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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Twenty-fourth Meeting
Montreal, 25-27 March 1998

PROJECT PROPOSALS: INDIA

This document includes the comments and recommendations of the Fund Secretariat on the following project proposals:

Aerosol

•	Aerosol conversion at Spray Products	UNDP
•	Aerosol Conversion at Midas Care Pharmaceuticals	UNDP
•	Aerosol conversion at Maja Cosmetics Pvt. Ltd.	UNDP
•	Aerosol conversion at Chem-Verse Consultants	UNDP
•	Aerosol conversion at Sara-chem Pvt. Ltd.	UNDP
•	Aerosol conversion at Sunder Chemical	UNDP

Halon

•	Conversion of halon 1211 fire extinguisher production and elimination of its consumption of virgin halon 1301 at Steelage Industries Limited Minimax Division/ Chennai	UNDP
•	Conversion of halon 1211 fire extinguisher production and elimination of its consumption of virgin halon 1301 at Nitin Fire Protection Industries Ltd., Bombay	UNDP
•	Conversion of halon 1211 fire extinguisher production and elimination of its consumption of virgin halon 1301 at New Age Industries, Bombay	UNDP
•	Conversion of production halon 1211 fire extinguishers at Atkins, New Delhi	UNDP
•	Conversion of Halon 1211 fire extinguisher production and elimination of its consumption of virgin halon 1301 at Ashoka Engineering Co., New Delhi.	UNDP
•	Conversion of halon 1211 fire extinguisher production and elimination of its consumption of virgin halon 1301 at Vijay Fire Protection Systems Ltd.	UNDP

•	Conversion of halon 1211 fire extinguisher production and elimination of its consumption of virgin halon 1301 at Vimal Industrial Safety Equipment Corporation Baroda - Gujrat	UNDP

PROJECT EVALUATION SHEET
INDIA

SECTOR: Aerosol ODS use in sector (1993): 1400 ODP tonnes
Sub-sector cost-effectiveness thresholds: US 4.40 $/kg

Project Title:
a) Chemical aerosol conversion at Sunder Chemical
b) Aerosol conversion at Spray Products (India)
c) Aerosol conversion at Chem-Verse Consultants
d) Aerosol conversion at Sara-Chem (India) Pvt. Ltd.
e) Aerosol conversion at Midas Care Pharmaceuticals
f) Aerosol conversion at Maja Cosmetics

Project Data	**Aerosols**					
	Sunder Chemical	Spray Products	Chem-Verse	Sara-Chem	Midas Care	Maja
ODS (CFC-11) phase out (ODP tonnes)	15	16.75	18	23.3	25.2	31.33
Proposed project duration (months)	24	24	24	24	24	24
Incremental capital cost (US$)	66,000	73,700	78,980	102,300	168,880	150,700
- including contingency (%)	10	10	10	10	10	10
Incremental operational cost (US$)	(2,808)	(435)	(465)	(1,295)	(1,886)	(883)
Total project cost (US$)	63,192	73,265	78,515	101,005	166,994	149,817
Local ownership (%)	100	100	100	100	100	100
Export component (%)	-	-	-	-	-	-
Amount requested (US$) {Original}	63,192	73,265	78,515	101,005	110,880	137,500
{Revised}	59,892	65,486	67,324	89,164	110,880	125,240
Cost effectiveness (US$/kg.)	4.21	4.37	4.36	4.33	4.4	4.39
National Coordinating Agency	The Ozone Cell of Ministry of Environment & Forests					
Implementing Agency	UNDP					
Technical review completed?	Yes					
Secretariat's Recommendations						
Amount recommended (US $)	59,892	65,486	67,324	89,164	110,880	125,240
Project Impact (ODP tonnes)	15	16.75	18	23.3	25.2	31.34
Cost effectiveness (US $/kg)	3.99	3.91	3.74	3.83	4.40	3.99
Implementing Agency support cost (US$)	7,786	8,513	8,752	11,591	14,414	16,281
Total cost to Multilateral Fund	67,678	73,999	76,076	100,755	125,294	141,521

PROJECT DESCRIPTION

a) Chemical aerosol conversion at Sunder Chemical
b) Aerosol conversion at Spray Products (India)
c) Aerosol conversion at Chem-Verse Consultants
d) Aerosol conversion at Sara-Chem (India) Pvt. Ltd.
e) Aerosol conversion at Midas Care Pharmaceuticals
f) Aerosol conversion at Maja Cosmetics

1. In 1993, the total consumption of CFCs in the aerosol sector in India amounted to 1,400 tonnes. So far, the Executive Committee has approved 14 investment projects for the phase out of 539 tonnes of CFCs used in the manufacturing of aerosol products and allocated US $1.5 million for their implementation.

2. Implementation of the six aerosol projects being submitted to the 24th Meeting will lead to elimination of additional 130 tonnes of CFCs. In total, 669 tonnes of CFCs, equivalent to 47.8% of the total 1993 CFC consumption in the aerosol sector, would be eliminated once all the projects become operational.

3. The projects under consideration are for the replacement of CFCs with hydrocarbon propellant used in manufacturing different types and sizes of aerosol products, as shown below

Enterprise	Cans/year	CFC used (tonnes)	Products
Sunder Chemical	1,800,000	15.00	Perfumes
Spray Products(*)	186,613	16.75	Industrial and household aerosols
Chem-Verse	48,591	18.16	Industrial aerosols
Sara-Chem	51,862	23.32	Industrial aerosols
Midas Care	1,058,8362	5.2	Cosmetic and pharmaceutical aerosols
Maja Cosmetics (*)	2,385,660	31.33	Perfumes, personal and room deodorants

(*) Contract fillers and own-fillers

4. The present aerosol filling lines at Sunder Chemical, Spray Products consist of manual filling machines, manual can loading table, manual placing of the valve, crimper and gas filler, which are not suitable for filling with HAP propellant. The other plants (Chem-Verse, Midas Care and Maja Cosmetics) operate with semi-automatic filling machines.

5. The enterprises will convert to HAPs technology. Conversion entails installation of semi-automatic aerosol filling machines with propellant handling systems to be located in open air filling rooms, quality control gauges, manual-operated water baths for testing filled cans, and portable gas detectors. In the case of Maja Cosmetics, a safe filling room is required since the plant location and its layout would not allow for the installation of an open-air filling room.

6. Technical assistance will be provided for performance and supervision of engineering designs, equipment installation and commissioning of the plant. Plant safety training will also be provided.

7. Each company provided a letter of commitment stating that the project could be submitted by UNDP to the Executive Committee; accepts the project as proposed in the project document; it will completely phase out the use of CFCs upon project completion; it will dispose off any equipment that has been replaced; it will provide funds for items that are included in the project but are specifically excluded from funding by the Multilateral Fund, and will allow monitoring inspections by UNDP during project implementation.

Ability to meet the freeze

8. Consumption of Annex 1 substances in India is given in the following table. Data for the period 1993-1996, corresponds to the data reported to Ozone Secretariat, while data for the period 1997-1999 was estimated by the Government considering a growth rate of 20% per annum for consumption of these substances:

Year	Consumption (tonnes)
1993	5,277
1994	6,387
1995	6,402
1996	6,937
1997	8,324
1998	9,989
1999	11,987

9. For the period 1995-1997, the average consumption amounts to 7,221 ODP tonnes. Thus, the country will have to reduce CFC-consumption in 1999 by 4,766 tonnes (i.e., 11,987 – 7,221) in order to meet the freeze.

10. As stated in the project document, "so far, the Executive Committee has approved projects for India that will eliminate 4,333 ODP tonnes of Annex 1 substances. From the above, one can see that India must receive additional project approvals corresponding to 4,766 – 4,333 = 433 ODP tonnes in order to meet the 1999 freeze. India will have to make tremendous efforts to comply with the next control step, i.e. 50% reduction by 2004/2005. Additional project approvals will contribute to such compliance".

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

a) Chemical aerosol conversion at Sunder Chemical
b) Aerosol conversion at Spray Products (India)
c) Aerosol conversion at Chem-Verse Consultants
d) Aerosol conversion at Sara-Chem (India) Pvt. Ltd.
e) Aerosol conversion at Midas Care Pharmaceutics
f) Aerosol conversion at Maja Cosmetics

1. UNDP revised the project proposals in accordance with discussions with the Fund Secretariat. Additional information describing the baseline of the filling lines in the six enterprises and clarification on production data reported per enterprise was requested in order to assess any capacity increase and/or technology upgrade associated with the replacement equipment being proposed. Justification for the requests of some equipment, particularly the semi-automatic filling machines, and the safe filling room for Maja, was provided by UNDP.

2. Operating savings were adjusted after re-analyzing the formulations for some of the products when switching to hydrocarbon propellant at Sunder and Maya Cosmetics plants. Operating costs were also adjusted for Spray Products and Chem-Verse since the projects were calculated using the difference in the profits per can when filling with CFC or HAP (as per the Executive Committee decision adopted at its 13th Meeting, lost profit is not considered an eligible operating cost).

3. Considering the number of similar equipment items being proposed in the projects and that the projects are from one country only, UNDP was requested to seek the possibility of negotiating a discount price with equipment manufacturers, including shipping, handling and insurance.

4. Subsequently, UNDP adjusted the capital cost and operating costs (NPV for four years) of the projects as follows:

Enterprise	Costs (US $) Capital	Operating	Enterprise contribution
Sunder Chemical	62,700	(2,808)	
Spray Products	66,000	(514)	
Chem-Verse	91,300	(2,136)	
Sara-Chem	71,280	(3,956)	
Midas Care	174,680	(6,284)	57,516
Maja Cosmetics	144,100	(18,860)	

5. The total cost of conversion of the filling operations at Midas Care resulted in a cost effectiveness value above the threshold. Thus, the company accepted to cover additional costs of the equipment over the eligible grant (US $110,880).

6. The enterprises will finance costs associated with civil works and some pieces of equipment The Fund Secretariat has not reviewed these costs, some of which would not be eligible.

RECOMMENDATION

1. The Fund Secretariat recommends blanket approval of the projects at the funding levels indicated below:

Project Title	Project Cost US $	Support Cost US $	Implementing Agency
a) Chemical aerosol conversion at Sunder Chemical	59,892	7,786	UNDP
b) Aerosol conversion at Spray Products (India)	65,486	8,513	UNDP
c) Aerosol conversion at Chem-Verse Consultants	67,324	8,752	UNDP
d) Aerosol conversion at Sara-Chem (India) Pvt. Ltd.	89,164	11,591	UNDP
e) Aerosol conversion at Midas Care Pharmaceuticals	110,880	14,414	UNDP
f) Aerosol conversion at Maja Cosmetics	125,240	16,281	UNDP

PROJECT EVALUATION SHEET
INDIA

SECTOR: Halon ODS use in sector (average of 1993-95): Halon 1211: 597 ODP tonnes
Halon 1301: 531 ODP tonnes

Sub-sector cost-effectiveness thresholds: US $1.48/kg

Project Titles:
(a) Conversion of Halon 1211 fire extinguisher production and elimination of its consumption of virgin Halon 1301 at Ashoka Engineering Co. New Delhi.
(b) Conversion of production Halon 1211 fire extinguishers at Atkins, New Delhi.
(c) Conversion of Halon 1211 fire extinguisher production and elimination of its consumption of virgin Halon 1301 at New Age Industries, Bombay.
(d) Conversion of Halon 1211 fire extinguisher production and elimination of its consumption of virgin Halon 1301 at Nitin Fire Protection Industries Ltd., Bombay.
(e) Conversion of Halon 1211 fire extinguisher production and elimination of its consumption of virgin Halon 1301 at Steelage Industries Limited Minmax Division / Chennai.
(f) Conversion of Halon 1211 fire extinguisher production and elimination of its consumption of virgin Halon 1301 at Vijay Fire Protection Systems Ltd.
(g) Conversion of Halon 1211 fire extinguisher production and elimination of its consumption of virgin Halon 1301 at Vimal Industrial Safety Equipment Corporation Baroda - Gujrat.

Project Data	**Fire Fighting Protection**						
	Ashoka	Atkins	New Age	Nitin	Steelage	Vijay	Vimal
ODS phase out (ODP tonnes)	34	37	133	212	116	292	133
Proposed project duration (Yrs)	2	2	2	2	2	2	2
Incremental capital cost (US$)	77,000	110,000	159,500	203,500	221,100	370,700	225,000
Contingency (%)	10	10	10	10	10	10	10
Incremental operational cost (US$)	(1,977)	41,657	(16,100)	(30,000)	32,400	(9,972)	(26,840)
Total project cost (US$)	75,023	68,343	143,400	173,500	188,700	360,728	198,840
Local ownership (%)	100	100	76	100	100	100	100
Export component (%)	-	-	-	-	-	-	-
Amount requested (US$) {Original	50,320	54,760	143,400	173,500	171,680	360,728	196,840
{Revised	50,320	54,760	132,248	165,818	127,735	219,152	186,152
Cost effectiveness (US$/kg.)	1.48	1.48	1.08	0.82	1.48	1.24	1.48
National Coordinating Agency	Ministry of Environment & Forest						
Implementing Agency	UNDP	UNDP	UNDP	UNDP	UNDP	UNDP	UNDP
Technical review completed?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Secretariat's Recommendations							
Amount recommended (US $)	50,320	54,760	132,248	165,818	127,735	219,152	186,152
Project Impact (ODP tonnes)	34	37	133	212	116	292	133
Cost effectiveness (US $/kg)	1.48	1.48	0.99	0.78	1.10	0.75	1.40
Implementing Agency support cost (US$)	6,542	7,119	17,192	21,556	16,606	28,490	24,200
Total cost to Multilateral Fund	56,862	61,879	149,440	187,374	144,341	247,642	210,352

PROJECT DESCRIPTIONS

(a) **Conversion of Halon 1211 fire extinguisher production and elimination of its consumption of virgin Halon 1301 at Ashoka Engineering Co. New Delhi**

1. The purpose of the project is to eliminate the consumption of 24 ODP tonnes for the production of halon 1211 fire extinguishers and 10 ODP tonnes of halon 1301 used for the installation of halon fixed systems. The project will cover the cost of conversion of production of halon portable fire extinguishers to a production of ABC dry chemical powder and carbon dioxide stored pressure fire extinguishers. The enterprise currently produces 2,833 halon fire extinguishers per year.

2. The enterprise will eliminate its consumption of virgin halon 1301 in fixed systems with the provision of a halon 1301 reclamation equipment to be provided in the request by relying on recovered 1301 halon for servicing existing halon 1301 fire protection systems. Technical assistance will be provided to ensure the effectiveness of the conversion.

(b) **Conversion of production Halon 1211 fire extinguishers at Atkins, New Delhi**

3. The purpose of the project is to eliminate the consumption of 37 ODP tonnes for the production of halon 1211 fire extinguishers. The project will cover the cost of conversion of production of halon portable fire extinguishers to a production of ABC dry chemical powder and carbon dioxide stored pressure fire extinguishers. The enterprise currently produces 9,333 halon fire extinguishers per year.

(c) **Conversion of Halon 1211 fire extinguisher production and elimination of its consumption of virgin Halon 1301 at New Age Industries, Bombay**

4. The purpose of the project is to eliminate the consumption of 33 ODP tonnes for the production of halon 1211 fire extinguishers and 100 ODP tonnes of halon 1301 used for the installation of halon fixed systems. The project was adjusted to account for the 24 per cent ownership of transnational corporations. The project will cover the cost of conversion of production of halon portable fire extinguishers to a production of ABC dry chemical powder and carbon dioxide stored pressure fire extinguishers. The enterprise currently produces 7,000 halon fire extinguishers per year.

5. The enterprise will eliminate its consumption of virgin halon 1301 in fixed systems with the provision of a halon 1211/1301 reclamation equipment to be provided in the request by relying on recovered 1301 halon for servicing existing halon 1301 fire protection systems. Technical assistance will be provided to ensure the effectiveness of the conversion.

(d) **Conversion of Halon 1211 fire extinguisher production and elimination of its consumption of virgin Halon 1301 at Nitin Fire Protection Industries Ltd., Bombay**

6. The purpose of the project is to eliminate the consumption of 45 ODP tonnes for the production of halon 1211 fire extinguishers and 531 ODP tonnes of halon 1301 used for the installation of halon fixed systems. Cartridge propelled BC dry powder fire extinguishers are currently being produced. The project will cover the cost of conversion of production of halon portable fire extinguishers to a production of ABC dry chemical powder and carbon dioxide stored pressure fire extinguishers. The enterprise currently produces 10,00 halon fire extinguishers per year.

7. The enterprise will eliminate its consumption of virgin halon 1301 in fixed systems with the provision of a halon 1211/1301 reclamation equipment to be provided in the request by relying on recovered 1301 halon for servicing existing halon 1301 fire protection systems. This company also installs new halon 1301 fixed systems. Technology transfer and license agreement fees along with certification is provided to enable the enterprise to provide halon 1301 system alternatives such as FM 200 or inert gas system as appropriate.

(e) **Conversion of Halon 1211 fire extinguisher production and elimination of its consumption of virgin halon 1301 at Steelage Industries Limited Minmax Division / Chennai**

8. The purpose of the project is to eliminate the consumption of 91 ODP tonnes for the production of halon 1211 fire extinguishers and 25 ODP tonnes of halon 1301 used for the installation of halon fixed systems. Cartridge propelled BC dry powder fire extinguishers are currently being produced. The project will cover the cost of conversion of production of halon portable fire extinguishers to a production of ABC dry chemical powder and carbon dioxide stored pressure fire extinguishers. The enterprise currently produces 18,000 halon fire extinguishers per year.

9. The enterprise will eliminate its consumption of virgin halon 1301 in fixed systems with the provision of a halon 1211/1301 reclamation equipment to be provided in the request by relying on recovered 1301 halon for servicing existing halon 1301 fire protection systems. Technical assistance will be provided to ensure the effectiveness of the conversion.

(f) **Conversion of Halon 1211 fire extinguisher production and elimination of its consumption of virgin Halon 1301 at Vijay Fire Protection Systems Ltd.**

10. The purpose of the project is to eliminate the consumption of 75 ODP tonnes for the production of halon 1211 fire extinguishers and 217 ODP tonnes of halon 1301 used for the installation of halon fixed systems. Cartridge propelled BC dry powder fire extinguishers are currently being produced. The project will cover the cost of conversion of production of halon portable fire extinguishers to a production of ABC dry chemical powder and carbon dioxide stored pressure fire extinguishers. The enterprise currently produces 7,667 halon fire extinguishers per year.

11. The enterprise will eliminate its consumption of virgin halon 1301 in fixed systems with the provision of a halon 1211/1301 reclamation equipment to be provided in the request by relying

on recovered 1301 halon for servicing existing halon 1301 fire protection systems. This company also installs new halon 1301 fixed systems. Technology transfer and license agreement fees along with certification is provided to enable the enterprise to provide halon 1301 system alternatives such as FM 200 or inert gas system as appropriate.

(g) **Conversion of halon 1211 fire extinguisher production and elimination of its consumption of virgin Halon 1301 at Vimal Industrial Safety Equipment Corporation Baroda - Gujrat**

12. The purpose of the project is to eliminate the consumption of 33 ODP tonnes for the production of halon 1211 fire extinguishers and 100 ODP tonnes of halon 1301 used for the installation of halon fixed systems. Cartridge propelled BC dry powder fire extinguishers are currently being produced. The project will cover the cost of conversion of production of halon portable fire extinguishers to a production of ABC dry chemical powder and carbon dioxide stored pressure fire extinguishers. The enterprise currently produces 7,667 halon fire extinguishers per year.

13. The enterprise will eliminate its consumption of virgin halon 1301 in fixed systems with the provision of a halon 1211/1301 reclamation equipment to be provided in the request by relying on recovered 1301 halon for servicing existing halon 1301 fire protection systems. This company also installs new halon 1301 fixed systems. Technology transfer and license agreement fees along with certification is provided to enable the enterprise to provide halon 1301 system alternatives such as FM 200 or inert gas system as appropriate.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

1. The project costs are consistent with the interim guidelines for capital and operating costs approved at the Twentieth Meeting. All enterprises plan to convert to a ratio of 80 per cent ABC powder and 20 per cent CO2. The revised and recommended amounts include adjustments for net operating savings of six months for all enterprises. Some operating savings are included to account for the expected value of reconstituted halon provided through halon reclamation equipment. The technology transfer costs are provided at the same rate for all enterprises that install new fixed systems.

2. The Executive Committee approved a project, "Demonstration and evaluation of alternative technology for halon fire protection system and technical assistance for sectoral strategy for ODS phase out" in July 1994 in the amount of US $309,000. Whilst the strategy has been developed according to UNDP, it has not been presented to the Secretariat. The Executive Committee has approved one halon fire extinguisher project in India in November 1995 for Real Value, which was the leading manufacturer in India. These six enterprises' consumption of halon 1211 is estimated to

represent 80 per cent of the market. UNDP's business plan indicates that it expects to submit another five projects in this sector in 1998. The World Bank has indicated that it plans to submit a halon production sector closure project from India to the Committee this year. The sectoral strategy should provide information on the remaining activities planned for India in this sector.

3. UNDP and the Secretariat agreed on the recommended costs for these projects. UNDP is seeking confirmation of this agreement from the Government of India.

4. The standard components for monitoring and evaluation are not fully addressed in the requests, but the projects were prepared in advance of the decision. UNDP has not identified the equipment to be destroyed as required for project completion reports, but plans to do so. Halon filling equipment should be destroyed as part of the project approval.

RECOMMENDATIONS

5. Pending endorsement by the Government of India to the project budget agreed with UNDP, the Secretariat recommends that the Executive Committee approves these projects in the amounts indicated in the table.

6. The Secretariat further recommends that UNDP identify the halon fire extinguisher filling equipment to be destroyed as a result of the project before any disbursement is made from that agency to the enterprises.

	Project Cost US $	Support Cost US $	Implementing Agency
(a) Ashoka Engineering Co.	50,320	6,542	UNDP
(b) Atkins	54,760	7,119	UNDP
(c) New Age Industries	132,248	17,192	UNDP
(d) Nitin Fire Protection Industries Ltd.	165,818	21,556	UNDP
(e) Steelage Industries Limited Minmax Division	127,735	16,606	UNDP
(f) Vijay Fire Protection Systems Ltd.	219,152	28,490	UNDP
(g) Vimal Industrial Safety Equipment Corporation	186,152	24,200	UNDP