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

Twenty-second Meeting
Nairobi, 28-30 May 1997

PROJECT PROPOSAL: BRAZIL

This document includes the comments and recommendations from the Fund Secretariat on the following projects:

Foam

- | | |
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| • Conversion to CFC-free technology in the manufacture of polyurethane foam at Trambusti | UNDP |
| • Conversion to CFC-free technology in the manufacture of polyurethane foam at Giroflex | UNDP |
| • Conversion to CFC-free technology in the manufacture of polyethylene foam tubing at Polipex | UNDP |
| • Conversion to CFC-free technology in the manufacture of polyurethane foam at Metallurgica Barra | UNDP |
| • Conversion to CFC-free technology in the manufacture of polyurethane foam at Tekcor | UNDP |
| • Conversion to CFC-free technology in the manufacture of polyurethane foam at Isolenge | UNDP |
| • Conversion to CFC-free technology in the manufacture of polyurethane foam at Cumulus | UNDP |
| • Conversion to CFC-free technology in the manufacture of polyurethane foam at Facchini | UNDP |
| • Conversion to CFC-free technology in the manufacture of polyurethane foam at Dalla Rosa E Cia | UNDP |

PROJECT EVALUATION SHEET

BRAZIL

SECTOR: Foams ODS use in sector (1993): 900 ODP tonnes
 Sub-sector cost-effectiveness thresholds: Integral skin 16.86 US \$/kg
 Polystyrene/polyethylene 8.22 US \$/kg
 Rigid polyurethane 7.83 US \$/kg

Project Title: (a) Conversion to CFC-free technology in the manufacture of polyurethane foam at Trambusti; (b) Conversion to CFC-free technology in the manufacture of polyurethane foam at Giroflex; (c) Conversion to CFC-free technology in the manufacture of polyethylene foam tubing at Polipex; (d) Conversion to CFC-free technology in the manufacture of polyurethane foam at Metallurgica Barra; (e) Conversion to CFC-free technology in the manufacture of polyurethane foam at Tekcor; (f) Conversion to CFC-free technology in the manufacture of polyurethane foam at Isolenge; (g) Conversion to CFC-free technology in the manufacture of polyurethane foam at Facchini; (h) Conversion to CFC-free technology in the manufacture of polyurethane foam at Cumulus; (i) Conversion to CFC-free technology in the manufacture of polyurethane foam at Dalla Rosa E Cia

Project Data	Integral		Polystyrene/ polyethylene	Rigid polyurethane					
	Trambusti	Giroflex	Polipex	Met. Barra	Tekcor	Isolenge	Facchini	Cumulus	Dalla Rosa
ODS phase out (ODP tonnes)	50	23.4	28.5	36.34	9.15	66	32.94	11	9.15
Proposed project duration (Yrs)	2	2	2	2	2	2	2	2	2
Incremental capital cost (US\$)	590,000	105,000	213,200	220,000	60,500	528,000	231,000	115,000	60,500
Contingency (%)	10	10	10	10	10	10	10	10	10
Incremental operational cost (US\$)	174,000	73,000	(20,000)	50,000	25,000	60,000	30,000	9,000	25,000
Total project cost (US\$)	764,000	178,000	193,200	270,000	85,500	588,000	261,000	124,000	85,500
Local ownership (%)	100	100	100	100	100	100	100	100	100
Export component (%)	0	0	0	0	0	0	0	0	0
Amount requested (US\$) (original)	834,000	243,000	215,200	285,000	71,600	516,000	258,000	86,000	71,600
(revised)	764,000	178,000	193,200	270,000					
Cost effectiveness (US\$/kg.)	15.28	7.61	6.78	7.43	7.82	7.82	7.83	7.82	7.82
National Coordinating Agency	Brazilian Industry and Trade Ministry								
Implementing Agency	UNDP	UNDP	UNDP	UNDP	UNDP	UNDP	UNDP	UNDP	UNDP
Technical review completed?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Secretariat's Recommendations									
Amount recommended (US \$)	763,600	177,500	191,000	270,000	71,600	516,000	258,000	86,000	71,600
Project Impact (ODP tonnes)	50	23.4	28.5	36.34	9.15	66	32.94	11	9.15
Cost effectiveness (US \$/kg)	15.27	7.58	6.70	7.43	7.82	7.82	7.83	7.82	7.82
Implementing Agency support cost (US\$)	99,268	23,075	24,830	35,100	9,308	67,080	33,540	11,180	9,308
Total cost to Multilateral Fund	862,868	200,575	215,830	305,100	80,908	583,080	291,540	97,180	80,908

PROJECT DESCRIPTION

Integral Skin

- (a) Conversion to CFC-free technology in the manufacture of polyurethane foam at Trambusti

Trambusti manufactures interior trim parts for the automotive industry. It manufactures flexible semi-rigid and rigid foam parts. It currently has eight low pressure machines for manufacturing a wide range of products. The company will convert from the use of CFC-11 to all water blown formulations. The capital costs include replacement of the 8 low pressure machines with 5 high pressure machines ranging in capacity from 10kg./min - 40 kg/min, one with four mixing heads for a total of US \$520,000 and trials, technology transfer and training for US \$80,000

- (b) Conversion to CFC-free technology in the manufacture of polyurethane foam at Giroflex

Giroflex manufactures flexible molded and integral skin foam panels for chairs. The company has two Henneke high pressure machines (1981 and 1985) and one Transterica low pressure machine (1987). the capital costs include the costs of one 20kg/min high pressure dispenser (US \$90,000) replacement of HK270 mixing head (US \$15,000) and retrofit of the machine for producing integral skin foam (US \$15,000). Trials, technology transfer and training amount to US \$35,000.

Polystyrene/polyethylene

- (c) Conversion to CFC-free technology in the manufacture of polyethylene foam tubing at Polipex

Polipex will phaseout the use of CFC-12 in the manufacturing of extruded polyethylene foam tubing. The technology chosen is isobutane. The project costs include costs of equipment for storage and handling of isobutane (US \$51,800) and safety related costs (US \$71,000) cutting device (US \$40,000), inkjet printer (US \$20,000) as well as trials, training, technology transfer (US \$20,000) and contingency. Incremental operating benefits (US \$20,000) are expected to be realized and are factored into the project costs.

Rigid Polyurethane Rigid

At all the six enterprises (Metallurgica Barra, Tekcor, Isolenge, Facchin, Cumulus and Dalla Rosa) production is to be converted to water blown formulations, preceded by HCFC-141b as an interim step. Each project includes equipment replacement, as well as trials, training, technology transfer, contingency and incremental operational costs.

(d) Conversion to CFC-free technology in the manufacture of polyurethane foam at Metallurgica Barra

1. Metallurgica Barra will phase out the use of 36.34 ODP tonnes of CFC-11 in the manufacture of rigid foam for roof panels. The company currently uses the following equipment: two T-30/2 dispensers; output 30 kg/min at 1:1 ratio.

2. The main costs of the project are as follows:

High pressure dispensers	US \$220,000
Technology transfer, trials and training	30,000
Incremental operational cost	50,000

(e) Conversion to CFC-free technology in the manufacture of polyurethane foam at Tekcor

1. Tekcor will phase out the use of 9.15 ODP tonnes of CFC-11 in the manufacture of rigid foam for thermal casseroles (thermoware). The company currently uses the following equipment: two T-15 dispensers; output 15 kg/min at 1:1 ratio.

2. The main costs of the project are as follows:

High pressure dispenser, 30 kg/min.	US \$90,000
Technology transfer, trials and training	15,000
Incremental operational cost	8,450

(f) Conversion to CFC-free technology in the manufacture of polyurethane foam at Isolenge

1. Isolenge will phase out the use of 66 ODP tonnes of CFC-11 in the manufacture of rigid foam for tank and pipe insulation. The company currently uses the following equipment: 25 locally manufactured low pressure dispensers, eight of which are explosion-proof; outputs are up to 20 kg/min, with most applications generally between 4-6 kg/min.

2. The main costs of the project are as follows:

High pressure dispensers	US \$460,000
Technology transfer, trials and training	30,000
Incremental operational cost	60,000

(g) Conversion to CFC-free technology in the manufacture of polyurethane foam at Facchini

1. Facchini will phase out the use of 32.94 ODP tonnes of CFC-11 in the manufacture of rigid foam for insulated/refrigerated trucks and trailers. The company currently uses the following equipment: two Olin dispensers (1992), three Transtecnica dispensers (1987 (2) and 1995); output approximately 30 kg/min at 1:1 ratio.

2. The main costs of the project are as follows:

High pressure dispensers, 80-100 kg/min.	US \$110,000
Additional Mixinghead & Cart T-frame support	70,000
Local Works	25,000
Technology transfer, trials and training	30,000
Incremental operational cost	30,000

- (h) Conversion to CFC-free technology in the manufacture of polyurethane foam at Cumulus

1. Cumulus will phase out the use of 11 ODP tonnes of CFC-11 in the manufacture of rigid foam for insulation of water heaters.. The company currently uses the following equipment: P-30 dispenser (1992); output approximately 30kg/min at 1:1 ratio.

2. The main costs of the project are as follows:

High pressure dispenser, 40 kg/min.	US \$90,000
Technology transfer, trials and training	15,000
Incremental operational cost	9,000

- (i) Conversion to CFC-free technology in the manufacture of polyurethane foam at Dalla Rosa E Cia

1. Dalla Rosa will phase out the use of 9.15 ODP tonnes of CFC-11 in the manufacture of rigid foam for roof panels. The company currently uses the following equipment: two T-3/2 dispensers; output 50-200 g/sec. at 1:1 ratio.

2. The main costs of the project are as follows:

High pressure dispensers	US \$90,000
Technology transfer, trials and training	15,000
Incremental operational cost	8,250

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

Integral Skin

Trambusti

1. Cost of trials and the cost of the high pressure dispenser with four mixing heads were agreed at US \$6,000 per trial and US \$150,000 (i.e. cost of each mixing head at average of US \$15,000).

Giroflex

2. The type of high pressure equipment to be provided for the project was reviewed and agreed at US \$40,000, while the technology transfer and training cost was revised to US \$10,000.

Rigid Polyurethane Foam

3. It was agreed to provide US \$10,000 per project for technology transfer and training.

Metalurgica Barra

4. The capacity of the equipment requested was considered to constitute increase in capacity to be replaced. The cost of equipment was adjusted to US \$180,000.

Facchini

5. The cost of the local works (\$25,000) was considered ineligible. However, this did not affect the eligible grant, since the company was requesting partial funding up to the maximum limit allowable.

Cumulus, Teckor, Dalla Rosa

6. Dispensers of a lower price (US \$40,000) were recommended for these projects. The change in capital cost, however, did not affect the requested grants since the companies were only eligible for maximum amount allowable based on their ODS consumption and threshold limit value.

Extruded Polystyrene

Polipex

7. The cost of the hydrant and water tank was considered ineligible, hence the capital cost was adjusted to US \$191,000,

Impact of Projects on the 1999 Freeze

8. The project document indicates "So far, 61 activities have been approved for Multilateral Fund financing, which would eliminate 1,741 tons of ODP per year. While these projects will contribute to Brazil meeting its 1999 freeze requirements, significant additional efforts will have to be made to enable it to comply with the 1999 freeze and further ODS decreases as required by the Montreal Protocol. The Brazilian Government therefore requested UNDP that the projects being submitted to the Multilateral Fund in 1997, and which will eliminate an additional 400 to 500 ODP tonnes, be given highest priority."

RECOMMENDATION(S)

1. The Fund Secretariat recommends blanket approval of the projects with the funding levels and associated support costs as indicated below.

	Project Cost US \$	Support Cost US \$	Implementing Agency
(a) Conversion to CFC-free technology in the manufacture of polyurethane foam at Trambusti	763,600	99,268	UNDP
(b) Conversion to CFC-free technology in the manufacture of polyurethane foam at Giroflex	177,500	23,075	UNDP
(c) Conversion to CFC-free technology in the manufacture of polyethylene foam tubing at Polipex	191,000	24,830	UNDP
(d) Conversion to CFC-free technology in the manufacture of polyurethane foam at Metallurgica Barra	270,000	35,100	UNDP
(e) Conversion to CFC-free technology in the manufacture of polyurethane foam at Tekcor	71,600	9,308	UNDP
(f) Conversion to CFC-free technology in the manufacture of polyurethane foam at Isolenge	516,000	67,080	UNDP
(g) Conversion to CFC-free technology in the manufacture of polyurethane foam at Facchini	258,000	33,540	UNDP
(h) Conversion to CFC-free technology in the manufacture of polyurethane foam at Cumulus	86,000	11,180	UNDP
(i) Conversion to CFC-free technology in the manufacture of polyurethane foam at Dalla Rosa E Cia	71,600	9,308	UNDP