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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Thirty-sixth Meeting
Montreal, 20-22 March 2002

PROJECT PROPOSAL: KOREA, DPR

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

Solvent

• Conversion of cleaning installations from carbon tetrachloride to aqueous cleaning techniques at the Gumsong Tractor Factory (GST)	UNIDO

PROJECT EVALUATION SHEET
KOREA, DPR

SECTOR: Solvent ODS use in sector (2000): 1,065 ODP tonnes

Sub-sector cost-effectiveness thresholds: n/a

Project Titles:

(a) Conversion of cleaning installations from carbon tetrachloride to aqueous cleaning techniques at the Gumsong Tractor Factory (GST)

Project Data	**CTC**
	Gumsong Tractor
Enterprise consumption (ODP tonnes)	198.00
Project impact (ODP tonnes)	198.00
Project duration (months)	30
Initial amount requested (US $)	2,122,805
Final project cost (US $):	
Incremental capital cost (a)	1,906,150
Contingency cost (b)	190,615
Incremental operating cost (c)	-10,908
Total project cost (a+b+c)	2,085,857
Local ownership (%)	100%
Export component (%)	0%
Amount requested (US $)	1,932,207
Cost effectiveness (US $/kg.)	9.76
Counterpart funding confirmed?	Yes
National coordinating agency	National Coordinating Committee for Environment
Implementing agency	UNIDO

Secretariat's Recommendations	
Amount recommended (US $)	
Project impact (ODP tonnes)	
Cost effectiveness (US $/kg)	
Implementing agency support cost (US $)	
Total cost to Multilateral Fund (US $)	

PROJECT DESCRIPTION

Conversion of cleaning installations from carbon tetrachloride to aqueous cleaning techniques at the Gumsong Tractor Factory (GST)

1. This project was submitted by UNIDO to the 35th Meeting of the Executive Committee. The Executive Committee decided to defer consideration of the project and another similar project in DPR Korea, pending clarification, at the 36th Meeting of the cost-effectiveness as well as the total costs and the proportion of the costs to be borne by the recipient country for controlling impacts on environment, health and safety arising from the chosen technology. The two projects would be maintained in UNIDO's 2001 business plan (Decision 35/41). UNIDO has revised and re-submitted the project for Gumsong Tractor Factory.

2. As indicated in the Secretariat's previous evaluation sheet, GST is a large state-owned enterprise involved in the production and maintenance of bulldozers and tractors. In 2000, the enterprise consumed 198 ODP tonnes of CTC in the cleaning of engines, gearboxes, pumps and other metal parts. The overall production for the same year was 650 new units and the repair or overhaul of an additional 3,500 tractors and bulldozers.

3. UNIDO re-examined the technology choice in the light of the costs associated with meeting the very strict exposure limits imposed by the DPR Korea government which only apply to the use of TCE, selected for use in the original project. It was proposed in the revised project that the CTC now in use be replaced by aqueous cleaning technology. Aqueous cleaning technology requires close attention to effluent treatment because of the large volumes of waste-water produced. Provision for this was included in the project document at a cost of US $200,000, to be provided by the enterprise.

4. The main incremental capital cost items in the project as re-submitted were eight aqueous alkaline tunnel cleaners (US $1,039,600), a water jet precision cleaner (US $89,100), nine 4-stage aqueous cleaning machines (US $636,900), rebuilding of conveyor/hoist systems (US $33,000) and an enclosed steam cleaner system (US $22,000). Additional to these costs and associated with the same equipment, total non-eligible equipment costs of US $1,046,000 arising from technological upgrade, including upgrade to meet health and safety requirements, were to be met by the enterprise and were not requested for funding. Capital costs for installation, trials, training and safety equipment were also to be provided by the enterprise at a cost of US $105,000. Incremental operating costs due mainly to higher electrical power requirements and higher costs for chemicals were requested for a period of four years at US $71,295.

5. The total incremental cost as re-submitted was US $2,122,805 plus US $243,509 in agency support costs, with a cost effectiveness of US $10.72 per kg.

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

6. The Secretariat raised a number of technical issues with UNIDO including the choice of aqueous technology for some of the workshops where rusting of parts could present difficulties. UNIDO concluded that in two of the workshops, cleaning would be better accomplished by vapour degreasing technology using perchloroethylene (PCE) as the solvent. PCE, used almost universally as a dry cleaning fluid, is also used in metal cleaning applications. UNIDO revised the project on this basis. The change in technology does not alter incremental costs significantly but reduces the aqueous waste stream. UNIDO adopted a proposal to use computer control in a water-jet cleaner with a reduction of US $20,000 in the cost of the equipment. Various additional technical adjustments that did not have significant implications for incremental costs were made.

7. The Secretariat sought additional clarification about capacity utilisation, in particular the difference between peak production requirements in busy periods and the total average production levels of the enterprise. After further analysis, UNIDO concluded that the number of PCE cleaning machines in the heat treatment workshop could be reduced from four to three, through better arrangements to smooth out peaks in the workload of the workshop.

8. The change in configuration of the project resulted in 4-year incremental operating savings of US $10,908.

9. As revised by UNIDO and agreed by the Secretariat, the final project cost is US $1,932,207 which represents a cost effectiveness of US $9.76 per kg. Additional to the requested project cost, UNIDO has identified capital cost totalling US $1,078,050 which are proposed to be met by the enterprise. These costs are for technological upgrade associated with new equipment (including environmental, health and safety features), equipment installation, rebuilding of existing conveyors and the provision of safety equipment. In addition, the enterprise will undertake to construct, in conjunction with the project, an effluent treatment plant at an estimated cost of US $253,000. The effluent plant will treat the aqueous wastes from this project as well as those arising from all other operations in the factory.

RECOMMENDATION

10. The Executive Committee may wish to consider the project on the basis of the information provided above.
