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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Fifty-seventh Meeting
Montreal, 30 March-3 April 2009

PROJECT PROPOSALS: IRAQ

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

- Note from the Secretariat

Foam

• Conversion from CFC-11 to methylene chloride in the production of flexible slabstock foam at Al Hadi Co.	UNIDO

Refrigeration

• Replacement of refrigerant CFC-12 with HFC-134a and foam blowing agent CFC-11 with cyclopentane in the manufacture of domestic refrigerators and chest freezers at Light Industries Company	UNIDO

Pre-session documents of the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol are without prejudice to any decision that the Executive Committee might take following issuance of the document.

Note from the Secretariat

1. On behalf of the Government of Iraq, UNIDO had submitted two stand-alone investment projects (in the foam and refrigeration sectors) to the 57th Meeting of the Executive Committee prior to the submission of the Iraq country programme and national phase-out plan. The Government of Iraq is proposing to submit those two documents to the 58th Meeting.

Country programme national phase-out plan

2. Although the Iraq country programme has not been completed, which means that phase-out projects and activities could not be considered at the 57th Meeting, the Secretariat agreed to review the investment projects, on an exceptional basis. This is particularly in light of paragraph 2 of decision XX/15 through which the Parties to the Montreal Protocol requested the Executive Committee when considering ODS phase-out projects for Iraq to take into account the special situation of this new Party, which may face difficulties in the phase-out of Annexes A and B substances, and to be flexible in considering the project proposals, without prejudice to the possible review of the non-compliance situation of Iraq by the Parties.

3. The process of preparing the country programme and the national phase-out plan has been challenging. UNEP and UNIDO supported the Government in raising awareness on issues related to the Montreal Protocol, and in collecting and reviewing information on the consumption of ODS. Following a review of the collected ODS consumption data by major stakeholders in January 2009, it was concluded that further work was needed to ensure the accuracy of the data. UNIDO also pointed out that the Government had submitted the two investment projects to ensure earlier compliance with its obligations under the Montreal Protocol as the phase-out associated with these projects will reduce CFC consumption in a relatively short period of time. Furthermore, approving these projects at the 57th Meeting will allow for initiating the bidding process with the expectation that the equipment may be delivered and installed at the end of 2009 instead of the second quarter of 2010.

CFC consumption

4. Through an official communication from the Deputy Minister of the Environment to the Executive Secretary of the Ozone Secretariat, the Government of Iraq had submitted a table with historical ODS consumption of all ODSs (including HCFC-22). Based on this consumption data, the CFC baseline consumption has been estimated at some 1,500 ODP tonnes (preliminary figures). The 2008 CFC consumption has been estimated at 1,597.5 ODP tonnes distributed as follows: 342.5 ODP tonnes of CFC-11 (i.e., 290.0 ODP tonnes in foam manufacturing and 52.5 ODP tonnes used for servicing refrigeration systems); 1,245 ODP tonnes of CFC-12 (used in the refrigeration servicing sector and between 60 and 70 ODP tonnes in manufacturing refrigeration equipment); and 10.0 ODP tonnes of CFC-115 (as part of R-502 refrigerant). In addition, 150.0 ODP tonnes of CFC-11 and 25.0 ODP tonnes of CFC-12 are available in stocks in one manufacturing enterprise and will be used in 2008.

5. Together with the ODS consumption data, the Government of Iraq has also submitted an official request the Parties to the Montreal Protocol for consideration of essential use nominations for CFCs at the amounts of 690 ODP tonnes (i.e., 290 ODP tonnes of CFC-11 and 400 ODP tonnes of CFC-12) for each year of 2010 and 2011.

Project implementation modalities

6. Responding to questions on project implementation modalities and considering the prevailing situation in Iraq, UNIDO indicated that travelling into Iraq, with the exception of a few governorates, is restricted but not banned. Since United Nations staff and consultants are subject to a one-week security training (in Amman, Jordan), travellers must submit security clearance requests at least two weeks prior

to their mission. In addition, a four-day security awareness induction training is mandatory for all international staff prior to entering Iraq irrespective of the duration of the mission. UNIDO also contacted suppliers of refrigeration and foam equipment based in Europe and in the United States, confirming that there are no restrictions for travel of their experts to Iraq. Based on this information, UNIDO believes that the delivery and installation of equipment required for the conversion of the enterprises can be arranged by equipment suppliers.

7. On the issue on the accountability and reporting requirements to the Executive Committee, UNIDO pointed out that a United Nations Country Team, consisting of 17 agencies and programmes (including UNIDO) has been established, and is working under the coordination of the United Nations Assistance Mission for Iraq. Although there are travel restrictions into Iraq, UNIDO will rely on the services and support of the existing United Nations network in the country, particularly on the assistance of the UNIDO office for Iraq (based in Amman, Jordan), to verify and ensure that the projects are implemented properly. Finally, UNIDO indicated that the project monitoring unit of the national phase-out plan for Iraq (to be submitted to the 57th Meeting), will be staffed by locally recruited experts responsible for monitoring implementation of Montreal Protocol projects. At the same time, UNIDO is considering recruiting two technical experts in foam and refrigeration who will be based at the UNIDO office for Iraq, to support the country team in the implementation of the project.

PROJECT EVALUATION SHEET
IRAQ

SECTOR: Foam ODS use in sector: -

Sub-sector cost-effectiveness thresholds: Flexible Foam US $6.23/kg

Project Title:

(a) Conversion from CFC-11 to Methylene Chloride in the production of flexible slabstock foam at Al Hadi Co.

Project Data	**Multiple-subsectors**
	Sector plan
Enterprise consumption (ODP tonnes)	20
Project impact (ODP tonnes)	20
Project duration (months)	24
Initial amount requested (US $)	126,457
Final project cost (US $):	
Incremental capital cost	115,000
Contingency cost (10%)	11,500
Incremental operating cost	(43)
Total project cost	126,457
Local ownership (%)	100%
Export component (%)	0%
Amount requested (US $)	126,457
Cost effectiveness (US $/kg.)	6.23
Counterpart funding confirmed?	Y
National coordinating agency	Ministry of Environment
Implementing agency	UNIDO

Secretariat's Recommendations	
Amount recommended (US $)	126,457
Project impact (ODP tonnes)	20.0
Cost effectiveness (US $/kg)	6.23
Implementing agency support cost (US $)	11,381
Total cost to Multilateral Fund (US $)	For individual consideration

PROJECT DESCRIPTION

8. On behalf of the Government of Iraq UNIDO has submitted a project proposal for the conversion from CFC-11 to methylene chloride in the production of flexible slabstock foam at Al Hadi Co. in Iraq for consideration by the Executive Committee at its 57th Meeting. The total funding requested in the project as submitted is US $126,457 plus agency support costs of US $11,381 for UNIDO. The cost effectiveness of the project is US $6.23/kg.

Sector background

9. The main CFC-11 consumers in the foam sector are well known. In addition to Al-Hadi, Co., Iraq Steel Construction and Nassr State Company for Mechanical Industries are two rigid foam enterprises using CFCs. Al Hadi, Co., is one of the largest manufacturers of flexible polyurethane foam for bedding, furniture, and wide variety of mattresses. In 2002, the company used 20 ODP tonnes of CFC-11 for the manufacturing of 400 tonnes of flexible slabstock foam. Production at the company ceased in 2003, and resumed during 2004 with a total production of 120 tonnes of foam products.

Project description

10. Production at Al Hadi, Co., is based on a Laader Berg EC-7 continuous production line with a production capacity of 1,000 tonnes/year. The equipment was purchased and installed in 1987. The project is to replace CFC-11 as a blowing agent with methylene chloride. The technology has been selected after a review of several other alternative blowing agents, such as hydrocarbons, HFCs and carbon dioxide. It was concluded that methylene chloride is an optimal solution in terms of the cost and quality of the end product. Enclosure of the equipment and enhanced ventilation will ensure worker safety.

11. The project entails replacing the existing metering system for CFC-11 with a system for methylene chloride (US $20,000); improving the ventilation enclosure around the equipment and installing four additional axial flow fans (US $80,000); installing safety devices, trails, plant commissioning and start-up (US $15,000). Operating savings over a four-year period are negligible and have been deducted from the total cost of the project (-US $43).

12. Project duration has been estimated at 24 months.

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

13. The Secretariat discussed with UNIDO the current production level at the foam enterprise. The cost of the project has been calculated on the basis of the production of 400 tonnes of foam products (20 ODP tonnes of CFC-11). This production was equivalent to 40 per cent of the production capacity of the enterprise. CFC consumption over the last three years ranged from 10 to 12 ODP tonnes, which is due to the special situation prevailing in Iraq. In the recent past, the production output has increased and it is expected that by 2011 it will reach its normal production level of 400 tonnes.

14. The Secretariat and UNIDO also discussed technical issues associated with the replacement of the dosing pump, costs of the ventilation system and the possibility of completing the project in a shorter period of time considering that the methylene chloride technology is well known and technically proven, and that the equipment changes were only related to enhanced ventilation. These issues have been successfully addressed. UNIDO reported that a new metering and dosing system specially designed for methylene chloride must be installed to ensure proper and accurate dosing in the range required for

different grades of foam densities. The costs associated with enhanced ventilation in approved projects for continuous flexible slabstock plants are in the same range as for this project. Given the current situation in Iraq, UNIDO cannot rely on potentially "cheaper" local supplies to implement the project.

15. UNIDO also indicated that the Government of Iraq plans to accelerate project implementation to the extent possible, given the ease of implementation of the alternative technology selected and existing experience. However, UNIDO is reluctant to shorten the project duration considering the prevailing situation in Iraq.

RECOMMENDATION

16. Noting the special situation of Iraq as a new Party to the Montreal Protocol and the difficulties the Party may face in achieving the complete phase-out of Annexes A and B substances as noted by the Parties to the Montreal Protocol at their 20th Meeting, the Executive Committee may wish to approve the project for the conversion from CFC-11 to methylene chloride in the production of flexible slabstock foam at Al Hadi Co., at a total cost of US $126,457 plus agency support costs of US $11,381 for UNIDO without prejudice to the non-compliance mechanism of the Montreal Protocol, and on the understanding that no other project for the phase-out of CFCs in the foam sector will be approved for Iraq outside the national phase-out plan.

PROJECT EVALUATION SHEET
IRAQ

SECTOR: Refrigeration ODS use in sector: -

Sub-sector cost-effectiveness thresholds: Domestic refrigeration US $13.76/kg

Project Title:

(a) Replacement of refrigerant CFC-12 with HFC-134a and foam blowing agent CFC-11 with cyclopentane in the manufacture of domestic refrigerators and chest freezers at Light Industries Company

Project Data	**Multiple-subsectors**
	Sector plan
Enterprise consumption (ODP tonnes)	193.6
Project impact (ODP tonnes)	193.6
Project duration (months)	24
Initial amount requested (US $)	2,923,297
Final project cost (US $):	
Incremental capital cost	1,400,380
Contingency cost (10%)	140,038
Incremental operating cost	342,863
Total project cost	1,883,281
Local ownership (%)	100%
Export component (%)	0%
Amount requested (US $)	1,883,281
Cost effectiveness (US $/kg.)	9.73
Counterpart funding confirmed?	Y
National coordinating agency	Ministry of Environment
Implementing agency	UNIDO

Secretariat's Recommendations	
Amount recommended (US $)	1,883,281
Project impact (ODP tonnes)	193.6
Cost effectiveness (US $/kg)	9.73
Implementing agency support cost (US $)	141,246
Total cost to Multilateral Fund (US $)	For individual consideration

PROJECT DESCRIPTION

17. On behalf of the Government of Iraq UNIDO has submitted a project proposal for the replacement of refrigerant CFC-12 with HFC-134a and foam blowing agent CFC-11 with cyclopentane in the manufacture of domestic refrigerators and chest freezers at Light Industries Company for consideration by the Executive Committee at its 57th Meeting. The 2007 consumption by the company was 193.6 ODP tonnes. The submission included the project document, an endorsement letter form the Minister of Environment, an assessment by an independent technical expert, and technical details such as floor plans. The incremental capital cost requested, including contingency, is US $1,540,418; the incremental operating cost is US $342,863. The total funding requested is therefore US $1,883,281 plus agency support costs of US $141,246 for UNIDO. The cost effectiveness of the project is US $9.73/kg; the threshold for domestic refrigeration projects is at US $13.76/kg.

Sector background

18. As of writing this document, the country programme is still being prepared. The refrigeration manufacturing sector data has not yet reached a status which would allow a consistent and sufficiently complete assessment. However, a number of manufacturers were detected through cross-checking the questionnaires for the refrigeration manufacturing sector against those for the refrigeration servicing sector. Furthermore, records of the Ministry of Industry indicated the existence of additional refrigeration manufacturers. UNIDO reported, however, that despite the limited data it already became obvious that Light Industries Company is by far the largest producer of refrigeration equipment in Iraq. The other manufacturers are small to medium size enterprises consuming small quantities of CFC-12 and using pre-fabricated panels for the manufacturing of commercial refrigeration equipment. Light industry consumes only 3.1 per cent of the CFC-12 consumed in Iraq according to the numbers provided, but 41.6 per cent of the CFC-11 (all data related to 2007). Through this project, the country can phase out 11.8 per cent of its 2008 CFC consumption.

Project description

19. Production at Light Industries Company was established in 1963 in the city of Baghdad. Its products are sold solely on the domestic market. It is 100 per cent privately owned by Iraqi nationals. Light Industries Company is presently being transformed from Government ownership to semi-private ownership. The production capacity of the company is 250,000 units of domestic refrigerators and 250,000 units of deep freezers annually, on three main production lines, with six foaming stations (three for the doors, three for the main body). The company's peak production levels were recorded in the middle 1980s and early 1990s. The wars in 1991 and 2003 caused the factory to interrupt its production for several years. The factory has now resumed its production and produced 70,000 domestic refrigerators and 70,000 deep freezers in 2007.

20. Domestic refrigeration projects like this one receive funding primarily for the conversion of the foaming equipment, the refrigerant charging including ensuring vacuum pre-charging and leak testing equipment, storage and supply equipment, product development, and operational cost. The replacement technologies are pentane as foam blowing agent and HFC-134a as refrigerant. Both are technically fully adequate solutions, and are being used in the region already. At the present time, the foaming is performed with six low pressure foaming machines not suitable for conversion; as replacements, three new high pressure foaming machines with dual mixing heads, pre-mixing units and storage facilities are foreseen. The use of a hydrocarbon foam blowing agent necessitates certain safety installations and safety equipment including sensors and nitrogen generator. For the refrigeration component it is foreseen to provide new refrigerant charging boards, leak detectors, and to replace 60 old vacuum pumps by 40 new pumps. The incremental operating cost were determined based on the 2007 actual production level of the enterprise.

21. UNIDO had originally requested a higher level of funding with incremental capital cost, including contingency, of US $2,461,987 and incremental operating cost of US $461,310. After discussions about the eligibility and incremental costs of different items, UNIDO and the Secretariat agreed on the level of funding presented in this document for consideration by the Executive Committee.

22. The beneficiary, Light Industries Company, will provide co-funding to activities which are in general eligible of US $137,000, and will use further funds for items deemed ineligible (fire-fighting system etc.). The project duration has been estimated at 24 months.

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

23. The Secretariat discussed with UNIDO the current production level at the enterprise. The cost of the project has been calculated on the basis of the 2007 production level of 140,000 units per year. The Secretariat had discussed a number of issues related to eligibility and incremental cost. Among those were the need for a nitrogen generator and the number of nitrogen generators to be provided, number of vacuum pumps needed, rationalisation of foam operations, capacity of an electrical generator as safety back-up, and eligibility or lack thereof on a number of changes to the building, such as installation of fire fighting systems and digging of foundations. UNIDO reported that the enterprise expects to increase its production output towards its historic capacity.

24. The Secretariat and UNIDO also discussed in particular the choice of the refrigerant, HFC-134a. The Secretariat pointed out that only insignificant additional effort would have to be undertaken to convert the production to the use of isobutane, since the use of pentane as foam blowing agent necessitates already certain upgrades regarding fire fighting capabilities, alarms and monitoring, and designation of explosion-proof zones in the manufacturing etc. The Secretariat further pointed out that isobutane is, in particular for the products manufactured in this factory, a well known, commonly used, large-scale technology, which has a low GWP in comparison to HFC-134a. Moreover, decision XIX/6 of the Meeting of the Parties encouraging the use of low GWP technologies, and that for a production of 140,000 units or more per year, the supply of the necessary compressors etc. would not constitute a problem. Also, any potential training needs and other infrastructure issues for refrigeration technicians might be covered by the NPP, which is likely to come to the 58th Meeting and given the timing of both undertakings the training needs of service staff can be addressed easily, in a timely and well co-ordinated manner. Use of isobutane would also not be likely to cause any delay in project implementation. In summary, the project at Light Industries Company is technically well suited to use hydrocarbons as replacement for CFC-12.

25. UNIDO recognised the validity of the arguments of the Secretariat, and advised that they had already discussed using that option with the enterprise. The choices of all refrigerant alternatives were reviewed and presented to the Government of Iraq and to the representatives of Light Industries Company. Indeed UNIDO originally proposed the project to replace CFC-12 with isobutane, not with HFC-134a considering the maturity of the technology, its environmental impact and the availability of isobutane in Iraq. However when discussing the subject with the Government, two issues were raised with UNIDO. Isobutane, a refrigerant, is not available in local markets, and neither are the isobutane compressors. Secondly, Light Industries Company works in close cooperation with and under license agreements with other companies in the region such as Al-Hafez Refrigeration Factory in the Syrian Arab Republic, which used HFC-134a and pentane. Therefore the products need to be similar and use the same technology and alternatives. UNIDO also pointed out that isobutane was not used as a refrigerant in any of the countries in the West Asia region, therefore UNIDO believes that market acceptability and accessibility for the products of Light Industries Company in Iraq and in other countries in the region might be at risk.

26. In light of decision XIX/6 paragraph 11 (c) of the Meeting of the Parties, the Secretariat was of the opinion that the use of isobutane, i.e. hydrocarbon technology, would have been the appropriate technology choice for this project, since it minimizes impacts on the environment, in particular on the climate, taking into account global-warming potential, energy use and other relevant factors. The various technical issues related to that technology are well known and understood and have also been addressed in other Multilateral Fund projects. It appeared to the Secretariat as if the issues leading to the choice of HFC-134a consisted of a number of perceived advantages of HFC-134a technology (see also Annex I to document UNEP/OzL.Pro/ExCom/57/59), and that these advantages have, in the view of the beneficiary and country, priority over the minimisation of climate impact. However, without any specific policy on this issue, and in lieu of any related guidance from the Executive Committee, the Secretariat felt unable to further challenge the technology choice by the Government on Iraq, which is in any case a non-ODS technology.

RECOMMENDATION

27. In light of the comments above, and given the special situation of Iraq as a new Party to the Montreal Protocol and the difficulties the Party may face in achieving the complete phase-out of Annexes A and B substances as noted by the Parties to the Montreal Protocol at their 20th Meeting, the Executive Committee may wish to:

(a) Approve the project component for the conversion from CFC-11 to pentane; and

(b) Consider the project component for the conversion from CFC-12 to HFC-134a.

28. Both components will lead to a total conversion of the production of domestic refrigerators and freezers at Light Industries Company at a total cost of US $1,883,281 plus agency support costs of US $141,246 for UNIDO without prejudice to the non-compliance mechanism of the Montreal Protocol, and on the understanding that no other project for the phase-out of CFCs in the refrigeration manufacturing sector will be approved for Iraq outside the national phase-out plan.

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