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Executive Committee of
the Multilateral Fund for the
Implementation of the Montreal Protocol

Nineteenth Meeting
Montreal, 8-10 May 1996

Corrigendum

PROJECT PROPOSALS: INDIA

Please **replace** pages 3 and 7 to 9 **with** the attached pages.

PROJECT EVALUATION SHEET
INDIA

SECTOR: FOAM ODS use in sector (1991): 1,571 ODP tonnes
 Sub-sector cost-effectiveness thresholds: Rigid foam US \$7.83/kg
 Integral skin US \$16.00/kg

Project Titles:

- (a) Phase out of CFCs in the manufacture of rigid PUF insulated thermoware at Bharat Plastic Products
- (b) Phase out of CFCs in the manufacture of rigid PUF products in Inalsa Ltd.
- (c) Phase out of CFCs in the manufacture of rigid PUF insulated thermoware at Mahavir Enterprises
- (d) Phase out of CFCs in the manufacture of rigid PUF products at Omkar PUF Insulation
- (e) Phase out of CFCs in the manufacture of cold cured molded PUF products at Autofit P., Ltd.
- (f) Phase out of CFCs in the manufacture of cold cured molded and integral skin PUF products at Kaygee Foams P., Ltd.
- (g) Phase out of CFCs in the manufacture of cold cured molded and integral skin PUF products at Preto Foams

Project Data	Rigid				Integral skin & Molded		
	Bharat	Inalsa	Mahavir	Omkar	Autofit	Kaygee Foams	Preto Foams
ODS (CFC-11) phase out (ODP tonnes)	27	31.3	21	11.5	20	34.5	12
Proposed project duration (Yrs)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Incremental capital cost (US\$)	105,000	192,000	105,000	60,500	109,000	239,000	175,000
Contingency (%)	10.6	9.7	10.6	10	10.4	9.9	10.1
Incremental operational cost (US\$)	19,000	24,000	17,500	9,500	22,000	33,000	8,700
Total project cost (US\$)	124,000	216,000	122,500	70,000	131,000	272,000	183,700
Local ownership (%)	100	100	100	100	100	100	100
Export component (%)	0	0	0	0	0	0	0
Amount requested (US\$) {Original {Revised	124,000	216,000	122,500	70,000	131,000	272,000	183,700
Cost effectiveness (US\$/kg.)	4.97	7.48	6.31	6.59	6.55	8.25	16.04
National Coordinating Agency	Ministry of Environment and Forests						
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 \$)	96,000	123,000	94,500	59,000	103,125	217,250	167,100
Project Impact (ODP tonnes)	24.97	28.88	19.41	10.62	20	32.96	11.45
Cost effectiveness (US \$/kg)	3.84	4.26	4.87	5.56	5.16	6.59	14.59
Implementing Agency support cost (US\$)	12,480	15,990	12,285	7,670	13,406	28,243	21,723
Total cost to Multilateral Fund	108,480	138,990	106,785	66,670	116,531	245,493	188,823

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

Rigid Polyurethane Foam Projects

- (a) Phase out of CFCs in the manufacture of rigid PUF insulated thermoware at Bharat Plastic Products
- (b) Phase out of CFCs in the manufacture of rigid PUF products in Inalsa Ltd.
- (c) Phase out of CFCs in the manufacture of rigid PUF insulated thermoware at Mahavir Enterprises
- (d) Phase out of CFCs in the manufacture of rigid PUF products at Omkar PUF Insulation

1. The Fund Secretariat and UNDP discussed the issues relating to the projects. These included the use of HCFC-141b formulations and related equipment requirements, the incrementality of capital costs relative to the current level of operations of the enterprises, and availability on the market of lower output high pressure foaming machines. Following the discussions, the following costs were agreed:

- Trials and technology transfer costs remain the same
- Equipment will be provided as follows:

Bharat Plastic Productions: One high pressure foam dispenser (14 kg./min): US \$55,000

Inalsa Ltd: One high pressure foam dispenser (40 kg./min): US \$75,000

Mahavir: One high pressure foam dispenser (14 kg./min): US \$55,000

Omkar: One high pressure foam dispenser (9 kg./min): US \$30,000

2. The incremental capital costs will therefore be as follows:

	Bharat	Inalsa	Mahavir	Omkar
	(US \$)			
Foam Dispenser	55,000	75,000	55,000	30,000
Technology transfer and training	10,000	10,000	10,000	10,000
Trials	5,000	5,000	5,000	5,000
10% Contingency	7,000	9,000	7,000	4,500
TOTAL	77,000	99,000	77,000	49,500

Integral skin foam projects

- (e) Phase out of CFCs in the manufacture of cold cured molded PUF products at Autofit P., Ltd.
- (f) Phase out of CFCs in the manufacture of cold cured molded and integral skin PUF products at Kaygee Foams P., Ltd.
- (g) Phase out of CFCs in the manufacture of cold cured molded and integral skin PUF products at Preto Foams

3. Issues of importance relating to these projects were:

Autofit:

The need for replacement of the mixing head of the high pressure dispenser. It was claimed that the mixing head would need to be modified/replaced to effectively handle the new mixing ratios. Quite apart from the high cost of the mixing head which was remarked upon by the Technical Reviewer, developments in the polyurethane foam industry and the time it takes to get projects implemented appeared to place in doubt the need to replace the mixing head.

Following discussions between the Secretariat and UNDP, it was decided that the amount of US \$15,000 would be provided towards meeting any possible cost of retrofit or replacement of the mixing head occasioned by increase in mixing ratios of the new formulation using all water blown technology. It was also decided to recommend the amount of US \$28,750 requested by the company for replacement of molds, since it was argued that the configuration of the molds and heating system after conversion would necessitate replacement of all the molds.

Kaygee Foams:

The need to replace the medium pressure (60-80 bar) foam dispenser with high pressure dispenser. The reason for requesting for replacement was given as the conversion to water-based and HCFC-141b systems resulting in changed mixing ratios and increased viscosity of the formulations. Considering again developments in the polyurethane foam industry, it was recommended to provide only a portion of the amount requested (US \$40,000) for any possible modifications.

Preto Foams:

The amount of US \$75,000 was recommended as the cost of the high pressure foam dispenser, in line with projects before this meeting from the region.

4. No changes were made to the cost of mold ovens, trials and technology transfer/training. Consequently, the incremental capital costs will be Autofit: US \$81,125, Kaygee Foams: US \$184,250, and Preto US \$158,400.
5. For the enterprises which would convert initially to HCFC-141b, the conversion from the HCFC-141b to zero-ODP technology could be implemented with little or no additional investments. Those enterprises are not expected to request additional funds during the conversion to zero-ODP technology.

RECOMMENDATIONS

1. The Fund Secretariat recommends approval of the projects with associated support costs as shown in the table below, to be implemented by UNDP:

	Capital cost US \$	Operating cost US \$	Project Cost US \$	Support Cost US \$	Cost- effectiveness US \$/kg.
(a) Phase out of CFCs in the manufacture of rigid PUF insulated thermoware at Bharat Plastic Products	77,000	19,000	96,000	12,480	3.84
(b) Phase out of CFCs in the manufacture of rigid PUF products in Inalsa Ltd.	99,000	24,000	123,000	15,990	4.26
(c) Phase out of CFCs in the manufacture of rigid PUF insulated thermoware at Mahavir Enterprises	77,000	17,500	94,500	12,285	4.87
(d) Phase out of CFCs in the manufacture of rigid PUF products at Omkar PUF Insulation	49,500	9,500	59,000	7,670	5.56
(e) Phase out of CFCs in the manufacture of cold cured molded PUF products at Autofit P., Ltd.	81,125	22,000	103,125	13,406	5.16
(f) Phase out of CFCs in the manufacture of cold cured molded and integral skin PUF products at Kaygee Foams P., Ltd	184,250	33,000	217,250	28,243	6.59
(g) Phase out of CFCs in the manufacture of cold cured molded and integral skin PUF products at Preto Foams	158,400	8,700	167,100	21,723	14.59