

NATIONS DEVELOPMENT PROGRAMME
Project of the Government of India

Project Number: IND/02/G66/AS/34 - 00013042
 Title: Sectoral Phase-out Plan for of elimination of CFCs in the Foam Sector in India
 Duration: 4 years (first phase will be for 3 years)
 Source of Funds: AS - Implementation of the Montreal Protocol *Sectoral Plans*
 Executing Agency: UNDP (through the Direct Execution Modality)
 Starting Date: 01/08/2002
 UNDP Inputs: US\$ 1,500,000
 (corresponding to the first of four funding tranches of a US\$ 5,424,577 programme)

Brief Description: This project will phase out all the remaining CFC consumption in the Foam Sector in India by 31 Dec 2006. The Sector Phase-out Plan is performance-base, and while a first tranche of US\$ 1,500,000 has been approved at the 37th meeting of the Executive Committee, further funding will be made available in subsequent tranches upon achievement of the set CFC-reduction targets. If these targets are met, the total funding that will be made available to India would amount to US\$ 5,424,577. The Sectoral Phase-out Plan will cover the technology conversions in all remaining eligible enterprises in the Foam Sector and also ensure timely, sustainable and cost-effective phase-out in the Foam Sector through a combination of investment, technical support and management components.

Legal Context: This project document shall be the instrument referred to in the Standard Annex to project documents as shown in Annex 5 and shall be governed by normal UNDP practices regarding project revisions/monitoring/evaluation and by special procurement procedures applicable to the Montreal Protocol Programme. The project will be implemented in accordance with the Agreement between the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol and UNDP signed on 21 August 1991 and the project proposal approved by the Executive Committee at its Thirty-Seventh (17-19 July 2002) Meeting in Montreal, Canada and also in accordance with the provisions of the Agreement between the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol and Government of India (Document UNEP/OzL.Pro/ExCom/37/71-Annex-VII).

The annual funding tranches beginning 2003, will be released subject to confirmation that all agreed phase-out targets and consumption limits for the previous year have been achieved and a verification that the activities planned for the previous year, were undertaken in accordance with the annual implementation programme for that year. The project will be operationally closed upon submission to and acceptance by the Executive Committee, of the report of the final year's activities and achievement of the CFC phase-out targets in the Foam Sector.

Approved by:	Signature	Date	Name and Title
UNDP	<i>B. McSw</i>	25/2/2003	BRENDA GAEL MCSWEENEY UNDP RESIDENT REPRESENTATIVE
Government (DEA)	<i>Smbd</i>	18/12/2002	PRADEEP K. DEB, JOINT SECY. DEA.
MOEF (Ozone Cell)	<i>Usha</i>	27/11/02	USHA CHANDRA SEKHAR DIRECTOR, OZONE CELL

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

PROJECT COVER SHEET

COUNTRY	INDIA	IMPLEMENTING AGENCY	UNDP
PROJECT TITLE	Sectoral Phase-out Plan for elimination of CFCs in the Foam Sector in India (Phase 1)		
PROJECT IN CURRENT BUSINESS PLAN	Yes		
SECTOR	Foams		
SUBSECTOR	All foam sub-sectors		
ODS USE IN SECTOR	Baseline (Average of 1995-97)	2,391	MT ODP
	Current (2001)	1,655	MT ODP
	From funded ongoing projects	1,016	MT ODP
	From remaining non-eligible enterprises	27	MT ODP
	From remaining eligible enterprises	612	MT ODP
	Net remaining	639	MT ODP
PROJECT IMPACT (Total programme)	(Reflecting net ODP value)	612	MT ODP
PROJECT IMPACT (1 st Tranche)		170	MT ODP
PROJECT DURATION (Total programme)		48 months	
PROJECT DURATION (1 st Tranche)		36 months	
PROJECT COSTS	Total Grant	US\$	5,424,577
PROJECT COSTS (1 st Tranche)	Incremental Capital Costs	US\$	1,500,000
LOCAL OWNERSHIP		100%	
EXPORT COMPONENT		0%	
FUNDING		US\$	1,500,000
COST EFFECTIVENESS		US\$-kg y	8.82
IMPLEMENTING AGENCY SUPPORT COSTS		US\$	131,000
TOTAL COST OF PROJECT TO MULTILATERAL FUND		US\$	1,631,000
STATUS OF COUNTERPART FUNDING		N/A	
PROJECT MONITORING MILESTONES		Included	
NATIONAL COORDINATING BODY		Ministry of Environment & Forests	

PROJECT SUMMARY

This project will phase out all the remaining CFC consumption in the Foam Sector in India by 31 Dec 2006. The Sector Phase-out Plan is performance-base, and while a first tranche of US\$ 1,500,000 has been approved at the 37th meeting of the Executive Committee, further funding will be made available in subsequent tranches upon achievement of the set CFC-reduction targets. If these targets are met, the total funding that will be made available to India would amount to US\$ 5,424,577. The Sectoral Phase-out Plan will cover the technology conversions in all remaining eligible enterprises in the Foam Sector and also ensure timely, sustainable and cost-effective phase-out in the Foam Sector through a combination of investment, technical support and management components. The first phase of the program will cover establishment of the Sector Phase-out Plan Unit (SPPU) for the management and coordination of the phase-out activities and initiation of CFC phase-out activities in about 29 enterprises in the Foam Sector leading to elimination of about 170 MT of CFCs by 2004

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

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

PREPARED BY Nandan Chirmulay, UNDP Expert

DATE October 2002

IND/02/G66

FOAM

6. FUNDING

BL	Cost Header	EX Mod	Approved Total Budget	First tranche Budget TOTAL	First tranche Budget for 2003	First tranche Budget for 2004
11.01	International Consultants	UNOPS	200,000	20,000	20,000	0
13.01	SPPU -- Support Staff	DEX	50,000	13,833	13,833	0
15.01	SPPU -- Local Travel	UNOPS	40,000	11,067	11,067	0
17.01	SPPU -- National Programme Manager	UNOPS	120,000	33,200	33,200	0
21.01	National Subcontract for Techn Assist	UNOPS	150,000	10,000	9,900	100
21.02	Trials (will be provided from future tranches)	DEX	210,000	-	0	0
31.01	SPPU - Workshops and Awareness	DEX	40,000	11,067	11,000	67
45.01	Incremental Operating Costs (from future tranches)	DEX	570,577	-	0	0
45.02	Equipment	DEX	3,580,000	1,258,182	1,258,182	0
53.01	SPPU -- Operational Expenditures	DEX	50,000	13,833	13,833	0
53.02	Contingencies	DEX	414,000	128,818	128,000	818
	SUBTOTAL			1,500,000	1,499,015	985
53.01	AOS for UNOPS Portion (at 7%)	UNOPS	N/A	5,941	5,933	8
99.00	Total		5,424,577	1,505,941	1,504,948	993

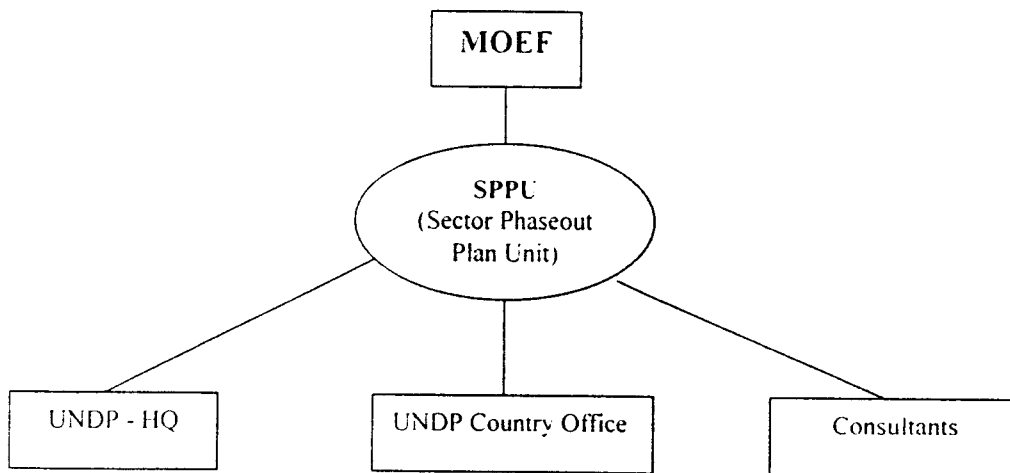
Note: All SPPU components amount to US\$ 300,000 for all tranches and US\$ 83,000 for the first tranche
 Note: All amounts in US\$ and exclude UNDP's support costs

7. RESULTS

This first phase will eliminate about 170 MY/y of CFC consumption in the Foam Sector in India, by end-2004.

8. IMPLEMENTATION MODALITY

The programme will be implemented using the Direct Execution Modality (DEX). As such, the programme will be implemented using the following structure:



A detailed description on the role of each of the actors is attached as a separate document describing the Operational Mechanism for Implementation (OMI) in great detail.

9. REPORTING AND OBTAINING FUNDING FOR FOLLOWING TRANCHES.

A yearly progress report must be prepared, showing the progress made in the project activities and reporting on the CFC-phaseout amounts that have been achieved. The information regarding the targets to be achieved on a yearly basis are stipulated in the official agreement between the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol and India - Document UNEP/OzL.Pro/ExCom/37/71, Annex-VII.

PROJECT OF THE GOVERNMENT OF INDIA
Sectoral Phase-out Plan for the Elimination of CFCs in the Foam Sector in India

1. PROJECT OBJECTIVES

A. The objectives of the overall programme (all phases) are:

- a) To achieve complete phase-out of CFCs in the Foam Sector in India by end-2006.
- b) To enable India to meet its obligations of phased ODS reductions in accordance with the control schedule of the Montreal Protocol.
- c) To ensure timely, sustainable and cost-effective CFC phase-out in the Foam Sector, through development and implementation of a combination of investment, technical support and management components.

B. The objectives related to the first phase of the programme are:

- a) Establishment and operation of the Sector Phase-out Plan Unit (SPPU) for facilitating the management of the Sector Phase-out Plan:
- b) Formulation of detailed terms of reference and work plans for various activities under the Policy & Management Support component.
- c) Establishment of an operational mechanism for participation by enterprises in the Sector Phase-out Plan and for obtaining phase-out commitments from enterprises.
- d) Organization of one workshop under the Policy and Management Support Component.
- e) Implementation activities in 26 enterprises corresponding to a phaseout of about 170 ODP tones over a duration of 36 months.

Another four funding tranches will be approved in subsequent years and will result in achieving the overall objective described in subparagraph A above.

2. INSTITUTIONAL FRAMEWORK

(See Full-Fledged project document approved at the 37th ExCom meeting including all phases)

3. SECTOR BACKGROUND

Full-Fledged project document approved at the 37th ExCom meeting including all phases)

4. PROJECT DESCRIPTION

The Sectoral Phase-out Plan for elimination of CFCs in the Foam Sector in India will be implemented through a combination of investment, technical support and management components (See Full-Fledged project document approved at the 37th ExCom meeting including all phases). The activities to be summarized in CY 2002 are summarized as below:

4.1 Investment Component

The investment component of the plan will focus on enabling the participant enterprises to physically eliminate CFCs from their production activities and would comprise of the following elements:

- Assessment of the technical requirements of conversion
- Determining the scope of international and local procurement
- Development of technical specifications and terms of reference for procurement
- Identification and short-listing of vendors

- Competitive bidding
- Evaluation of bids and vendor selection
- Procurement contracts
- Site preparation
- Customs clearance and delivery
- Installation and start-up
- Product and process trials
- Operator training
- Commissioning and phase-in of CFC-free production
- Destruction of baseline equipment

Technical assistance for these activities would be provided through UNDP international and national experts. For CY 2002, these activities are proposed to be initiated for the following enterprises/sub-sectors:

Rigid foam (general insulation)	Five individually executed sub-projects	45 MT ODS Phase-out
Rigid foam (thermoware insulation)	Twelve individually executed sub-projects	70 MT ODS Phase-out
Flexible molded and integral skin foam	Six individually executed sub-projects	55 MT ODS Phase-out
Chemical systems houses	Six individually executed sub-projects	N/A
TOTAL		170 MT ODP

It is foreseen that the durations for the sub-projects would be set in such a way as to ensure that their completion would contribute to about 81% of the verifiable annual performance target for CY 2004 (210 MT) leading to a minimum phase-out of about 170 MT CFCs through the Sector Phase-out Plan. The balance of the 2004 target would be met through the second funding tranche to be obtained in 2003.

4.3 Policy and Management Support Component

The implementation of the Foam Sectoral Phase-out Plan will need to be closely aligned and coordinated with the various policy, regulatory, fiscal, awareness and capacity-building actions the Government of India is taking and will need to take in future, in order to ensure that the implementation of the Sectoral Phase-out Plan is consistent with the Country Programme principles, such as promotion of indigenization and decentralized management. Further, in view of the annual performance-based targets needed to be achieved under the terms of the Sectoral Phase-out Plan, the implementation of the Plan will need to be closely and efficiently managed and will introduce additional coordinating, reporting and monitoring activities.

The following activities are envisaged, for CY 2002:

- f) Establishment and operation of the Sector Phase-out Plan Unit (SPPU) for facilitating the management of the Sector Phase-out Plan:
 - Determination of personnel and logistics requirements
 - Finalizing terms of reference for personnel
 - Initiation of recruitment of personnel
- g) Formulation of detailed terms of reference and work plans for various activities under the Policy & Management Support component.
- h) Establishment of an operational mechanism for participation by enterprises in the Sector Phase-out Plan and for obtaining phase-out commitments from enterprises.
- i) Organization of one workshop under the Policy and Management Support Component.

5. TECHNOLOGY

(See Full-Fledged project document approved at the 37th ExCom meeting including all phases)

INDIA

FOAM SECTOR PHASE-OUT PLAN

Operational Mechanism for Implementation

Draft 2: Prepared 19 October 2002

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1. INSTITUTIONAL FRAMEWORK

1.1 INTRODUCTION

This document describes the Operational Mechanism for Implementation (OMI) for the Sector Phase-out Plan for CFCs in the Foam Sector in India and the roles and responsibilities of the Government of India (GOI), United Nations Development Programme (UNDP) and the prospective Recipient Enterprises (CFC consuming enterprises to be covered under this Plan).

The OMI has been prepared by UNDP in collaboration with the Ozone Cell, Ministry of Environment and Forests, Government of India (hereinafter referred to as "MOEF") for implementation of the Sector Phase-out Plan for CFCs in the Foam Sector.

The OMI should be read in conjunction with the following documents:

- Agreement between the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol - Document UNEP/OzL.Pro/ExCom/37/71, Annex-VII.
- Approved project document for the project "Sectoral Phase-out Plan for Elimination of CFCs in the Foam Sector in India"

This OMI is not intended to supersede any of the existing legal and other obligations or new legal or other obligations emanating from the above documents, of the Government of India. It is to be considered as a dynamic and evolving document and may be revised as required during the course of implementation of the project.

1.2 BACKGROUND

On behalf of Government of India (GOI), UNDP submitted a proposal entitled "Sectoral Phase-out Plan for Elimination of CFCs in the Foam Sector in India", in July 2002 to the Executive Committee (ExCom) of the Multilateral Fund (MLF) for Implementation of the Montreal Protocol for the phase-out of Ozone Depleting Substances (ODS). The proposal was reviewed and evaluated by the Multilateral Fund Secretariat (MLFS) and was approved by ExCom at its 37th Meeting in July 2002.

The project provides India with an overall framework for phase-out of CFCs in the Foam Sector within the time frame provided by the Montreal Protocol (by 31 December 2006) and generates additional responsibilities and obligations for GOI in implementation and management of the project. The project comprises a funding agreement over the duration of the project and links stipulated annual CFC phase-out targets to annual funding tranches. The funding includes provisions for incremental costs for Investments, Technical Support and Policy & Management Support.

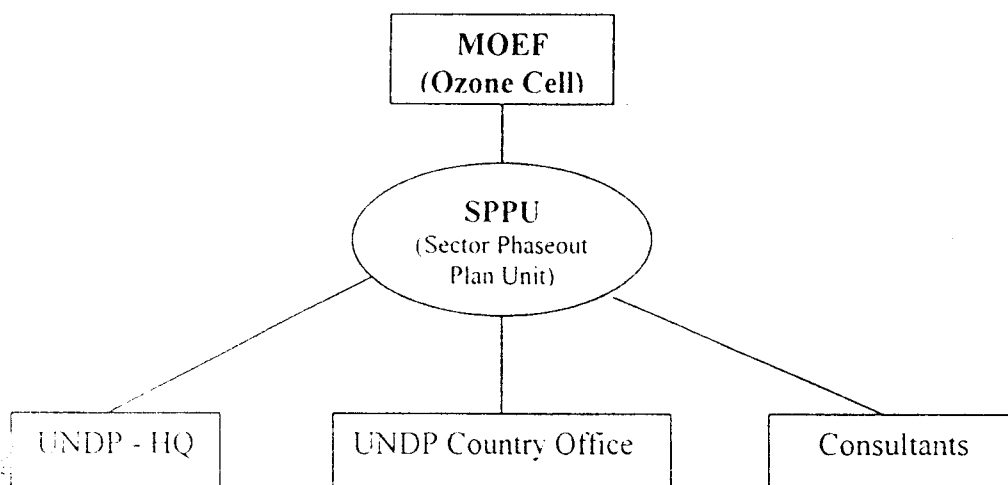
The main characteristics of the Sector Phase-out Plan in the Foam Sector in India are as follows:

- The responsibility for meeting the agreed annual CFC phase-out and consumption levels in the Foam Sector rests with GOI.
- It incorporates reporting mechanisms for GOI (MOEF/Ozone Cell) for disbursement of agreed annual funding tranches. In accordance with the agreement, Annual Implementation Programs will need to be developed for each calendar year and submitted to the last ExCom meeting in the preceding year. Through its endorsement of the Annual Implementation Programs and subject to achievement of agreed annual targets in the preceding year, ExCom will approve and release the annual grant tranches.
- It incorporates verification of achievement of annual CFC phase-out and consumption targets in the Foam Sector and that the associated policy actions, technical support and training activities have been carried out according to the Annual Implementation Program.



1.3 ROLES AND RESPONSIBILITIES OF STAKEHOLDERS

This section outlines the roles and responsibilities of respective stakeholders in the implementation of the Foam Sector Phase-out Plan. The major stakeholders which will be involved in the implementation, are as in the following diagram:



1.3.1. Short description / definition of the stakeholders.

A) Ministry of Environment and Forests (MOEF)

MOEF is the designated ministry responsible for implementation of Montreal Protocol in India. MOEF – through its Ozone Cell -- will carry out its responsibilities within the following institutional framework:

- ♦ **Empowered Steering Committee:** Chaired by the Secretary, MOEF, for coordination at the national level for meeting India's obligations under the Montreal Protocol supported by three standing committees:
- ♦ **Technology and Finance Standing Committee (TFSC):** For providing policy and technical guidance, direction and oversight to the overall Montreal Protocol program.
- ♦ **Standing Committee for Small Scale Industry (SCSSI):** Entrusted with advising on ODS phase-out and compliance by the crucial small industries sector
- ♦ **Standing Committee for Monitoring and Evaluation (SCME):** For advising on and monitoring of implementation.

B) Sector Phase-out Plan Unit (SPPU): To be established under the Ozone Cell (MOEF), with the assistance of UNDP, for management and coordination of the Sector Phase-out Plans. The detailed terms of reference for the staff for constituting the SPPU are attached as Annex-2. The SPPU will facilitate implementation of Sector Phase-out Plans.

C) UNDP-HQ / UNDP-CO: As the implementing agency for the Foam Sector Phase-out Plan, UNDP will be implementing the programme using the Direct Execution Modality (DEX). It's Montreal Protocol Unit in New York has been actively involved in the project preparation phase, will guide the overall implementation process, guide the UNDP Country Office whenever needed, finalize / submit the yearly progress reports and defend them at the meetings of the Executive Committee of the Multilateral Fund, to obtain the subsequent funding tranches of the programme. UNDP's Country Office located in New Delhi will liaise closely with the SPPU to carry out the implementation of the project activities.

1.3.2. Role of the Stakeholders.

The role of each of the stakeholders in each of the anticipated project implementation activities is provided in the following table. Each stakeholder's involvement is indicated as high "h", medium "m" or low "l". The stakeholder bearing responsibility for a given activities is indicated with a capital "H".

ACTIVITY	MOEF	UNDP-HQ	UNDP-CO	SPPU	Consultant
Ownership of the programme and leader of the programme, all monitoring functions	H				
Setting up operational procedure for participation of recipient enterprises	H			l	l
Overall responsibility for monitoring and supervision of implementation activities with the assistance of UNDP	H	h		h	m
Project Preparation Activities, business planning, plan visits of consultants, negotiate with MLF Secretariat and ExCom, liaise with MOEF.	m	H	l		H
Inform MLF Secretariat and ExCom about status in yearly progress report for MLF	m	H	l		H
Obtain funding from MLF Treasurer, finalization of prodoc, negotiating implementation arrangements	l	H	l		l
Drafting TOR's and managing for SPPU and consultants	l	H	l		m
Managing of SPPU activities and consultants		m	H		
Cooperation with UNDP-Experts		l	l	H	H
Recruitment International consultants		H	l		
Recruitment National consultants / payments of nat. personnel / F10		H	H		l
Obtain signatures for prodocs / yearly tranches	m	m	H		
Process budget revisions		m	H		
Organize/participate in supervision missions, monitoring meetings / standing committees / TPR's	h	l	H	h	m
Enforcement of the ODS Regulations in relation to this project	H			m	m
Supervision of other activities, such as public information and awareness initiatives, training programs, as needed.	m			H	m
Provide advice and resolve eligibility issues related to MLF	l	H			m
Establishing mechanism of RC participation in the Sector phase-out Plan and in determining the sequence of RC participation	l		l	H	m
Provide Technical advise to recipient enterprises on industrial conversion process					H
Carry out visits at these enterprises on a regular basis and report on progress				H	H
Preparation of specifications, terms of reference and vendor shortlists			l	H	H
Preparation of Invitations to Bid (ITBs), carrying out international/local competitive bidding exercises for equipment/services + opening of bids			H	h	H
Finalization of vendor selections, evaluation of bids/vendors			h	H	H
Submission of documentation related to procurement-preparation			l	H	
Contracts Committee (local or HQ depending on size)		H	m		
Issuance of Purchase Orders & payment to vendors / recipients			H	h	l
Arranging customs clearance of internationally procured equipment			H	l	l
Ensuring local distribution of equipment to the recipient enterprises			l	m	H
Ensuring implementation of the Local Works needed to install equipment				l	H
Ensuring production start-up with CFC-free technology, Test Trials				l	H
Monitoring and supervising enterprise-level CFC phase-out and baseline equipment disposal, including any required inspection visits to RCs				h	H
Carrying Out payments for incr. Operational costs if applicable			H	l	
Collection of official affidavits/SOC upon respective enterprise phaseout protocols	l			H	H
Arranging verification audits of Annual Implementation Programs		H	l	h	H
Providing inputs for preparation of Annual Implementation Programs / progress reports to UNDP		m	l	H	m
Review of yearly progress reports, and action plans, negotiate with MLF Secretariat and ExCom on obtaining next funding tranche, finalization of yearly prodoc corresponding to tranche.	l	H	l	h	H
Cooperating with supervision and audit verification teams or with independent reviewers appointed by ExCom, to verify the findings of the audits	h	m	l	H	m

H: high involvement and having lead responsibility for the activity concerned

h: high involvement

m: medium involvement

l: low involvement

1.3.3 Role of the Recipient Enterprises

While the recipient enterprises are not considered as a stakeholder in carrying out the implementation of the project per sé, they also play a key-role as the recipient of the project activities. The obligations and responsibilities of each of the recipient enterprises participating in the Sector Phase-out Plan will include the following:

- Designating a contact person for the project
- Undertaking to be available for interacting and cooperating with Ozone Cell/SPPU and UNDP
- Providing all documentation and declarations as may be required by MOEF for participation in the Sector Phase-out Plan in the prescribed format
- Agreeing to the specifications, terms of reference and vendor shortlists prepared by UNDP/SPPU experts
- Preparing the sites and completing all required local works for installation of equipment procured and provided to the enterprise under the terms of participation in the Sector phase-out Plan
- Ensuring the installation and commissioning of all equipment and services including all changes to the production operations for ensuring phase-out of CFCs, in cooperation with the suppliers and in accordance with the terms of reference provided
- Undertaking to irrevocable phase-out of CFCs upon completion of the project and in accordance with the agreed schedule
- Ensuring that the CFC-based baseline equipment replaced under the project is irrevocably rendered unusable with CFCs
- Undertaking to maintain production and other related records and make them available for review and verification as may be required
- Providing inputs to SPPU and UNDP for preparing project completion reports as may be required Accepting supervision/inspection teams from SPPU/MOEF, relevant government agencies and UNDP, as well as designated experts and verification/audit teams
- Complying with all laws and regulations related to the Montreal Protocol promulgated by GOI including the ODS (Regulation) Rules
- Participating in workshops/meetings as called for by SPPU/UNDP

2. OPERATIONAL PROCEDURES

2.1 ANNUAL IMPLEMENTATION PROGRAMS

2.1.1 Preparation

For each year of the duration of the Sector Phase-out Plan, UNDP, in cooperation with the SPPU, will prepare an Annual Implementation Program for the calendar-year period and following its review and clearance by Ozone Cell/MOEF, will submit it to the last ExCom meeting of the preceding year. Upon approval by ExCom, the annual grant tranche will be transferred from the MLF to UNDP. Disbursement of funds from UNDP will be subject to release of funds from MLF. The Annual Implementation Program will include:

- Review of the preceding year's Annual Implementation Program, detailing realization of CFC phase-out targets, progress of implementation of all activities and status of disbursements
- Monitoring indicators
- Details of activities proposed to be carried out
- Amounts and schedule of disbursements
- Request for funding allocation from annual grant tranche
- Confirmation by UNDP that the preceding year's targets have been satisfactorily met

2.1.2 Inputs from SPPU

SPPU will provide the following inputs to UNDP for the Annual Implementation Programs:

Reporting for the preceding year:

- Actual CFC phase-out achieved at enterprise level
- Agreed remedial actions for the current year, in the event CFC phase-out targets in the preceding year were not met
- Report on all other activities undertaken

Planning for the current year:

- CFC phase-out expected from participating enterprises
- Annual grant tranche for the year and budget estimates for each of the activities
- Projected disbursement schedules and amounts
- Monitoring Indicators

2.1.3 Verification and certification

By Ozone Cell/MOEF

Ozone Cell/MOEF will commission independent technical auditors, such as Chartered Engineers or similar authorized entities to verify and certify that all project inputs have been provided at enterprise level, the agreed CFC phase-out has been established and all other obligations have been met by the recipient enterprise(s). The terms of reference for such audit will be developed in consultation with UNDP.

By UNDP

UNDP shall carry out final inspection, verification and certification of the project inputs at enterprise level to establish completion of all activities and disposal of replaced CFC-based equipment and to establish that the agreed CFC phase-out has been achieved. UNDP shall also carry out independent verification and certification of all other activities envisaged in the annual implementation program.

2.2 PROCUREMENT

The international and local procurement of equipment and services required in the implementation of the Foam Sector Phase-out Plan, jointly by UNDP and SPPU, through an integrated Procurement Support Group comprising of designated representatives and experts from SPPU and UNDP. The procurement procedures are described in more detail in Annex-3. The respective distribution of responsibilities for procurement activities would be as below:

2.2.1 SPPU Responsibilities

- Preparation and finalization of terms of reference, scope, specifications of and vendor short-lists for equipment & services to be procured, in consultation with the respective recipient enterprises and with the support of designated UNDP technical experts
- Objective and transparent techno-commercial evaluation of bids received from the vendors and recommendation of the technically acceptable vendor offering the lowest prices

2.2.2 UNDP Responsibilities

- Issuance of Invitations to Bid to the short-listed vendors as advised by SPPU
- Opening of Bids and sending the bids to SPPU for evaluation
- Issuance of Purchase Orders/Contracts to the selected vendors
- Effecting payments to the selected vendors in accordance with the terms of the purchase orders/contracts, upon authorization by SPPU
- Arranging customs clearance and delivery of internationally procured equipment to the respective recipient enterprises

2.3 DISBURSEMENT

The disbursement of the funding for the Foam Sector Phase-out Plan is governed by the agreement between GOI and the Executive Committee (UNEP/OzL.Pro/ExCom/37/71). The flow of funds for the implementation of the Foam Sector Phase-out Plan is summarized below:

2.3.1 From MLF to UNDP

Upon ExCom approval of the Annual Implementation Program, the approved grant tranche for each year will be transferred from the MLF to UNDP subject to fund availability at MLF. This will include all project funds covering the incremental capital costs for the investment and policy & management support components, the approved incremental operating costs and agency fees.

2.3.2 From UNDP to SPPU

The approved funding tranche for each year, covering the Policy and Management Support Component in the Foam Sector Phase-out Plan, would be disbursed by UNDP to SPPU in accordance with UNDP financial rules and procedures, upon submission by SPPU to UNDP, the required requisitions for activities to be undertaken by SPPU under the Foam Sector Phase-out Plan. The salaries of SPPU staff and SPPU capital and operational expenses shall be disbursed by UNDP in accordance with the contractual terms and applicable UNDP rules and procedures.

2.3.3 From UNDP to Suppliers

UNDP will effect payments to international and local suppliers of equipment and services, procured under the Foam Sector Phase-out Plan, in accordance with the agreed contractual terms and in line with procurement procedures for the Foam Sector Phase-out Plan detailed in Annex-3, upon endorsement by SPPU.

2.3.4 From UNDP to Recipient Enterprises

All eligible reimbursements of expenses and eligible incremental operating costs as approved in the Foam Sector Phase-out Plan, shall be disbursed directly by UNDP to the recipient enterprises, upon receiving an endorsement from SPPU that the endorsed amounts are reasonable and eligible and that the required supporting documentation in accordance with the agreed terms between Ozone Cell/MOEF and the recipient enterprises has been provided and reviewed.

3 MONITORING & REPORTING

The Ozone Cell/MOEF will have the overall responsibility for monitoring the implementation of the Foam Sector Phase-out Plan. The monitoring indicators for outputs at the national and enterprise levels would be as below:

3.1 NATIONAL LEVEL MONITORING INDICATORS

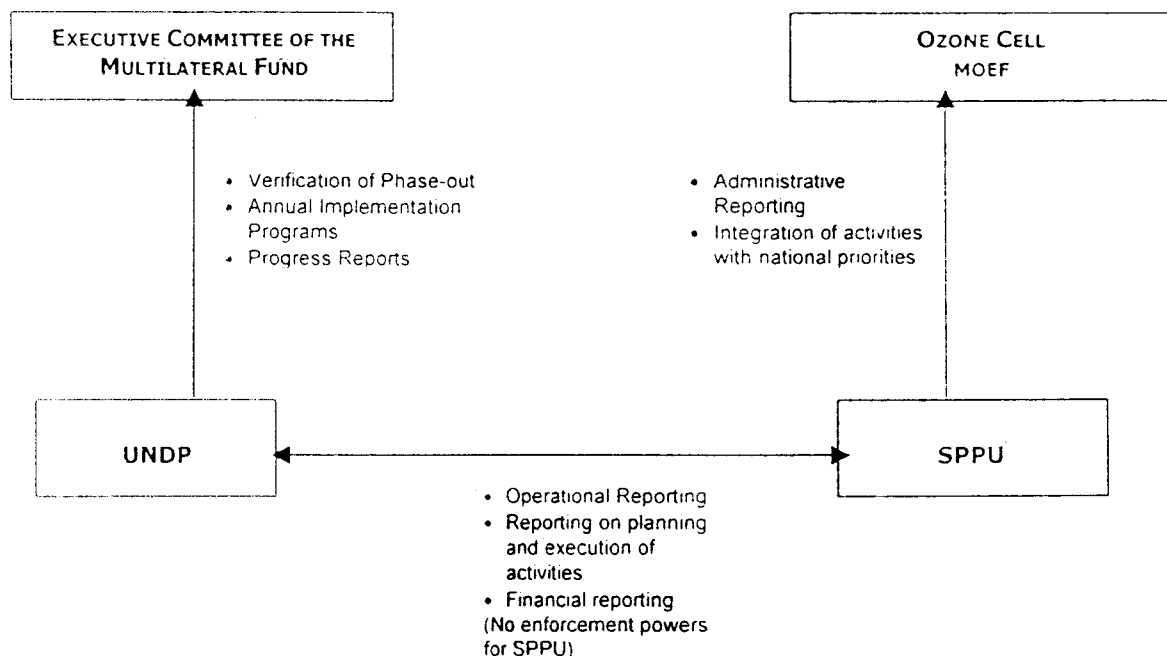
- Annual domestic production level of CFCs
- Annual domestic consumption of CFCs in the Foam Sector
- Annual maximum permissible consumption level of CFCs in the Foam Sector
- Annual CFC phase-out targets as prescribed in the Annual Implementation Program
- Annual CFC phase-out actually achieved in the Foam Sector
- Annual fund disbursements from the Sector Phase-out Plan
- Data reporting obligations under Article-7 of the Montreal Protocol
- Promulgation of any new policies and regulations pertaining to the Foam Sector phase-out Plan
- Implementation status and effectiveness of policies and regulations pertaining to the Foam Sector Phase-out Plan

3.2 ENTERPRISE LEVEL MONITORING INDICATORS

- Baseline CFC consumption figures for enterprises with ongoing (under implementation) conversion projects under the Montreal Protocol
- Baseline CFC consumption figures for enterprises participating in the Sector Phase-out Plan
- CFC phase-out targeted at enterprise levels, in the Annual Implementation Programs
- CFC phase-out achieved at enterprise level

3.3 ADMINISTRATIVE REPORTING

The following figure illustrates the proposed administrative reporting mechanism:



ANNEX-1

FORMAT FOR PARTICIPATION AGREEMENT WITH RECIPIENT ENTERPRISES TO BE COVERED UNDER THE FOAM SECTOR PHASE-OUT PLAN

Ozone Cell
Ministry of Environment & Forests
New Delhi, India

Dear Sirs,

PHASE-OUT OF CFCs IN THE MANUFACTURE OF (SUB-SECTOR) FOAM

In connection with the above we hereby confirm the following:

- 1) a) We presently consume polyurethane chemicals in our production of (sub-sector) foam. We procure these chemicals mainly from local chemical suppliers who have been helping and advising us regarding the usage of these chemicals to enable us to maintain the properties of our end products and meet our customer's requirements economically. We understand that these polyurethane chemicals contain CFCs, which have to be phased out in future, as per international agreements.
- b) We have been assured by our chemical suppliers that they will be able to supply us the alternative chemicals that will give us the desired quality of end products. We understand that our present technology and process may not be suitable for working with the alternative chemicals and that we may be eligible to receive equipment suitable for handling the alternative chemicals, which may be made available to us under the supervision of MOEF/UNDP.
- c) We are agreeable to participate in a group/sectoral project covering enterprises similar to us producing foam, with the aim of phasing out CFCs. Under this project, we understand that we may be eligible to receive equipment, trial materials, training, technical assistance, etc.
- d) We agree to accept the equipment and selected conversion technology recommended by UNDP/MOEF as per specifications to be developed by them. We also agree that MOEF/UNDP may make any required technical decisions affecting the technology selection, to ensure that project objectives are achieved and the selected technology can be applied in accordance with established industrial standards and practices for operation and environmental & occupational safety.
- e) We understand and accept that the Government of India and UNDP will make a determination of the amount of funding we will be eligible to receive, in order to effect phase-out of CFCs.

- 2) We confirm the following baseline information about our enterprise:

Consumption of CFC-based chemicals: _____ MT (for CY 2000)
Baseline equipment/process: Hand-mixing/Low-pressure dispenser/High-pressure dispenser
Date of Establishment/Registration:
Date of commencement of commercial production:
Name of Proprietor/Partner/Managing Director:
Address of Registered Office/Proprietor/Partner:
Address of factory where CFC phase-out will be implemented:

- 3) We hereby undertake:
 - a) To bear any costs required for successful conversion to fully CFC-free technology over and above the approved funds.
 - b) To discontinue the use of CFCs and to dispose all redundant baseline equipment replaced under the project, upon project completion and to allow monitoring inspections by Government of India and/or UNDP or their designated representatives during project implementation and after project completion, to verify the same.
 - c) To assume all liabilities which may arise throughout the conversion process.

This letter may be treated as our formal application and confirmation of our baseline data, for seeking assistance from the Multilateral Fund of the Montreal Protocol for phasing out of CFCs in our manufacturing process.

(Signed)
Authorized Signatory

ANNEX-2

TERMS OF REFERENCE FOR SPPU STAFF

1. NATIONAL PROGRAMME MANAGER

The mandate of the Sector Phase-out Plan Management & Coordination Unit (SPPU) would be to assist the Ozone Cell, Ministry of Environment and Forests (MOEF) and UNDP for implementation of the Foam Sector Phase-out Plan, involving CFC phase-out at CFC-consuming enterprises in the Foam Sector, through a combination of Investment and Policy & Management Support components, and to facilitate achievement of the CFC phase-out schedule in the Foam Sector in India, in accordance with the agreement between GOI and MLF Executive Committee (UNEP/OzL.Pro/ExCom/37/71, Annex-VII). UNDP is the designated implementing agency for this project and will provide the required technical and infrastructural support for the implementation of the Sector Phase-out Plan. The Coordinator of the SPPU will have overall operational responsibility for the implementation of the Foam Sector Phase-out Plan.

Duties and responsibilities

The Coordinator will be responsible for regular review and implementation of the Foam Sector Phase-out Plan and is expected to discharge the following functions:

- Supervise the implementation of the Foam Sector Phase-out Plan under the guidance of Director, Ozone Cell and UNDP.
- Work in close coordination with UNDP experts and recipient enterprises
- Act as an interface between UNDP, MOEF and other relevant organizations/departments on activities relating to the SPPU.
- Assist Ozone Cell in verification of baseline CFC consumption levels and CFC phase-out at the enterprise level
- Prepare periodic reports for the Ozone Cell to be submitted to various stakeholders including MOEF and UNDP
- Assist Ozone Cell in implementation and enforcement of policies and regulations as per the ODS (Regulation) Rules, 2000.
- Assist UNDP in preparing the Annual Implementation Programs
- Manage and monitor activities performed by the other SPPU professional and general staff.
- Perform other duties within the purview of the project as assigned by Ozone Cell/UNDP.

Qualifications and Experience

- A Master's degree in Environment/Life Sciences, Engineering or Chemistry is required. A Doctoral or Management degree is desirable.
- Minimum fifteen years working experience in Government, Public Sector, Multilateral Organizations or NGOs is required.
- Minimum ten years experience in management and administration of environmental projects and activities.
- Thorough knowledge and understanding of the Montreal Protocol financial mechanism and the Multilateral Fund policies, guidelines and procedures.

Salary

Negotiable based on qualifications and experience

Duration

One year (renewable)

Location

New Delhi, India

2. OPERATIONS ASSISTANT

(Terms of reference to be developed)

3. OFFICE ASSISTANT

(Terms of reference to be developed)

ANNEX-3

PROCUREMENT PROCEDURES

The following is a brief description of the elements of the procedural regime, which would be followed for international and local procurement of equipment and services required for the implementation of the Foam Sector Phase-out Plan:

INTRODUCTION

The procurement activities will be carried out by UNDP supported by an integrated Procurement Support Group (PSG). The PSG team will comprise of the following:

- Coordinator of the SPPU
- One designated UNDP staff experienced in procurement
- One designated UNDP international technical expert
- One designated UNDP national technical expert
- One designated UNDP program staff

The Procurement Support Group will assist the SPPU in arranging the international and local procurement of equipment and services required for executing the Foam Sector Phase-out Plan in a transparent and accountable manner. The various procurement actions will be initiated upon signature of the project document by GOI and UNDP and receipt by UNDP of the annual disbursement tranche from MLF

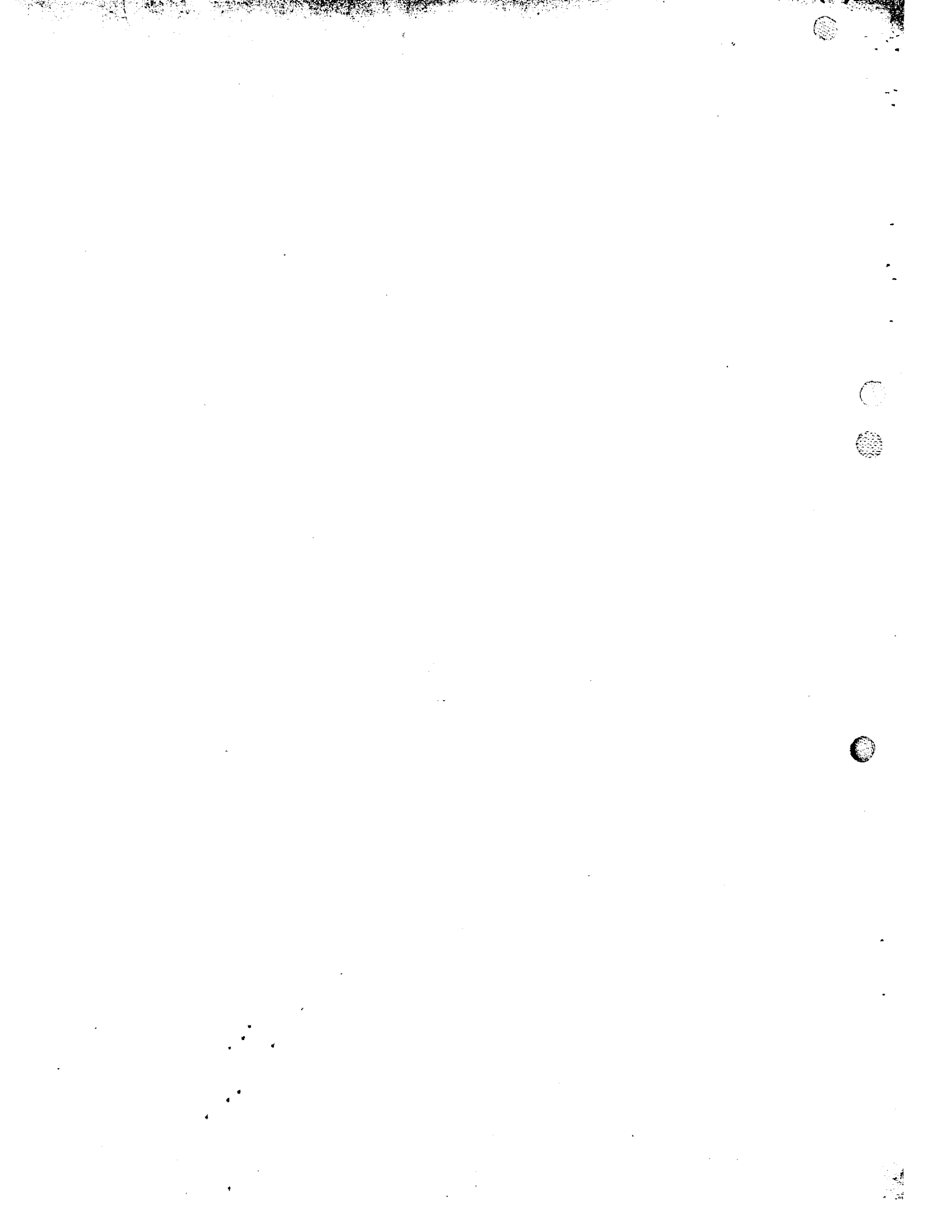
INTERNATIONAL PROCUREMENT

- The technical requirements of conversion to non-CFC technology at each enterprise, would be assessed by UNDP experts. Based on the same, the scope, technical specifications of the equipment and short-list of vendors would be developed by UNDP experts. A minimum of five reputed international vendors from a minimum of three countries will be short-listed. The specifications shall be clear and unambiguous to the maximum extent possible and shall incorporate the most cost-effective technical options, required for effecting CFC phase-out. The PSG will endorse the specifications and vendor short-lists.
- Concurrence of the recipient enterprises, to the specifications and vendor short-lists may be obtained by SPPU to the extent possible.
- The SPPU will formally forward the specifications and vendor short-lists to UNDP's procurement office.
- UNDP's procurement office will issue the Invitations to Bid (ITB) to the short-listed vendors, and may at its discretion to additional vendors. The vendors shall be provided a minimum of 21 days from the date of issuance of the ITB for submitting the bids. No extensions to the date for submitting the bids will be granted under any circumstances, except Force Majeure.
- On the stipulated date of submission of the Bids, the UNDP procurement office shall conduct a public opening of bids and forward the bids to the PSG.
- The PSG will then prepare a report consisting of an objective and independent techno-commercial evaluation, analysis and comparison of the bids received and recommendation of the successful bidder. The technically acceptable bidder offering the lowest prices shall be recommended. Some of the factors to be considered in such an evaluation are, the compliance of the bid with the specifications, reliability of the supplier with regard to product quality, industry reputation and financial stability, local availability of spare parts and service, etc.
- The SPPU will formally forward the bid evaluation report(s) along with recommendations to UNDP's procurement office.
- UNDP's procurement office will issue the purchase order/contract to the recommended vendor.

LOCAL PROCUREMENT

All procedures would be similar to international procurement with the following exceptions:

- The vendor short-list will comprise of a minimum of three reputed indigenous vendors
- The vendors shall be provided a period of minimum of fifteen days from the date of issuance of the ITB, for submission of bids



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

PROJECT COVER SHEET

COUNTRY	INDIA	IMPLEMENTING AGENCY	UNDP
PROJECT TITLE	Sectoral Phase-out Plan for of elimination of CFCs in the Foam Sector in India		
PROJECT IN CURRENT BUSINESS PLAN	Yes		
SECTOR	Foams		
SUBSECTOR	All foam sub-sectors		
ODS USE IN SECTOR	Baseline (Average of 1995-97)	2,391	MT ODP
	Current (2001)	1,655	MT ODP
	From funded ongoing projects	1,016	MT ODP
	From remaining non-eligible enterprises	27	MT ODP
	From remaining eligible enterprises	612	MT ODP
	Net remaining	639	MT ODP
PROJECT IMPACT	(Reflecting net ODP value)	611	MT ODP
	(Including funded ongoing projects)	1,627	MT ODP
PROJECT DURATION	4 years		
PROJECT COSTS	Incremental Capital Costs	US\$	4,440,000
	Contingencies	US\$	414,000
	Incremental Operating Costs	US\$	570,577
	Total Project Costs	US\$	5,424,577
LOCAL OWNERSHIP	100%		
EXPORT COMPONENT	0%		
REQUESTED GRANT	US\$	5,424,577	
COST EFFECTIVENESS	US\$/kg/y	8.88	
IMPLEMENTING AGENCY SUPPORT COSTS	US\$	476,212	
TOTAL COST OF PROJECT TO MULTILATERAL FUND	US\$	5,900,789	
STATUS OF COUNTERPART FUNDING	N/A		
PROJECT MONITORING MILESTONES	Included		
NATIONAL COORDINATING BODY	Ministry of Environment & Forests		

PROJECT SUMMARY

This project will phase out all the remaining CFC consumption in the Foam Sector in India upon completion. The Sectoral Phase-out Plan will be implemented through four annual implementation programmes and together with the implementation of the approved ongoing projects, will result in the complete phase-out of CFCs in the Foam Sector in India in four years. The Sectoral Phase-out Plan will cover the technology conversions in the 105 remaining eligible enterprises in the Foam Sector and also ensure timely, sustainable and cost-effective phase-out in the Foam Sector through a combination of investment, technical support and management components. The total eligible incremental costs of the Sectoral Phase-out Plan are US\$ 5,424,577.

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

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

PREPARED BY	Nandan Chirmulay, UNDP Expert	DATE	April 2002
REVIEWED BY	Dr. Hubert Creyf	DATE	April 2002

PROJECT OF THE GOVERNMENT OF INDIA
Sectoral Phase-out Plan for the Elimination of CFCs in the Foam Sector in India

1. PROJECT OBJECTIVES

The objectives of this project are:

- a) To achieve complete phase-out of CFCs in the Foam Sector in India within four years.
- b) To enable India to meet its obligations of phased ODS reductions in accordance with the control schedule of the Montreal Protocol.
- c) To ensure timely, sustainable and cost-effective CFC phase-out in the Foam Sector, through development and implementation of a combination of investment, technical support and management components.

2. INSTITUTIONAL FRAMEWORK

India ratified the Vienna Convention in March 1991 and the Montreal Protocol in June 1992. In 1993, India prepared a detailed Country Programme to phase out ODS in accordance with its national industrial development strategy and in line with the Montreal Protocol control schedule. The Country Programme was aimed at ensuring that the phase out will be effected without undue economic burden to both consumers and industry and provided India with the opportunity to access the Montreal Protocol Financial Mechanism. The guiding principles of the Country Programme are, to minimize economic dislocation as a result of ODS phase-out, minimize industrial obsolescence, maximize indigenous production, promote one-step phase-out and to emphasize decentralized management.

The Government of India has entrusted the work relating to ozone layer protection and implementation of the Montreal Protocol, to the Ministry of Environment and Forests (MOEF), which is the coordinating Ministry in India for all matters concerning the Montreal Protocol. The MOEF has set up an Ozone Cell, as the national unit to manage and coordinate India's country programme for ODS phase-out.

The MOEF has established an empowered Steering Committee, which comprises of high-level representation from other line ministries and is primarily responsible for formulating and implementing policies and procedures pertaining to India's compliance with the Montreal Protocol. The Steering Committee is supported by three Standing Committees, namely the Technology and Finance Standing Committee (which reviews and endorses ODS phase-out proposals and activities), Standing Committee for Small Scale Industry (which is entrusted with advising on ODS phase-out and compliance by the crucial small industries sector) and Standing Committee for Monitoring and Evaluation (which advises and monitors implementation).

Recognizing the importance of establishing an effective policy framework for the successful implementation of the Country Programme, MOEF has initiated an aggressive programme to create such a framework to reinforce the various ODS phase out measures:

2.1 Regulatory Measures

- a) The Steering Committee, since its inception, has instituted an elaborate legal procedure for review and endorsement of project proposals, for submission to the Multilateral Fund for funding. Each enterprise seeking assistance is required to make a formal application to MOEF in a prescribed format along with legally binding documentation and certifications for establishing its eligibility, CFC consumption and financial viability. Each proposal is reviewed by the Technology and Finance Standing Committee for technical and policy issues and if acceptable, recommended for acceptance and formal endorsement.
- b) Trade in controlled substances with countries not party to the Montreal Protocol has been prohibited.

- c) The export of Annex A and Annex B substances to Non-Article 5 Parties has been prohibited.
- d) The import and export of all Annex A and Annex B substances are subject to licensing.

2.2 Fiscal Measures

- a) Full exemption from payment of Customs and Excise tariffs on capital goods required to implement ODS phase out projects funded by the Multilateral Fund. The exemption from Customs and Excise tariffs has been extended to ODS phase-out projects, which were eligible for funding under the Multilateral Fund, whether or not such enterprises actually sought assistance from the fund. This will also cover projects submitted for retroactive financing. The benefit was available subject to the condition that enterprises should give a clear legal commitment to stop using ODS in all future manufacturing operations after the projects were implemented.
- b) The duty exemptions were also extended to items of recurring use, including non-ODS alternatives for a duration for which, incremental operating costs were committed by the Multilateral Fund in approved projects.
- c) The duty exemptions were also extended to capital goods required for establishing new capacity with non-ODS technology.
- d) Indian financial institutions have been advised not to finance/refinance new ODS producing/consuming enterprises.
- e) The Tariff Advisory Committee (a statutory body under the Insurance Act, 1938) has decided to grant suitable discounts on fire insurance premiums if alternative agents are used to replace halons.

2.3 Legislation

In exercise of the powers conferred under sections 6, 8 and 29 of the Environment Protection Act of 1986, Government of India formulated the draft Ozone legislation called the Ozone Depleting Substances Rules, which were published in the Gazette of India in 1998 for public comments and also circulated in the industry for advance intimation and comments. These have been since been officially notified and have formally come in to effect from January 2000. The provisions of this comprehensive legislation are summarized as below:

ODS Production

- Mandatory registration with MOEF
- Restriction on production levels as per "base level" and specified time-bound reductions.
- Prohibition on creating new capacity or expansion of capacity
- Export restricted to countries who are signatory to the Montreal Protocol

ODS Consumption

- Ban on new capacity or expansion of capacity for production of ODS based equipment.
- Mandatory registration with designated authorities
- Declaration requirement in prescribed format, to the seller, at the time of procurement of ODS

ODS Trade

- Mandatory registration for Exporters & Importers with designated authorities
- No sales without license to persons/organizations which have not intimated the Government of India about use of ODS based equipment (including compressors).

General

- Mandatory registration for reclamation and destruction of ODS. All registrations will be valid for specified periods, after which, they are required to be renewed.
- Every person who produces, uses, imports, sells, stocks, reclaims or destroys ODS has to maintain records and file reports as specified.
- Every entity, which has received technical and/or financial assistance from any international agency or financial assistance from Government of India including duty exemptions, is required to maintain records and file reports as specified.

3. SECTOR BACKGROUND

3.1 Background of the Foam Sector

Polyurethane foams were introduced in India in the 1960s, mainly through some pioneering work and initiatives by private promoters in the flexible foam sub-sector. This was followed up with introduction of capacities to supply, formulate and manufacture chemicals needed by the sector, especially driven by the flexible slab-stock foam sub-sector, which experienced the fastest growth. Beginning in the 1980s, the flexible slab-stock foam sub-sector largely converted to using Methylene Chloride as the blowing agent in place of CFC-11, prompted primarily by economic motivation, due to the relatively lower prices of Methylene Chloride. In the 1980s, the gradual growth of the automotive industry led to the growth of flexible molded and integral skin polyurethane foams manufacturing. Rigid polyurethane foams were introduced in the late 1970s to early 1980s, in response to the increasing size of the appliance, construction, transportation, food processing and general insulation industries. Concurrently, introduction of capacities to produce other types of foam, such as expanded polyethylene foam followed the growth of the packaging industry. However, polyurethane foams were the dominating foams in the sector.

In general, the high levels of prevailing statutory tariffs and restrictive licensing structures, coupled with high costs and low capital availability, acted as barriers for the Foam Sector to achieve its full potential during this period.

The Foam Sector has experienced significant growth in the past two decades due to the consistent growth in the per capita income, indigenous availability of chemicals, all round growth and diversification in the various industrial sectors and applications, particularly in sectors such as automotive, transportation, construction, etc., growing predominance of the service industry, the relatively low market penetration of domestic and industrial appliances and equipment in the past and the increasingly liberal economic and trade policies adopted by the government.

3.2. Structure of the Foam Sector

There exist capacities in the Foam Sector in India, for manufacturing chemical systems, processing equipment and for manufacturing all types of foam end products.

3.2.1 Supply Industry

The upstream supply industry comprises of suppliers and producers of chemicals and chemical systems and suppliers and manufacturers of foam processing equipment and tooling.

Chemical Systems

There are several suppliers of polyurethane chemical systems in India. A list of suppliers is presented in Annex-5 (Table 5.1). All except one have installed system house capabilities. Six have capacities to manufacture base polyols.

Two (Gujarat Narmada and SPIC) manufacture TDI, serving the flexible polyurethane slab-stock foam sub-sector. There is no existing capacity to manufacture MDI. In addition, there are about 25-50 entities, which trade in imported chemicals or chemical systems. From the multinational chemical suppliers, only Huntsman (ICI) has a full-fledged system house operation. The others, such as Bayer, BASF, Dow, Enichem, etc. have only representative indenting offices. The suppliers are generally organized to cater to the various regions and some of them operate through resellers and distributors.

Considering the geography and size of the country, the availability of chemicals in general is satisfactory, however the quality and level of customer service and technical support is quite limited, mainly due to inadequate infrastructure (information, communications, documentation, etc) and due to insufficient availability of trained and qualified staff. This shortfall in fact, has led to several small players entering in the chemical supply business, both as traders and as small system houses.

Processing Equipment

There are a few indigenous manufacturers of foam processing equipment in India. A list of these manufacturers is presented in Annex-5 (Table 5.2). All these manufacturers are engaged in fabricating and assembling low-pressure polyurethane foam dispensers, except Polycraft, who also manufactures high-pressure mobile dispensers required in spray/insitu applications. Most of the major multinational foam equipment manufacturers are represented in India, however, given the size and geography of the country, the level of technical support and after-sales service available from them is quite inadequate. The presence of indigenous equipment manufacturers is directly related to the relatively high investment costs of imported equipment, to the unsatisfactory quality and level of support available and to the high cost of spare parts and consumables.

3.2.2 User Industry

The enterprises in the Foam Sector are typically characterized by very low levels of investments in plant and machinery and resulting labor-intensive operation. Many enterprises opt for locally assembled and/or custom-built foam dispensers, typically single-ratio and low-pressure type, to minimize investments. Many also engage in hand-mixing/pouring operations. The chemical systems are mainly procured from local systems suppliers. Although general awareness about quality assurance, training, environment and safety-related issues exists, it does not receive much emphasis in practice, due to low levels of operating capital, because of the low scale of operation and the pressures on profitability exerted by the growing and very competitive domestic market. In general, the knowledge of the latest polyurethane foam chemical systems and processing technologies is limited in the enterprises.

3.3 History of ODS phase-out

As per India's country programme for ODS phase-out under the Montreal Protocol, the foam sector in India consumed 1,577 MT of CFCs annually in 1991. By 1997, this was about 2,800 MT annually, not including CFCs contained in imported polyols. The Montreal Protocol programme in India has systematically addressed many of the upstream suppliers as well as the downstream users in the Foam Sector. In addition to achieving the ODS phase-out targets, it has created awareness among the industry and of the need for incorporating environmental objectives in their investment and operational decisions. The technical assistance and training inputs received through the projects, has also enhanced the capacity at the enterprise level, to address technical and environmental issues.

Since 1994, until March 2001, a total of 158 investment projects in the Foam Sector have been funded under the Montreal Protocol mechanism, implemented by either UNDP or the World Bank. The detailed list of approved investment projects is attached in Annex-1. The summary of approved investment projects in the various foam sub-sectors is as below:

Table-1: India Foam Sector - Historical investment project approvals as of March 2002

Foam Sub-Sector	Category	Number of approved Projects	CFC Phase-out Target (ODP MT)	Approved Funding (US\$)	Overall CE (US\$/kg)
Rigid PU Foam	General Insulation	37	667	5,243,293	7.86
	Thermoware insulation	48	786	5,895,028	7.50
	Spray/Insitu (incl. 2 group projects)	6	435	2,124,950	4.88
	SMEs (4 group projects)	4	549	3,298,077	6.01
Flexible PU Foam	Flexible molded/integral skin foam	49	964	9,296,096	9.64
	Flexible Slab-stock	1	10	100,800	10.08
Multiple PU Foams	Multiple PU foam sub-sectors	2	73	502,790	6.93
EPS/EPE Foam	EPE foam	5	220	1,017,900	4.64
Phenolic Foam	Phenolic foam	1	58	367,000	6.33
Polyol Production	Polyol production/system house	5	0	1,515,130	N/A
TOTAL		158*	3,762	29,361,064	7.81

* Includes 4 canceled projects, but their CFC consumption and funding have been excluded

As noted in Table-1, the 158 approved investment projects (including six group projects) in the Foam Sector covered a total of 331 enterprises. Of these, 149 enterprises were classified as SMEs (with a CFC consumption less than 5 MT/y) and addressed through four group projects. The remaining 182 enterprises were predominantly medium-sized, most of them with a CFC consumption of less than 20 MT/y. Only 36 enterprises had a baseline CFC consumption of more than 20 MT/y. This distribution of investment project approvals by enterprises based on their relative size, measured in terms of the baseline CFC consumption, can be summarized as below:

Table-2: India Foam Sector - Distribution of investment project approvals as of March 2002 by enterprise size

Baseline CFC Consumption range (MT/y)	Number of enterprises	Distribution (% of total)
0 to 5	149	45.0
5 to 20	146	44.1
Above 20	36	10.9
Total	331	100.0

Thus, about 90% of the enterprises are small and medium-sized, with an annual baseline CFC consumption of less than 20 MT. This is consistent with the observations in the description of the user industry structure (section 3.2.2), particularly with those related to the modest levels of investments, training, technical assistance, knowledge base and awareness available to these enterprises.

3.3.1 Phase-out Approach

Of the total of 331 enterprises covered by the investment project approvals, 179 enterprises were part of six group projects (4 SME group projects and 2 group projects in spray/insitu insulation) in the rigid polyurethane foam sub-sector. All enterprises covered were essentially small or medium-sized with individual baseline CFC consumption levels less than 20 MT/y, most of them with less than 5 MT/y. There were no group projects in other foam sub-sectors. This represents 54.1% of the total number of enterprises, 25.2% of the total baseline CFC consumption and only 17.8% of the total approved funding.

It is thus clear, that the group approach has been proven to be effective in terms of coverage, cost-effectiveness and CFC phase-out. However, it has not necessarily been fully effective in mitigating the infrastructural barriers, such as technology awareness, technical assistance, training, etc. due to the relatively limited amounts of resources approved for these activities, which are considered to be crucial in sustaining the viability of the enterprises and the CFC phase-out.

3.3.2 Technology Choices

The distribution of investment project approvals by CFC consumption and the various foam sub-sectors can be summarized as below:

Table-3: India Foam Sector – Distribution of investment project approvals as of March 2002, by sub-sectors

Foam Sub-sector	Number of approvals	Baseline CFC Consumption (MT/y)	Distribution (% of total)
Rigid polyurethane foam	95	2,437	64.8
Flexible polyurethane foam	50	974	25.9
Multiple polyurethane foam sub-sectors	2	73	1.9
Polyol production	5	0	0
EPS/EPE foam	5	220	5.9
Phenolic foam	1	58	1.5
Total	158*	3,752	100.0

* Includes 4 canceled projects, but their CFC consumption and funding have been excluded

Table 3 provides an overview of the distribution of investment project approvals by CFC consumption in the various foam sub-sectors. The rigid polyurethane foam sub-sector represents 95 approvals including six group projects, covering a total of 268 enterprises (of the total 331 enterprises covered in the sector so far) and a CFC phase-out of 2,437 MT/y (of the total approval of 3,752 MT/y). Thus, the rigid polyurethane foam sub-sector effectively covers 81% of the total number of enterprises in the approvals and 65% of the total funded baseline CFC consumption in the foam sector. Most of these enterprises are small and medium-sized. Only one of the enterprises in the foam sector had a baseline CFC consumption exceeding 50 MT/y and it was engaged mainly in rigid foam spray/insitu insulation activities. Thus, considering the size of the enterprises and their economic viability and sustainability, the importance of insulation values in their end products and considering the low cost-effectiveness threshold for funding for the rigid foam sub-sector, use of zero-ODP alternatives was not feasible and use of HCFC-141b (with partial water-based) systems was inevitably the preferred conversion technology choice.

In the flexible molded foam sub-sector, the technology choice applied was fully water-based systems. In integral skin foams, HCFC-141b and HCFC-22 were the selected technologies. Hydrocarbons were applied as the conversion technology in the Phenolic foam and EPS/EPE foam sub-sectors.

3.4 Survey of the Foam Sector

The non-investment project, Strategy and Action Plan for ODS Phase-out in the Foam Sector in India, was approved in July 1994. At this time, the implementation of the Montreal Protocol programme in India had just commenced. The objectives of and scope of work envisaged under this project were:

- To collect information on the sector (leading to identification of users, categorization of the users, technology selection, etc.)
- To prepare an ODS phase-out strategy (covering awareness creation and information dissemination, capacity building, etc.)
- To prepare and implement an action plan for ODS phase-out (addressing management, timeframe and estimated costs of phase-out, SMEs and informal sectors, etc.)

The project was initially envisaged to be executed nationally, through the Department of Chemicals, Ministry of Petrochemicals, Government of India. However, until 1997, not much progress was made. The approved project document was not signed until this point. In the intervening period (from July 1994 until 1997) substantial progress was made in the Foam Sector by way of preparation, approval and implementation of several projects through the World Bank and UNDP.

Thus, the original scope of this project (which presumed that a strategy would be in place before implementation of ODS phase-out activities) needed to be modified to reflect the changed scenario. The Government of India requested UNDP to propose a revised scope of activities for the project, which would enable identification of residual ODS users through direct contact, workshops and publicity, which would lead to formulation of projects covering the foam sector and enable development of the appropriate action plan for ODS phase-out. UNDP developed the revised scope of the activities under this project in collaboration with Government of India, as below:

- Identification all upstream suppliers (chemical & equipment manufacturers and systems houses) to the Foam Sector.
- Interaction with and information dissemination to the residual ODS users through newspaper announcements and workshops.
- Identification of all residual ODS users in the Foam Sector

UNDP/UNOPS in collaboration with MOEF, arranged for newspaper announcements for facilitating information dissemination and to locate residual ODS users in June 1998. UNDP/UNOPS in cooperation with MOEF, arranged the first identification and technical assistance workshop for residual ODS users in January 1999 which resulted in successful identification of a large section of residual ODS users in the foam sector and also fruitful interaction with them. It also led to the preparation of several projects. UNDP/UNOPS continued the identification work of ODS users in the foam sector and to ensure sustainability and local capacity development, retained the services of a local consulting firm in agreement with MOEF. Through the UNDP international and local experts, the work of surveying and identifying remaining ODS users continued and resulted in a steady submission and approval of technology conversion investment projects. UNDP/UNOPS arranged the second identification and technical assistance workshop for residual ODS users, preceded by field contacts and publicity, during November 2000. The workshop resulted in further identification of ODS users in the Foam and Commercial Refrigeration sectors. The surveying work of the foam and commercial refrigeration sectors continued with enterprise contacts and plant visits, based on the information and knowledge base generated through the workshops and through the responses to the various publicity actions, carried out under the project. The survey and identification work was completed in March 2002. The upstream chemical and equipment suppliers and the residual ODS users are now identified and their baseline information obtained.

3.4.1 Survey Methodology

The Survey Methodology comprised of the following steps:

- Interaction with upstream suppliers (chemicals and equipment)
- Interaction with enterprises

Interaction with upstream suppliers was carried out through regular interactions, meetings and visits. Through these interactions, lists of foam manufacturers were obtained. Additional inputs were obtained also through the lists maintained by UNDP/UNOPS local and international experts. MOEF also carried out a publicity campaign through all major national and regional newspapers, encouraging ODS users to register themselves. In addition, information on small and medium-sized enterprises was sought from the relevant government departments. To supplement the sources of information above, two identification and technical assistance workshops were arranged as described above, through which, additional enterprises were identified. Most of the enterprises (over 95%) were physically visited through field trips and plant visits carried out by UNDP/UNOPS local and international consultants. For the purpose of obtaining baseline information on the enterprises, a questionnaire developed by UNDP was used. The figures of ODS consumption obtained through the survey, were correlated with the records of domestic ODS sales from distributors and traders and with the information provided by the upstream chemical suppliers, to the extent available. The margin of error in this survey is expected to be less than 5%.

3.4.2 Survey Results

CFC Consumption, eligibility and classification of enterprises

The consumption of CFCs for CY 2001 in the Foam Sector in India, by the enterprises for whom, projects have been approved and funded, but are under implementation is presented in Table 5 below:

Table-4: India Foam Sector – CFC users/consumption in Approved Ongoing Projects

Sub-sector	Number of Enterprises	CFC Consumption for CY 2001 (MT)
Rigid foam (general insulation)	7	94
Rigid foam (thermoware insulation)	10	175
Rigid foam (spray/insitu insulation)	14	178
Rigid foam (SMEs)*	69	260
Flexible molded & integral skin foam	15	269
EPS/EPE foam	1	40
TOTAL	116	1,016

* Enterprises with less than 5 MT/y of CFC consumption each, covered through three group projects

In the survey, a total of 132 remaining enterprises (including 6 system houses) in the Foam Sector, have been identified, which have residual CFC consumption. The enterprises were spread out all over India, with a predictable concentration in the in the proximity of major industrial areas such as Mumbai, Delhi, Bangalore, Chennai, etc.

Out of these, 105 enterprises (including 6 system houses) meet the MLF eligibility criteria for funding, i.e. their CFC-based capacities were established prior to July 25, 1995. The remaining eligible CFC consumption and enterprises by sub-sector are summarized as below:

Table-5: India Foam Sector – Summary of remaining unfunded CFC users/consumption

Sub-sector	Number of remaining eligible enterprises	CFC Consumption for CY 2001 (MT)
Rigid foam (general insulation)	5	56.7
Rigid foam (thermoware insulation)	12	116.5
Rigid foam (spray/insitu insulation)	14	114.2
Rigid foam (SMEs)*	40*	94.1
Flexible molded & integral skin foam	28	230.3
System Houses	6	N/A
TOTAL	105	611.8

* Enterprises with less than 5 MT/y of CFC consumption

The remaining 27 enterprises, with a total of CFC consumption of 27.3 MT were established after July 25, 1995, and are not eligible for MLF funding. The reasons for the relatively small number of non-eligible CFC users remaining in the sector are as below:

- MOEF circulated and publicized the draft Ozone Rules in the industry around 1997. The rules included a provision prohibiting installation of new CFC-based capacity, upon coming into force.
- The industry was in recession in 1996-98 limiting new investments.
- Due to the awareness of the Montreal Protocol obligations, most of the new capacities established after 1995 were non-CFC-based. In addition, the Government also extended tariff and other benefits for installing new non-ODS based technology.
- Most enterprises with CFC-based capacities established after 1995, converted on their own to CFC-free technologies, fully or partially, knowing that they would not be eligible for funding.

Annex-2 provides a detailed list of the remaining eligible enterprises in the Foam Sector, their classification based on sub-sectors and their brief baseline information. Annex-3 provides information for enterprises not considered eligible.

Annex-4 provides information on enterprises in other foam sub-sectors (flexible box foam, micro-cellular foams/shoe soles and polyurethane elastomers), which do not use CFCs. The enterprises manufacturing flexible box foam have converted to Methylene Chloride. The enterprises manufacturing polyurethane shoe soles and polyurethane elastomers do not need to use CFCs.

Annex-5 provides information on upstream chemical and equipment suppliers. Out of the 13 chemical supplying system houses, 4 system houses have been assisted under MLF, 3 do not need assistance and the remaining 6 need assistance and are eligible to receive it. These remaining six system houses together serve about 20% of the foam sector.

Thus, the overall present consumption of CFCs in the foam sector, summarized from Tables 4 and 5 is as below:

Table-6: India Foam Sector – Summary of Overall CFC Consumption

Sub-sector	Number of Enterprises	CFC Consumption for CY 2001 (MT)
Enterprises in approved ongoing projects	116	1,016
Eligible unfunded enterprises	105	612
Non-eligible enterprises	27	27
TOTAL	248	1,655

All enterprises are 100% indigenously owned and report being financially sound and report no exports to non-Article-5 countries.

Baseline equipment & operations

Based on the responses to the questionnaires, as well as the inputs received from plant visits, the baseline foam equipment in the enterprises can be summarized as below:

- Medium-sized enterprises mostly use locally made (or in some cases imported) foam dispensers.
- Small-sized enterprises use manual mixing of chemicals.

All the enterprises surveyed procure chemicals from local system houses/suppliers, especially from the six indigenous system houses not yet covered by MLF assistance.

Baseline resources

While the owners/management of the enterprises surveyed, are more or less conversant with the need to eliminate CFCs under the Montreal Protocol, most enterprises do not have the financial or technical resources to undertake conversions at their own cost.

Most of the small-sized enterprises have 5-10 employees. The medium-sized enterprises employ about 10-30 persons. While the technicians have basic skills there is a lack of adequately detailed knowledge or training about CFC-free technologies or their applications.

Most of the small-sized enterprises do not have well-equipped factories or workshops and lack organizational and infrastructural facilities.