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

Eleventh Meeting
Bangkok, 10-12 November 1993

1993 UNIDO Work Programme Amendments

This document includes:

(a) Comments and recommendations from the Fund Secretariat

(b) 1993 UNIDO Work Programme Amendments

COMMENTS AND RECOMMENDATIONS FROM THE FUND SECRETARIAT ON 1993 UNIDO WORK PROGRAMME AMENDMENTS

1. UNIDO is requesting approval from the Executive Committee for seven amendments to its 1993 Work Programme (see Budget Summary). They include two project preparation proposals for Cameroon and Argentina, preparation of strategy in refrigeration sector in Nigeria, development of strategy for the ODS phase-out in low consuming countries, country programme preparation in Romania, CFC phase-out project proposal in refrigeration sector in Kenya and project proposal on CFC recovery in MAC sector in Thailand[1].

2. All project proposals are under US $500,000. The total estimated cost of these projects is US $808,939 including 13 per cent support cost.

RECOMMENDATION

1. The Secretariat recommends approval of US $808,939 including project support costs of US $93,064.

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(1) Under agreement between UNIDO and the World Bank, this project will be transferred to UNIDO for implementation. No budget has been included.

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

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

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AMENDMENTS TO THE 1993 WORK PROGRAMME

OF THE

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

(UNIDO)

I. INTRODUCTION

UNIDO's 1993 Work Programme was approved in March 1993 at the Ninth Meeting and subsequently amended in June 1993 at the Tenth Meeting of the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol. In geographical terms, the Work Programme has covered seven countries (Brazil, China, Egypt, Syria, Iran, India and Jordan). In total approvals, the Work Programme has accumulated a value of about $2.3 million.

In the short interval of about six months from March to September 1993, progress has been achieved in the implementation of the Work Programme (see Progress Report for details). As a result of this progress in particular with regard to project formulation, an investment project has been prepared and is submitted to the current session of the Executive Committee.

- Conversion of five domestic refrigeration production facilities in Iran.

Another investment project in the solvent sector in India has also been prepared and it is now with the Indian Government for clearance.

In addition to implementation of the approved Work Programme and its amendments, new developments have been recorded in terms of new requests from governments for UNIDO's involvement either in Country Programme preparation, project formulation or investment project implementation. These are also included in the current Amendments to the Work Programme. Specifically these Amendments are:

- Romania: Preparation of Country Programme
- Cameroon: Project formulation in the refrigeration sector
- Kenya: Investment project in the refrigeration sector
- Nigeria: Investment project and project formulation. Preparation of ODSs phase-out strategy for the Refrigeration Sector. (Agreed with the World Bank that project preparation should proceed at the same time when the Bank prepares the Country Programme.) This will reduce the lag time between the preparation of CP and formulation of investment projects.
- Argentina: Preparation of investment projects in the foams sector
- Global: Development of a strategy for the phasing-out of ODS in low ODS consuming countries (<200 MT annually).
- Thailand: CFC recycling in mobile air conditioning (MAC)[1]

[1] Under agreement with the World Bank, this project will be transferred to UNIDO for implementation. The feasibility study has been completed by the World Bank under this project. However, the transfer procedure has to be followed, i.e. the World Bank has to formally request the transfer of the project to UNIDO and the Thai Government has to endorse the transfer. This amendment is included here to reaffirm UNIDO's readiness to take over the project from the World Bank. No budget has been included.

It is felt necessary to make a special reference to the last two amendments from the above list because of the element of inter-agency cooperation.

The project in Thailand relates to CFC recycling of mobile air conditioning (MAC) where the World Bank has successfully completed a feasibility study and will now transfer, with the agreement of the Thai Government, the project to UNIDO for project formulation and implementation.

Globally UNIDO seeks to undertake the development of a strategy for phase-out in low ODS consuming countries (< 200 tonnes) in cooperation with the other implementing agencies. This would probably impact the small industries sector in large consuming countries.

In conclusion, this submission includes seven new Amendments (one with no budget estimate). The details are presented in the Budget Summary and Attachments.

Budget Summary

No	Country	Sector	Project Title	US $
1.	Cameroon	Refrigeration	Preparation of an Investment Project Proposal for Phase-out of CFCs at FAEM	20,000
2.	Kenya	Refrigeration	CFC Phase-out Project at Kenya Cold Storage Ltd and its subsidiary companies, Hall Equatorial Ltd. and Premier Refrigeration for Engineering Ltd. (Attachment)	380,875
3.	Nigeria	Refrigeration	Preparation of CFC phase-out strategy for refrigeration and air conditioning industries and services (excl. mobile air conditioning "MAC"). government and industrial-level work plans, preliminary assistance for selected companies in launching enterprise-level CFC phase-out plans and in formulated requests for technical and financial assistance.	100,000
4.	Romania	Several	Preparation of Country Programme	80,000
5.	Global	Refrigeration	Development of a strategy for the phasing-out of ODS in low ODS consuming countries (<200 MT annually)	100,000
6.	Argentina	Foams	Preparation of investment projects on CFC phase-out in manufacture of extruded polystyrene foams at BANDEX, S.A. and CELPAK, S.A., and rigid polyurethane foams at PRENSIPLAST	35,000
7.	Thailand[2]	Refrigeration	CFC Recovery in MAC	
			Support cost (13%)	93,064
			Subtotal	**808,939**

[2] Under agreement with the World Bank, this project will be transferred to UNIDO for implementation. The feasibility study has been completed by the World Bank under this project. However, the transfer procedure has to be followed, i.e. the World Bank has to formally request the transfer of the project to UNIDO and the Thai Government has to endorse this transfer. This amendment is included here to reaffirm UNIDO's readiness to take over the project from the World Bank. No budget has been included.

Attachment

Project Cover Sheet

COUNTRY:	Kenya
PROJECT TITLE:	CFC-phaseout Project at Kenya Cold Storages Ltd., and its Subsidiary Companies: Hall Equatorial Ltd., Premier Refrigeration & Engineering Ltd., and Refrigeration Services Ltd.
SECTORS COVERED:	Manufacturing of Household & Commercial Refrigeration and Insulation Panels; Cold Storage Servicing and Maintenance.
PROJECT DURATION:	Phase One: six months Phase Two: twelve months Phase Three: undefined at this stage
TOTAL PROJECT COSTS: (excluding support costs)	US $ 380,875
PROPOSED BUDGET: (incremental costs)	US $ 380,875
OWNERSHIP STRUCTURE:	100 percent Kenyan
PROPOSED MFMP GRANT:	US $ 430,389
COST EFFECTIVENESS:	US $21.05/Kg ODP (=total project costs/total annual phased-out ODSs)
NATIONAL COORDINATING AGENCY:	Kenya National Environment Secretariat (NES), Nairobi
IMPLEMENTING AGENCY:	UNIDO

PROJECT IMPACT

Eliminate 9.7 MT of CFC-11 and 3.2 MT of CFC-12 in refrigeration manufacturing at Premier Ltd., 3.7 MT of CFC-11 in insulation panels production at Hall Ltd.; retrofit two or three commercial cold storages, resulting in an annual reduction of CFC-11 in their servicing; and limit the CFC-11 used in servicing installed equipment by Premier Ltd. and/or owned by Kenya Cold Storage Ltd. to minimum achievable level, resulting an estimated immediate reduction of 1.5 MT of CFC-12.

The total annual ODS reduction will be 18.1 MT.

CFC-phaseout Project at Kenya Cold Storages Ltd., and its Subsidiary Companies: Hall Equatorial Ltd., Premier Refrigeration & Engineering Ltd., and Refrigeration Services Ltd.

PROJECT DESCRIPTION

According to the estimate in the Draft Country Program, the refrigeration sector in Kenya imported about 50 MT of chlorofluorocarbons (CFCs) and 70 MT of HCFC-22 in 1992, of which two-thirds were consumed by the refrigeration industries and related services. Kenya being a signatory member of the Montreal Protocol, CFCs will be banned and HCFCs can only be used as transitional substances; therefore it is vital for Kenya to pay special attention to this sector.

Within the refrigeration sector, the bulk of these substances is consumed by only one group of companies, namely Kenya Cold Storages Ltd., and its Subsidiary Companies, Premier Refrigeration and Engineering Ltd. (later Premier), Hall Equatorial Ltd. (Halls), and Refrigeration Services Ltd. Their total present production and the use of ozone-depleting substances are described in Annexes I, II, and III. As a summary, the CFC-use is:

	Actual use in 1992	Estimated use in 1993
CFC-11 as foaming agent	11.25 MT	13.4 MT
CFC-12 as refrigerant	6.2 MT (*)	7.3 MT (*)
HCFC-22 as refrigerant	3.0 MT	3.0 MT

(*) Halls is also a major service company for mobile air-conditioners (MACs) and these figures include about 1 MT/a used in that service, which is NOT covered by this Project.

The Project meets the request of this Group to convert its production of refrigerators and insulating panels to non-CFC technologies, and to assist it in retrofitting, whenever feasible, existing cold storages and commercial refrigeration units to clean, environmentally more safe technologies.

The planning of this Project has been done taking into consideration the future national CFC-Phaseout project in the field of refrigeration, with which this project is to be co-ordinated. The two projects will mutually strengthen each other.

This Project consists of three sub-projects, each addressing a specific field of the Client companies: Sub-project 1 deals with existing commercial cold stores, Sub-project 2 will convert the production of domestic and commercial refrigerators at Premier to non-CFC technologies, and Sub-project 3 will convert the production of insulating panels at Halls similarly to non-CFC technologies. All three sub-projects will also strengthen these companies' technical know-how in planning and producing more energy-efficient products and services, thus contributing to the national goal of energy-conservation. The improvement of service and maintenance, to be able to cope with the new technologies, will also cover Refrigeration Services Ltd. which is the Group's sales and service organization for domestic refrigerators.

The Project is to be carried out in three phases:

The PHASE One, Preparatory Assistance, constitutes the basis for the three sub-projects and besides setting up the Project, also includes detailed technical inventory of all the existing equipment, to be improved, retrofitted, and/or converted, during the following phases. The PHASE Two, Planning for Conversion, includes testing and training, improvement of technical skills and designs in the participating companies, and technical and financial calculations, and whenever feasible, preparation of tender documents for later investments. These investments, and the mass production of non-CFC articles, will take place during PHASE Three, Investments, for which the need for technical and financial assistance can only be defined and calculated at the end of PHASE Two. Thus, such assistance is not requested at this time.

Taking into consideration the multitufde of products and technologies within the Group, the Group, the Project has been divided in three sub-projects, each addressing a specific need within the companies in question.

Sub-project 1 deals with retrofitting a substantial part of the 1 03 (one hundred and three) cold storages, presently serviced by the Group. Some of them belong to Kenya Cold Storages Ltd.; however, most of them to other Kenyan users. During PHASE One of this sub-project, these units will be studied to their technical ability to be retrofitted to use HFC-134a or medium-pressure (MP) mixtures as refrigerant, and the feasibility of this is calculated. During PHASE Two 2 - 3 of them will be retrofitted for demonstration purposes, for training and for testing, and the cost of the full retrofit program calculated. The cost of this co-operation, and that of the full-scale retrofitting, can only be determined during PHASE Two, and the respective assistance is not been requested now. The estimated present use of ozone-depleting substances is 11 kg per cold storage, calculated on the average size of 10 kW cooling capacity.

Sub-project 2 will plan and initiate the conversion of refrigerator production at Premier Refrigeration & Engineering Ltd. (Premier) to non-CFC technologies. In particular, the compressors to be used will be changed from CFC-12-operated to HFC-134a, and the insulation from using CFC-11 as foaming agent to HCFC-141b (diluted with water), which would not need a major investment. The annual phase-out of CFCs of this sub-project is 12.9 MT (9.7 MT of CFC-11 and 3.2 MT of CFC-12).

Sub-project 3 will plan and initiate the conversion of polyurethane panels (= insulation panels) at Hall Equatorial Ltd. to non-CFC technologies. In particular, the foaming agent in insulation will be changed to HCFC-141b (diluted with water), which would not need a major investment. The problem of flammability of this new substance can be greatly avoided by using it in small units for storing and handling. The annual phase-out of CFCs of this sub-project is 3.7 MT of CFC-11.

In addition, the sub-projects of 2 and 3 will include an improvement of insulation designs, especially in custom-mae commercial refrigerators and cold storages. The sub-projects will also study the company-level possibilities to use hydrocarbons as refrigerator and as foaming agent, and if this would be viable at that time, the investments will be included in the PHASE Three.

As a result of improved services and maintenance techniques, which will be introduced throughout the Project and which are supposed to become obligatory in Kenya in handling of refrigerants in general and CFCs in particular, the use of CFC-refrigerant in old commercial and domestic units (maintained and serviced by the Group) is estimated to be cut by 50% or by 1.5 MT of CFC-12 per annum.

The total CFC-phaseout during the first two phases is 18.1 MT.

The new technologies will cause an increase in production costs, thus creating pressure for higher prices, which can only partly be compensated by external financial assistance. In order not to create a non-competitive situation for the converted production, certain changes in Kenya's internal legislation must therefore be introduced. These changes include, among others, new national standards, restrictions and duties on imported, CFC-based (and other ozone-depleting) products and materials, operating restrictions and controls for refrigeration (and parallel for air-conditioning) and respective servicing, etc. The project can only move to Phase Three when definite formulations and exact implementation dates for such regulations are known. At the end of Phase One lack of a fixed legislative timetable for such future regulations may require, also, a slower transition to Phase Two. It is anticipated that the acceptance of the Country Programme can be sufficient in this respect.

The Project Committee will closely follow the development of the project, and make its recommendations to the government and respective industrial bodies, as proposed in the draft Country Programme.