



**United Nations  
Environment  
Programme**

Distr.  
Limited

UNEP/OzL.Pro/ExCom/29/54  
29 October 1999

ORIGINAL: ENGLISH

EXECUTIVE COMMITTEE OF  
THE MULTILATERAL FUND FOR THE  
IMPLEMENTATION OF THE MONTREAL PROTOCOL  
Twenty-ninth Meeting  
Beijing, 24-26 November 1999

**COUNTRY PROGRAMME: MYANMAR**

This document consists of:

- Country Programme Evaluation Sheet (prepared by the Fund Secretariat)
- Comments and Recommendations of the Fund Secretariat
- Transmittal Letter from the Government of Myanmar
- Country Programme Cover Sheet
- Country Programme (Executive Summary)

## MYANMAR COUNTRY PROGRAMME EVALUATION SHEET

*National Ozone Cell, National Commission for Environmental Affairs*

### *Status of ratification of the Vienna Convention and the Montreal Protocol*

	<b>Signature</b>	<b>Ratification</b>	<b>Entry into force</b>
Vienna Convention (1985)		24-Nov-93	22-Feb-94
Montreal Protocol (1987)		24-Nov-93	22-Feb-94
London Amendment (1990)		24-Nov-93	22-Feb-94
Copenhagen Amendment (1992)			

***Production of controlled substances:*** No controlled substances produced

***Consumption of controlled substances (1998)*** 52.3 metric tonnes  
52.3 weighted tonnes (ODP)

(tonnes)	CFC-11	CFC-12	CFC-113	CFC-114	CFC-115	TOTAL	Halon121	Halon130	TOTAL	CTC	MCF	TOTAL	Me-Br
ODS		52.3				52.3							
ODP		52.3				52.3							

***Distribution of ODP by substance:*** **CFC** 100.0% **Halon** **CTC and MCF** **MB**

***Distribution of ODP by sector:*** **Aerosol** **Foam** **Halon** **Refrigeration** **Solvent** **Other** **MB**  
Consumption (ODP tonnes): 0.0 0.0 0.0 52.3 0.0 0.0 0.0  
Percent of total: 100.0%

### **Country Programme**

***Duration of country programme:*** 8 years (2000-2007)

***ODS phase out target:*** 50% reduction by 2005; complete phase out by 2009

***Phase out priority area:*** Refrigeration servicing sector

***Cost of activities in country programme:*** \$223,700

#### ***Strategy:***

*The Government's strategy is aimed at keeping the large stock of existing ODS based equipment to the extent possible until the end of its useful life. The Government will formulate appropriate legislation and control measures to sensitising and creating awareness among the users of ODSs; consider financial incentives and/or disincentives as long as they do not impose a significant burden on the exchequer to promote phaseout, including a ban on imports of ODS based refrigeration and air-conditioning equipment by end 1999, a scheme for certifying and labelling refrigerators and commercial refrigeration equipment as low ODS / ODS free, disseminating information on drop-in low ODP blends/ zero ODP substances for servicing ODS based refrigeration and air-conditioning equipment, encouraging recharge of ODS based domestic refrigerators and commercial refrigeration equipment by using ODS substitutes from 2004 (or earlier if commercially available).*

## COMMENTS AND RECOMMENDATIONS OF THE FUND SECRETARIAT

### COMMENTS

1. The total ODS consumption in the country in 1998 was estimated at 52.3 ODP tonnes, mainly CFC-12 used for servicing domestic and commercial refrigeration equipment and MAC units. The annual calculated level of Annex A substances consumption for the period 1995-1997, the baseline for determination of Myanmar's compliance with the Montreal Protocol, is 54.3 tonnes. ODS consumption data collected during the preparation of the country programme has been forwarded to the Ozone Secretariat.
2. Refrigeration equipment comprises over 37,000 domestic and small commercial refrigerators and freezers, and about 45,000 vehicles with a MAC unit. The only manufacturer of refrigerators in the country is Myanmar Daewoo Electronics Company Limited, with a total capacity of 10,000 units per year. This company is a joint venture with the Ministry of Industries and Daewoo, Korea. This company has 23 sales outlets and 2 service agencies operating in Myanmar. The refrigerators produced use CFC-12 as the refrigerant, of which about 1,430 kg was imported by the company in 1997. The foam-blowing agent used in producing these refrigerators is glasswool or polyurethane foam, which is inserted in Korea and then imported for use in the refrigerators. A high growth is expected in the sales of refrigerators in the next few years.
3. There are about 30 service agencies located at Yangon and Mandalay mainly for servicing MAC units and domestic refrigerators. In addition, there are a number of small service centres which service refrigeration and air conditioning equipment. Large institutions have their own service technicians and they also utilise the assistance of outside agencies. There is no system of registration or licensing of service agencies in Myanmar. Most of the technicians are trained on job and have not received any formal training for servicing refrigeration equipment. There are technical institutes though, which train and educate on operations and servicing of refrigeration systems.
4. The country programme includes a project for the establishment of a National Ozone Office within the National Commission for Environmental Affairs (institutional strengthening). The Government of Myanmar is requesting a total of US \$76,000 for the implementation of this project. The Fund Secretariat's comments and recommendations on this request are presented under UNEP work programme amendments (UNEP/OzL.Pro/ExCom/29/21).
5. The country programme also includes a request for the preparation of the refrigerant management plan. The Government of Myanmar is requesting a total of US \$30,000 for the preparation of this project. The Fund Secretariat's comments and recommendations on this request are presented under document UNEP/OzL.Pro/ExCom/29/21.

## RECOMMENDATIONS

The Fund Secretariat recommends as follows:

1. To approve the Myanmar Country Programme. Approval of the Country Programme does not denote approval of the projects identified therein or their funding levels.
2. To request the Government of Myanmar to present annually information to the Executive Committee on progress being made in the implementation of the country programme, in accordance with the decision of the Executive Committee on implementation of country programmes (UNEP/OzL.Pro/ExCom/10/40, para 135). Using the approved format, the initial report, covering the period 1 December 1999 to 31 December 2000, should be submitted to the Fund Secretariat no later than 1 May 2001.

## Country Programme Cover Sheet

**Country :** The Union of Myanmar

**Date received :**

**Lead National Agency :**

The National Commission for Environmental Affairs

**Period covered by Country Programme:**

1997 - 2010

**Lead Implementation Agency :** United Nations Environment Programme

### 1. Phaseout Schedule

Substances	Current Consumption in ODP tonnes in 1998	Planned total consumption till phase-out (ODP tonnes)	Planned year of phaseout
CFC-11	-	7.200	2009
CFC-12	52.257	396.337	2009
CFC-115	-	0.114	2007
<b>Total</b>	<b>52.257</b>	<b>403.651</b>	

### Government Action Plan

Sector	Action	Timing	Intended effect
All	Institutional Strengthening by establishing a National Ozone Cell.	Aug, 1999	Build capability to implement Country Program for phase out.
	Collect and disseminate information on ODS alternatives	Aug, 1999	Increase public awareness and availability of information on technical options.
Refrigeration and air-conditioning	Develop and implement a Refrigeration Management Plan	Sept, 1999 – 2001	Enhanced capacity of technicians and customs officials, better servicing practices, reductions in emissions. Expected savings due to RMP is 47.5 MT between 2000 – 2010.
Domestic refrigerators	Ban on imports of ODS based refrigerators.	December 1999	Reductions in future charge.
	Ban on the production of ODS based domestic refrigerators.	January, 2001	Reduction in initial and recharge consumption. Expected savings due to ban/ discontinuing production is 130.70 MT between 2000 – 2010.
	Encourage recharging ODS based domestic refrigerators by using ODS substitutes.	January, 2004	Reduction in recharge consumption. Expected savings is 12.30 MT between 2000 – 2010.
Commercial refrigeration equipment	Ban on imports of ODS based commercial refrigeration equipment.	December, 1999	Reductions in future charge. Expected savings due to ban/ discontinuing production is 2.76 MT between 2000 – 2010.
	Encourage recharging ODS		Reduction in recharge consumption.

Sector	Action	Timing	Intended effect
	based equipment by using ODS substitutes.	As and when commercially available	Expected savings is 0.03 MT between 2000 – 2010.
Industrial refrigeration equipment	Ban on installation of ODS based industrial refrigeration equipment. Retrofit of centrifugal chillers	December, 1999 January, 2006	Reductions in future recharge. Expected savings is 21.50 MT between 2000 – 2010. Reduction in recharge. Expected savings is 1.55 MT between 2000 – 2010.
Mobile Air-conditioners	Ban on import of vehicles fitted with ODS based air-conditioners / ODS based compressors Ban on use of ODS based air-conditioners in vehicles	December, 1999 January, 2004	Reductions in future charge.  Eliminate the consumption of ODS. Expected savings due to ban/ discontinuing imports of ODS based A/Cs is 466.7 MT between 2000 – 2010.

### 3. Project Summary

<i>Name of Project</i>	<b>Date</b>	<b>Estimated Cost (US\$)</b>	<b>Amount Requested from Fund (US\$)</b>
Institutional Strengthening (UNEP)	1999 – 2001	84,000	76,000
Development of Refrigeration Management Plan (UNEP)	1999	30,000	30,000
Conversion of manufacturing facility of domestic refrigerators (Daewoo Electronics) from ODS based to non-ODS based equipment		To be developed in consultation with an Implementing Agency	
<b>TOTAL</b>		<b>114,000</b>	<b>106,000</b>

Note: The above costs are estimated based on the Cost Effectiveness Guidelines given under the Protocol. NCEA is in the process of identifying other potential projects for phaseout of ODSs.

### 4. Costs

Cost of activities and projects in Country programme USD 114,000

Estimated costs of complete phaseout USD 223,700

*(Note : The above costs does not include the costs of training, related equipment and recovery & recycling related costs)*

Estimated cost effectiveness USD 1.48/kg

## EXECUTIVE SUMMARY

The Union of Myanmar (Myanmar) acceded to the Vienna convention for the Protection of the Ozone Layer and the Montreal Protocol in November, 1993 and qualifies as an Article 5 country based on its per capita consumption, which was less than 0.01 kg per capita in 1995.

In order to comply with the provisions of the Protocol, the Government of the Union of Myanmar has formulated a Country Programme with financial assistance from the Multilateral Fund and technical assistance of UNEP. This Country Programme provides data on consumption and usage of ODSs in the country and expresses the commitment of the Government to phaseout use of ODSs in terms of a defined strategy, actions by Government and Industry and projects which would require assistance from the Multilateral Fund. The National Commission for Environmental Affairs (NCEA) played a lead role in formulating the Country Programme.

Myanmar does not produce ODSs and imports these substances from countries like Singapore, United Kingdom, India, China etc. The ODSs imported by the country include CFC-11, CFC-12 and R-502. There are four large importers importing these substances for subsequent distribution. Besides the above importers, the large users such as the refrigerator manufacturer directly import ODSs for their use.

The ODSs are used predominantly in the Refrigeration and air-conditioning (RAC) sector in Myanmar. In RAC sector, about 85% of the ODSs are used in the Mobile Air-Conditioners (MACs). The consumption in this sector includes both consumption as initial charge for new equipment and consumption for recharge of MACs fitted in second hand cars imported in large numbers in the last three years. The end use consumption of ODSs has seen an increase in the recent past due to the general opening up of the economy of the country and growth consequent thereon.

Table 1 shows the consumption of ODSs in Myanmar based on the on the imports in 1997.

Substance	All figures are in MT					
	Production	Imports	Exports	Consumption	ODP	ODP Tonnes
Annexure A Group I						
CFC-11	-	-	-	-	1	-
CFC-12	-	54.790	-	54.790	1	54.790
CFC-115	-	-	-	-	0.6	-
Total		54.790		54.790		54.790

*Source: Survey report.*

*Note : The consumption of Methyl Bromide and HCFC-22 in the year 1997 is 16.00 MT and 48.05 MT, respectively.*

The ODS consumption under unconstrained scenario is expected to grow from about 48 MT in 1997 to 113 MT by 2010.

The Government of Myanmar is committed to phaseout of ODSs under Annex A Group I of the Montreal Protocol in accordance with the timeframe defined under the Protocol. As the country is totally dependent on imports of ODSs as well as a significant proportion of appliances/equipment using ODSs, the phaseout strategies will be determined by forces within and outside the country. The phaseout strategy will also take into consideration minimum cost to the consumer, thus keeping the large stock of the assets serviceable till the end of their useful life.

The imports of ODSs would be monitored and controlled by the Ministry of Commerce along with the Customs Department. Ministry of Science and Technology would undertake the monitoring of end-uses, dissemination of information on technical alternatives and coordinating training of technicians. The other Ministries will also play their role, which will be in accordance with specific steps required for Country Programme implementation.

Based on this strategy, the country expects to achieve a gradual phaseout of ODSs in the given timeframe. The actions need to be implemented by the country with immediate effect in order to comply with the time based phaseout pattern defined under the Protocol.