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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Sixty-fourth Meeting
Montreal, 25-29 July 2011

PROJECT PROPOSAL: JORDAN

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

Phase-out

- HCFC phase-out management plan (stage I, first tranche) — UNIDO and World Bank

PROJECT DESCRIPTION

1. On behalf of the Government of Jordan UNIDO, as the lead implementing agency, has submitted to the 64th Meeting of the Executive Committee a HCFC phase-out management plan (HPMP) at a total cost, as originally submitted, of US $4,535,000 plus support costs of US $340,125 for UNIDO and US $5,119,116 plus support costs of US $383,934 for the World Bank, for the implementation of stage I of the HPMP. The HPMP covers strategies and activities to achieve a 97.1 per cent reduction in HCFC consumption by 2019.

2. The first tranche for stage I being requested at this meeting amounts to US $125,000 plus agency support costs of US $9,375 for UNIDO and US $2,520,560 plus agency support costs of US $189,042 for the World Bank, as originally submitted.

Background

ODS regulations

3. The Ministry of Environment is the national body responsible for the implementation of the Montreal Protocol, and organizes a committee developing the regulations, licensing systems and quota systems, control of import and re-export of HCFCs and equipment containing HCFCs. The National Ozone Unit (NOU) within the Ministry of Environment is in the process to prepare a quota system for HCFC imports, to be finalized in 2012 for implementation starting on 1 January 2013. The Government is also planning to ban air conditioning equipment containing HCFCs from 1 January 2013, both for local manufacturing as well as for imports in order to achieve the compliance targets of the Montreal Protocol.

HCFC consumption

4. All HCFCs used in Jordan are imported as the country does not produce these substances. The survey showed that imports of HCFC-22, HCFC-141b and HCFC-142b take place in bulk, and HCFC-141b is also imported in pre-blended polyol systems. Under Article 7, only the imports in bulk have been reported until 2009, and the Article 7 data for 2010 had not been reported as of 3 June 2011. For 2009, Article 7 data shows that 68 per cent of the consumption in ODP tonnes is HCFC-22. Table 1 gives the consumption of HCFCs between 2006 and 2010, for the latter year an estimate provided in the HPMP is used.

Table 1: HCFC consumption between 2006 and 2010 according to Article 7 data

	2006		2007		2008		2009		2010*		Average 2009/2010	
	mt	ODP	mt	ODP	mt	ODP	mt	ODP	mt	ODP	mt	ODP
HCFC-22 (bulk)	598.5	32.9	657.0	36.1	686.1	37.7	875.1	48.1	1077.6	59.3	976.4	53.7
HCFC-141b (bulk)	124.6	13.7	177.9	19.6	201.5	22.2	207.0	22.8	321.0	35.3	264.0	29.0
HCFC-142b (bulk)	11.2	0.7	0.0	0.0	0.1	0.0	2.8	0.2	2.8	0.2	2.8	0.2
Total bulk	734.3	47.4	834.9	55.7	887.7	59.9	1,084.9	71.1	1,401.4	94.8	1,243.2	82.9
Change (as compared to previous year)	n/a	n/a	n/a	17.6%	n/a	7.6%	n/a	18.6%	n/a	33.3%	n/a	n/a
HCFC-141b imported in pre-blended polyol	40.0	4.4	48.0	5.3	58.6	6.5	120.0	13.2	137.7	15.2	128.9	14.2

*estimate in the HPMP

Sectoral distribution of HCFC

5. HCFC-22 and blends containing HCFC-142b have been used in the air conditioning and refrigeration sectors, and HCFC-141b in the same sectors as a solvent. HCFC-141b has also been used as a foam blowing agent, both as a bulk chemical for mixing in situ as well as a component of imported pre-blended polyol. The highest sectoral consumption is in the refrigeration servicing sector with 432 mt of HCFC-22 plus 9 mt of HCFC-142b in refrigerant mixtures used as a drop-in for CFC-12. Another 30 per cent of the consumption in metric tonnes (22 per cent in ODP tonnes) is related to the use of HCFC-22 in the manufacturing of air conditioning equipment. Only about 13 per cent of the HCFC in metric tonnes is used in the rigid foam sector; however, due to the high ODP of HCFC-141b, this represents 31 per cent of the consumption in ODP tonnes. Table 2 provides an overview of the use of HCFCs in the different relevant sectors.

Table 2: HCFC consumption in different sectors in 2009

Sector	**HCFC-22**	**HCFC-141b**	**HCFC-142b**	**Total**	**HCFC-22**	**HCFC-141b**	**HCFC-142b**	**Total**	**Share**
	(mt)				(ODP tonnes)				
Air conditioning	326.5	16.0	0.0	342.5	17.96	1.76	0.00	**19.72**	23.3%
Domestic refrigeration	0.0	4.5	0.0	4.5	0.00	0.50	0.00	**0.50**	0.6%
Commercial refrigeration	114.6	70.0	0.0	184.6	6.30	7.70	0.00	**14.00**	16.5%
Fire fighting	2.0	0.0	0.0	2.0	0.11	0.00	0.00	**0.11**	0.1%
Refrigeration service	432.0	0.0	9.0	441.0	23.76	0.00	0.59	**24.35**	28.7%
Foam	0.0	236.5	0.0	236.5	0.00	26.02	0.00	**26.02**	30.7%
Total	**875.1**	**327.0**	**9.0**	**1211.1**	**48.13**	**35.98**	**0.59**	**84.70**	100.0%
Share	72.3%	27.0%	0.7%	100.0%	56.8%	42.5%	0.7%	100.0%	

Estimated baseline for HCFC consumption

6. The estimated baseline for the HCFC consumption was calculated as 82.9 ODP tonnes by the Government of Jordan, using the average of the 2009 consumption of 70.9 ODP tonnes (1,411.9 mt) reported under Article 7 and the estimate consumption of the 94.8 ODP tonnes (1,860.1 mt) established on the basis of the use in each consumption sector and the number of enterprises in the sector in the year 2010.

Forecast of future HCFC consumption

7. Jordan estimated future demand for HCFCs in a business-as-usual scenario based on the need for servicing of existing refrigeration equipment, charging of new installations and continued foam production. This demand is estimated to grow at a level of 5 per cent per year for the service sector consumption of HCFC-22 and 15 per cent in the other sectors. The business-as-usual case already takes into account the effect of the conversion at Petra Engineering Industries Co. through a project approved at the 60th Meeting of the Executive Committee, to be completed in 2012 and reducing the 2013 consumption. The unconstrained HCFC consumption is projected compared with the Montreal Protocol limits in Table 3 below.

Table 3: Forecasted of consumption of HCFC

	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Montreal Protocol limits (ODP tonnes)	None				82.85	82.85	74.57
Consumption forecast for unconstrained growth (ODP tonnes)	70.9*	94.8	106.8	120.9	116.1	130.5	147

* data reported under Article 7

HCFC phase-out strategy

8. Jordan proposes a two-step approach for accelerated phase-out of the use of HCFCs in the manufacturing sectors by the end of year 2018 with a reduction of 97.1 per cent as compared to the baseline in the year 2019. This basis consists of the average consumption in 2009 and 2010 of both bulk HCFCs and HCFC used in imported pre-blended polyols, which are presently not reported under Article 7 of the Montreal Protocol. This calculation would lead to a remaining consumption in 2019 of 2.43 ODP tonnes, or 2.9 per cent of the estimated Montreal Protocol baseline. This level of consumption would continue until 2030, when it would decrease to a maximum consumption of 2.5 per cent of the HCFC baseline, equivalent to 2.08 ODP tonnes. The reduction to 2.9 per cent is related to a different baseline than that used by the Multilateral Fund, where use from imported pre-blended polyols containing HCFC-141b and not reported under Article 7 is considered as the country's basis for HCFC reductions.

9. The HPMP consists of sector plans to phase out the use of HCFC in the air conditioning sector, the commercial refrigeration sector, the foam sector, the fire fighting sector as well as the refrigeration service sector.

Sector plans

10. The air conditioning sector plan is targeting the sector with the highest level of growth in the country. It consists of investment activities centered on the residential air conditioning enterprises in Jordan and complements the demonstration project for Petra Engineering mentioned in paragraph 7. The activities under this sector plan include conversions of six enterprises, the already approved UNIDO Petra Engineering project, three enterprises with support from the World Bank, and two enterprises that will convert on their own in compliance with future government regulatory activities to ban HCFC-based manufacturing. Assistance will be provided to the servicing sector related to the manufacture of air conditioning, and HCFC-141b use will be phased out in those companies where a conversion from HCFC-22 would take place. Further, it is foreseen to carry out technical assistance activities to increase the technical capacities of local authorities in monitoring and enforcing HCFC-related policies, to support the companies in equipment specifications and to provide the necessary technical support for the conversions. At the same time, capacity building of customs officers will also be carried out. Finally, the import quota system to curb the supply of HCFCs will be established and operational before the first control measure is applied. A ban on the use of HCFC-22 in air conditioning manufacturing and import of HCFC-22 based air conditioning equipment will be put in place by 1 January 2015, ensuring the sustained phase-out of all manufacturing of HCFC air conditioning equipment in Jordan. The HPMP described these activities as belonging to one integrated set.

11. In the commercial refrigeration sector, there are two medium-sized companies that are using HCFC-141b foam blowing technology and are to be converted to cyclopentane. The majority of the other 41 enterprises are small and use only 1 mt or less per year, for which the conversion to either water/CO_2 blown foam or methal formate technology is foreseen. For the companies with a consumption above 2 mt, assistance will be provided to make the modification needed to adopt an alternative technology. The use of the refrigerant HCFC-22 will be replaced by either HFC-404A or HFC-410A depending on the enterprises' product portfolio. Assistance will also be provided to the two medium-sized enterprises, and some support of a smaller nature will be given to the remaining enterprises.

12. The foam sector plan foresees that enterprises with a consumption of more than 20 mt in 2010 will be assisted to convert to cyclopentane as a foam blowing agent. The technology for the smaller enterprises will be selected from the available technologies at a later date, probably there will be water blown technology and methyl formate. In total, 29 companies ranging in consumption from 42 mt to 2 mt of HCFC-141b will receive support for the conversion.

13. The servicing sector will be addressed with a set of measures including legal and economic incentives to use non-HCFC refrigerants, training programmes, technical assistance for the introduction of alternatives as well as for good practices, some end user conversions as well public awareness and information dissemination activities. Finally, it is also foreseen that the fire fighting sector will be addressed, but no more details were provided.

14. The submission of the HPMP foresaw five sector plans, but did not include details regarding eligibility, specific activities nor incremental costs for four of those, namely: commercial refrigeration, foam, fire fighting and refrigeration servicing. UNIDO requested that the HPMP be considered at the 64th Meeting for approval in principle including costs for all sector plans, with funding requested for the air conditioning sector plan and its fringe activities in the servicing sector. For the other four sector plans mentioned above, UNIDO proposed to submit the outstanding information to future meetings according to a schedule lasting until 2013. These would receive funding after their submission and approval, within the framework submitted for approval in principle to the 64th Meeting.

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

15. The Secretariat reviewed the HPMP for Jordan in the context of the guidelines for the preparation of HPMPs (decision 54/39), the criteria for funding HCFC phase-out in the consumption sector agreed at the 60th Meeting (decision 60/44), subsequent decisions on HPMPs made at the 62nd and 63rd Meetings and the 2011-2014 business plan of the Multilateral Fund.

16. The Secretariat advised UNIDO that the current structure of the HPMP does not correspond to the guidelines and decisions of the Executive Committee regarding development, presentation and funding of the HPMP. As of writing this document the Secretariat and UNIDO on behalf of the Government of Jordan, were finalizing the discussions on a revised version of the HPMP, which corresponds to the decisions of the Executive Committee regarding the formulation and presentation of an HPMP, namely decisions 55/43 and 60/44. In doing so, the Secretariat and UNIDO continue to discuss the priority for the phase-out of high-ODP HCFCs, the possible activities for a stage I HPMP to comply with the 2015 consumption reduction step, and the desire of the country to seek funding for an accelerated phase-out.

RECOMMENDATION

17. Pending.

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