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Executive Committee of  
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**PROJECT PROPOSALS: KOREA, DPR**

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

Solvents

- Conversion of remaining metal cleaning processes from ODS solvents to vapour degreasing at Unsan Tools Factory (UTF) UNIDO
- Conversion of metal cleaning processes from ODS solvent to vapour at Pyongyang September 18 Bearings Factory (BRG) UNIDO

## PROJECT EVALUATION SHEET KOREA

SECTOR: SOLVENT ODS use in sector (1995): 1,386 ODP tonnes

Sub-sector cost-effectiveness thresholds:

|         |                |
|---------|----------------|
| CFC-113 | 19.73 US \$/kg |
| TCA     | 38.50 US \$/kg |
| CTC     | -              |

### ***Project Titles:***

- (a) Conversion of metal cleaning processes from ODS solvents to vapour at Pyongyang September 18 Bearings Factory, (BRG)
- (b) Conversion of metal cleaning processes from ODS solvents to vapour degreasing at Unsan Tools Factory (UTF)

| Project Data                         | CFC-113, TCA                |                             |
|--------------------------------------|-----------------------------|-----------------------------|
|                                      | Pyongyang                   | Unsan Tools                 |
| ODS phase-out (ODP tonnes)           | 121                         | 168                         |
| Proposed project duration (months)   | 18                          | 18                          |
| Incremental capital cost (US \$)     | 1,010,900                   | 554,400                     |
| - including contingency (%)          | 10                          | 10                          |
| Incremental operational cost (US \$) | 70,124                      | (64,243)                    |
| Total project cost (US \$)           | 1,081,024                   | 490,157                     |
| Local ownership (%)                  | 100                         | 100                         |
| Export component (%)                 | -                           | -                           |
| Amount requested (US \$) {Original}  | 1,315,970                   | 711,303                     |
| {Revised}                            | 1,081,024                   | 490,157                     |
| Cost effectiveness (US \$/kg)        | 8.93                        | 2.92                        |
| National Coordinating Agency         | NCC Environment, Ozone Cell | NCC Environment, Ozone Cell |
| Implementing Agency                  | UNIDO                       | UNIDO                       |
| Technical review completed?          | Yes                         | Yes                         |

| <b><i>Secretariat's Recommendations:</i></b> |           |         |
|----------------------------------------------|-----------|---------|
| Amount recommended (US \$)                   | 1,081,024 | 490,157 |
| Project impact (ODP tonnes)                  | 121       | 168     |
| Cost effectiveness (US \$/kg)                | 8.93      | 2.92    |
| Implementing Agency support cost (US \$)     | 140,533   | 63,720  |
| Total cost to Multilateral Fund (US \$)      | 1,221,557 | 553,877 |

## PROJECT DESCRIPTION

Provided by UNIDO

### **(a) Conversion of metal cleaning processes from ODS solvents to vapour at Pyongyang September 18 Bearings Factory**

1. The project will phase out the use of 110 MT of CTC in metal-cleaning operations at the Pyongyang September 18 Bearings Factory.
2. The phaseout of this ozone depleting substance (ODS) will be accomplished by replacing the currently used CTC cold dip metal degreasing with vapour degreasing technology for the cleaning of metals, as well as refurbishing four existing CTC automatic cleaning machines for non-ODS solvent use.
3. The project budget includes refurbishing of existing machines (US \$25,000), the procurement of 6 TCE solvent degreasers with ultrasonics, and a solvent recovery unit (US \$795,000) and ancillary equipment (US \$16,000). The project has annual operating costs (US \$22,121).
4. The project will employ commercially available technology in a factory located in a city with a considerable number of factories in the metals and machinery sector and thus will create a focal/learning point for these other factories.
5. Project impact: When implemented as scheduled, 121 ODP tonnes of CTC will be eliminated from the solvent sector which currently constitutes 60% of the country's ODS consumption. The project will be implemented in 1998-1999. Since CTC does not belong to Annex A it will not contribute to the DPRK's CFC freeze target of 1,500 ODP tonnes.

### **(b) Conversion of metal cleaning processes from ODS solvents to vapour degreasing at Unsan Tools Factory (UTF)**

6. This project will phase out the remaining 168 ODP tonnes-of CTC used in metal cleaning operations at UTF, Unsan. The phase out of this ozone depleting substance (ODS) will be accomplished by replacing the currently used CTC cold dip method with TCE vapour degreasing technology for the cleaning of metal tools.
7. The project budget includes the procurement of 4 TCE solvent degreasers with ultrasonics, and a solvent recovery unit (US \$420,000). The project has annual operating savings (US \$20,266).
8. The project will employ commercially available technology.
9. Project impact: When implemented as scheduled, 168 ODP tonnes of CTC will be eliminated from the solvent sector which currently constitutes 60% of the country's ODS consumption. The project will be implemented in 1998-1999. Since CTC does not belong to Annex A it will not contribute to the DPRK's CFC freeze target of 1,500 ODP tonnes.

## SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

### COMMENTS

#### Pyongyang September 18 Bearings Factory

1. The Fund Secretariat sought and received clarification on the eligibility of the inclusion of ultrasonics attachments for two of the cleaning machines. Costs for optional automatic hoists were deleted as they represented a technical upgrade. It was agreed that only 50 percent of the costs for recycling pipelines were eligible as they were already in the baseline and needed for the original solvent. Minor changes were made to installation and other ancillary costs to be consistent with costs in previous projects in the country.

2. Proposed incremental operating costs of US \$182,970 were recalculated using the actual production cost of CTC instead of the 50 percent subsidized cost at which it was supplied to the enterprise. The final incremental operating costs are US \$70,124.

#### Unsan Tools Factory

3. The Fund Secretariat sought and received clarification on the eligibility of the inclusion of ultrasonics attachments for the four cleaning machines. The cost of a solvent recovery unit quoted in the project budget was adjusted to be consistent with the cost described in the text. Minor changes were made to installation and other ancillary costs to be consistent with costs in previous projects in the country.

4. Proposed incremental operating costs of US \$84,303 were recalculated using the actual production cost of CTC instead of the 50 percent subsidized cost at which it was supplied to the enterprise. On this basis the project has incremental operating savings of US \$64,243.

5. It should be noted that the project has a cost effectiveness of US \$2.92/kg as reviewed.

### RECOMMENDATION

The Fund Secretariat recommends blanket approval of the project with associated support cost at the funding levels indicated below:

| Project Title                                                                                                            | Project Cost<br>US \$ | Support Cost<br>US \$ | Implementing<br>Agency |
|--------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|------------------------|
| (a) Conversion of metal cleaning processes from ODS solvents to vapour at Pyongyang September 18 Bearings Factory, (BRG) | 1,081,024             | 140,533               | UNIDO                  |
| (b) Conversion of metal cleaning processes from ODS solvents to vapour degreasing at Unsan Tools Factory (UTF)           | 490,157               | 63,720                | UNIDO                  |