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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Eighty-third Meeting
Montreal, 27– 31 May 2019

PROJECT PROPOSAL: SOUTH AFRICA

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

Phase-out

- HCFC phase-out management plan (stage I, fourth tranche) UNIDO

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS

South Africa

(I) PROJECT TITLE	AGENCY	MEETING APPROVED	CONTROL MEASURE
HCFC phase out plan (Stage I)	UNIDO (lead)	67th	35% by 2020

(II) LATEST ARTICLE 7 DATA (Annex C Group I)	Year: 2017	122.16 (ODP tonnes)

(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)									Year: 2017
Chemical	Aerosol	Foam	Fire fighting	Refrigeration		Solvent	Process agent	Lab use	Total sector consumption
				Manufacturing	Servicing				
HCFC-22					131.73				131.73
HCFC-123					0.40				0.40

(IV) CONSUMPTION DATA (ODP tonnes)			
2009 - 2010 baseline:	369.7	Starting point for sustained aggregate reductions:	369.7
CONSUMPTION ELIGIBLE FOR FUNDING (ODP tonnes)			
Already approved:	176.72	Remaining:	192.92

(V) BUSINESS PLAN		2019	2020	Total
UNIDO	ODS phase-out (ODP tonnes)	13.51	4.84	18.35
	Funding (US $)	534,585	191,273	725,858

(VI) PROJECT DATA			2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Montreal Protocol consumption limits			n/a	369.7	369.7	332.7	332.7	332.7	332.7	332.7	240.3	n/a
Maximum allowable consumption (ODP tonnes)			n/a	369.7	369.7	332.7	332.7	332.7	270.2	270.2	240.3	n/a
Agreed funding (US$)	UNIDO	Project costs	1,960,229	2,592,620	0	1,302,335	499,612	0	178,760	0	0	6,533,556
		Support costs	137,216	181,483	0	91,164	34,973	0	12,513	0	0	457,349
Funds approved by ExCom (US$)		Project costs	1,960,229	2,592,620	0	0	1,302,335*	0	0	0	0	5,855,184
		Support costs	137,216	181,483	0	0	91,164*	0	0	0	0	409,863
Total funds requested for approval at this meeting (US$)		Project costs								499,612**		
		Support costs								34,973**		

* Tranche initially agreed for release in 2015, eventually approved in 2016.
**Tranche initially agreed for 2016, submitted in 2019.

Secretariat's recommendation:	Blanket approval

PROJECT DESCRIPTION

1. On behalf of the Government of South Africa, UNIDO as the designated implementing agency has submitted a request for funding for the fourth tranche of stage I of the HCFC phase-out management plan (HPMP), at the amount of US $499,612, plus agency support costs of US $34,973.[1] The submission includes a progress report on the implementation of the third tranche, the verification report on HCFC consumption for 2016 to 2018 and the tranche implementation plan for 2019 to 2020.

Report on HCFC consumption

HCFC consumption

2. The Government of South Africa reported a consumption of 122.16 ODP tonnes of HCFC in 2017, which is 67 per cent below the HCFC baseline for compliance. The 2014-2018 HCFC consumption is shown in Table 1.

Table 1. HCFC consumption in South Africa (2014-2018 Article 7 data)

HCFC	2014	2015	2016	2017	2018*	Baseline
Metric tonnes (mt)						
HCFC-22	2,560.60	2,500.63	2,569.56	2,216.70	1,820	3,833.90
HCFC-123	67.20	0.00	0.00	20.00	0.00	12.80
HCFC-124	0.00	0.00	0.00	0.00	0.00	-30.80
HCFC-141b	850.00	625.55	-0.65	0.00	0.00	1,455.00
HCFC-142b	15.30	29.70	44.60	-2.40	22.46	-12.90
HCFC-225	27.20	0.00	0.00	0.00	0.00	0.00
Total (mt)	**3,520.30**	**3,155.88**	**2,613.65**	**2,234.30**	**1,842.46**	**5,258.00**
ODP tonnes						
HCFC-22	140.83	137.53	141.32	121.92	100.10	210.90
HCFC-123	1.34	0.00	0.00	0.40	0.00	0.30
HCFC-124	0.00	0.00	0.00	0.00	0.00	-0.70
HCFC-141b	93.50	68.81	-0.07	0.00	1.46	160.10
HCFC-142b	0.99	1.93	2.90	-0.16	0.00	-0.80
HCFC-225	1.90	0.00	0.00	0.00	0.00	0.00
Total (ODP tonnes)	**238.56**	**208.27**	**144.15**	**122.16**	**101.56**	**369.70**

*Data from the verification report on HCFC consumption.

3. The main drivers of the decrease in HCFC consumption over the last three years were the total phase-out of HCFC-141b used as blowing agent achieved on 1 January 2016, and the decrease in the consumption of HCFC-22 attributed to changes in the market due to the activities in the HPMP and controls on HCFCs, including the two bans that came into force on September 2014: on imports of any new or used refrigeration and air-conditioning (RAC) systems containing HCFCs; and on the use of HCFC-22 in the construction, assembly or installation of all new RAC systems.

Country programme (CP) implementation report

4. The Government of South Africa reported HCFC sector consumption data under the 2017 CP implementation report that is largely consistent with the data reported under Article 7. The difference between the HCFC-22 reported as used in the CP report and the HCFC-22 reported as consumed in the Article 7 report is due to an export not deducted from the use in the CP report. Other small differences in the consumption of HCFC-22 and HCFC-142b (less than 2 per cent) are attributed to difficult-to-track

[1] As per the letter of 19 March 2019 from the Department of Environmental Affairs of the Republic of South Africa to UNIDO.

imports and exports of these substances when contained in blends without a unique custom tariff code. The 2018 CP report will be submitted by 1 May 2019.

Verification report

5. The verification report confirmed that the Government is implementing a licensing and quota system for HCFC imports and exports and that the total consumption of HCFCs for 2018 was 101.56 ODP tonnes. The ban on the consumption of HCFC-141b, both pure and contained in imported pre-blended polyols, has been effective and no imports have been detected. Regarding the small inconsistencies in the recording of HCFC-22 and HCFC-142b contained in blends, the verification indicates that new custom tariff codes effective as of 1 January 2019 are expected to vastly improve the control of consumption and to eliminate confusion on the part of permit holders and clearing agents, in particular with respect to HCFC blends and HFCs.

Progress report on the implementation of the third tranche of the HPMP

Legal instruments to control the supply and demand of HCFCs and non-investment activities

6. The national ozone unit (NOU) has conducted random visits to importers of refrigerants across the country to assess compliance with the ODS regulatory measures established under stage I of the HPMP.[2] The NOU engaged with the South African Revenue Services (SARS) to realign tariff codes with international standards, in particular for HCFC blends. Unique codes assigned to all blends containing ODS refrigerants will facilitate the verification of consumption data. The NOU is located in the Department of Environment (DEA), which continues to work closely with the International Trade Administration Commission and the SARS to ensure that mechanisms to control ODS in South Africa are effective.

7. A total of 345 customs officers in all 15 ports of entry in the country have received training in the identification of refrigerants with the use of gas analysers, ASHRAE[3] nomenclature and safety ratings, and commonly used trade names. Nineteen refrigerant identifiers have been distributed among entry points.

8. A one-day HPMP Road Show was held in the country's five main cities to raise awareness of HCFC phase-out and HFC management, and to provide a networking platform for public and private stakeholders to share experiences and further strengthen the relationship between the Government and the RAC sector. The HPMP Road Show highlighted the urgent need to create awareness and take measures to encourage recovery, recycling and reclamation (RRR) of refrigerants; the need to discontinue the use of disposable cans; the need for one standardized training curriculum to be used across the country; the importance of leakage prevention and of public awareness and training in good refrigeration practices; and the need for a strategy to promote and ensure the registration of informal servicing technicians.

Activities in the polyurethane (PU) foam sector

9. The PU foam sector plan was successfully completed with the phase-out of 753 mt (82.83 ODP tonnes) of HCFC-141b through the conversion of two individual enterprises to cyclopentane, and the conversion of two systems houses and around 40 associated downstream users to methyl formate. In addition, four non-eligible enterprises completed self-funded conversions to cyclopentane, HFC and methyl formate. A summary of the conversions in the PU foam sector is presented in Table 2.

[2] As reported in Table 2 of document UNEP/OzL.Pro/ExCom/76/48.
[3] American Society of Heating, Refrigerating and Air-Conditioning Engineers.

Table 2. PU foam sector plan results

Enterprise/systems house	HCFC phased out (mt)	Alternative	Cost (US $)	Date of completion
Eligible enterprises				
Aerothane	65	Cyclopentane	185,900	2016
Defy	288	Cyclopentane	2,300,000	2015
Resiken (SH)	399.80	Methyl formate	2,289,000	2016
Lake Technologies (SH)				2017
Downstream users*				2014/2018
Non-eligible enterprises (self-funded)				
Bumbo	555.10	HFC	Self-funded	2018
Whirlpool		Cyclopentane	Self-funded	2016
Harvey components	36.00	HFC	Self-funded	2018
Franke water heater systems/ Ariston		Methyl formate	Self-funded	2018

*A list of enterprises assisted through the plan was included in the report

10. Subsequent to the conversions, the ban on imports of HCFC-141b, either pure or as a component of blended chemicals, entered into force on 1 January 2016. In addition, an extended work plan was agreed between the DEA and UNIDO to ensure the continued success of the programme by following up on the use of the alternatives and the equipment introduced during the phase-out plan.

Refrigeration servicing sector

11. Four national RRR facilities were established in Johannesburg, Durban, Cape Town and Port Elizabeth, using the existing capacity of local refrigeration enterprises. Training was carried out and equipment was distributed. Study tours and a desk survey were conducted to learn about RRR. The RRR centers started to operate in early 2019.

12. A training programme for servicing technicians was developed with local training centers to encourage young people to pursue a career in the refrigeration sector. The South African Refrigeration and Air Conditioning Contractors Association (SARACCA) was approached to encourage technicians to register with SAQCC Gas[4] for safe handling of refrigerants. Industry associations and training providers coordinated with the Department of Higher Technical Education to review the training curriculum for service technicians engaged in the RAC sectors, highlighting environmental and refrigerant management aspects.

13. The DEA also undertook awareness activities and discussions with the industry on the issue of alternative non-ODS technologies available in the market, including R-290, CO_2, ammonia and HFOs. A regular HCFC stakeholders working group was established by the DEA, comprising industry representatives from the private sector, governmental organization, academia, and the implementing agency.

Project implementation and monitoring unit (PMU)

14. The PMU monitors the implementation of the activities by reviewing and approving detailed annual implementation work-plans, reviewing quarterly implementation and financial reports, ensuring that the objectives for each tranche are met as planned, providing technical advice to the implementation team on issues encountered during implementation, facilitating communication between the implementation team and local decision makers, and ensuring timely implementation of HPMP components. PMU funding is

[4] South African Qualification and Certification Committee maintains a central database of registered Gas Practitioners authorised to work on gas and gas systems.

allocated to international and national experts, travel costs, and the organization of meetings with stakeholders.

Level of fund disbursement

15. As of March 2019, of the US $5,855,184 approved so far, US $4,661,833 had been disbursed, as shown in Table 3. The balance of US $1,193,342 will be disbursed in 2019 and 2020.

Table 3. Financial report of stage I of the HPMP for South Africa

Tranche		UNIDO (US $)	Disbursement rate (%)
First tranche	Approved	1,960,219	96.9
	Disbursed	1,900,278	
Second tranche	Approved	2,592,620	92.7
	Disbursed	2,402,302	
Third tranche	Approved	1,302,335	27.6
	Disbursed	359,252	
Total	Approved	5,855,184	79.6
	Disbursed	4,661,832	

Implementation plan for the fourth tranche of the HPMP

16. The following activities will be implemented between June 2019 and December 2020:

(a) *Legal instruments to control the supply and demand of HCFCs and non-investment activities:* Meetings for all permit holders to discuss tariff headings, clearance of consignments of refrigerants and submission of annual reports; training for customs administration on new custom tariff codes; improvement of the tracking of permit applications and approvals for both ODS and HFC imports and exports; awareness raising through workshops on HCFC installations; and a training workshop for importers/exporters (US $80,000);

(b) *Refrigeration servicing sector:*

(i) Continued support for the RRR scheme; development of a break-bulk distribution system[5] and component supply infrastructure; additional equipment, if required (US $100,000);

(ii) Training of 400 non-registered technicians in good practices in refrigeration (theory and practice) (US $319,612);

(iii) Project to demonstrate energy and cost savings obtained from the operation of non-ODS low-GWP–based refrigeration systems in comparison to HCFC-22 or HFC-based systems. The potential alternatives considered are hydrocarbons, CO_2, ammonia or HFO, and their selection will be based on the specific application. Four demonstrations are planned and their final reports will be published as case studies. One possible application being considered is the use of CO_2 systems or CO_2 and ammonia cascade systems in supermarket refrigeration (funding from previous tranches); and

[5] Filling refrigerants imported in ISO tanks into small cylinders to put them in the market.

(c) *PMU:* Support for the monitoring and verification of project activities including sustainability of completed conversions; quarterly meetings with the NOU and counterparts; support for the NOU in the form of technical advice and training if required; support for cooperation with national stakeholders (funding from previous tranches).

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

Progress report on the implementation of the third tranche of the HPMP

Delay in the implementation of previous tranches

17. Noting that the present tranche was originally programmed for 2016, the Secretariat asked about the reasons for the delay in requesting it; whether all issues had now been solved and whether an extension of stage I of the HPMP was required. UNIDO explained that the slow pace of disbursement of the previous tranches was caused by the complexity of completing the conversion of the PU foam sector, which comprised a number of small and medium-sized enterprises assisted through the technical assistance component. The establishment of an effective coordination mechanism between the NOU, UNIDO and the relevant stakeholders, which was relevant for the HPMP implementation, took some time. Now this mechanism is established, the PU foam sector conversion is completed, and the remaining activities as well as the tranche can continue being implemented as planned, with the associated funds to be disbursed before the end of 2021 as per the original plan.

Legal framework

18. The Government of South Africa has already issued HCFC import quotas for 2019 at 147 ODP tonnes, which is 55.8 per cent lower than the Montreal Protocol control targets and 45.5 per cent of the maximum allowable level under the Agreement with the Executive Committee.

Sustainability of the conversion in the manufacturing sector

19. The Secretariat noted with appreciation the completion of the PU foam sector plan and total phase-out of 1,344 mt (147.83 ODP tonnes)[6] of HCFC-141b. Regarding the enforcement of the ban on imports of HCFC-141b pure and contained in pre-blended polyols, UNIDO indicated that rigid control is maintained on the issuance of permits within the quotas, including information submitted by importers signed by their chief executive officers to ensure good governance and accountability. Random visits to importers to assess compliance with ODS regulations are undertaken by environmental inspectors on a regular basis. Converted enterprises are also monitored and visited after conversion. To date no irregularities have been identified.

Refrigeration servicing sector

20. In discussing the sustainability of the RRR scheme established, UNIDO reported that a RRR center had already been operating at one enterprise (A-Gas) without financial support, and that the first funded center had reported 10 mt of refrigerant recovered. The RRR centers received the technical support required to operate and are currently working on the economic model to operate in a self-sufficient manner. An identified priority to be considered in the next tranche is to discontinue the use of disposable cylinders. Other activities considered under the HPMP to support RRR include further promotion of the price advantage of using reclaimed refrigerant, financial incentives to recover and reclaim refrigerants,

[6] Including 753 mt from eligible enterprises and 591 mt self-funded by non-eligible enterprises.

exchanging information on the operation of RRR programmes with other Article 5 countries, and discussions with stakeholders on possible future legal requirements for the purchase of refrigerants.

21. Regarding the existing systems to register and certify technicians in South Africa, UNIDO explained that the Pressurised Equipment Regulation (PER) of 2009 required that as of 2010 all practitioners be registered in order to legally work on RAC systems. The Department of Labour has mandated SAQCC Gas with the responsibility of registering and maintaining a database of individuals authorized[7] to handle gases under pressure. The RAC association (SARACCA) is an accredited member association of SAQCC Gas with the responsibility of reviewing and processing applications from individuals in the industry. Registration is valid for three years.

22. The scope of refrigeration work is defined by a standard (SANS 10147-2014 Refrigerating systems including plants associated with air-conditioning systems). All applicants must be assessed as competent in handling refrigerants following a SARACCA-recognized training. After completing training and a competence assessment, there are 11 possible categories of registration based on training, qualifications, competence assessment and experience. A list of accredited training providers is available from SARACCA. Given the already existing infrastructure, one of the aims of the HPMP is to focus on providing training and formalizing unregistered RAC servicing technicians. This approach is aimed at creating an enabling environment for RAC informal technicians to thrive in the sector as individuals or small businesses.

23. The Secretariat notes that an established technicians' certification system will in the long term help the Government of South Africa ensure that technicians providing servicing have the required knowledge and hands-on experience. With regard to the sustainability of the training given to customs officers, UNIDO explained that given the updates made to the legislation, and the available equipment and the training provided so far, national capacities are created and can continue operating without additional support

24. With regard to the demonstration projects to illustrate the use of non-ODS, low-GWP alternatives planned for the next tranche, UNIDO explained that although their onset had been planned as part of the third tranche, the priority in the RAC sector was given to the selection of suitable locations for and the establishment of reclamation centers. South Africa follows a formal selection process of project beneficiaries that ensures sustainability and transparency of the process, comprising several stages. The demonstration projects will be implemented during the fourth tranche and will be synchronized with the training component. UNIDO also clarified that the provision of co-financing (in-kind) would be part of the selection criteria for beneficiaries.

Conclusion

25. The HCFC consumption levels reported by South Africa in 2016 and 2017, as well as the 2018 consumption estimated in the verification report, indicate that the country continues to be well advanced in compliance with the Montreal Protocol and the Agreement between the Government and the Executive Committee. The Government of South Africa continued enforcing the HCFC licensing and quota system and the additional set of regulations established in 2014 to control HCFCs, including the ban on imports of HCFC-141b, either pure or as a component of blended chemicals, that went into effect on 1 January 2016, and the two bans that came into force on September 2014 (on imports of any new or used RAC systems containing HCFCs, and on the use of HCFC-22 in the construction, assembly or installation of all new RAC systems). South Africa has also completed the implementation of the PU foam sector plan, achieving the total phase-out of HCFC-141b by 1 January 2016; has established four RRR centres in the country's main cities; and continues to provide training to technicians and customs officers. Activities to ensure sustainability of the conversions in the PU foam sector include random visits to importers and converted enterprises. The establishment of a technicians' certification scheme will help ensure that technicians

[7] The Regulations define an authorized person as one who is registered with SAQCC Gas as being competent within the scope of work.

operating in the sector meet the minimum requirements, while updated legislation, distribution of equipment and training provided so far to customs have created national capacity to continue training customs officers beyond the plan. The fourth tranche will include four demonstrations of low-GWP alternatives in several refrigeration and air-conditioning applications, postponed from the previous tranche.

RECOMMENDATION

26. The Fund Secretariat recommends that the Executive Committee take note of the progress report on the implementation of the third tranche of stage I of the HCFC phase-out management plan (HPMP) for South Africa; and further recommends blanket approval of the fourth tranche of stage I of the HPMP for South Africa, and the corresponding 2019-2020 tranche implementation plan, at the funding level shown in the table below:

	Project title	Project funding (US $)	Support cost (US $)	Implementing agency
(a)	HCFC phase-out management plan (stage I, fourth tranche)	499,612	34,973	UNIDO