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RECOVERY AND RECYCLING
(Draft)

Introduction

1. At its Seventeenth Meeting, the Executive Committee requested the Secretariat to prepare a paper on “the practicality and implications of taking operating savings resulting from recovery and recycling into account and adjusting at a subsequent meeting of the Executive Committee institutional-strengthening grants or any other Fund-supported activity related to ozone layer protection for the country concerned on the basis of reported quantities of recovered ozone-depleting substances” (UNEP/OzL.Pro/ExCom/17/60, decision 17/12).

2. The Secretariat developed the questionnaire, attached as Annex I to this paper, which was distributed to seven Parties to the Montreal Protocol as well as to UNDP, UNIDO and the World Bank. Information from successful programmes in other countries was obtained from UNEP IE.

Background

3. As of July 1995, the Executive Committee has approved 35 projects related to CFC recovery and recycling in commercial and domestic refrigeration and MAC sub-sectors.

4. The approved projects included procurement of recovery and recycling equipment and training programmes. In several projects, additional funding was requested to manage and monitor the programme.

5. Annual operating savings which might accrue from the resale of the recovered and recycled refrigerant were not considered in the calculations of incremental costs of these projects. It was, however, inferred that savings that could accrue at a workshop level would be offset by operating costs.

Survey of recovery and recycling programmes

6. In response to the questionnaire, information was provided on Fund supported programmes in three Article 5 countries; two in the MAC sub-sector (Malaysia and Venezuela) and one in the domestic refrigeration sub-sector (Turkey). Two Article 2 countries, Denmark and the United States, provided detailed information on their national CFC recovery and recycling programmes. In addition, information compiled by UNEP IE on the recovery and recycling programmes of France and Norway, was provided. A summary of the survey is included as an information paper in UNEP/OzL.Pro/ExCom/18/Inf.3.

7. While firm conclusions and recommendations cannot yet be deduced from recovery and recycling programmes on the practicality of taking into consideration savings from the resale of recovered CFC and/or adjustments to institutional strengthening grants, the following three findings arise from the limited survey conducted:

(a) Legislative framework

- Establishment of a legislative and regulatory framework is essential for effective implementation of recovery and recycling programmes. The framework should make the recovery of refrigerant mandatory; establish guidelines on recovery and recycling practices and set up measures to prevent the emission of refrigerant into the atmosphere.

(b) National survey of the refrigeration service sector

- The design of a recovery and recycling programme should be based on a survey of the refrigeration service sector in an Article 5 Country. The survey should identify,

inter alia, the number of technicians and service shops in each sub-sector (e.g., domestic and commercial, industrial and MAC sub-sectors); number and type of refrigeration systems repaired in major service shops per year; level of preparation of technicians and existence of training and certification programmes. The selection of the recovery/recycling equipment, the number of units to be distributed among service shops should be based on such a survey.

(c) Monitoring system

- A system for monitoring the implementation of a recovery and recycling programme should be established. The system should account for the amount and quality of the recovered refrigerant, ensure efficient operation of the recovery and recycling machines, and provide solutions to problems that might be encountered during the implementation phase. The monitoring system should be complementary to the Fund supported Ozone Units. In this regard, personnel engaged for monitoring purposes should be accountable to the Ozone Unit and rely on the facilities available in the Unit.
- In low-ODS consuming countries, where the majority of the ODS consumption is for refrigeration servicing, funds for institutional strengthening should be used for engagement by the government of a local qualified refrigeration technician/engineer, whose main responsibilities may include: organizing training sessions for service technicians, following-up the training activities, supervising the implementation of any approved recovery and recycling programme, and monitoring the recovery and recycling programme.

Conclusions

8. In order for any regulatory system to be effectively implemented, a comprehensive training and certification programme of service technicians in a country should be provided prior to the national implementation of a recovery and recycling programme. The training programme should cover technical issues such as the importance of refrigerant containment; recovery and recycling equipment, good service practices, and should raise environmental awareness, such as environmental consequences of release of refrigerant into the atmosphere. The value of the training programme would be greatly increased if there is a requirement that all technicians were certified.

9. The limited survey revealed that in Article 2 countries, savings accruing from recovered CFCs go to the owner of the service facility. Operational costs associated with additional labour, transportation, or maintenance of the recovery and recycling machines, are passed on to the customers; in addition, expenses for the operation of the monitoring system are covered by a special fee on the price of new refrigerant or are offset against the proceeds of sale of recovered refrigerants. It is to be noted that CFCs are heavily taxed in the Article 2 countries covered by the survey.

10. Taking into consideration the programmes under implementation in Article 5 countries, incremental operational costs/savings could not be accurately estimated at the present time. This issue could be reconsidered in the future, once funded programmes become operational and detailed information is made available.

11. However, the Article 5 countries with active recovery and recycling programmes should be requested to prepare status reports based on the questionnaire in Annex I to this paper. The Ozone Units in these countries should submit these reports to the Fund Secretariat for further analysis.

Annex I

QUESTIONNAIRE FOR RECOVERY AND RECYCLING PROJECTS UNDER IMPLEMENTATION

Background information on the national programme

1. Project title.
2. Country.
3. Refrigeration sub-sectors covered by the project (i.e., commercial, domestic, MAC).
4. Status of project implementation.
5. Brief description of training programme provided to service technicians.

Information on the recovery and recycling machines and their operation

1. Total number of recovery machines and recycling machines procured for the national programme.
2. Number of workshops for which a recovery machine(s) was provided.
3. Number of workshops for which a recycling machine(s) was provided.
4. On a monthly and annual basis, average number of services provided per recovery and recycling machine. Type and capacity of refrigeration equipment serviced.
5. Average amount of refrigerant recovered per service in: (i) kilograms and (ii) as percentage of total CFC charged in equipment being serviced.
6. Average price ratio between virgin refrigerant and recycled refrigerant.
7. Additional labour time required per service due to the use of a recovery and recycling machine.
8. Costs associated exclusively with the use of recovery and recycling machines (i.e., transportation to and from the site where the refrigeration equipment is being serviced, energy costs, etc.).
9. Maintenance costs associated with the recovery and recycling machines.
10. Average additional costs charged to the customer resulting from the use of recovery and recycling machines.

Monitoring system

1. National agency responsible for monitoring project implementation (is this agency different from the Ozone Unit and/or the Financial Agent?).
2. Number of staff involved in monitoring the project and their responsibilities.
3. Brief description of the monitoring programme in place.