



**United Nations
Environment
Programme**



Distr.
LIMITED

UNEP/OzL.Pro/ExCom/23/36
18 October 1997

ORIGINAL: ENGLISH

EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Twenty-third Meeting
Montreal, 12-14 November 1997

PROJECT PROPOSAL: KENYA

This documents includes the comments and recommendations of the Fund Secretariat on the following project proposal:

Solvent

- Conversion of ODS cleaning processes from TCA to aqueous cleaning and cleaning in TCA at Kenyan Railways Central Workshop

UNIDO

PROJECT EVALUATION SHEET **KENYA**

SECTOR: SOLVENT ODS use in sector (1995): 101.0 ODP tonnes

Sub-sector cost-effectiveness thresholds: CFC-113 19.73 US \$/kg
TCA 38.50 US \$/kg

Project Titles:

Conversion of ODS cleaning processes from TCA to aqueous cleaning and cleaning in TCE at Kenyan Railways Central Workshop

Project Data	TCA
	Kenyan Railways Central Workshop
ODS phase-out (ODP tonnes)	5.96
Proposed project duration (months)	12
Incremental capital cost (US \$)	352,000
- including contingency (%)	10
Incremental operational cost (US \$)	(146,476)
Total project cost (US \$)	205,524
Local ownership (%)	100
Export component (%)	-
Amount requested (US \$) {Original}	226,424
{Revised}	205,524
Cost effectiveness (US \$/kg)	34.48
National Coordinating Agency	Kenya Ozone Office, National Environment Secretariat
Implementing Agency	UNIDO
Technical review completed?	Yes

<i>Secretariat's Recommendations:</i>	
Amount recommended (US \$)	205,524
Project impact (ODP tonnes)	5.96
Cost effectiveness (US \$/kg)	34.48
Implementing Agency support cost (US \$)	26,718
Total cost to Multilateral Fund (US \$)	232,242

PROJECT DESCRIPTION

Conversion of ODS cleaning processes from TCA to aqueous cleaning and cleaning in TCE at Kenyan Railways Central Workshop

1. This project will phase out the use of 59.6 metric tonnes of TCA, equivalent to 5.96 ODP tonnes. The baseline cleaning facilities, which all use TCA, consist of two very large tanks (2.5 by 1.5 metres) combined with hand-brushing, one hot-dip degreasing machine, three smaller cold-dip tanks and one open hand-held spray and manual brushing station. These facilities are used to clean traction motors, main generators of locomotive engines and small electrical motors and relays, as part of major overhauls and accident repairs of locomotives, wagons and coaches. The ODS solvent is utilized as a degreasing agent.
2. The enterprise already has a heavy-duty turntable washer but this cannot be used for cleaning complex parts such as electric motors without a means of drying the water from within the parts. It is therefore proposed to purchase a separate vacuum dryer for use with the existing turntable washer. A closed solvent cleaning machine using trichloroethylene, TCE, is proposed to clean smaller parts. Finally, kerosene will be used for manual brushing of parts contaminated with bitumen grease. To avoid hazard, an automatic fire extinguishing system will be required in the kerosene cleaning area, together with a ventilation system. The project will employ commercially available technologies applicable to the railways industry in Kenya.
3. The proposal does not involve the use of transitional substances.
4. The proposal contains the data available from the Kenya country programme, but notes that the country programme does not identify consumption in the solvent sector. The project will phase out some 60 percent of the total reported consumption of TCA. Because TCA consumption will not be frozen until 2003, this project will not contribute to Kenya meeting the 1999 freeze. The cost-effectiveness of the projects is US \$34.48 compared to the sector threshold of US \$38.50.
5. Major capital costs are US \$100,000 for a vacuum drying machine and US \$150,000 for a closed TCE cleaning machine. US \$15,000 is included as a 50 percent share for a water treatment facility.
6. Operating savings of US \$146,000 arise from reductions in the cost and the quantities of solvent used, offset by small increases in energy and labour costs.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS**COMMENTS**

1. Minor cost issues were discussed with the implementing agency. It was agreed that the full cost of water treatment was not eligible as there is no water treatment facility in the baseline and aqueous cleaning is already being used by the enterprise, although water consumption will increase when the project is implemented. It was agreed that 50 percent cost sharing was an equitable representation of eligible costs.

RECOMMENDATION

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

Project Title	Project Cost US \$	Support Cost US \$	Implementing Agency
Conversion of ODS cleaning processes from TCA to aqueous cleaning and cleaning in TCE at Kenyan Railways Central Workshop	205,524	26,718	UNIDO