					5.25	21.56
ODP tonnes					0.72	0.08	0.09					0.289	1.186
GWP Reduction (t CO ₂ eq)					23.42	2.65	2.96					9.34	38.38

Figure 1 below charts the consumption growth calculated in Table 9 and superimposes the allowed consumption to give a pictorial representation of the challenge faced.

Figure 1: Consumption Projections and Limits



Over the years a number of refrigerants have been introduced to the market, some of which for a short period only. Table 10 below lists the refrigerants available in Saint Lucia over the past four years and their retail prices. The relatively lower prices for HCFCs imply that there may be a preference for this refrigerant, with implications for its phase out. Under the circumstances some consideration will have to be given sometime after 2015 to introduce market based incentives to transition away from this refrigerant.

Table 10: Retail prices of Refrigerants

Refrigerant	Typical Cylinder Weight (Kg)	Price (US\$) per KG
HCFC -22	13.6	\$5.82
HCFC-22	22.71	\$5.83
HCFC 415b	12.0	\$14.70
HCFC 408a	10.98	\$32.50
HCFC 409a	11.98	\$21.20
HFC 134a	13.6	\$17.60
HFC 134a	3.4	\$3.25
HFC 404 a	10.98	\$16.10
HFC 410a	11.30	\$24.10
HFC 407C	11.31	\$30.93
HFC 422	10.98	\$57.93
HFC 507a	11.3	\$35.89
HC 417a	10.98	\$71.00
HC (22a)	5.44	53.79
HC (134a)	5.44	57.51

2.3 Sectoral Distribution of HCFC Consumption

There is no HCFC based foams manufacturing in Saint Lucia, neither is there any refrigeration or air conditioning assembly operations. Further, the use of HCFCs in aerosols, fire fighting or other applications do not exist in the country. As such, all HCFCs are used exclusively in the servicing of refrigeration and air conditioning systems. The characteristics of the various sub sectors in which these applications occur are presented in the following sub sections:

Domestic Refrigerators/Freezers:

There is an estimated 83,000 domestic refrigeration systems including domestic freezers in Saint Lucia, of which 99% use HFC 134a, some still use CFCs and a few have been retrofitted to use hydrocarbons. As such, there is no HCFC consumption in this sub sector.

Residential AC Units:

There is an estimated population of 20,500 Residential AC units in Saint Lucia, of which 95% use HCFC and 4% contain either HFC 410a or HCFC 409 and less than 1% has been retrofitted to use hydrocarbons. These equipment have an average life of 10 years, are serviced

approximately once every 4 years and in 35% of the cases a full recharge is required. There is an estimated 40% of residential air conditions in homes while 60% are located in public building, hotels and office complexes. Residential air conditioning equipment in St. Lucia contain between 0.48 kg to 7kg refrigerant charge. Based on these figures, and using an average recharge amount of 3.7kg, the residential air conditioning sub sector used approximately 6,305 kg of HCFCs in 2009.

Commercial Refrigerators:

There is an estimated 2,500 commercial refrigeration systems in shops, supermarkets, meat and fish storage and retail outlets and hotels, approximately 40% of which use HCFCs. These equipment have an average life of 10 years, are serviced approximately once every 5 years and in 5% of the cases a full recharge of 1.5 kg is required. Based on these figures, the commercial refrigeration sub sector used approximately 15 kg of HCFCs in 2009.

Commercial Freezers:

There is an estimated 1,800 commercial freezers in similar applications as commercial refrigerators, of which 20% use HCFC. These equipment has an average life of 10 years, are serviced every 5 years and in 5% of the cases require full recharge of approximately 2.5 kg of refrigerant. Based on these figures, the commercial freezers sector used approximately 9 kg HCFCs in 2009.

Commercial Air Conditioning:

There is an estimated 12,070 commercial AC Units in Saint Lucia with 95% of these using HCFC. These equipment has an average life of 20 years and may require servicing every 6 years and in 15% of the cases may require full recharge of about 60 kg of refrigerant. The remaining 5% of commercial air conditioners used HFC 410a and HCFC 409c. Based on these figures the commercial air conditioners used 17,200 kg of HCFCs in 2009.

Most of the large size HCFC equipment are found in the malls, government building, commercial building, supermarkets, food and fish processing plants, brewery and the hotel industry. The survey identified sixty five (65) commercial air conditioners which were not working and due for replacement. These equipment have not been replaced due to financial constraints of the respective owners.

Industrial Refrigerators/Freezers:

There is an estimated 150 industrial refrigerators, 65% of which use HCFC. These equipment are serviced every 5 years and in 20% of the cases they require a full recharge of about 60 kg of refrigerant during servicing. There is also an estimated 75 industrial freezers of which 80% contain HCFC and may require service every 5 years and in 10% of the cases may require a full recharge of about 64 kg of refrigerant. Based on these figures the industrial refrigerators/freezers used 234 kg of HCFCs while freezers used approximately 77 kg of HCFCs in 2009

Chillers:

There is an estimated 200 chillers in Saint Lucia with 95% of these using HCFC and the remaining 5% using HFC 410a or HCFC 409c. These equipment have an average life of 20

years and may require servicing every 5 years and in 10% of the cases may require full recharge. These chillers have an average charge 130 kg and used approximately 494 kg of HCFC in 2009.

Cold Rooms and Walk in Freezers:

Of the estimated 2,200 of these equipment, 50% are recorded as using HCFC refrigerant. These are serviced every 6 years and in 5% of the cases, require a full recharge of 24 kg of refrigerant. The cold rooms and walk in freezers have an average life of 15 yrs and based on the figures used an estimated 220 kg of HCFCs was used to service this sub sector in 2009.

Display Cabinets:

There is an estimated population of 750 of these equipment in Saint Lucia with an estimated 35% containing HCFC refrigerant. They are serviced every 5 years and have an estimated recharge of 4 kg. In 10% of the cases they may require a full recharge. Based on these figures the display cabinets used approximately 21 kg of HCFCs in 2009.

Ice Machines:

There is an estimated 1,100 ice machines with an estimated 20% containing HCFC. They are also serviced every 5 years and in 10% of the cases may require full charge. Based on these figures the ice machines used approximately 28 kg of HCFCs in 2009.

Mobile Air conditioners.

There is no HCFC consumption in this sub sector.

Based on the above analysis, in 2009 the servicing sector used approximately 24,583.15 kg of HCFC, which compares well with the reported imports of 24,523 kg of HCFCs (See Table 11 below)

Table 11: Calculated HCFC demand for Servicing in 2009

Sector	Equipment Stock	% Using HCFCs	Average Life (Years)	Service Frequency (every x years)	% of Service requiring Charge	Recharge amount (Kg)	Calculated demand (kg)
Domestic Refrigeration	83000	0%	15	5	30%	0.2	0.00
Residential Air conditioning	2950	95%	10	5	50%	3.7	1036.93
	6230	95%	10	5	40%	2.51	1188.43
	7240	95%	10	4	40%	3.41	2345.40
	2700	95%	10	4	35%	4.15	931.42
	1380	95%	10	4	35%	7	802.99
Commercial refrigeration	2500	40%	10	5	5%	1.5	15.00
Commercial Freezers	1800	20%	10	5	5%	2.5	9.00
Commercial AC							

Government	1465	95%	20	1	25%	7.5	2609.53
	950	95%	20	1	25%	10.65	2402.91
	610	95%	20	1	25%	15	2173.13
	25	95%	20	1	20%	112.5	534.38
Hotels	1980	95%	20	2	25%	7.5	1763.44
	1800	95%	20	2	15%	10.65	1365.86
	670	95%	20	2	15%	15	716.06
	70	95%	20	1	15%	112.5	1122.19
Shopping Complexes	980	95%	20	2	25%	7.5	872.81
	650	95%	20	2	15%	10.65	493.23
	380	95%	20	2	15%	15	406.13
	20	95%	20	1	15%	112.5	320.63
Private Establishments	1225	95%	20	4	25%	7.5	545.51
	770	95%	20	2	20%	10.65	779.05
	445	95%	20	2	20%	15	634.13
	30	95%	20	1	15%	112.5	480.94
Industrial Refrigerators	150	65%	20	5	15%	60	175.50
Industrial Freezers	75	80%	20	5	15%	64	115.20
Chillers	200	95%	20	5	10%	130	494.00
Cold Rooms and walk in Freezers	2200	50%	15	6	5%	24	220.00
Refrigerated Trucks	190	10%	20	5	1%	1.8	0.07
Display cabinets	750	35%	15	5	10%	4	21.00
Ice machines	1100	20%	20	4	10%	5	27.50
Total demand							24602.33

Equipment Imports.

All refrigeration and air conditioning equipment are imported into Saint Lucia. There are twenty two equipment importers who source their products from several countries, including Brasil, Mexico, China, Italy, the USA and Germany. The importers, and the equipment imported in 2009 is presented in Table 12 below:

Table 12: 2009 Equipment Importers

Equipment imported	Annual Imports	Main Refrigerants	Importers	Countries of Import
Domestic Appliances	4,500	HFC 134a	Courts, Best Buy, Singer, Johnsons Hardware	Brazil, Mexico, China, Italy, USA
	150	HCFC 22	Allied Sales, Muffs	China, Italy, USA

Wall mounted AC				
Split AC	5,000	HCFC 22	Allied Sales, Muffs, Rays, RASCO, M&C, Best Buy, Tropical Cooling, Chrieky	Italy, China, Brazil, Mexico, USA
Chillers	4	HCFc 22; HCFC 409a; HCF 410a	Allied Sales, Muffs, Bay Walk Mall, Lordes and Associates	Mexico, China, Europe, USA
Commercial Units	265	HCFC 22; HFC 404a; HFC 134a	Allied Sales, Muffs, Lordes and Associates, Tropical Cooling,	Italy, Brazil, China, USA
Industrial Units	4	HCFC 22; HFC 404a	Lordes and Associates, Muffs, Factories	China, Italy, Germany USA
Walk in Freezers	4	HCFC 22; HFC 404a	Muffs	China, Italy, USA
Walk in Coolers/chillers	4	HCFC 22; HFC 404a	Muffs	China, Italy, USA
Ice Makers	4	HCFC 22	Muffs	Brasil, China, Europe, USA
Bottle Coolers	40	HCF 134a	China Town, Muffs, M&C, Johnsons	Brazil, Mexico, China, , USA
Display Cabinets	50	HCFC 22; HFC 404a; HFC 14a	n/a	n/a
MAC, Motor Tractors, Trucks and Trailers	6,330	HCF 134a	Peter and Company, Beachcomber, Prestige Autos, Monroe Group of Companies, Roserie, CES, JQ Motors, Northwest Ltd.	China, Germany, Italy, USA

Of these importers, nine import mobile air conditioning systems only and the others supply fixed systems only. As can be seen from Table 12, domestic, split and mobile systems are by far the sub sectors of greatest growth, with commercial systems showing strong growth also. Bearing in mind that mobile systems do not use HCFCs, these figures explain why the domestic air conditioning and commercial sectors account for about 96% of the total demand for HCFCs. This points to the need to focus on those two sub sectors to achieve significant consumption reductions.

2.4 HCFC-based Manufacturing Sector

There is no refrigeration and air conditioning or foams manufacturing enterprises in Saint Lucia.

3. PHASE-OUT STRATEGY

Saint Lucia successfully phased out the use of Annex A CFCs in 2008, well ahead of the Protocol's schedule and indeed, ahead of the plans laid out in its TPMP. This success was the result of the focused and sustained support of the Multilateral Fund and the Implementing Agencies, the cooperation of the service industry, refrigerant and refrigeration equipment importers, and the policy, institutional and legal framework established to support and facilitate the phase out. The structures established and lessons learned during this phase out will be brought to bear on the phase out of HCFCs as well.

Mindful of the climate impacts of the refrigeration industry, and considering the Government's policy on climate change as laid out in the Saint Lucia National Climate Change Policy and Adaptation Plan, which was approved in 2002 and in which the government committed to "Create an enabling environment for the adoption of appropriate technologies and practices that will assist in meeting national and international commitments with respect to the causes and effects of climate", every effort will be made under this HPMP to adopt technologies which will accrue both ozone and climate benefits.

Another factor which facilitated the early, successful phase out of Annex A CFCs was the ready availability of alternative ozone friendly replacement technologies. This is not the case with the HCFC phase out as there are several refrigerants and technological options, the key one being those based on R 410a refrigerants, being promoted by industry. However, this alternative does not meet the government's, and indeed the Protocol's ozone *and* climate goals and as such is regarded by Saint Lucia as a transition technology. Under the circumstances Saint Lucia has decided not to commit to a long term replacement technology at this time and in this regard, to pursue the Protocol's phase out targets up to 2020, as laid out in Decision XIX/6. In so doing, the government will retain some flexibility in terms of the choice of replacement, and will take decisions on this matter based on the ozone and climate impacts of emerging technologies.

Table 9 above lays out the challenge faced. Given the lead time between project approval and the realization of the impacts of approved interventions on consumption, the projected consumption in 2013 is used at the basis for determining future consumption reductions. On this basis, Saint Lucia will need to eliminate the use of 13.16 Mt, or 0.72 ODP tonnes of Annex C Group 1 HCFCs to meet the 2013 consumption freeze, an additional 1.67 Mt or 0.09 ODP tonnes in 2015 and a further 5.25 Mt or 0.29 ODP tonnes by 2020 to meet the first stage targets. Taken together, this HPMP will eliminate 20.08 Mt or 1.10 ODP tonnes of HCFCs by 2020 and in the process, will avoid the emissions of 35,742 CO₂ eq of greenhouse gases.

Table 13: Targets to be achieved (tonnes)

Years	2013	2015	2020
Calculated demand	29.808	34.506	41.943
Allowed consumption	16.65	14.99	10.823
Target Reductions (Mt)	13.16	1.67	5.25
Target Reduction ODP tonnes)	0.72	0.09	0.29

The overarching strategy below lays out the plan to achieve the total phase out of Annex C Group 1 HCFCs while the more detailed strategy laid out in Section 3.2 below defines the first stage implementation plan to meet the 2020 phase out targets.

3.1 Overarching strategy

Under the preparation phase of this HPMP, and with the support of UNEP, the government of Saint Lucia convened a policy dialogue on October 28th, 2010 to discuss the phase out challenge with stakeholders, and to receive feedback and recommendations on the policies, programmes and strategies to be employed to meet both the long term phase out of Annex C group 1 HCFCs by 2030 as well as the specific interventions considered necessary to meet the 2020 target reductions. Based on the feedback received, and considering the government's policies on environmental protection, including those related to ozone layer protection, climate change mitigation and chemicals management, it was agreed that the following will constitute the principles which will guide the phase out effort:

- a) Decisions on ozone protection technologies should take into consideration the climate implications of those technologies, health and safety considerations and the impact of waste generated on the wider environment with the view to promote the most safe and environmentally benign alternatives;
- b) Notwithstanding (a) above, the alternatives to be promoted must be cost effective and not exert unnecessary economic pressures on consumers and the economy as whole;
- c) The market must be comfortable with the technology choices either through their own knowledge or through training interventions and public education initiatives;
- d) The long lead time to the final phase out presents opportunities to allow most existing HCFC based equipment in service to the end of their useful life. It also allows for adjustments to the overall phase out strategy as technology evolves;
- e) The support of the service industry and technology providers will be key to the phase out effort;
- f) Extension of the policy, legal and institutional arrangements which supported the successful phase out of Annex A CFCs to the HCFC phase out will be necessary to ensure timely and permanent phase out of these chemicals; and
- g) The phase out effort will be coordinated with national policies and programmes to meet the goals of other Multilateral Environmental Agreements such as the United Nations Framework Convention on Climate Change, The Basel Convention on the Trans-boundary Movement of Hazardous Wastes and their Disposal and the Prior Informed Consent Protocols. Related national policies such as the National Energy Policy and the National Environmental Policy and Management Strategy will also be factored into project execution.

Given the above, the government of Saint Lucia proposes the following overall strategy to achieve the complete phase out of Annex C Group 1 HCFCs:

- i. Phase out will follow the schedule agreed to under Decision XIX/6, but this policy decision will be revisited in 2020 following the completion of the projects proposed in the first stage implementation programme below.

- ii. A robust licensing regime will be put in place to keep supplies of HCFCs within the Protocol's consumption limits (supply side controls). This will include extending the current licensing regime for CFCs to cover HCFCs. To this end, draft regulations have been prepared for Ministerial approval.
- iii. Capacity development and investment interventions will be pursued to enable the service industry to meet demand through emissions reductions, recovery and retrofits of HCFC based equipment (demand side controls). In this regard, emphasis will be placed on the introduction of low-GWP technologies which have the best fit for the government's ozone protection and climate change mitigation policies.
- iv. Education and information tools and programmes will be used to gain the support of all players, including policy makers, technology suppliers, the service industry and the consumer to support the national phase out effort.
- v. To the extent possible, all existing equipment will be allowed in service to the end of their natural life.
- vi. Technology choices will be based on relative costs, total environmental benefits and the ease of transfer of the technology; and
- vii. The capacity of the National Ozone Unit should, at a minimum, be maintained to support execution of this project and a monitoring and evaluation mechanism will be established to oversee project execution.

In this regard, the specific interventions and indicative budgets in Table 14 are proposed to meet the consumption reduction target between 2013 and 2030.

Table 14: Interventions to meet the total phase out of HCFCs.

Interventions	Implementation Time line				Indicative Budget
	2011 to 2015	Up to 2020	Up to 2025	Up to 2030	
Technical support to the service industry					350,000
Training in good service practices, including recovery and reuse of refrigerants					
Training in natural refrigerant technology					
Training in Retrofitting of HCFC based equipment					
General equipment retrofits					
Specific Equipment Retrofits					
Provision of recovery equipment, recovery cylinders and service tools for natural refrigerants					
Policy, Legal and Institutional					100,000
Expansion of current licensing system to include HCFCs					
Establish standards for the transportation, handling and storage of refrigerants					
Develop policies and regulations for the labelling of refrigerant containers and HCFC-based equipment offered for sale.					

Prohibition of imports of HCFC based equipment, whether or not pre-charged					
Establish and implement 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 Saint Lucian flagged vessels					
Climate considerations will influence the choice of refrigerants to replace HCFCs					
Coordination and Collaboration with the National Air conditioning and Refrigeration Institute					
Education and Awareness					75,000
General public education and information dissemination					
Education and awareness programmes to promote specific projects					
Monitoring, Evaluation and Reporting					100,000
Continuous monitoring, evaluation and reporting on project execution					
TOTAL					\$625,000

3.2 First Stage Implementation Programme

As noted above, the government of Saint Lucia has decided to pursue the 10% consumption reduction in 2015 and the 35% reduction in 2020, as per Decision XIX/6. On this basis, and given the consumption projections in Section 2.2 above, the target reductions laid out in Table 13 above provide the benchmarks to be achieved. In this regard, the specific interventions proposed are presented in columns 2 - 4 in Table 14 above and further elaborated in Section 3.2.2 below.

3.2.1 HCFC Manufacturing Sector

In the absence of any manufacturing enterprises using HCFCs, no activity is proposed for this sub sector.

3.2.2 HCFC Refrigeration Servicing Sector

The interventions proposed to ensure compliance with the first stage control measures fall into the four broad areas. These are elaborated below:

3.2.2.1: Technical Support to the Service Industry:

Goal:

The goal of this intervention is to strengthen the capability of the refrigeration service industry to reduce demand for virgin HCFCs. This will build on the advances made during the CFC phase out by exposing the more skilled technicians to the technologies emerging to replace HCFCs, particularly natural refrigerants, providing training to the less skilled technicians in good practices, recovery and recycling, and retrofitting and the provision of specialized tools and equipment to facilitate the application of the acquired expertise to demand reduction initiatives. These interventions are expanded below:

- a) **Component 1:** Training in Good Refrigeration Practices, Recovery and Reuse of Refrigerants and Retrofitting of HCFC Systems to Alternative Technologies

Objectives:

This sub project will:

- expand the scope of similar training undertaken under the RMP and TPMP by incorporating issues related to replacement refrigerants for HCFCs, including low GWP refrigerants;
- reduce demand for virgin HCFCs through improved servicing practices, the recovery and reuse of refrigerants and retrofitting of HCFC-based equipment to non-ODS and low GWP alternatives; and
- promote good health and safety practices when using natural refrigerants.

Justification:

Capacity development in the service industry is essential for achieving effective, sustained and permanent replacement of HCFCs. The analysis of the results of the RMP, RMP Update and TPMP above indicated that of the approximately 600 technicians in practice, 328 have received training in good refrigeration practice and refrigerant recovery, of which 24 were exposed to training in the use of low GWP refrigerants, particularly HC refrigerants. Since these matters are fundamental to achieving the target consumption reductions in this HPMP, it is necessary for as many technicians as possible be exposed to these training elements, which will be expanded to include issues related to HCFC and natural refrigerants.

In order to encourage recovery of refrigerants as opposed to venting, it is essential to provide the relevant training. This is also linked to the high service frequency rates in the country, which leads to increased imports of HCFC-22 and other refrigerant gases. It is necessary to emphasise the need to recover and re-use refrigerants. In this way, a greater use potential can be achieved with the current in-situ stock of HCFCs, thereby reducing the demand for virgin refrigerants. In

addition to HCFC 22, other refrigerants such as HFCs and other low-GWP alternatives should also be recovered for environmental, safety and cost reasons.

In addition, the import restrictions on HCFCs proposed in this HPMP will create a supply deficit, which is defined as the difference between projected demand and allowed consumption (See Table 11 above). As noted below, the impact of these two interventions is estimated to avoid an aggregate demand of 19,680 Kg of HCFCs by 2020, while Table 13 indicates that a total avoidance of 18,357 Kg will be required to meet the first stage phase out targets. Therefore, if the target reductions are achieved, these sub projects will allow Saint Lucia to meet its first stage reduction targets. To this end, the training proposed will include capacity development in the use of zero ODP and low GWP refrigerants, mainly hydrocarbons to retrofit HCFC based systems. Some topics to be covered in this training will include:

- Best practice for drop-in, retrofitting and converting;
- Selection of components for improved efficiency;
- Refrigerant performance characteristics for refrigeration and air conditioning applications;
- Special thermodynamic considerations for R-717, HCs, R-744, low-GWP HFCs;
- Selection of replacement refrigerants for specific applications;
- Systems modifications;
- Health and safety considerations; and
- Practical demonstrations.

The industry structure is such that in the formal service agencies and operations with large installed refrigeration capacity, the practicing technicians are lead by one or a couple of highly trained technician who set the standards and practices for that particular entity. These individuals tend to embrace the roles of trainers for their colleagues. It is therefore proposed that a train-the-trainer project be executed will target these more experienced technicians, who can then pass on the training to their colleagues. This will allow for a more efficient and cost effective approach to training. Notwithstanding this approach, however, it will still be necessary to conduct specific training experiences for those technicians who are not associated with such establishments.

Approach:

The training for the trainers and subsequently for the technicians should comprise theory and practical elements, which will cover at least the following topics:

- Environmental issues, ozone, climate, phase-out schedules;
- Alternative refrigerant, theory of selection, characteristics of different types;
- Refrigerant safety (flammability, toxicity, pressure);
- General good handling procedures and practice;
- Leak detection, prevention and repair;
- Emphasis on environmental, safety and cost reasons for recovery and reuse;

- Best practice operation of recovery machines and use of recovery cylinders;
- Handling, care, maintenance and repairs of recovery machines
- Handling recovery cylinders;
- Evaluating system efficiency;
- Ways and means of improving performance of existing equipment; and
- Use of alternative flushing agents.

In addition, this Trainers Programme will include elements related to retrofitting of HCFC based systems, with emphasis on low GWP refrigerants, mainly Hydrocarbons. Training topics will include:

- Refrigerant performance characteristics for refrigeration and air conditioning applications;
- Selection of replacement refrigerants for specific applications, with emphasis on low GWP refrigerants;
- Systems modifications;
- Health and safety considerations; and
- Practical demonstrations.

The training manual will include a chapter on health and safety considerations for the storage, handling, transportation and use of natural refrigerants, including hydrocarbons/flammable refrigerants.

As mentioned, the training for the trainers will be targeted at senior technical persons within enterprises, trainers from the technical college and others who are best placed to pass on the training to their colleagues. It is anticipated that approximately 30 individuals will be trained at this stage. The Trainer to be contracted to deliver this training will be required to develop a training manual to be used subsequently by local trainers to train their colleagues.

All trainees at this stage will be expected to take an assessment, which will comprise a flammable refrigerant element. The trainee must achieve a minimum level within the flammable assessment if they are to receive certification by the government of Saint Lucia for working with flammable refrigerants.

In addition to developing and delivering the training, the international trainer will also be required to make recommendations on the contents of the Hydrocarbon service kits to be acquired under Component 2 below.

Execution plan

For the train-the-trainers, the syllabus will be developed by the NOU in conjunction with the National Air conditioning and Refrigeration Institute and external consultant who will deliver the training. About 30 individuals will be chosen to participate. The training will be in-depth, with a minimum of five days, and will include theoretical and practical sessions. All successful trainees will be certified as trainers for the purposes of the HCFC phase out programme.

Subsequent to this, technician training will be carried out by the certified local trainers and will target about 250 practicing technicians. In addition, related modules will be incorporated into the training curriculum of the Sir Arthur Lewis Community College Refrigeration Technicians Craft Certificate programme to facilitate continuity and sustainability of the training.

The training material to be developed by the international trainer will be used for this follow up training which will require two days each for the Good Practices, Recovery and Recycling and Retrofitting components of the training. The training will involve both theoretical and practical sessions. Successful participants will be certified by the Government to practice their trade. Some of the participants will also be provided with service tools and equipment based on criteria to be developed by the NOU in collaboration with the local Association Refrigeration and Air conditioning Technicians. Some issues to be considered in this regard include:

- Successful completion of the training courses offered and subsequent certification;
- The potential for several technicians to benefit from the use of the equipment; and
- Whether or not the trainees already have access to similar equipment.

Table 15 : Time Frame (2011 – 2020)

Year/Activities	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
International consultant to develop and deliver train the trainers training and Training Manual										
Acquisition of training materials										
Expert training										
Local training of technicians										
Logistics, materials and consumables										

Impact

According to Table 11 above, over 8,900 units of equipment using HCFCs are serviced annually and in the process use 24,602 kg of refrigerants. If we assume conservatively that by 2013 the training in Good Practices and in Recovery and Reuse will result in the avoidance of 5% of demand respectively, this will result in the avoidance of approximately 2,460 kg of HCFCs for servicing these equipment annually, and a total of 19,682 Kg by 2020. This translates to the elimination of 1.082 ODP tonnes of HCFCs and avoids the emissions of 35,033 t CO₂ eq of greenhouse gases.

In addition, the training will result in:

- more knowledge and confidence in the application of alternative refrigerants;
- improved system design, leak detection procedures and prevention activities ; and

- greater awareness of the needs and procedures for recovery and reuse reduce the occurrence of venting

Cost

The cost of this sub project is presented in Table 16 below:

Table 16: Component Cost

Description	Resources	Cost in USD
Develop training syllabus and Materials and Recommendations on contents of HC Service kits.	International Training Expert and local workshops	5,000
Travel costs	International Trainer	3,000
Train the Trainers Programme	Consultancy/Trainer Fees	13,000
Training of 250 technicians	20 workshops of two days each targeting 10 - 15 participants per session	40,000
Materials and consumables	Various (refrigerants, oil, parts, etc)	4,000
Manual printing costs		2,000
Total		\$67,000

This component will be executed by the United Nations Industrial Development Organisation (UNIDO)

b) **Component 2:** Provision of Tools and Equipment:

The objective of this Component are to provide the tools and equipment necessary to enable technicians to implement demand reduction practices.

Justification:

The availability of specialized tools and equipment is essential to the servicing of refrigeration systems. Whereas it is expected that all practicing technician will be equipped with at least the basic tools necessary to conduct their trade, the Montreal Protocol has introduced additional requirements and standards for which many technicians were not equipped to deal with. Under the CFC phase out programmes the availability of specialized service tools and equipment was identified as a shortcoming to be addressed and when this was done, it helped technicians to put to practice, the training in good refrigeration practices they received. The survey revealed that about 11.075 Mt of refrigerants were recovered by technicians since the start of the recovery programme, 5.4 Mt of which was estimated to be HCFCs. Under the HPMP phase out this

lesson will be replicated and the training described above will again be supported by the provision of basic tools and equipment, including multi refrigerant recovery machines, storage cylinders and related tools and consumables to handle the HCFCs as well as non-HCFC technologies, including natural refrigerants. In this regard, emphasis will be placed on multi refrigerant recovery machines, capable of recovering natural refrigerants and Hydrocarbon service kits to facilitate safe application of HC technology to the service industry. The contents of the kits to be provided will be determined following a needs assessment, but will typically include HC gas detectors, HC gauge sets, venting hoses, fire extinguishers, electronic weighing scales, vacuum pumps and gauges, pinch off pliers and press connection sets

Duplication of similar activities undertaken under the TPMP will be avoided. Rather, this activity will build on those initiatives by addressing both the additional tools and equipment required for the new technologies as well as targeting those technicians who did not benefit from the similar exercises under the CFC phase out projects.

Approach:

Following approval of this HPMP, a needs assessment will be conducted in collaboration with the international trainer and the local Technicians Institute to determine the tools and equipment to be acquired. Notwithstanding the needs assessment to be conducted, the following are the tools and equipment to be considered for acquisition:

- Multi refrigerant recovery machines and related spares and consumables;
- Reusable recovery cylinders;
- Flammable gas detectors;
- comparators (p-T slide-rules) for relevant refrigerant;
- >3m Venting hoses;
- 1 Kg CO₂ fire extinguishers;
- Basic press type sealing device (e.g., lock-ring set) to avoid the need for brazing; and
- Conversion kits;

Execution Plan:

In preparation for the training programme described in Component 1 above, and as part of the contractual arrangements for the international trainer, a needs assessment will be conducted in collaboration with the trainer to determine the tools and equipment to be acquired, based on the needs of the industry to transition towards the expanded use of natural refrigerants and the requirements of the international trainer in the context of the training programme he will develop and deliver. Following this assessment, suppliers will be invited to tender for, and supply the agreed equipment. Criteria for the distribution of the equipment will be developed in collaboration with the National Air conditioning and Refrigeration Institute, and following receipt of the equipment and completion of training, distribution of the tools and equipment will take place.

The timelines for executing this project is presented in Table 17 below:

Table 17: Execution Time Lines

Year/Activities	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Develop and finalize list of equipment										
Issue Tenders and acquire tools and equipment										
Distribution of Tools and Equipment										

Impact:

This Component is not associated with any direct emissions reductions because those reductions will flow from the improved servicing practices to be achieved under Component 1, where the reductions are already quantified. Rather, this Component will:

- Make it possible for technicians to apply the newly acquired skills under the training elements in Component 1, including the active recovery of refrigerants;
- Improve health and safety aspects of the service industry; and
- Develop the confidence of technicians to work with the replacement refrigerants, particularly natural refrigerants.

Cost:

As noted above, a listing of the tools and equipment to be acquired will be made through collaboration between the NOU, the National Air conditioning and Refrigeration Institute and the International trainer. What follows is an indicative costing for the tools and equipment identified above, which is likely the set to be agreed upon. However, if changes are to be made, the funds will be re-distributed based on the final list, quantities and prices to be offered by the supplier.

Table 18: Cost Elements

Description	Resources	Cost in USD
Recovery reusable cylinders	50 x \$150 each	10,000
Supply of 20 multi-refrigerant recovery machines	15 x \$1,000	18,000
Multi refrigerant identifiers	10 x \$1,500	15,000
Spares and consumables	Allow \$150 per machine	2,250
Flammable gas detectors	20 x \$100 each	2,000
Comparators	50 x \$2 each	100
>3m Venting hose	20 x \$10 each	200
1 Kg CO ₂ Fire extinguisher	30 x \$30 each	900

Press connection sealing devices	30 x \$200 each	6,000
Conversion kits (approx. 50 sets)	Relevant parts	2,000
Shipping		\$3,900
Total		US\$ 60,350

This Component will be implemented by UNIDO

3.2.3: Policy, Legal and Institutional Framework:

Objectives:

The objective of this sub project is to create and enforce an enabling policy, legal and institutional framework to support the phase out of Annex C Group 1 HCFCs along timelines consistent with the Protocol control measures for this class of Ozone Depleting Substances and the timelines in the first stage implementation plan adopted in this HPMP and any future decisions which may be taken in relation to an accelerated phase out.

Justification:

The policy, legal and institutional framework established to support the phase out of Annex A CFCs was described in Section 1 above. The key elements of the legal framework are included in the:

- i. Montreal Protocol [Substances that Deplete the Ozone Layer] Act [No. 27 of 2001]
- ii. Substances that Deplete the Ozone Layer [Control] Regulations [No. 5 of 2002]
- iii. The Customs [*Control and Management*] Act [No 23 of 1990]; and
- iv. The Standards Act,

the key elements of which are also expounded in that Section. In addition, it is noteworthy that with the introduction of the Montreal Protocol Regulations the accuracy of data collection and reporting for Annex A CFCs improved considerably while the training of enforcement personnel ensured compliance with the related provisions.

Further, the government of Saint Lucia has received assistance from the Multilateral Fund to establish a National Ozone Unit (NOU) since 1997 with responsibility for ensuring that Saint Lucia complies with its obligations under the Protocol and a National Air Conditioning and Refrigeration Institute was established to, *inter alia*, support the phase out effort.

Also in Section 1 is a list of the institutional partners and the roles in the national effort to phase out Annex A CFCs

These policies, regulations and institutional arrangements were central to the country's success in permanently phasing out its consumption of Annex A CFCs and these will be applied to the phase out of Annex C Group 1 HCFCs as well.

Approach:

Conscious of the urgency to implement measures to improve data collection and to bring into being measures to control consumption of Annex C Group 1 HCFCs, the government of Saint Lucia developed draft regulations to extend the controls over the importation of Annex A CFCs and related technologies to cover Annex C Group 1 HCFCs. These draft regulations are awaiting Ministerial approval and when they become law, will extend the controls on imports of CFCs and related equipment to HCFCs as well, thereby creating a licensing regime to support the HCFC phase out effort.

Table 19 is an extract from Table 14 above in which the status of the proposed interventions is indicated.

Table 19: Interventions to establish Policy and Regulatory Framework

Interventions	2011 to 2015	Up to 2020	Status
Policy, Legal and Institutional			
Expansion of current licensing system to include HCFCs			Included in draft regulations
Expansion of current licensing system to cover labelling of containers and equipment			Included in draft regulations
Establish standards for the transportation, handling and storage of refrigerants			Proposed
Develop policies and regulations for the labelling of refrigerant containers and HCFC-based equipment offered for sale.			Proposed
Prohibition of imports of HCFC based equipment, whether or not pre-charged			Proposed
Establish and implementation mechanism for disposal of illegal imports of refrigerants and equipment			Included in draft regulations
Establish controls over exports of refrigerants and related equipment			Included in draft regulations
Training of enforcement personnel			Proposed
Introduction of market based incentives/disincentives			Proposed
Procedures to monitor servicing of Saint Lucian flagged vessels			Proposed
Climate considerations will influence the choice of refrigerants to replace HCFCs			Proposed
Coordination and Collaboration with the National Air conditioning and Refrigeration Institute			In place already

The proposed interventions will be addressed during project execution within the time lines indicated in Table 19 above.

In addition to the National Air conditioning and Refrigeration Institute, the NOU will continue its collaboration with all the other stakeholders identified in Section 1.3 above to ensure continued broad based support for the phase out of Annex C Group1 HCFCs.

Execution Plan:

Key elements of the execution plan are drawn from Table 19 above and with the exception of prohibition of imports of HCFC based equipment and the introduction of market based incentives/ disincentives, which will come into being in 2015 if considered necessary to meet the target consumption reductions, all other elements will commence immediately upon approval of this HPMP and the availability of related funding.

The training of enforcement personnel will require updating the training manual and related training materials developed under the CFC phase out to reflect the new provisions and timelines, identification of the new products and equipment to be monitored and related health and safety considerations when handling flammable refrigerants. The training will involve an initial training of 100 enforcement personnel immediately following the introduction of all aspects of the revised licensing regime, followed by one annual training workshop for new recruits. The provision of multi refrigerant identifiers, capable of identifying natural refrigerants, mainly Hydrocarbons will also be factored into the execution plan and budget.

The time lines for executing this project are presented in Table 20 below:

Table 20: Execution Time Lines

Year/Activities	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Establish standards for the transportation, handling and storage of refrigerants										
Develop policies and regulations for the labelling of refrigerant containers and HCFC-based equipment offered for sale.										
Prohibition of imports of HCFC based equipment, whether or not pre-charged										
Review of Customs Training manual										
Training of enforcement personnel										
Introduction of market based incentives/ disincentives										
Procedures to monitor servicing of Saint Lucian flagged vessels										

Impact: Whereas no direct emissions reductions are associated with this sub project, it will ensure compliance with the consumption limits established by Decision XIX/6 by ensuring that imports and use of HCFCs are limited to those amounts.

Budget:

The proposed budget is presented in Table 21 below:

Table 21: Cost Elements for Policy Legal and Institutional Sub project

Description	Resources	Cost in USD
Meetings to develop outstanding policy and legal elements	4 meetings	2,400
Drafting of policies and regulations	Legal consultant	4,000
Review of Training manual	Trainer	3,000
Training of enforcement personnel	12 Training Workshops (4 in 2012 and one annually up to 2020)	20,000
Multi refrigerant identifiers	4 at US\$ 1,500 each	6,000
Printing and consumables	\$200 per Workshop	2,200
Total		\$37,650

This sub project will be implemented by the United Nations Environment Programme (UNEP)

3.2.4: Education and Awareness:

Objective:

The objectives of this sub project 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.

Justification:

In the absence of education and awareness, consumers will not make purchase decisions consistent with the objectives of this HPMP, neither will industry partners be aware of the phase out effort and their role there-in. The lessons learned from the CFC phase out confirm the need for broad based support of government's plans to phase out the use of HCFCs. In this regard, the

education and awareness programmes pursued under that phase of the national effort to transition to an ODS-free economy played a significant role in helping the country to meet its commitments ahead of the Protocol schedule. Under this component similar interventions will be carried out to educate and inform all sectors of the public on the phase out programme, the emerging technologies and their role in ensuring the success of the effort.

Execution Plan:

Following approval of this project a detailed execution plan will be developed and through a workshop, presented to key stakeholders. This will inform partners of the way the project will be rolled out, identify their roles and responsibilities and create an enabling environment for project execution. In addition to this formal forum, the following will be undertaken throughout the life of the project:

- Production of leaflets posters, brochures and other materials with summary of HPMP, HCFC phase-out schedule and the policies and legal structure to be established to enable the transition to an HCFC free economy;
- Public awareness campaigns in schools and for general public, Press releases; TV spots; Radio broadcasts; and
- Technical papers and information leaflets for technicians and industry on emerging technologies, options to transition away from CFCs, low GWP refrigerants and health and safety issues.

The time lines for these activities are set out in Table 22

Table 22: Execution Time Lines

Year/Activities	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Production of leaflets brochures and other materials										
Public awareness campaigns in schools and for general public, Press releases; TV spots; Radio broadcasts										
Technical papers and information leaflets for technicians and industry										

Impact:

No specific consumption reductions are associated with this component. However, it is the platform on which the other components will achieve their targets through its education and awareness focus as well as through the provision of technical information to facilitate the transition away from HCFCs.

Budget: USD 24,000 (See Table 23 below for details).

Table 23: Cost Elements

Description	Resources	Cost in USD
Technical Seminar	Resource person, venue, logistics and consumables	3,000
Production of leaflets, brochures etc	Research, design, printing and distribution	6,000
Public Awareness campaigns	\$1000/year for 10 years	10,000
Technical papers	Research, design, printing and distribution	5,000
TOTAL		\$24,000

This component will be implemented by UNEP, who is the Lead Implementing Agency for this HPMP.

3.2.5: Monitoring Evaluation and Reporting.

Objective: This component of the HPMP will provide for the day to day execution, periodic monitoring, evaluation and reporting on project activities, targets achieved, adjustments, and remedial actions to be taken, if necessary to ensure that targets are met.

Justification:

The implementation of the different initiatives under this HPMP will require a consistent and regular programme of follow up and monitoring visits to the project beneficiaries, coupled with technical assistance, in order to keep project momentum, ensure early detection of problems, apply corrective measures when needed, and ensure the accountability of stakeholders.

However, with the number of projects that would be occurring simultaneously for an extended period, monitoring and evaluation will become a major feature of the daily operations of the National Ozone Unit. Some projects will require dedicated monitoring and evaluation of a technical nature, which would be different and additional to the work that the NOU already does under the Institutional Strengthening project.

This initiative will provide the support the NOU would need to monitor progress, report on achievements, produce progress reports and ensure that implementation of the various activities proceed on schedule. In this regard, the government will need to bring on board an independent M&E consultant from time to time to address these matters.

Execution Plan

Immediately following the approval of the HPMP, a monitoring, evaluation and reporting protocol will be designed for all components of the project. This will be informed by the following functions of the M&E function:

- Manage the implementation of the HPMP;
- Monitor the implementation of each sub project component against their objectives;
- Provide periodic reports on all sub-projects to the National Ozone Office, for review and onward transmission to UNEP, which is the lead Implementing Agency for this HPMP;
- Identify, report and prevent delays, and recommend remedial actions;
- Assess and report on the impact of projects against expected impacts;
- Make recommendations on adjustments to projects to maximize their impact on consumption reduction;
- Assist UNEP and if required, the Multilateral Fund Secretariat to conduct verification of the HCFC consumption as needed;
- Provide input into, and assist with the preparation of Annual Implementation Plans;
- Conduct annual performance audits; and
- Prepare Annual Progress reports.

Table 24: Execution Time Lines

Year/Activities	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Contract consultant										
Preparation of detailed Project Execution Plan										
Project Monitoring and Reporting										
Annual progress Reports										
Terminal Report										

Impact:

There are no specific consumption reductions associated with this sub project. However, the establishment of the Monitoring Evaluation and Reporting Mechanism, along with the monitoring protocol will help ensure the timely completion and effectiveness of all projects proposed within this HPMP, thus contributing to the efforts of the government to meet the agreed consumption targets.

Budget: USD 21,000 (See Table 25 below for details).

Table 25: Cost Elements

Description	Resources	Cost in USD
M&E Consultant	10 Years @\$3,000/year	20,000
Monitoring Mission	Independent external monitoring consultant, if needed	1000
TOTAL		US\$ 21,000

This component will be executed by UNEP.

Other Impacts including Climate Benefits

This HPMP will build on the successes of the CF phase out initiative by enabling technicians to reduce refrigerant emissions during the servicing of refrigeration equipment, thereby reducing the release of pollutants into the atmosphere. With regards to direct global environmental benefits, this HPMP will, by 2020, result in the avoidance of 1.10 ODP tonnes of HCFCs as well as 35,7428 t CO₂ eq of greenhouse gases.

4. BUDGET:

There is no direct co-financing planned to support the execution of this HPMP. That said, considerable in-kind support will be forth coming from stakeholder groups in the form of attendance at meetings, assistance with data collection and institutional support to help achieve the goals of this project.

The total budget and cash flow for this HPMP is laid out in Table 26 below:

Table 26: Budget and cash Flow

Activities	Total Budget	Annual Allocations					Totals
		2011	2012	2015	2018	2020	
TECHNICAL SUPPORT TO SERVICE INDUSTRY							
Training in Good Refrigeration Practices							
Develop syllabus and training manual	\$5,000	\$5,000					\$5,000
Travel (international trainer)	\$3,000	\$3,000					\$3,000
Train-the-trainers programme	\$13,000	\$13,000					\$13,000
Training of 250 technicians	\$40,000	\$5,000	\$10,000	\$10,000	\$7,500	\$7,500	\$40,000
Materials and consumables	\$4,000	\$2,000	\$1,000		\$1,000		\$4,000
Printing of manuals	\$2,000	\$500		\$500	\$500	\$500	\$2,000
Sub total	\$67,000	\$28,500	\$11,000	\$10,500	\$9,000	\$8,000	\$67,000
Provision of Tools and Equipment							
100 Recovery reusable cylinders	\$10,000	\$10,000					\$10,000
Supply of 15 multi-refrigerant recovery machines	\$18,000	\$18,000					\$18,000
10 Multi refrigerant identifiers	\$15,000	\$15,000					\$15,000
Spares and consumables	\$2,250	\$2,250					\$2,250
20 Flammable gas detectors	\$2,000	\$2,000					\$2,000
50 Comparators	\$100	\$100					\$100
20 >3m Venting hose	\$200	\$200					\$200
30 - 1 Kg CO ₂ Fire extinguisher	\$900	\$900					\$900
Press connection sealing devices	\$6,000	\$6,000					\$6,000
30 Conversion kits (approx. 100 sets)	\$2,000	\$2,000					\$2,000
Shipping	\$3,900	\$3,900					\$3,900
Sub total	\$60,350	\$60,350	\$0	\$0	\$0	\$0	\$60,350

POLICY LEGAL AND INSTITUTIONAL FRAMEWORK							
4 Meetings	\$2,400		\$1,250	\$1,150			\$2,400
Legal consultant	\$4,000	\$4,000					\$4,000
Review Training Manual	\$3,000	\$3,000					\$3,000
12 Training workshops	\$20,000		\$3,000	\$7,000	\$5,000	\$5,000	\$20,000
4 multi refrigerant identifiers	\$6,000			\$6,000			\$6,000
Printing and consumables	\$2,250		\$400	\$650	\$600	\$600	\$2,250
Sub total	\$37,650	\$7,000	\$4,650	\$14,800	\$5,600	\$5,600	\$37,650
PUBLIC EDUCATION AND AWARENESS							
Technical seminars	\$3,000	\$2,000	\$1,000				\$3,000
Publication of leaflets, brochures etc	\$6,000	\$1,000	\$1,000	\$1,500	\$1,500	\$1,000	\$6,000
Public awareness campaigns	\$10,000	\$2,000	\$1,000	\$3,000	\$2,000	\$2,000	\$10,000
Technical papers	\$5,000		\$1,000	\$2,000	\$1,000	\$1,000	\$5,000
Sub total	\$24,000	\$5,000	\$4,000	\$6,500	\$4,500	\$4,000	\$24,000
MONITORING EVALUATION AND REPORTING							\$0
Local consultants	\$20,000	\$1,000	\$4,000	\$5,000	\$5,000	\$5,000	\$20,000
Logistics and consumables	\$1,000		\$500			\$500	\$1,000
Sub total	\$21,000	\$1,000	\$4,500	\$5,000	\$5,000	\$5,500	\$21,000
Ttotal Budget	\$210,000	\$101,850	\$24,150	\$36,800	\$24,100	\$23,100	\$210,000
Total UNIDO	\$127,350	\$88,850	\$11,000	\$10,500	\$9,000	\$8,000	\$127,350
UNIDO Support cost	\$11,461.50	\$ 7,996.50	\$ 990.00	\$ 945.00	\$ 810.00	\$ 720.00	\$ 11,461.50
UNEP	\$82,650	\$13,000	\$13,150	\$26,300	\$15,100	\$15,100	\$82,650
UNEP Support costs	\$10,744.50	\$ 1,690.00	\$1,709.50	\$3,419.00	\$1,963.00	\$1,963.00	\$ 10,744.50
Total Support costs	\$22,206.00	\$ 9,686.50	\$ 2,699.50	\$4,364.00	\$2,773.00	\$ 2,683.00	\$ 22,206.00
Total Budget and Support Costs	\$232,206.00	\$111,536.50	\$26,849.50	\$41,164.00	\$26,873.00	\$25,783.00	\$232,206.00

ANNEX: DRAFT AGREEMENT

Annex XIII

PRELIMINARY TEMPLATE

DRAFT AGREEMENT BETWEEN SAINT LUCIA AND THE EXECUTIVE COMMITTEE OF THE MULTILATERAL FUND FOR THE REDUCTION IN CONSUMPTION OF HYDROCHLOROFLUROCARBONS

1. This Agreement represents the understanding of the Government of Saint Lucia (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 0.595 ODP tonnes / maximum consumption allowed for 2020 under the Montreal Protocol reduction schedule prior to 1 January 2020 in compliance with Montreal Protocol schedules.
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 row 4.1.3 (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 (the “Funding Approval Schedule”).
4. The Country will meet the consumption limits for each of the Substances as indicated in Appendix 2-A. It will also accept independent verification, to be commissioned by the relevant bilateral or implementing agency, of achievement of these consumption limits as described in sub-paragraph 5(b) of this Agreement.
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 tranche implementation reports in the form of Appendix 4-A (the “Format of Tranche Implementation Report and Plan”) 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; and
- (d) That the Country has submitted and received approval from the Executive Committee for a tranche implementation plan in the form of Appendix 4-A (the “Format of Tranche 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.
- (e) That, for all submissions from the 68th 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 (the “Monitoring Institutions and Roles”) will monitor and report on Implementation of the activities in the previous tranche implementation plan 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 sub-paragraph 5(b).

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 phase-down and phase-out of the Substances specified in Appendix 1-A. Reallocations categorized as major changes must be documented in advance in a Tranche Implementation Plan and approved by the Executive Committee as described in sub-paragraph 5(d). Major changes would relate to reallocations affecting in total 30 per cent or more of the funding of the last approved tranche, issues potentially concerning the rules and policies of the Multilateral Fund, or changes which would modify any clause of this Agreement. Reallocations not categorized as major changes may be incorporated in the approved Tranche Implementation Plan, under implementation at the time, and reported to the Executive Committee in the Tranche

Implementation Report. 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. UNEP has agreed to be the lead implementing agency (the “Lead IA”) and UNIDO has agreed to be cooperating implementing agency/agencies (the “Cooperating IA”) under the lead of 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 IA taking part in this Agreement.

10. The Lead IA will be responsible for carrying out the activities of the plan as detailed in the first submission of the HPMP with the changes approved as part of the subsequent tranche submissions, including but not limited to independent verification as per sub-paragraph 5(b). This responsibility includes the necessity to co-ordinate with the Cooperating IA to ensure appropriate timing and sequence of activities in the implementation. The Cooperating IA will support the Lead IA by implementing the activities listed in Appendix 6-B under the overall co-ordination of the Lead IA. The Lead IA and Cooperating IA have entered into a formal agreement regarding planning, reporting and responsibilities under this Agreement to facilitate a co-ordinated implementation of the Plan, including regular co-ordination meetings. The Executive Committee agrees, in principle, to provide the Lead IA and the Cooperating IA with the fees set out in rows 2.2 and 2.4 of Appendix 2-A.

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 amounts set out in Appendix 7-A in respect of each ODP tonne 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.

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, the Lead IA and the Cooperating IA to facilitate implementation of this Agreement. In particular, it will provide the Lead IA and the Cooperating 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 Appendix 4-A (a), (b), (d) and (e) continue until the time of the completion if not specified by the Executive Committee otherwise.

All of the agreements 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

APPENDICES

APPENDIX 1-A: THE SUBSTANCES

Substance	Annex	Group	Starting point for aggregate reductions in consumption (ODP tonnes)
HCFC-22	C	I	0.915
HCFC-141b	C	I	0
[substance name]	C	I	

APPENDIX 2-A: THE TARGETS, AND FUNDING

		2011	2012	2013	2015	2018	2020	Total	
1.1	Montreal Protocol reduction schedule of Annex C, Group I substances (ODP tonnes)			0.915	0.823		0.595	n/a	
1.2	Maximum allowable total consumption of Annex C, Group I substances (ODP tonnes)			0.915	0.823		0.595	n/a	
2.1	Lead IA UNEP agreed funding(US \$)	13,000	13,150		\$26,300	\$15,100	\$15,100	\$82,650	
2.2	Support costs for Lead IA(US \$)	1,690.00	1,709.50		3,419.00	1,963.00	1,963.00	10,744.50	
2.3	Cooperating IA [UNIDO] agreed funding (US \$)	88,850	11,000		10,500	9,000	8,000	127,350	
2.4	Support costs for Cooperating IA (US \$)	7,996.50	990.00		945.00	810.00	720.00	11,461.50	
3.1	Total agreed funding (US \$)	101,850	24,150		36,800	24,100	23,100	210,000	
3.2	Total support cost (US \$)	9,686.50	2,699.50		4,364.00	2,773.00	2,683.00	22,206.00	
3.3	Total agreed costs (US \$)	111,536.50	26,849.50		\$41,164.00	26,873.00	25,783.00	232,206.00	
4.1.1	Total phase-out of Annex C Group 1 agreed to be achieved under this agreement (ODP tonnes)								0.32
4.1.2	Phase-out of Annex C Group 1 to be achieved in previously approved projects (ODP tonnes)								0
4.1.3	Remaining eligible consumption for Annex C Group 1 (ODP tonnes)								0.595
4.2.1	Total phase-out of [substance 2] agreed to be achieved under this agreement (ODP tonnes)								n/a
4.2.2	Phase-out of [substance 2] to be achieved in previously approved projects (ODP tonnes)								n/a
4.2.3	Remaining eligible consumption for [substance 2] (ODP tonnes)								n/a

APPENDIX 3-A: FUNDING APPROVAL SCHEDULE

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

APPENDIX 4-A: FORMAT OF TRANCHE IMPLEMENTATION REPORTS AND PLANS

2. The submission of the Tranche Implementation Report and Plan will consist of five parts:

- (a) A narrative report regarding the progress in 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 in the next tranche, 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 lead implementing agency; 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

3. *Appendix 5-A, Monitoring Institutions and Roles:*

- a) The National Ozone Unit, which is located within the Sustainable Development and Environment Division of the Ministry of Physical Development and the Environment, will be responsible for the day to day execution of project activities. As such, primary responsibility will reside with the Permanent Secretary of that Ministry. The NOU, through his/her supervisor (the Chief Sustainable Development and Environment Officer) , will be responsible for ensuring that the MLF and the Ministry's policies and procedures for project management, including procurement guidelines and reporting requirements are adhered to. In this regard, the highest policy responsibility rests with the Minister of Physical Development and the Environment while at the technical level, responsibility resides with the Chief Sustainable Development and Environment Officer.
- b) In addition to the formal government structure described above, the services of an independent Monitoring and Evaluation consultant will be engaged from time to time to provide independent verification of projects completed and targets achieved. This consultant will also support the preparation of end of project reporting.
- c) Periodically the government, in collaboration with the lead Implementing Agency may convene monitoring missions to provide independent verification project outputs, achievement of targets and financial management, as considered necessary to ensure a second level of oversight..

APPENDIX 6-A: ROLE OF THE LEAD IMPLEMENTING AGENCY

4. 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 phase-out plan;
- (b) Assisting the Country in preparation of the Tranche 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 Tranche 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 Tranche Implementation Plans consistent with sub-paragraphs 1(c) and 1(d) of Appendix 4-A;
- (e) Fulfilling the reporting requirements for the tranches and the overall Plan as specified in Appendix 4-A as well as project completion reports for submission to the Executive Committee. The reporting requirements include the reporting about

activities undertaken by the Cooperating IA;

- (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 Tranche Implementation Plan and accurate data reporting;
- (i) Co-ordinating the activities of the Cooperating IA, and ensuring appropriate sequence of activities;
- (j) 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 and the co-ordinating implementing agencies, the allocation of the reductions to the different budget items and to the funding of each implementing or bilateral agency involved;
- (k) Ensuring that disbursements made to the Country are based on the use of the indicators; and
- (l) Providing assistance with policy, management and technical support when required.

5. 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 6-B: ROLE OF COOPERATING IMPLEMENTING AGENCY

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

- (a) Providing policy development assistance when required;
- (b) Assisting the Country in the implementation and assessment of the activities funded by the Cooperating IA, and refer to the Lead IA to ensure a co-ordinated sequence in the activities; and
- (c) Providing reports to the Lead IA on these activities, for inclusion in the consolidated reports as per Appendix 4-A.

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

7. In accordance with paragraph 11 of the Agreement, the amount of funding provided may be reduced by US \$180.00 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.

APPENDIX 8-A: SECTOR SPECIFIC ARRANGEMENTS