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

Seventeenth Meeting
Montreal, 26-28 July 1995

PROJECT PROPOSALS: INDIA

This document includes the Comments and Recommendations from the Fund Secretariat.

PROJECT EVALUATION SHEET

COUNTRY OR REGION:	India
PROJECT TITLE:	Conversion of thirteen aerosol filling plants from CFC to HAP and a demonstration project to convert 5 installations to manual filling equipment
BUDGET:	US \$ See table attached
INCREMENTAL COSTS:	See table attached ¹
ODS PHASE-OUT:	See table attached
COST EFFECTIVENESS ² :	See table attached
PROJECT DURATION:	One year
IMPLEMENTING AGENCY:	World Bank
NATIONAL COORDINATING AGENCY:	Ministry of Environment and Forest
TECHNICAL REVIEW COMPLETED:	YES X NO

SECRETARIAT'S COMMENTS

1. The project proposal relates to the conversion of thirteen aerosol filling plants from CFCs to hydrocarbon propellant (HAP). In total, 503.9 tonnes of CFCs will be phased out when the projects become operational. The World Bank also provided a Background Note on Aerosol Projects.
2. Some of the projects under consideration were submitted under the Small Project Approval Process (SPAP), and found to have associated issues such as (i) replacement filling machines will increase production capacity; (ii) operational costs/savings were not considered since any savings will go to the owner of the brand and not to the filler; and (iii) fate of scrapped equipment. Thus, and in accordance with the SPAP guidelines the projects are being submitted to this.
3. The Government of India will provide HAPs to all aerosol fillers.

¹ Including contingency (15 per cent) and Financial Agent Fee (3 per cent)

² Determined as the ratio of incremental costs to the estimated annual saving of ODP (\$/ODPkg).
For CFC-11, ODS=ODP.

4. Each proposal provides detailed information on production for the last three years and capacity of the filling equipment installed, as requested by the Executive Committee.
5. CFC consumption in five filler plants, namely, Attarwala, Aero Pack, Ultra Tech, Meenakshi and Texas, is higher than the amount reported in the project document submitted under the SPAP. Also the cost of these fillers has been scaled down. The combination of higher CFC consumption and lower investment costs resulted in a cost-effectiveness value below the threshold value of US \$4.4/kg. The World Bank has indicated that that consumption data was reevaluated during the review process of the projects.
6. Most of the plants use manual filling equipment with multiple production lines to accommodate increasing production volume. The projects have been designed to take into account the installed capacity and addressing all safety issues.
7. The Background Note submitted with the projects indicates that the Government of India has agreed to transfer projects under US \$100,000 to UNIDO for their implementation
8. The proposal also contains a demonstration project on conversion of 5 filling plants to manual filling equipment using HAPs. The project addresses safety issues. The project has very high administrative costs (29 per cent) in addition to contingency costs and financial agency fees. The administrative costs will be paid to a local consulting firm to supervise implementation, monitor usage and report on equipment suitability.
9. Production costs of cans filled with CFC propellant is more expensive than those filled with HAP propellant.
10. The Background Note provides information supporting the statement that in certain economies and under certain conditions of dual markets (CFCs and HAPs) there are no incremental savings due to the conversion from CFC to HAPs. Savings accrued due to the use of a cheaper propellant will not be received by the contract filler but by the owner of the brand, since the filler charges a fixed amount per can in addition to the cost of the propellant used, either CFC or HAP.
11. Using production cost data provided in the Background Note, as an example, annual savings to the national economy for replacing CFC with HAPs to fill 40 million units currently produced in India are estimated at US \$1.96 million (or US \$6.2 million considering a 4-year period).
12. The World Bank states that 'the savings are extremely small when compared to the total cost which will be covered by the India economy to support the phase out. The Fund has been operating on the principle of compensation at the enterprise level and not at the national level, and the projects being submitted were prepared on that basis. Economy-level costs, such as early retirement costs, which will not be covered by the Fund could be identified and claimed against the potential savings which will result from the initial conversion of part of the aerosol sector.

Since, the potential savings will not accrue to the fillers, their consideration in the incremental cost of the aerosol projects cannot be done”.

SECRETARIAT'S RECOMMENDATIONS

13. The Secretariat recommends as follows:

14. According to the Indicative List of Categories of Incremental Costs which states “any savings that will be gained at both the strategic and project levels during the transition process should be taken into account on a case-by-case basis, according to criteria decided by the Parties and as elaborated in the guidelines of the Executive Committee”, and in light of the explanation provided by the World Bank in paragraph 12 above, the Executive Committee may wish to consider how to treat incremental operating savings accruing to a country due to the conversion from CFC to HAP used by aerosol contract fillers.

15. In this connection, the Executive Committee may wish to consider disapproval of any project proposals for conversion of contract fillers and/or small aerosol filling plants outside a sectoral strategy which shows how all enterprises will be converted and savings from use of HAPs are taken into account.

16. The Secretariat further recommends final approval of the demonstration project **in the amount of US \$181,550**. The project should be used to develop project proposals to convert the small informal enterprises in India, and for that matter in any other Article 5 country.

PROJECT COSTS

Project title	ODS to be phased-out (ODP tonnes)	Funds requested (US \$)	CE (US\$/kg)	Cans per year produced in 1995
Aero Industries Conversion, Vapi	27.7	\$125,500	4.39	610,000
Aeropres Conversion, Vapi	50	\$151,400	2.94	240,000
A.A. Attarwala & Co. Pvt. Ltd. conversion	30.7	\$138,400	4.37	3,000,000
Aero Pack Products conversion project	20.4	\$71,600	3.4	73,058
Aerol Formulations aerosol conversion	31	\$71,600	2.24	100,000
Aerosols D'Asia Pvt. Ltd. aerosol	18	\$71,600	3.86	35,000
Asian Aerosols Pvt. Ltd. aerosol	25	\$93,700	3.64	200,000
Ultra Tech Specialty Chemicals Pvt. Ltd.	30.8	\$72,200	2.27	64,000
Meenakshi aerosol and cosmetic	22.5	\$102,000	4.4	45,642
Stella Industries aerosol conversion	105	\$277,500	2.56	198,173
Texas Enterprises conversion, Bombay	31.3	\$72,200	2.24	65,000
My Fair Lady Ltd. conversion, Delhi	59.5	\$117,500	1.92	502,400
Accra Pak India Pvt. Ltd.	52	\$133,700	2.49	849,000
Conversion of 5 aerosol filling instalations to manual filling equipment using HAPs		\$181,550		

PROJECT EVALUATION SHEET

COUNTRY OR REGION:	India
PROJECT TITLE:	See attached Table
BUDGET (6 projects)	US \$1,670,400
INCREMENTAL COSTS (6 projects):	US \$1,670,400 ³
ODS PHASE-OUT:	201 MT
COST EFFECTIVENESS ⁴ :	US \$8.31 per kg. ODP saved (See attached Table)
PROJECT DURATION:	1.5 years
IMPLEMENTING AGENCY:	World Bank
NATIONAL COORDINATING AGENCY:	Ministry of Environment and Forests (MOEF)
TECHNICAL REVIEW COMPLETED:	YES X NO

SECRETARIAT'S COMMENTS

1. This evaluation sheet describes two projects for phasing out CFC-12 in the manufacture of extruded polyethylene foam, one project for the manufacture of integral skin polyurethane moldings and three projects for the manufacture of molded polyurethane foam products. The six projects will phase out 201 tonnes ODP of ODS at a cost of US \$1,670,400.

2. For the extruded polystyrene foam production (Kunststoff and Real Polymers), butane blend which is available in India as LPG will be deodorized and used as substitute blowing agent to CFC-12. The capital costs of conversion relate to retrofitting of the extruders for use with LPG and provision of fire prevention and safety systems. The projects will have incremental savings and are within the threshold value of US \$8.2/kg./yr.

³ Including a 10 per cent contingency fee.

⁴ Determined as the ratio of incremental costs to the estimated annual savings of ODP (\$/ODP kg).
For CFC-11, ODS=ODP.

3. The capital cost of conversion of the integral skin foam production (Pfeda Synthetics) involves replacement of two low pressure machines with one high pressure machine with four mixing heads to create equivalent installed capacity. The substitute for CFC-11 will be HCFC-141b with option to use HCFC-22. The capital cost also includes provision of closed system premix station and technical assistance for formulation development. The project will incur incremental operational costs. It is within the threshold value for integral skin foam of US \$16.86/kg./yr.

4. In the molded polyurethane foam production, the enterprises involved will convert to all water-blown technology. For two of the enterprises (PUR Polyurethane and Vijayjiot) their low pressure machines will be replaced with high pressure dispensers, while the third enterprise (Polyflex) will only require provision of high pressure mixing head to be used on its existing high pressure foaming machine. The capital costs also include the cost of mold heating ovens, replacement of epoxy molds with metallic molds and technical assistance for formulation development. The projects are within the cost-effectiveness threshold which is taken as the same as integral skin foam.

5. Technical assistance for downstream formulation is not eligible on the basis of the decision relating to provision of testing facilities for polyol producers in India. Hence project costs which included this item were accordingly adjusted.

6. The adjusted project cost and revised cost effectiveness for the four enterprises are affected as follows:

	US \$	US \$/kg./yr.
Pfeda Synthetics	345,800	13.16
Polyflex	222,400	5.56
PUR	193,500	11.39
Vijayjiot	335,500	6.85

SECRETARIAT'S RECOMMENDATIONS

I. The Fund Secretariat recommends to approve the six foam projects and the recommended amounts shown in the list of projects, namely:

Kunststoff Polymers	US \$	246,500
Real Polymers		276,200
Pfeda Synthetics		345,800
Polyflex (India)		222,400
PUR Polyurethane Products		193,500
Vijayjiot		335,500
TOTAL	US \$	1,619,900

LIST OF INDIA FOAM PROJECTS
(World Bank)

Project Title	Total Budget ⁵	Incremental Capital Cost US\$ ⁶	Incremental Operational Cost US\$	ODP Phase out Tonnes ODP	Cost-Effect. \$/kg./yr.	Amount Recommended	Revised Cost-Effect.
Phase-out of CFCs in the manufacture of Extruded Polyethylene Foam at Kunststoff Polymers Ltd.	246,500	249,700	(10,400)	30	7.98	246,500	-
Phase-out of CFCs in the manufacture of Extruded Polyethylene Foam at Real Polymers	276,000	271,700	(3,500)	35	7.66	276,200	-
Phase-out of CFCs in the manufacture of Integral Skin PUF moldings at Pfeda Synthetics (P) Ltd.	355,800	341,000	65,300	30	13.51	345,800	13.16
Phase-out of CFCs in the manufacture of molded PUF automotive seats at Polyflex P. Ltd.	233,700	157,300	69,600	40	5.67	222,400	5.56
Phase-out of CFCs in the manufacture of molded PUF at PUR Polyurethane Products P. Ltd.	200,300	177,100	17,400	17	11.44	193,500	11.39
Phase-out of CFCs in the manufacture of PUF moldings at Vijayjyot Seats Ltd.	358,100	222,000	103,500	49	7.10	335,500	6.85

⁵ Including Financial Agent Fee.

⁶ Including a 10 per cent contingency fee.

PROJECT EVALUATION SHEET

COUNTRY OR REGION:	India
PROJECT TITLE:	Phase out of CTC in the Manufacture of Endosulphan at Excel Industries
BUDGET:	US \$629,000
INCREMENTAL COSTS:	US \$629,000 ¹
ODS PHASE-OUT:	340MT
COST EFFECTIVENESS ² :	US \$1.63 per kg. ODP saved
PROJECT DURATION:	1.5 years
IMPLEMENTING AGENCY:	World Bank
NATIONAL COORDINATING AGENCY:	Ministry of Environment & Forests (MOEF)
TECHNICAL REVIEW COMPLETED:	YES x NO

SECRETARIAT'S COMMENTS

1. The project involves the use of 374 tonnes ODP of carbon tetrachloride (CTC) as a process agent.. Other chemicals are dissolved in the CTC to enable them to undergo a chemical reaction in which endosulphan, a chemical used in agriculture, is produced. The solution is distilled to separate the endosulphan from the CTC, after which the CTC is recovered for re-use.

2. As this is the first proposal involving process agents to be brought to the Executive Committee, it will be important to develop a consistent approach to treatment of the subsector. The definition and classification of process agents is under active consideration by the Parties, with decisions likely to be taken by the end of 1995. These decisions may have an impact upon the treatment of project proposals involving process agents. The TEAP Working Group on ODS Chemical Process Agents has recommended that the Parties might wish to consider whether controlled substances used as process agents qualify for emission reduction investments within the existing guidelines of the Multilateral Fund. In view of this, the Secretariat considers that the eligibility of projects involving process agents is, at best doubtful, and that it would be both prudent and equitable to defer consideration of this project until the views of the Parties are made clear.

¹ Including contingency (10 per cent) and Financial Agent Fee (3 per cent)

² Determined as the ratio of incremental costs to the estimated annual saving of ODP (\$/ODPk).
For CTC, ODP=1.1.

3. With regard to details of the project, there is only the most cursory discussion of process facility components and their costs. The technical reviewer points out that the original process using CTC is virtually the same in principle as that using EDC. Because of this, the basic equipment such as distillation pots, receivers, holding and storage tanks etc., should be of the same nature. In this case, they would not be eligible as incremental costs. The specific comparisons between existing baseline components and proposed replacements needed to establish eligibility and incrementality have been sought from the implementing agency.
4. Expenses associated with installation are extremely high, at a total of over US \$260,000 (installation, electrical, piping, insulation and painting), particularly when this is local expenditure. Safety costs are involved since the replacement chemical, ethylene dichloride, is flammable, however no details are provided in the project proposal.
5. Substantial operating costs are included for the input of power (to generate steam, etc.) and simultaneously, the removal of power (cooling, removal of excess steam). The claimed cost of electricity is high at 8.25 cents/kwh. 4 cents is a more normal figure.
6. The incremental operating costs are very sensitive to changes in solvent prices. However no information is provided to support the quoted costs of both CTC and EDC.
7. Information on each of the above issues has been requested from the implementing agency. Advice concerning clarification of the issues and the outcome of any further consultations with the implementing agencies will be provided to the Sub-Committee on Project Review no later than 7 days before its meeting, in accordance with its terms of reference.

SECRETARIAT'S RECOMMENDATIONS

8. The Secretariat recommends that the project be deferred pending a decision by the Parties on the definition and classification of process agents. Additionally the Secretariat recommends that the project not be approved pending the clarification of project details relating to eligibility and cost.