



# SIGNATURE PAGE

COUNTRY: SRI LANKA

**UNDAF Outcome(s)/Indicator(s):**  
(Link to UNDAF outcome., If no UNDAF, leave blank)

Governance reform aimed towards promoting people-centred development through encouraging Government to implement and monitor implementation of agreements signed at International Conventions and UN Conferences

**Expected Outcome(s)/Indicator (s):**  
(CP outcomes linked to the SRF/MYFF goal and service line)

Implementation of national commitments to global environmental conventions

**Expected Output(s)/Indicator(s):**  
(CP outcomes linked to the SRF/MYFF goal and service line)

National Compliance Action Plan for Phase-out of Ozone Depleting Substances implemented

**Implementing partner:**  
(designated institution/Executing agency)

Ministry of Environment & Natural Resources

**Other Partners:**  
(formerly implementing agencies)

Programme Period:	2004-2006
Programme Component:	
Award Title:	NCAP for Phase out of Ozone Depleting Substances
Award ID:	00039455
Project /Output Title:	NCAP for Phase-out of Ozone Depleting Substances
Project ID:	00044232
Project /Output Title:	
Project ID:	
Project /Output Title:	
Project ID:	
Award Duration:	2004-2006
Management Arrangement:	National Execution (NEX)

Budget	US \$665,400
General Management Support Fee (GMS)	
<b>Total Budget</b>	<b>US \$665,400</b>
<i>Allocated Resources:</i>	
• Government	
• Trac 1 & 2	
<i>Other</i>	
• Donor 1	
• Donor 2	
• Donor 3	
In-kind contributions	
Unfunded Budget	

Agreed by	Signature	Date	Name & Title
Government			<b>SOJATHA COORAY</b> DIRECTOR GENERAL EXTERNAL RESOURCES DEPARTMENT
Implementing Partner/Executing Agency		27-5-05	P. M. LEELARATNE Secretary Ministry of Environment & Natural Resources
UNDP		20.6.05	Miguel Bermeo Resident Representative

# Annual Work Plan

Sri Lanka - Colombo

Report Date: 7/6/2005

Award Id: 00039455

Award Title: NCAP FOR PHASE OUT OF OZONE DEPLETING SUBSTANCES

Year: 2005

Project ID Expected Outputs Key Activities Timeframe Visible Party

Project ID	Expected Outputs	Key Activities	Timeframe	Visible Party	Fund	Donor	Budget Descr	Amount US\$
00044232	NCAP FOR PHASE OUT OF OZONE DE	Comm.Ref. End User Incentive		SRL-National Ex	63030	MPU	International Cor	0.00
				SRL-National Ex	63121	JPN	International Cor	5,000.00
				SRL-National Ex	63030	MPU	Local Consultant	0.00
				SRL-National Ex	63121	JPN	Local Consultant	5,500.00
				SRL-National Ex	63030	MPU	Contractual Serv	0.00
				SRL-National Ex	63121	JPN	Contractual Serv	60,000.00
				SRL-National Ex	63030	MPU	Miscellaneous E:	0.00
				SRL-National Ex	63121	JPN	Miscellaneous E:	3,000.00
		MAC Recov, Recycling & Retrofi		SRL-National Ex	63030	MPU	Local Consultant	0.00
				SRL-National Ex	63121	JPN	Local Consultant	2,000.00
				SRL-National Ex	63030	MPU	Equipment and F	0.00
				SRL-National Ex	63121	JPN	Equipment and F	89,000.00
		Monitoring		SRL-National Ex	63030	MPU	International Cor	0.00
				SRL-National Ex	63121	JPN	International Cor	10,000.00
				SRL-National Ex	63030	MPU	Local Consultant	0.00
				SRL-National Ex	63121	JPN	Local Consultant	16,000.00
				SRL-National Ex	63030	MPU	Travel	0.00
				SRL-National Ex	63121	JPN	Travel	4,800.00
				SRL-National Ex	63030	MPU	Equipment and F	0.00
				SRL-National Ex	63121	JPN	Equipment and F	2,000.00
		Recovery & Recycling		SRL-National Ex	63030	MPU	Equipment and F	0.00
				SRL-National Ex	63121	JPN	Equipment and F	290,400.00
								<b>487,700.00</b>
								<b>487,700.00</b>

TOTAL  
GRAND TOTAL

Year: 2006

Project ID Expected Outputs Key Activities Timeframe Visible Party

Project ID	Expected Outputs	Key Activities	Timeframe	Visible Party	Fund	Donor	Budget Descr	Amount US\$
00044232	NCAP FOR PHASE OUT OF OZONE DE	Comm.Ref. End User Incentive		SRL-National Ex	63030	MPU	International Cor	0.00
				SRL-National Ex	63121	JPN	International Cor	5,000.00
				SRL-National Ex	63030	MPU	Local Consultant	0.00
				SRL-National Ex	63121	JPN	Local Consultant	4,500.00

	SRL-National Ex	63030	MPU	72100	Contractual Serv	0.00
	SRL-National Ex	63121	JPN	72100	Contractual Serv	59,000.00
	SRL-National Ex	63030	MPU	74500	Miscellaneous E:	0.00
	SRL-National Ex	63121	JPN	74500	Miscellaneous E:	2,000.00
MAC Recov, Recycling & Retrofi	SRL-National Ex	63030	MPU	71300	Local Consultant	0.00
	SRL-National Ex	63121	JPN	71300	Local Consultant	2,000.00
	SRL-National Ex	63030	MPU	72200	Equipment and F	0.00
	SRL-National Ex	63121	JPN	72200	Equipment and F	30,000.00
Monitoring	SRL-National Ex	63030	MPU	71200	International Cor	0.00
	SRL-National Ex	63121	JPN	71200	International Cor	10,000.00
	SRL-National Ex	63030	MPU	71300	Local Consultant	0.00
	SRL-National Ex	63121	JPN	71300	Local Consultant	50,000.00
	SRL-National Ex	63030	MPU	71600	Travel	0.00
	SRL-National Ex	63121	JPN	71600	Travel	15,200.00
<b>TOTAL</b>						<b>177,700.00</b>
<b>GRAND TOTAL</b>						<b>177,700.00</b>

**MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL  
ON SUBSTANCES THAT DEplete THE OZONE LAYER**

**PROJECT COVER SHEET**

**COUNTRY** SRI LANKA **IMPLEMENTING AGENCY** UNDP

**PROJECT TITLE** National Compliance Action Plan (Japan/UNDP Component)

**PROJECT IN CURRENT BUSINESS PLAN** Yes

**SECTORS** Refrigeration Servicing

**ODS USE IN SECTORS** Baseline (Average of 1995-97) 445.7 ODP Tonnes  
Current (2001) 190.4 ODP Tonnes

**PROJECT IMPACT** 152.7 ODP Tonnes (Refrig.Servicing)

**PROJECT DURATION** 65 months *Sept 2004 - Feb 2009*

<u>PROJECT COSTS</u>		<u>TOTAL</u>
Investment Costs	US\$	557,400
Management Costs	US\$	108,000
<b>SUBTOTAL</b>	<b>US\$</b>	<b>665,400</b>

**GOVERNMENT CONTRIBUTION IN KIND** In kind  
**STATUS OF COUNTERPART FUNDING** N/A  
**PROJECT MONITORING MILESTONES** Included  
**NATIONAL COORDINATING BODY** Ministry of Environment and Natural Resources

**PROJECT SUMMARY**

At their 43<sup>rd</sup> meeting, the Executive Committee approved a National Compliance Action Plan, a copy of which is attached to the document as an annex. The Plan includes activities by Government of Japan and UNEP. The Government of Japan has requested UNDP to implement their part of the plan. This present document corresponds to the activities that UNDP will be undertaking on behalf of the Government of Japan.

**EXECUTIVE COMMITTEE CONDITION**

The Executive Committee has approved this project with the following condition.

“The Government committed itself to the phased reduction and complete phase-out of consumption of ODSs used in the country; agreed that no additional resources would be requested from the Fund for activities related to the phase out of ODSs; and agreed to ensure accurate monitoring of the phase-out and to provide regular reports, as required by its obligations under Article 7 of the Montreal Protocol, by 30 September each year. The Executive Committee agreed to provide Sri Lanka with flexibility in using the agreed funds consistent with operational procedures as agreed between Sri Lanka and the Government of Japan as the lead implementing agency.”

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

The approval of this project will help Sri Lanka in meeting its Montreal Protocol obligations, such as the phased reductions in ODS consumption as per the agreed schedules.

**PREPARED BY** Ranojoy Basu Ray

**DATE** August 2004

# NATIONAL COMPLIANCE ACTION PLAN OF SRI LANKA

## 1. PROJECT OBJECTIVES

The Government of Sri Lanka understands that this is the total funding that would be available to the Government from the Fund for the total elimination of CFCs in Sri Lanka. The Government commits itself the phased reduction and complete phaseout in the consumption of CFCs, according to the phase out schedule in Table 1 below which is consistent with the Protocol's control measures for CFCs. The Government's target is to have 0 consumption in 2008.

**Table 1: Annual Reduction in ODS Consumption under the National Compliance Action Plan**

ODP tonnes	2004	2005	2006	2007	2008	2009	Total
Montreal Protocol phase-out schedule	445.7	222.9	222.9	66.9	66.9	66.9	
Maximum allowable consumption	178.0	155.0	106.1	65.2	21.8		
Total reduction from ongoing projects	20.4	2.5	2.5	0.0	0.0	0.0	25.4
Total reduction under NCAP	2.6	46.4	38.4	43.4	18.7	3.2	152.7
Total annual reduction	23.0	48.9	40.9	43.4	18.7	3.2	178.1

Note: Maximum allowable total consumption will show as negative from 2009 onwards as the illegal trade prevention project and the monitoring project will continue till the end of 2009. This is necessary since other countries in the region are not going for accelerated phase-out.

## 2. INTRODUCTION

The 43<sup>rd</sup> Meeting of the Executive Committee held in Geneva in July 2004 approved the National Compliance Action Plan presented by the Government of Japan. This document (see Annex 1) was prepared with the assistance of UNDP and UNEP, taking into account the projects already completed and the Refrigerant management Plan for Sri Lanka which was under execution.

## 3. REFRIGERATION SECTOR BACKGROUND

Three refrigerator manufacturers were funded to convert from CFC-11 to HCFC-141b (for foaming) and from CFC12 to HFC-134a (for refrigeration). The investment projects were approved in July 1995. One project was completed in August 1998 and the remaining two in December 1999. On completion of the projects, total ODP Tonnes phased out was 19.4 ODP Tonnes.

In October 1996, \$352,400 was approved to implement a National Recovery and Recycling project. The project was declared completed in December 1999 after one year of monitoring following distribution of equipment. The project envisaged elimination of 31.2 ODP Tonnes of refrigerant per year. However, the first year monitoring indicates 12.324 ODP Tonnes was recovered of which 4.125 ODP Tonnes was recycled. The low achievement can be attributed to several factors such as easy availability of CFC-12, continued low prices, increased down time to recover refrigerant, and some hesitancy in accepting the concept of recovered/recycled refrigerant. However, reports from the field show that the momentum achieved in the initial stages continue.

Sri Lanka's Refrigerant Management Plan was approved in Dec 2000. The components of the RMP and

the funding were:

Activity	Agency	Amount (US\$)	Status (as of Jan 2003)
Customs Training	UNEP	87,000	Ongoing
Train the trainers and training of refrigeration service technicians	UNEP	219,000	Ongoing
Incentive programme for the commercial and industrial end-user refrigeration	UNDP	250,000	Ongoing
Monitoring	UNDP	15,455	Ongoing
<b>TOTAL</b>		<b>571,455</b>	

### Unique Situation

*A unique situation has arisen in Sri Lanka as of 2002. For nearly twenty years the Sri Lanka administration was not able to get any information from the Northeast region of the country. A ceasefire came into effect in 23<sup>rd</sup> February 2002 and has been holding, allowing normalcy to return to the whole country.*

Till 2001, all ODS consumption data reported by Sri Lanka did not and could not include any consumption in the Northeast as data was just not available. Preliminary investigations based on communications received from technical colleges etc in that area indicate that on an average there has been a continued consumption primarily over and above that reported by Sri Lanka to the Ozone Secretariat, Nairobi and the Multilateral Fund Secretariat, Montreal. A letter requesting upward revision of reported consumption data has been sent to both Secretariats by the Sri Lanka Government.

*This opening up of the Northeast has resulted in the need for the Recovery and Recycling Project and various components of the RMP to be extended to the Northeast, which was not catered for in the original project proposals.*

In addition, Sri Lanka aims to achieve accelerated total phase out of Annex A substances by 2008 and the projects outlined in the National Compliance Action Plan will assist them to do so.

The National Compliance Action Plan is funded from Government of Japan's bilateral component of their contribution to the Multilateral Fund. The Government of Japan has requested UNDP to implement the following 4 activities on their behalf.

### **ACTIVITY 1: INCENTIVE PROGRAMME FOR COMMERCIAL AND INDUSTRIAL REFRIGERATION END-USERS (GOVERNMENT OF JAPAN/UNDP)**

#### **a. Status of End User Incentive Programme from approved RMP**

✓ This project was one of the two pilot projects of this type approved by the Multilateral Fund. The objective was to eliminate as much as possible of the consumption of CFCs (R-12 and R-502) in the commercial and industrial refrigeration end user sectors through the payment of a financial incentive to enterprises in these sectors that have existing refrigeration equipment that uses or R-502 refrigerants. Enterprises can select replacement or permanent retrofit.

In the programme, refrigeration systems used in food storage (cold stores and silos), fisheries, meat-processing plants, breweries, hospitals, hotels, restaurants, supermarkets, refrigerated transport (trucks and boats) are eligible as far as they are using R12 or R-502. This incentive programme was scheduled to

operate from 2002 to 2006 or until the approved funds of \$180,000 is exhausted. This project was estimated to phase-out 5 ODP Tonnes.

In order to introduce the incentive programme a paper advertisement was published on 13<sup>th</sup> January 2002. To the advertisement approx. 90 end users and service companies responded. A workshop was organised and was held on 24<sup>th</sup> April 2002, with the assistance and attendance of the international consultant of the project. At the workshop, 65 participated out of the 90 invitees and application forms for financial incentives were distributed among the participants.

The Montreal Protocol Unit formed a technical committee for the evaluation of the applications. For that purpose, the following organisations were already invited to nominate a member for the technical evaluation committee.

1. The Institute of Engineers
2. American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) – Sri Lankan Chapter
3. Industrial Development Board
4. Chamber of Commerce
5. Ministry of Environment and Natural Resources
6. University of Moratuwa – Faculty of Engineering
7. Montreal Protocol Unit (as secretary to the committee)

Till date three applications have been received and one application is its final evaluation stage and the technical proposal is now being checked by the Technical Committee.

On the other hand, the Montreal Protocol Unit recognises that there are a number of refrigeration facility owners who did not attend the workshop or respond to inquiries from the NOU. The NOU is contacting all the end users through the telephone to brief them about the scheme individually. Factory visits are also made when additional information is necessary and advice is provided directly to the person who is in a position to prepare and submit the application form. Five places have been visited, two of which are going to file the application for the incentive scheme.

Another workshop is planned in July 2003 for selected end users and contractors to further highlight the importance of the Incentive Programme and encourage more applications.

#### **b. Further Needs Identified**

In this project, approximately 5 ODP Tonnes, used by commercial and industrial refrigeration users are addressed. The methodology and project description remains the same as in the approved RMP. The project will be implemented as a continuation of the earlier project.

#### **c. Detailed Budget**

Item	US\$
International Expert	10,000
National Consultant	10,000
Administration of Program	5,000
Incentives to end users (extension of the approved project)	119,000
<b>TOTAL</b>	<b>144,000</b>

## ACTIVITY 2: MAC RECOVERY/RECYCLING AND RETROFIT (GOVERNMENT OF JAPAN/UNDP)

The Recovery/Recycling project approved in October 1996 and the RMP approved in December 2000 excluded MAC applications. The RMP states that estimated 1998 consumption of CFC-12 for MAC applications was 114.50 Tonnes. The consumption was arrived at as follows:

Number of vehicles in the country (1998)	225,314
Number of vehicles with CFC-12 air-conditioning systems	135,198
Amount of CFC-12 to repair/maintain one MAC unit in kg	0.846
Amount of CFC-12 used to repair/maintain MACs in Tonnes	114.50
Number of technicians specialized in the repair and maintenance of MACs	3,600
Number of workshops specialized in MAC	900

While current data may suggest a larger number of vehicles on the road now than in 1998, this can be offset by the fact that all new Japanese and European vehicles come equipped with HFC-134a systems. Only the vehicles imported from India are still equipped with CFC-12 systems.

### a. Project Description

The project is designed for a combination of recovery/recycling while servicing CFC-12 systems, and retrofitting of existing CFC-12 systems to HFC-134a. Since no MAC projects were implemented earlier, project implementation activities will start immediately on approval of the NCAP.

The objectives of this project are to implement a National Recovery and Recycling project in the MAC sector. Implementation of this project will lead to capture of refrigerants currently being vented, both from repair and maintenance activities. The recovered and recycled refrigerant will lead to reduced dependency on imports and provide for a stock to meet the requirement of the service tail of CFC-12 based equipment continuing in service till the end of their economic life. The Government would like to ensure availability of CFC-12 for refrigeration servicing as long as necessary and practical.

#### a.(i) Recovery/Recycling

Four major car companies practice Recovery/Recycling/Recharge as a standard operation in line with their international activities. However, the 1998 estimate indicates there are 900 workshops which specialize in MAC servicing – many of which would be independent garages. The project will provide 12 Recovery/Recycling/Recharge machines for MAC servicing to select large independent workshops in the country. The beneficiaries will be required to report their activities on a regular basis to the NOU.

12 MAC systems will recover and recycle minimum 1 kg. per day per machine =  $12 \times 1 \times 250$  or **3.00 MT per year** (basis is 250 working days per year)

The equipment specifications will be as follows:

- Standard Recovery/Recycle/Recharge equipment
- One 100 lb. cylinder to store recycled CFC-12

**Note: All equipment to operate at 230V AC 50 Hz and meet British Standards.**



A national expert will hold a one-day seminar to educate the beneficiaries on the need for conservation of CFC-12, and train them on the proper use and maintenance of the equipment. This expert will also monitor the effective use of the equipment and provide intermittent training as and when required.

**a.(ii) Retrofit**

Retrofit of CFC-12 MAC systems to HFC-134a is feasible. The major impediment in developed countries has been the high labour cost due to the labour intensive nature of the retrofit. This does not apply in Sri Lanka where labour costs are much lower. The estimates provided indicate that it will cost \$300 per vehicle to dismantle, thoroughly and repeatedly flush the system, replace natural rubber components such as O-rings with synthetic rubber components, replace the dryer and finally charge with HFC-134a and appropriate oil.

The Government recognises it is not feasible to fund retrofit of all CFC-12 based MAC systems. However, to provide an impetus to retrofitting it is proposed to fund retrofitting of 200 government vehicles and publicise the activity. This will serve two purposes – it will show the government to be proactive and taking a leading role on the one hand, while on the other hand it will raise people's awareness and interest in that if the government is doing something like this there has to be a good reason.

**b. Detailed Budget**

Item	US\$
<b>Recovery/Recycling/Recharge</b>	
National Expert	4,000
12 Recovery/Recycle/Recharge machines @\$3,500 each	42,000
12 – 100 lb. Refrigerant Cylinders @\$200 each	2,400
Spare Parts & Consumables	4,200
Freight	5,060
Contingency	5,340
Sub Total for Recovery/Recycle/Recharge equipment	59,000
<b>Sub-Total for Recovery/Recycle/Recharge</b>	<b>63,000</b>
<b>Retrofit</b>	
<i>Retrofit of MAC system of 200 vehicles from CFC-12 to HFC-134a @\$300 per vehicle</i>	60,000
<b>TOTAL</b>	<b>123,000</b>

### **ACTIVITY 3: RECOVERY AND RECYCLING PROGRAMME (GOVERNMENT OF JAPAN/UNDP)**

#### **a. Status of Recovery Recycle Programme from approved RMP**

Recovery and recycling of CFC is essential in order to reduce dependence upon or demand for new (virgin) CFCs as well as a measure to secure an important source of CFC after the termination of new CFC import in 2005. A Recovery and Recycling project was approved in October 1996 and completed in 1999 after monitoring for 18 months. Mobile applications including MAC, bus air-conditioning, refrigerated trucks etc were excluded from this project. Currently 102 recovery workshops and 8 recycling centres are operating after receiving their equipment in April 1998. In that year 7.131 ODP Tonnes were reported as recovered, of which 2.663 Tonnes were recycled. In 1999, 12.324 ODP Tonnes were recovered, of which 4.125 Tonnes were recycled.

#### **b. Further needs identified**

It is expected that as the 2004 quota for import get implemented, a shortfall in availability will be created resulting in a noticeable increase in price. This will lead to fuller utilization of existing R&R equipment and a need for additional equipment. At the same time, all the activities to replace or retrofit CFC-based facilities should be carried out with appropriate recovery of displaced CFC for the purposes of preventing atmospheric releases of CFCs for the protection of the ozone layer and also in order to make it available for use in other applications.

In responding proactively to such demand for recovery and recycling, recovery units and recycling facilities need to be distributed more widely to cover the entire region of Sri Lanka and the number of qualified technicians should be increased through training programmes.

In order to enhance the recovery and recycling capacity and to promote recovery and recycling operation, the strategy is to locate at least two recycling machines in each of the 25 districts of Sri Lanka. Currently 8 recycling machines are located in 6 districts (Colombo having 3), 19 more recycling machines will be required. In addition 102 recovery machines have been distributed to the larger workshops. In this phase, it is proposed that another 50 recovery machines be distributed amongst selected workshops from the remaining 308 workshops of the 410 identified during the initial R&R project be provided with recovery equipment.

50 recovery machines will recover an average of 1kg CFC-12 per day on the basis of 250 working days per year. 80% of the recovered refrigerant can be recycled. Thus the calculated reduction in virgin CFC consumption will be  $(50 \times 250 \times 0.8)$  or 10 ODP tonnes.

All the above will be coupled with the appropriate training to improve skills of involved technicians in recovery and recycling. Only the workshops with trained / certified technicians will be eligible for the provision of equipment. In addition, there will be a requirement of reporting on the recovered / recycled amounts to the NOU on a regular basis.

**c. Detailed Budget**

Item	US\$
<b><i>Recovery Equipment</i></b>	
50 Recovery machines @\$1,000 each	50,000
100 – 30 lb. Refrigerant recovery cylinders with 2 ports @\$65 each	6,500
100 – 30 lb. Refrigerant recovery cylinders with 2 ports and OFP	10,000
50 Equipment Kit including leak detector@\$600 each	30,000
<b>Sub-Total for Recovery equipment</b>	<b>96,500</b>
<b><i>Recycling Equipment</i></b>	
19 Recycling machines @\$3,000 each	57,000
19 Refrigerant Identification Kits @\$900 each	17,100
57 – 100 lb. Cylinders @\$200 each	11,400
38 – 1,000 lb cylinders @\$1,000 each	38,000
<b>Sub-Total for Recycling Equipment</b>	<b>123,500</b>
<b>Total for equipment</b>	<b>220,000</b>
<b>Maintenance and Spares</b>	<b>22,000</b>
<b>Freight</b>	<b>22,000</b>
<b>Contingencies</b>	<b>26,400</b>
<b>TOTAL</b>	<b>290,400</b>

## **ACTIVITY 4: MONITORING THE ACTIVITIES PROPOSED IN THE PLAN (GOVERNMENT OF JAPAN/UNDP)**

### **a. Project Description**

The project component is to carry out the monitoring activities listed in the National Compliance Action Plan (NCAP). In order to attain the objectives of each one of these projects, a National Consultant trained in relevant fields will monitor all the activities in the NCAP in cooperation with the Implementing Agency, the National Ozone Unit and the GOVERNMENT OF JAPAN. The National Consultant will have to visit workshops, recycling centers, customs, and the other installations that are located all over the country.

The National Consultant will collect information listed below and progress reports as the indicators for measuring the status of implementation of the activities included in the NCAP.

Reporting will be done by the National Consultant through the Coordinating Committee for Implementing the Montreal Protocol in Sri Lanka to the Implementing Agency and Multilateral Fund on an agreed upon schedule.

#### ***General Tasks***

- (Ensuring timely start up of projects. -> to be done by NOU or the National Consultant of the project?)
- (Evaluating problems and issues and developing strategies to get around them. -> to be done by NOU or the National Consultant of the project?)
- Understanding any issues which may be delaying implementation of the projects and reporting to NOU and Implementing Agency
- Ensuring timely completion of projects
- (Assist Implementing Agency to prepare Project Completion Report. -> to be done by NOU or the National Consultant of the project?)

#### ***Refrigeration Investment Projects***

- Developing a list of beneficiaries and equipment
- Ensuring destruction of equipment as and where required.
- Sporadic visits to ensure that CFCs are not in use.
- 

#### ***Training in Good Refrigerant Management Practices***

- Collecting and stocking reports of workshops.
- Developing a list of the trained technicians by the training programs.
- Keeping record of the technicians and workshops registered with refrigeration association.
- Monitoring of the training programs undertaken nationally by the Technical Colleges and refrigeration associations.
- 
- Recovery and Recycling
- Developing a data-reporting format for recovery and recycling to be submitted by the beneficiaries on a regular basis.
- Developing list of beneficiaries.
- Ensuring participation of beneficiaries in Good Refrigerant Management Practices workshops.
- Ensuring participation of beneficiaries in training workshop on the use of the equipment. Stocking

letters of commitments from the beneficiaries.

- Monitoring the status of the distributed equipment.
- Collection of data from the beneficiaries on a regular basis (amounts recovered and recycled and price structures)
- Trouble-shooting equipment problems at beneficiaries.
- Identifying non-performers and determining reason for non-performance.
- Removal of equipment from non-performers and redeploying to other users identified.
- 
- Mobile Air Conditioning Systems
- Developing a data-reporting format for recovery and recycling to be submitted by the beneficiaries on a regular basis.
- Developing list of beneficiaries.
- Ensuring participation of beneficiaries in Good Refrigerant Management Practices workshops.
- Ensuring participation of beneficiaries in training workshop on the use of the equipment.
- Stocking letters of commitments from the beneficiaries.
- Monitoring the status of the distributed equipment.
- Collection of data from the beneficiaries on a regular basis (amounts recovered and recycled, cases of retrofit and price structures)
- Trouble-shooting equipment problems at beneficiaries.
- Identifying non-performers and determining reason for non-performance.
- Removal of equipment from non-performers and redeploying to other users identified.
- Monitoring the status of retrofitted MAC systems
- 

#### ***Halon Project***

- Developing a list of beneficiaries.
- Keeping records of halon storage.
- Ensuring decommissioning of equipment as and where required.
- Sporadic visits to ensure that Halons are not in use.

#### ***Prevention of Illegal Trade***

- Keeping records of the activities of the Enforcement Center
- Collecting and stocking reports of training workshops.
- Developing a list of the trained customs officers.
- Monitoring the use and maintenance of distributed refrigerant identification kits.

#### **b. Time Frame**

Monitoring activities will be carried out periodically from inception at the first disbursement of the funding to the end of 2009.

**c. Detailed Budget**

The budget below includes funds for transportation and logistical arrangements for this activity.

<b>Item</b>	<b>Cost (US\$)</b>
Annual Coordinating Committee meetings related to monitoring of the NCAP activities	Sri Lankan Government
One (1) National Consultant (\$ 12,000 per year x 5.5 years)	66,000
Transportation and other logistical arrangements for the National Consultant (\$1,800 per year x 5.5 years)	10,000
Telecommunication (\$1,800 per year x 5.5 years)	10,000
Computer for National Consultant for database management	2,000
International Consultant (one visit per year related to monitoring is envisaged) (\$ 5,000 per year x 4 years)	20,000
<b>TOTAL</b>	<b>108,000</b>

**ANNEX 1**

**THE DEMOCRATIC SOCIALIST  
REPUBLIC OF SRI LANKA**

**NATIONAL COMPLIANCE ACTION  
PLAN  
FUNDING REQUEST**

**MINISTRY OF ENVIRONMENT & NATURAL  
RESOURCES**

**Colombo March 2003 as amended May 2004**

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## ANNEX

*Sri Lanka – National Compliance Action Plan  
42nd Meeting of the Multilateral Fund for the Implementation of the Montreal Protocol*

### PROJECT COVER SHEET

<b>Country</b>	:	The Democratic Socialist Republic of Sri Lanka
<b>Name of Project</b>	:	National Compliance Action Plan
<b>Project in Current Business Plan</b>	:	Yes
<b>Sectors Covered</b>	:	Refrigeration and Halon
<b>Sub Sector</b>	:	Servicing
<b>ODS Use in Sub-Sector (2001 Reported data)</b>	:	<b>Refrigeration</b> 190.1 ODP Tonnes <b>Halon</b> 0 ODP Tonnes (funding is requested based upon ExCom Decision 18/22) <b>Solvent</b> 30 ODP Tonnes <b>Methyl bromide</b> 4 ODP Tonnes
<b>Eligible Project Impact (ODS to be eliminated)</b>	:	<b>Refrigeration</b> 152.7 ODP Tonnes ( <i>Difference will be phased out through ongoing projects and legislation</i> ) <b>Halon</b> 0 ODP Tonnes (funding is requested based upon ExCom Decision 18/22) <b>Solvent</b> 0 ODP Tonnes <b>Methyl bromide</b> 0 ODP Tonnes
<b>Project Duration</b>	:	Till Dec. 2009
<b>Project Costs</b>		
<b>Incremental Capital Cost</b>	:	\$1,015,000
<b>Contingency</b>	:	Included in Incremental Capital Cost
<b>Incremental Operating Cost</b>	:	\$0
<b>Total Project Cost</b>	:	<b>\$1,015,000</b>
<b>Requested Grant</b>	:	<b>\$1,015,000</b>
<b>Implementing Agency Support Cost</b>	:	Japan \$86,502 (as 13% of project costs) UNEP \$45,448 (as 13 % of project costs)
<b>Total Cost of Project to Multilateral Fund</b>	:	<b>\$1,146,950</b>
<b>Local Ownership</b>	:	100%
<b>Export Component</b>	:	Refrigeration 0 % Halon 0 % Solvent 70 % Methyl bromide 0 %
<b>Cost Effectiveness</b>	:	For refrigeration \$6.38/kg
<b>Status of Counterpart Funding</b>	:	In kind
<b>Project Monitoring Milestones Included</b>	:	Yes
<b>National Coordinating Agency</b>	:	Montreal Protocol Unit, Ministry of Environment And Natural Resources
<b>Lead Implementing Agency</b>	:	Government of Japan / UNDP
<b>Cooperating Implementing Agency</b>	:	UNEP

The National Compliance Action Plan (NCAP) prepared in 2003 targets to phase-out the remaining consumption of 190.1 ODP tons of Annex A, Group I CFCs, etc. at the time of the document preparation over the period of 2003–2010. A series of investment, non-investment, technical assistance, and capacity building activities are proposed to achieve this target. The NCAP will enable the Government of Sri Lanka, which is facing unexpected challenges due to opening of the Northeast, nevertheless to phase-out CFC consumption on an accelerated basis and maintain the momentum after its initiative early phase-out through enforcement of illegal trade prevention measures, etc. Considering this multi-faceted approach it is crucial that flexibility be given to the Government of Sri Lanka to adapt or modify its strategies during implementation of this plan as the need arises. The Government of Sri Lanka requests US\$1,015,000 as the total funding from the Multilateral Fund for the total elimination of all Annex A Group 1 substances (CFCs) and halon management in all sectors using these substances. The approval of this project will result in the elimination of CFCs consumption in Sri Lanka and will allow the country to meet its Montreal Protocol obligations.



## NATIONAL COMPLIANCE ACTION PLAN FUNDING REQUEST

### 1. INTRODUCTION

*This funding request based upon the Sri Lankan National Compliance Action Plan, which was completed in March 2003 and submitted to the 39<sup>th</sup> ExCom, presents a plan for the total phase-out of all Ozone Depleting Substances in use in the country.*

The plan is the outcome of the dialogue and the close cooperation among stakeholders including relevant government organizations, implementing agencies and the NOU of Sri Lanka, which have been achieved through the country consultation process by the bilateral cooperation of Japan in the Asia and Pacific Region, approved at the 24<sup>th</sup> Executive Committee of the Multilateral Fund as a pilot project to assist one country with the implementation of strategic planning of the Multilateral Fund to promote compliance with the Montreal Protocol.

The plan includes strategies for the Halon sector, the refrigeration servicing sector and *the Solvent sector*. The strategy aims to complete phase-out of CFCs on an accelerated basis and all other ODSs by the Montreal Protocol targets while complying with the Montreal Protocol phase-out requirements.

The consumption of all ODSs reported by Sri Lanka in 2001 was 230 ODP Tonnes. According to Decision 35/57 of the Executive Committee of the Multilateral Fund, Sri Lanka has opted for Option 1, or 348.1 ODP tonnes, as the starting point based on its Article 7 baseline data. After accounting for all the projects funded by the Executive Committee since then, there is an unfunded ODS consumption of 152.7 ODP Tonnes. The Government of Sri Lanka wishes to distribute the unfunded consumption as follows:

Sector	ODP Tonnes	Project Funds Requested (US\$)	CE (US\$/kg)
Refrigeration Servicing sector	152.7	867,000	6.38
Monitoring		108,000	
Halon sector	0	40,000	-
			(Funds requested based on ExCom Decision 18/22)
Solvent sector	30	-	-
Methyl bromide	0	-	-
<b>TOTAL</b>	-	<b>1,015,000</b>	-
<b>(exclusive of agency support costs)</b>			

The Government of Sri Lanka understands that this is the total funding that would be available to the Government from the Fund for the total elimination of CFCs in Sri Lanka. The Government commits itself to the phased reduction and complete phaseout in the consumption of CFCs, according to the phase out schedule in Table 1

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below which is consistent with the Protocol's control measures for CFCs. The Government's target is to have 0 consumption in 2008.

The Executive Committee is requested to provide Sri Lanka with flexibility in using the agreed funds. The Government agrees to ensure accurate monitoring of the phaseout and provide regular reports, as required by its obligations under Article 7; and the bilateral agency will be responsible for reporting annually on the implementation of activities funded under the NCAP and providing verification to the Executive Committee annually, that the CFC consumption reductions in the NCAP have been completed according to the phase out schedule.

**Table 1: Annual Reduction in ODS Consumption under the National Compliance Action Plan**

ODP tonnes	2004	2005	2006	2007	2008	2009	Total
Montreal Protocol phase-out schedule	445.7	222.9	222.9	66.9	66.9	66.9	
Maximum allowable consumption	178.0	155.0	106.1	65.2	21.8		
Total reduction from ongoing projects	20.4	2.5	2.5	0.0	0.0	0.0	25.4
Total reduction under NCAP	2.6	46.4	38.4	43.4	18.7	3.2	152.7
Total annual reduction	23.0	48.9	40.9	43.4	18.7	3.2	178.1

Note: Maximum allowable total consumption will show as negative from 2009 onwards as the illegal trade prevention project and the monitoring project will continue till the end of 2009. This is necessary since other countries in the region are not going for accelerated phase-out.

In order to assist Sri Lanka in establishing its implementation structure within the country, achievement of Sri Lanka's reduction targets, and to initiate measures necessary to meet the other reduction targets included in Table 1, the Executive Committee is requested to approve the funding level of US\$1,015,000 plus agency support costs to Sri Lanka.

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### 2. REFRIGERATION SERVICING SECTOR PHASE-OUT PLAN

The Executive Committee of the Multilateral Fund approved Sri Lanka's Country Programme in 1994. In addition a Recovery & Recycling Project was approved in 1996 and a Refrigerant Management Plan was approved in 2,000. The refrigeration sector component in this NCAP takes all these activities into account and proposes activities to fully phase-out the use of remaining CFCs in this sector in line with the various decisions of the Executive Committee related to RMP and Strategy preparation.

Activity	Implementing Agency	Cost (US\$)
New reduction under plan - End User Incentive	Japan/UNDP	144,000
New reduction under plan -Recovery/Recycling	Japan/UNDP	290,400
New reduction under plan-MAC Recovery/Recycling and Retrofit	Japan/UNDP	123,000
Enhancement of national capacity to monitor trade and prevent illegal trade of ODS	UNEP	135,000
Extension training of the established refrigeration technicians	UNEP	174,600
Monitoring	Japan/UNDP	108,000
<b>TOTAL</b>		<b>975,000</b>

The refrigeration servicing sector phase-out proposed thus has a cost effectiveness of \$6.38 per kg (based on eligible funding).

Despite seeking one time funding the recovery and recycling equipment will be procured in stages so that resources can be diverted to other activities, such as additional training or procurement of service tools, if the proposed results from the programme are not achieved. Similarly, the End User Incentive Plan will be implemented after evaluating the same project in the RMP. If necessary, the project will be modified and implemented or the funding diverted to other activities.

**Sri Lanka, therefore, requests the flexibility to move funding around between budget lines within the National Compliance Action Plan to ensure maximum impact.**

### 3. HALON SECTOR PHASE-OUT PLAN

The objective of this plan is to assist Sri Lanka to phase-out the installed capacity of Halons in the Halon sector in Sri Lanka through a combination of awareness actions, policies, and regulations (the "non-investment component") as well as a halon banking project (the "investment component").

Sri Lanka has no import of halons since Sri Lanka has never received funding for a project in the halon sector yet. The funding for this project is requested based on ExCom Decision 18/11 regarding funding to halon bank management to address the installed capacity of the substance instead of the consumption.

Total incremental project costs are **US\$ 40,000**, exclusive of agency support costs, and will be implemented by UNEP. The budget breakdown is shown in attached project document in detail.

### 4. SOLVENT SECTOR PHASE-OUT PLAN

No grant funding is requested for the solvent sector from the Multilateral Fund in this funding request,

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recognising that the past decision of the Executive Committee not to fund projects which benefit enterprises that export part of their production to non-Article 5 countries (UNEP/OzL.Pro/ExCom/15/45 Para.146) denies the only remaining ODS-solvent consuming industry in Sri Lanka. i.e. its activated carbon industry, the eligibility for funding (ExCom Decisions 25/44 and 28/50).

However, the CTC consumption trend over the past years and the fact that the industry in question is still unable to have financially viable plan of introducing alternative technologies despite past dialog and discussion between the NOU and the relevant corporations indicate the difficulty in achieving 85 % consumption reduction from the baseline in 2005.

It is therefore requested that the possibility should be left open for future application for a concessional lending scheme or any other innovative funding scheme, which is being discussed at the Executive Committee of the Multilateral Fund once the relevant modalities are finalised.

**5. METHYL BROMIDE PHASE-OUT PLAN**

A demonstration project for methyl bromide phase-out in the tea-growing industry.

As regards the Methyl bromide sector, Sri Lanka is subject to the condition that it will never request any additional funding for tea plantations. (Decision 27/67).

Another project for methyl bromide phase-out for all remaining uses excluding QPS applications was approved at the 38<sup>th</sup> ExCom (Decision 38/18), covering all the methyl bromide consumption eligible for the funding from the Multilateral Fund.

**6. SUMMARY**

In summary the following activities are proposed for the National ODS Phase-Out in Sri Lanka:

Sector	Unfunded ODP Tonnes	Cost (US\$)	CE (US\$/kg)
Refrigeration	152.7	867,000	6.38
Monitoring		108,000	
Halon	0	40,000	- (Funds requested on ExCom Decision 18/22)
<b>TOTAL (exclusive of agency support costs)</b>	<b>152.7</b>	<b>1,015,000</b>	

Project component	2004	2005	2006	2007	2008	2009
End User Incentive		X				
Recovery/Recycling		X	X			
MAC Recovery/Recycling		X				
Enhancement of national capacity to monitor trade and prevent illegal trade of ODS	X	X	X	X	X	X
Extension training of the established refrigeration technicians		X	X	X		

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Halon management	X	X	X	X	X	X
Monitoring	X	X	X	X	X	X

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### **REFRIGERATION SECTOR**

#### **1. REFRIGERATION END USER INCENTIVE PROGRAM (GOVERNMENT OF JAPAN)**

##### **Background**

Three refrigerator manufacturers were funded to convert from CFC-11 to HCFC-141b (for foaming) and from CFC12 to HFC-134a (for refrigeration). The investment projects were approved in July 1995. One project was completed in August 1998 and the remaining two in December 1999. On completion of the projects, total ODP Tonnes phased out was 19.4 ODP Tonnes.

In October 1996, \$352,400 was approved to implement a National Recovery and Recycling project. The project was declared completed in December 1999 after one year of monitoring following distribution of equipment. The project envisaged elimination of 31.2 ODP Tonnes of refrigerant per year. However, the first year monitoring indicates 12.324 ODP Tonnes was recovered of which 4.125 ODP Tonnes was recycled. The low achievement can be attributed to several factors such as easy availability of CFC-12, continued low prices, increased down time to recover refrigerant, and some hesitancy in accepting the concept of recovered/recycled refrigerant. However, reports from the field show that the momentum achieved in the initial stages continue.

Sri Lanka's Refrigerant Management Plan was approved in Dec 2000. The components of the RMP and the funding were:

<b>Activity</b>	<b>Agency</b>	<b>Amount (US\$)</b>	<b>Status (as of Jan 2003)</b>
Customs Training	UNEP	87,000	Ongoing
Train the trainers and training of refrigeration service technicians	UNEP	219,000	Ongoing
Incentive programme for the commercial and industrial end-user refrigeration	UNDP	250,000	Ongoing
Monitoring	UNDP	15,455	Ongoing
<b>TOTAL</b>		<b>571,455</b>	

##### **Unique Situation**

*A unique situation has arisen in Sri Lanka as of 2002. For nearly twenty years the Sri Lanka administration was not able to get any information from the Northeast region of the country. A ceasefire came into effect in 23<sup>rd</sup> February 2002 and has been holding, allowing normalcy to return to the whole country.*

Till 2001, all ODS consumption data reported by Sri Lanka did not and could not include any consumption in the Northeast as data was just not available. Preliminary investigations based on communications received from technical colleges etc in that area indicate that on an average there has been a continued consumption primarily over and above that reported by Sri Lanka to the Ozone Secretariat, Nairobi and the Multilateral Fund Secretariat, Montreal. A letter requesting upward revision of reported consumption data has been sent to both Secretariats by the Sri Lanka Government.

*This opening up of the Northeast has resulted in the need for the Recovery and Recycling Project and various components of the RMP to be extended to the Northeast, which was not catered for in the original project proposals.*

**Status of End User Incentive Programme**

This project is one of the two pilot projects of this type approved by the Multilateral Fund. The objective is to eliminate as much as possible of the consumption of CFCs (R-12 and R-502) in the commercial and industrial refrigeration end user sectors through the payment of a financial incentive to enterprises in these sectors that have existing refrigeration equipment that uses or R-502 refrigerants. Enterprises can select replacement or permanent retrofit.

In the programme, refrigeration systems used in food storage (cold stores and silos), fisheries, meat-processing plants, breweries, hospitals, hotels, restaurants, supermarkets, refrigerated transport (trucks and boats) can be eligible as far as they are using R12 or R-502. This incentive programme is scheduled to operate from 2002 to 2006 or until the approved funds of \$180,000 is exhausted. This project is estimated to phase-out 5 ODP Tonnes.

In order to introduce the incentive programme a paper advertisement was published on 13<sup>th</sup> January 2002. To the advertisement approx. 90 end users and service companies responded. A workshop was organised and was held on 24<sup>th</sup> April 2002, with the assistance and attendance of the international consultant of the project. At the workshop, 65 participated out of the 90 invitees and application forms for financial incentives were distributed among the participants.

The Montreal Protocol Unit expects to form a technical committee for the evaluation of the applications. For that purpose, the following organisations were already invited to nominate a member for the technical evaluation committee.

2. The Institute of Engineers
2. American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) – Sri Lankan Chapter
3. Industrial Development Board
4. Chamber of Commerce
5. Ministry of Environment and Natural Resources
6. University of Moratuwa – Faculty of Engineering
7. Montreal Protocol Unit (as secretary to the committee)

Till date three applications have been received and one application is its final evaluation stage and the technical proposal is now being checked by the Technical Committee.

On the other hand, the Montreal Protocol Unit recognises that there are a number of refrigeration facility owners who did not attend the workshop or respond to inquiries from the NOU. The NOU is contacting all the end users through the telephone to brief them about the scheme individually. Factory visits are also made when additional information is necessary and advice is provided directly to the person who is in a position to prepare and submit the application form. Five places have been visited, two of which are going to file the application for the incentive scheme.

Another workshop is planned in July 2003 for selected end users and contractors to further highlight the importance of the Incentive Programme and encourage more applications.

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**Further needs identified**

In this project, approximately 5 ODP Tonnes, used by commercial and industrial refrigeration users are addressed. The methodology and project description remains the same as in the approved RMP. The project will be implemented as a continuation of the earlier project.

**Detailed budget**

<b>Item</b>	<b>US\$</b>
International Expert	10,000
National Consultant	10,000
<b>Administration of Program</b>	5,000
Incentives to end users (extension of the approved project)	119,000
<b>TOTAL</b>	<b>144,000</b>



## **2. RECOVERY AND RECYCLING (GOVERNMENT OF JAPAN)**

### **Background**

Recovery and recycling of CFC is essential in order to reduce dependence upon or demand for new (virgin) CFCs as well as a measure to secure an important source of CFC after the termination of new CFC import in 2005. A Recovery and Recycling project was approved in October 1996 and completed in 1999 after monitoring for 18 months. Mobile applications including MAC, bus air-conditioning, refrigerated trucks etc were excluded from this project. Currently 102 recovery workshops and 8 recycling centres are operating after receiving their equipment in April 1998. In that year 7.131 ODP Tonnes were reported as recovered, of which 2.663 Tonnes were recycled. In 1999, 12.324 ODP Tonnes were recovered, of which 4.125 Tonnes were recycled.

### **Further needs identified**

It is expected that as the 2004 quota for import get implemented, a shortfall in availability will be created resulting in a noticeable increase in price. This will lead to fuller utilization of existing R&R equipment and a need for additional equipment. At the same time, all the activities to replace or retrofit CFC-based facilities should be carried out with appropriate recovery of displaced CFC for the purposes of preventing atmospheric releases of CFCs for the protection of the ozone layer and also in order to make it available for use in other applications.

In responding proactively to such demand for recovery and recycling, recovery units and recycling facilities need to be distributed more widely to cover the entire region of Sri Lanka and the number of qualified technicians should be increased through training programmes.

In order to enhance the recovery and recycling capacity and to promote recovery and recycling operation, the strategy is to locate at least two recycling machines in each of the 25 districts of Sri Lanka. Currently 8 recycling machines are located in 6 districts (Colombo having 3), 19 more recycling machines will be required. In addition 102 recovery machines have been distributed to the larger workshops. In this phase, it is proposed that another 50 recovery machines be distributed amongst selected workshops from the remaining 308 workshops of the 410 identified during the initial

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R&R project be provided with recovery equipment.

50 recovery machines will recover an average of 1kg CFC-12 per day on the basis of 250 working days per year. 80% of the recovered refrigerant can be recycled. Thus the calculated reduction in virgin CFC consumption will be (50\*250\*0.8) or 10 ODP tonnes.

All the above will be coupled with the appropriate training to improve skills of involved technicians in recovery and recycling. Only the workshops with trained / certified technicians will be eligible for the provision of equipment. In addition, there will be a requirement of reporting on the recovered / recycled amounts to the NOU on a regular basis.

**Detailed budget**

Item	US\$
<b><i>Recovery Equipment</i></b>	
50 Recovery machines @\$1,000 each	50,000
100 – 30 lb. Refrigerant recovery cylinders with 2 ports @\$65 each	6,500
100 – 30 lb. Refrigerant recovery cylinders with 2 ports and OFP	10,000
50 Equipment Kit including leak detector@\$600 each	30,000
<b>Sub-Total for Recovery equipment</b>	<b>96,500</b>
<b><i>Recycling Equipment</i></b>	
19 Recycling machines @\$3,000 each	57,000
19 Refrigerant Identification Kits @\$900 each	17,100
57 – 100 lb. Cylinders @\$200 each	11,400
38 – 1,000 lb cylinders @\$1,000 each	38,000
<b>Sub-Total for Recycling Equipment</b>	<b>123,500</b>
<b>Total for equipment</b>	<b>220,000</b>
<b>Maintenance and Spares</b>	<b>22,000</b>
<b>Freight</b>	<b>22,000</b>
<b>Contingencies</b>	<b>26,400</b>
<b>TOTAL</b>	<b>290,400</b>

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### **3. MAC RECOVERY/RECYCLING/RETROFIT (GOVERNMENT OF JAPAN)**

#### **Background**

The Recovery/Recycling project approved in October 1996 and the RMP approved in December 2000 excluded MAC applications. The RMP states that estimated 1998 consumption of CFC-12 for MAC applications was 114.50 Tonnes. The consumption was arrived at as follows:

Number of vehicles in the country (1998)	225,314
Number of vehicles with CFC-12 air-conditioning systems	135,198
Amount of CFC-12 to repair/maintain one MAC unit in kg	0.846
Amount of CFC-12 used to repair/maintain MACs in Tonnes	114.50
Number of technicians specialized in the repair and maintenance of MACs	3,600
Number of workshops specialized in MAC	900

While current data may suggest a larger number of vehicles on the road now than in 1998, this can be offset by the fact that all new Japanese and European vehicles come equipped with HFC-134a systems. Only the vehicles imported from India are still equipped with CFC-12 systems.

#### **Project Description**

The project is designed for a combination of recovery/recycling while servicing CFC-12 systems, and retrofitting of existing CFC-12 systems to HFC-134a. Since no MAC projects were implemented earlier, project implementation activities will start immediately on approval of the NCAP.

The objectives of this project are to implement a National Recovery and Recycling project in the MAC sector. Implementation of this project will lead to capture of refrigerants currently being vented, both from repair and maintenance activities. The recovered and recycled refrigerant will lead to reduced dependency on imports and provide for a stock to meet the requirement of the service tail of CFC-12 based equipment continuing in service till the end of their economic life. The Government would like to ensure availability of CFC-12 for refrigeration servicing as long as necessary and practical.

#### **Recovery/Recycling**

Four major car companies practice Recovery/Recycling/Recharge as a standard operation in line with their international activities. However, the 1998 estimate indicates there are 900 workshops which specialize in MAC servicing – many of which would be independent garages. The project will provide 12 Recovery/Recycling/Recharge machines for MAC servicing to select large independent workshops in the country. The beneficiaries will be required to report their activities on a regular basis to the NOU.

12 MAC systems will recover and recycle minimum 1 kg. per day per machine =  $12 \times 1 \times 250$  or **3.00 MT per year** ( basis is 250 working days per year)

The equipment specifications will be as follows:

- Standard Recovery/Recycle/Recharge equipment
- One 100 lb. cylinder to store recycled CFC-12

**Note: All equipment to operate at 230V AC 50 Hz and meet British Standards.**

A national expert will hold a one-day seminar to educate the beneficiaries on the need for conservation of CFC-12, and train them on the proper use and maintenance of the equipment. This expert will also monitor the effective use of the equipment and provide intermittent training as and when required.

#### **Retrofit**

Retrofit of CFC-12 MAC systems to HFC-134a is feasible. The major impediment in developed countries has been the high labour cost due to the labour intensive nature of the retrofit. This does not

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apply in Sri Lanka where labour costs are much lower. The estimates provided indicate that it will cost \$300 per vehicle to dismantle, thoroughly and repeatedly flush the system, replace natural rubber components such as O-rings with synthetic rubber components, replace the dryer and finally charge with HFC-134a and appropriate oil.

The Government recognises it is not feasible to fund retrofit of all CFC-12 based MAC systems. However, to provide an impetus to retrofitting it is proposed to fund retrofitting of 200 government vehicles and publicise the activity. This will serve two purposes – it will show the government to be proactive and taking a leading role on the one hand, while on the other hand it will raise people's awareness and interest in that if the government is doing something like this there has to be a good reason.

### **Detailed Budget**

Item	US\$
<b>Recovery/Recycling/Recharge</b>	
National Expert	4,000
12 Recovery/Recycle/Recharge machines @\$3,500 each	42,000
12 – 100 lb. Refrigerant Cylinders @\$200 each	2,400
Spare Parts & Consumables	4,200
Freight	5,060
Contingency	5,340
Sub Total for Recovery/Recycle/Recharge equipment	59,000
<b>Sub-Total for Recovery/Recycle/Recharge</b>	<b>63,000</b>
<b>Retrofit</b>	
<i>Retrofit of MAC system of 200 vehicles from CFC-12 to HFC-134a @\$300 per vehicle</i>	60,000
<b>TOTAL</b>	<b>123,000</b>

#### **4. ENHANCEMENT OF NATIONAL CAPACITY TO MONITOR TRADE AND PREVENT ILLEGAL TRADE OF ODS (UNEP)**

##### **Background**

Sri Lanka has committed itself to a total phase out of CFCs in 2005, as written down in its legislation. The two main producers in Asia, one of which is the main neighbor of Sri Lanka, are producers of CFCs and have decided to phase out CFCs according to the Montreal Protocol schedule in 2010. Recently, Sri Lanka has started peace talks with the Northeast, opening this part of the country to trade. This region will develop at an accelerated pace to attain the same level as the remaining of the country with increasing demand for ODS as a result. Sri Lanka will even become more vulnerable to illegal imports / trade of CFCs due to the fact that the port in the Northeast is very close to India. To enable Sri Lanka to maintain the advanced phase-out date for CFCs, it will need to make intensified efforts to control ODS trade and prevent illegal trade. This project builds on the results of the RMP approved at the 32<sup>nd</sup> Meeting of the Executive Committee.

Paragraph 8 of Decision XIV/7 taken at the 14th Meeting of the Parties requests the Executive Committee of the Multilateral Fund to introduce, develop and apply inspection technologies and equipment in customs to combat illegal ODS traffic and to monitor ODS trade". The Decision also encourages all Parties to exchange information and intensify joint efforts to improve means of identification of illegal ODS traffic, and make even greater use of the UNEP regional networks and other networks in order to increase cooperation on illegal trade and enforcement activities. This project proposal aims at providing and developing the necessary tools for Sri Lanka to implement the request from the MOP through training of customs officers, the establishment of an ODS Information/Enforcement Center as main focal point for both national and international cooperation, as well as for the development of enforcement tools, and an intensified training campaign for enforcement officers on follow-up of illegal trade activities." Apart from substantive assistance on enforcement issues, the CAP of UNEP will also ensure close co-operation and interaction of the project with the Swedish Regional project on Preventing illegal trade of ODS in the South Asia and SEAP Regions. Furthermore, the implementation of the project should also facilitate the exchange of information with the Ozone Secretariat, in its efforts to explore options for reducing illegal trade.

One of the tasks for the CAP on Policy & Enforcement will be to liaise with countries on enforcement of legislation, and facilitate cooperation to combat illegal trade of ODS. The first step will be to develop the right structures within countries to work with on enforcement issues. The CAP programme will provide the necessary assistance to the country to develop national capacity to enable information analysis and dissemination, to facilitate national networking, and to implement the provisions in Decision XIV/7 taken at the 14<sup>th</sup> MOP.

##### **Objectives**

This project thus aims at:

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1. Training of the remaining 400 Customs officers (inspectors, controllers and customs policemen)<sup>1</sup>
2. Establishment of an ODS Information/Enforcement Centre in the Customs Department, including provision of recovery equipment for recovery of ODS from confiscated illegal CFC-containing equipment
3. Intensified training campaign for enforcement officers on follow-up of illegal trade activities
4. Awareness activities related to the 2005 accelerated phase-out of CFCs in 2004

**Expected results and criteria for success**

The expected result is to:

- enhance the capacity of the government officers to target and capture ODS smugglers,
- to develop a database with information on illegal ODS trade activities in relation to the country
- to accurately register authorised import of CFC and CFC using equipment upon entrance to the country
- to report to the Ozone Secretariat conform Decision XIV/7, par 7 of MOP-14

The criteria for success will be the number of activities undertaken to prevent illegal trade, including inspections by customs officers, development of national networks, development of guidelines for investigation of suspect activities, and reports on cases of illegal trade.

**Target audience**

Training will be directed to customs officers (inspectors, controllers and customs policemen), who did not receive training under the RMP, with at least 5 years experience and if possible some supervisory functions. The training on follow-up of illegal trade will be directed to all government departments concerned, including the NOU, customs officers, the Judicial Department, police, and other relevant authorities.

**Approach**

Training sessions for the customs officers will be carried out through lectures and hands-on sessions with CFC-detection equipment. An Information/Enforcement Centre will be installed in the Customs Department where a specialised officer will be stationed as an advisor to other officers. The Centre will develop procedures and guidelines for follow-

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<sup>1</sup> Under the RMP, 400 out of 800 Customs Officers will be trained: Phase I (train the trainer) was completed in March 2002 – Phase II: 165 customs officers were trained during 5 workshops organized in 2002, the remaining 235 will be trained in the first half of 2003 (6 workshops).

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up of illegal activities by the different governmental departments involved. The Centre will make recommendations on amendments to national legislation if necessary. The Centre will prepare the draft reports for submittal to the Ozone Secretariat conform Decision XIV/7 of MOP-14. Training will be organised for officers on procedures and guidelines for follow-up of illegal activities.

### **Time frame and milestones**

<b>Activity</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007-2010</b>
Training customs officers	X	X		
Establishment ODS/Enforcement Centre	X	X		
Operation Enforcement Centre		X	X	X
Enforcement Workshops		2	1	
Awareness Activities ban CFC imports 2005	X			

### **Co-operating partners and their role**

The NOU, Customs Department and other national relevant agencies will be involved from the start of the project. The CAP team in ROAP will be involved for necessary technical assistance on enforcement issues.

### **Supporting and follow up actions**

As a support action, the import / export licensing system has already been put in place which will ensure the relevance and enable the successful outcome of the training of customs officers. All technical material is available for the training.

The trained customs officials will have the necessary background to check on import and export of ODS.

The CAP team in ROAP will provide support and expertise to the information/enforcement Centre while developing their activities

As a follow up action, the information/enforcement Centre will provide the Montreal Protocol Unit with a report on the need for amendments in legislation to improve enforcement, and prepare procedures and guidelines for follow-up actions related to illegal trade activities. The Centre will report to the NOU on available information concerning illegal trade activities that are of relevance to Sri Lanka, any actions undertaken to prevent/follow-up on specific cases and formulate recommendations based

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on this information. The Centre will report on the quantity of seized / recovered CFCs and follow advice from the NOU on further dealings with such ODS.

### **Detailed budget**

Item	
Experts; including fees, travel and DSA	CAP
Establishment of an ODS information Center in the Customs Department, including specialized enforcement officer, operating costs for two years and provision recovery equipment and technical materials for enforcement workshops	100,000
Organisation of 3 Workshops on enforcement	15,000
Logistical Arrangements for Workshops (20 workshops) incl. travel/DSA for participants outside of Colombo	20,000
Substantive Assistance on Enforcement issues	CAP
<b>TOTAL PROJECT COST</b>	<b>135,000</b>

## **5. EXTENSION TRAINING OF THE ESTABLISHED REFRIGERATION TECHNICIANS (UNEP)**

### **Background**

The RMP noted that there are approximately 2,200 refrigeration service workshops manned by approximately 9,400 refrigeration technicians in the part of the country for which data could be obtained. The monitoring and evaluation of the project indicated that it is necessary to train more than one technician per workshop to obtain sustainable results. Another conclusion of the analysis done is that sustainability can only be obtained through additional activities, including certification of technicians, the development of a national Code of Good Practice and the formation of a Refrigeration Association.

With the peace talks starting and the opening of the Northeastern part of the country, data now became available indicating the need for training of additional technicians in that part of the country. For the past twenty years, no activity to ensure implementation of the Montreal Protocol has been taken in the Northeast. The main industry being in fishing, refrigeration is an important sector due to the need for cold rooms for storage of fish and fish products, freezer trucks, etc. At least 1,100 additional workshops have been identified in the Northeast. With 20 years of isolation, intensive efforts will be needed for awareness raising, informing and training of technicians.

### **Objectives**

Through training of the additional technicians, with particular focus on the Northeastern region, the development of a certification system and national Code of Good Practice and the formation of a Refrigeration Association, the project aims at ensuring sustainability of the phase-out realised through the RMP.

### **Expected results and criteria for success**

The expected results from this Programme are:



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- Bring the Northeastern Region on the same level as the remainder of the country as regards awareness on Montreal Protocol issues and good practices in refrigeration
  - Training of approximately 1,266 refrigeration technicians in good practices in refrigeration
  - Reduction of wasteful use of CFC in servicing of refrigeration equipment; and
  - Guarantee the application of good practices through a certification system for refrigeration technicians
  - Set up a network of refrigerant importers and and refrigeration technicians through the formation of a Refrigeration Association
  - Assist the country in meeting its advanced phase-out compliance commitments;

The criteria used to measure the success of this Programme will be:

- Number of technicians trained;
- Reduction of CFC used for servicing refrigeration equipment.
- The formation of an active Refrigeration Association
- The number of technicians certified
- The establishment of a national code of good practice

#### **Target audience**

All the activities under this project will target the technicians whom work in the refrigeration and air conditioning equipment servicing workshop on daily basis.

Training will target the technicians from the Northeastern region and also the other regions. Certification will be given to trained technicians. The Refrigeration Association will target both importers of CFC and refrigeration technicians.

#### **Approach**

- In principal, this training activity is the extension or continuation of the on-going technicians training programme under the approved RMP<sup>2</sup>.
- Trained technicians will be awarded a certificate. This certificate will become, as soon as possible, one of the requirements to be licensed to handle and purchase CFC.
- A national Code of Good Practice will be developed based on international Codes adapting them to national standards and translating them in local languages and printing, disseminating to the local workshops through the training centers, refrigeration association.
- The local Refrigeration Association will be established, after informing stakeholders (both technicians and importers) through the organization of workshops in the different regions of the country. The refrigeration association will be requested to manage the established training centers under the RMP, ensure the inclusion of good practices training in the refrigerant curriculum of technical schools, and issue the certification. They will work in close relationship with the NOU.

#### **Time frame**

All activities should be finalised 36 months after approval of the project.

#### **Co-operating partners and their role**

All activities will be the responsibility of the Montreal Protocol Unit in close co-operation with the leading technical training institutes, importers, and servicing companies.

Preliminary work with TAFE (Australia) has been directed at developing a Code for Good Practices and at preliminary consultations with stakeholders on the formation of a refrigeration organization.

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<sup>2</sup> Under the RMP, 800 refrigeration technicians have been trained.

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The CAP team in ROAP will be involved for necessary assistance.

**Supporting and follow up actions**

The Montreal Protocol Unit will close work with the relevant government department to establish the licensing system for the handling and purchase of CFC in Sri Lanka.

The refrigeration association will be follow up with the trained technicians to verify the good practice is followed or not under the supervision of the Montreal Protocol Unit.

**Detailed budget**

Item	Cost (US\$)
Formation of Refrigeration Association	0
Training of 1,266 refrigeration technicians	126,600
Training Equipment-5 training centers (in Northeastern region) with equipment worth US \$ 7,000 each	35,000
Development of the national Code of Good Practice	5,000
Development of certification scheme	8,000
Assistance on Policy and Technical Issues	CAP
<b>TOTAL</b>	<b>174,600</b>

**HALON SECTOR**

## **6. HALON BANK MANAGEMENT (UNEP)**

A comprehensive and integrated national strategy for cost-effective halon management is critical for Sri Lanka to meet and keep the 2002 freeze, as well as future halon reductions under the Montreal Protocol.

A Halon Bank Management Plan (HBMP) allows for the development of such a compliance strategy by enabling a country to: maintain its current halon levels for critical fire protection requirements; gradually reduce dependence on halons; ensure identification of, and provision for, critical uses of halons; and, avoid unnecessary economic disruptions.

### **Objectives**

The development of a national HBMP will allow for the development of a compliance strategy to enable Sri Lanka to: maintain its current halon levels for critical fire protection requirements; gradually reduce dependence on halons; ensure identification of, and provision for, critical uses of halons. The project will aim to limit halon use to critical uses by 2010 through technical assistance and adoption and enforcement of regulations. An important component of the project will involve development of an effective regulatory system that will include a code of conduct for the users of halons.

### **Expected results and criteria for success**

1. Formulation of Halon Bank Management strategies (HBMP) at the national level
2. Provision of technical assistance and equipment for with recovery & recycling, storage and quality control
3. Regional coordination, to facilitate that surplus halon is sold to regional and international markets
4. Development of a data base with internet access for monitoring of halon stocks
5. Connection to internet halon trade platforms

### **Target audience and stakeholders**

The target audience and stakeholders include halon end users, halon bank centre staff, recycling centres, National Ozone Unit (NOU), the Fire Department, and the Coordinating Committee.

### **Approach**

The Coordinating Committee will appoint a Halon Management Team comprised of the NOU, the Fire Department and fire protection equipment importers and major insurance companies. A Halon-storage Centre with clearinghouse functions will be equipped with recovery / recycling equipment, storage tanks, lab equipment, and halon identifier. Personnel qualified to perform recovery of halons will be trained, including on proper handling during recovery processes; how to store recovered halons; charging cylinders for essential uses; and performing quality control on recycled gas. A set of working instructions and safety precautions to this end will be developed. The recovered and recycled halon not required in the country could be sold to interested bodies in the region or worldwide. Liaison will be maintained with international trade platform and information resources on halons managed by UNEP's OzonAction Programme. The legislative procedure for the definition of critical uses will be defined. End-user outreach activities including the development of awareness material (handbooks, leaflets), training programmes and collaboration with the media regarding promotion of the HBMP will be organised. A unified database containing information of the national halon bank, accessible over the Internet has to be developed and installed. The halon bank will need some start-up assistance to

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become operational. Management services have to be provided in order to become independent from international financial support.

### **Co-operating partners and their role**

The co-ordinating Committee will appoint the Halon Management Team comprising the NOU, the Fire Department and fire protection equipment importers and major insurance companies. The Halon management Team will be responsible for implementation of all activities in the project. The CAP team in ROWA will be involved for necessary technical assistance.

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### Time frame and milestones

Activities	2003	2004	2005	- 2010
National introductory halon workshop	X			
Identification of halon users	X			
Development of the Workflow, Rules of Procedure for the industry		X		
Identify storage and handling procedure. Purchase and shipment of equipment		X		
Provide training to R&R personnel, working instructions and safety advices. Provision with equipment		X		
Identify international trade opportunities		X	X	X
Development of halon regulation	X	X		
Promotion of the halon bank				
Identification of the management body of the halon bank	X			
Development of the database with Internet access		X	X	X
Operation of the regional/national halon bank		X	X	X

### Detailed budget

Item	Cost (US\$)
National consultants to finalise survey of halon users and assist in policy development	4,000
Regional halon expert	CAP
Consultation with national stakeholders and organisation of stakeholder workshops	9,000
Public awareness and outreach	5,000
Establishment and maintenance of HBMP database (internet, database adaptation)	11,000
Provision of recovery equipment and incentive for establishment of recovery service centre	11,000
<b>TOTAL</b>	<b>40,000</b>

## **7. MONITORING ACTIVITY (GOVERNMENT OF JAPAN)**

### **Description**

The project component is to carry out the monitoring activities listed in the National Compliance Action Plan (NCAP). In order to attain the objectives of each one of these projects, a National Consultant trained in relevant fields will monitor all the activities in the NCAP in cooperation with the Implementing Agency, the National Ozone Unit and the GOVERNMENT OF JAPAN. The National Consultant will have to visit workshops, recycling centers, customs, and the other installations that are located all over the country.

The National Consultant will collect information listed below and progress reports as the indicators for measuring the status of implementation of the activities included in the NCAP. Reporting will be done by the National Consultant through the Coordinating Committee for Implementing the Montreal Protocol in Sri Lanka to the Implementing Agency and Multilateral Fund on an agreed upon schedule.

### **General Tasks**

- (Ensuring timely start up of projects. -> to be done by NOU or the National Consultant of the project?)
- (Evaluating problems and issues and developing strategies to get around them. -> to be done by NOU or the National Consultant of the project?)
- Understanding any issues which may be delaying implementation of the projects and reporting to NOO and Implementing Agency
- Ensuring timely completion of projects
- (Assist Implementing Agency to prepare Project Completion Report. -> to be done by NOU or the National Consultant of the project?)

### **Refrigeration Investment Projects**

- Developing a list of beneficiaries and equipment
- Ensuring destruction of equipment as and where required.
- Sporadic visits to ensure that CFCs are not in use.
- 

### **Training in Good Refrigerant Management Practices**

- Collecting and stocking reports of workshops.
- Developing a list of the trained technicians by the training programs.
- Keeping record of the technicians and workshops registered with refrigeration association.
- Monitoring of the training programs undertaken nationally by the Technical Colleges and refrigeration associations.
- 
- Recovery and Recycling
- Developing a data-reporting format for recovery and recycling to be submitted by the beneficiaries on a regular basis.
- Developing list of beneficiaries.
- Ensuring participation of beneficiaries in Good Refrigerant Management Practices workshops.
- Ensuring participation of beneficiaries in training workshop on the use of the equipment. Stocking letters of commitments from the beneficiaries.
- Monitoring the status of the distributed equipment.
- Collection of data from the beneficiaries on a regular basis (amounts recovered and recycled and price structures)

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- Trouble-shooting equipment problems at beneficiaries.
- Identifying non-performers and determining reason for non-performance.
- Removal of equipment from non-performers and redeploying to other users identified.
- 
- Mobile Air Conditioning Systems
- Developing a data-reporting format for recovery and recycling to be submitted by the beneficiaries on a regular basis.
- Developing list of beneficiaries.
- Ensuring participation of beneficiaries in Good Refrigerant Management Practices workshops.
- Ensuring participation of beneficiaries in training workshop on the use of the equipment.
- Stocking letters of commitments from the beneficiaries.
- Monitoring the status of the distributed equipment.
- Collection of data from the beneficiaries on a regular basis (amounts recovered and recycled, cases of retrofit and price structures)
- Trouble-shooting equipment problems at beneficiaries.
- Identifying non-performers and determining reason for non-performance.
- Removal of equipment from non-performers and redeploying to other users identified.
- Monitoring the status of retrofitted MAC systems

### ***Halon Project***

- Developing a list of beneficiaries.
- Keeping records of halon storage.
- Ensuring decommissioning of equipment as and where required.
- Sporadic visits to ensure that Halons are not in use.

### ***Prevention of Illegal Trade***

- Keeping records of the activities of the Enforcement Center
- Collecting and stocking reports of training workshops.
- Developing a list of the trained customs officers.
- Monitoring the use and maintenance of distributed refrigerant identification kits.

### **Time frame**

Monitoring activities will be carried out periodically from inception at the first disbursement of the funding to the end of 2009.

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### Detailed budget

The budget below includes funds for transportation and logistical arrangements for this activity.

Item	Cost (US\$)
Annual Coordinating Committee meetings related to monitoring of the NCAP activities	Sri Lankan Government
One (1) National Consultant (\$ 12,000 per year x 5.5 years)	66,000
Transportation and other logistical arrangements for the National Consultant (\$1,800 per year x 5.5 years)	10,000
Telecommunication (\$1,800 per year x 5.5 years)	10,000
Computer for National Consultant for database management	2,000
International Consultant (one visit per year related to monitoring is envisaged) (\$ 5,000 per year x 4 years)	20,000
<b>TOTAL</b>	<b>108,000</b>