



HCFC Phase-Out Management Plan (HPMP) Stage-II

Stakeholders Consultation Meeting

Organized by the

National Ozone Unit (NOU) – Egyptian Environment Affairs Agency (EEAA)

Ministry of Environmental of Egypt

In cooperation with

United Nations Industrial Development Organization (UNIDO),

United Nations Environment Programme (UNEP),

United Nations Development Programme (UNDP) &

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

Cairo, 1st August 2016

Agenda

Registration	08:30	التسجيل
Opening and Welcome	09:00	الافتتاح و الترحيب
HPMP of Egypt; Achievements and Lessons Learned <i>By: NOU</i>	09:20	مشروع خطة إدارة التخلص من مواد (HCFCs) ، الانجازات والدروس المستفادة
HPMP as overarching strategy; Outline and Expectations as per MLF Guidelines <i>By: International Consultant</i>	09:45	مشروع خطة إدارة التخلص من مواد (HCFCs) كاستراتيجية متكاملة – الإطار العام والتوقعات حسب الشروط المرجعية للصندوق المتعدد الاطراف
Break	10:15	استراحة
Stage-II of the HPMP of Egypt; Projects and Components - Compliance targets and sectors (<i>by: UNIDO</i>) - Phase-out in Foam Sector (<i>By: UNDP</i>) - Phase-out in A/C manufacturing (<i>by: UNIDO</i>) - Overarching plan for the servicing sector (<i>by: UNEP</i>) - Promote the use of HC in RAC sectors (<i>by: GIZ</i>)	10:45	المرحلة الثانية من مشروع خطة إدارة التخلص من مواد (HCFCs) لجمهورية مصر العربية، المشاريع والمكونات: - أهداف الامتثال والقطاعات المستهدفة - التخلص من HCFC في قطاع الفوم (الرغويات) - التخلص من HCFC في قطاع صناعة التكييف - الخطة المتكاملة لقطاع الصيانة - تشجيع استخدام المواد الهيدروكاربونية في قطاع التبريد والتكييف
Q&A	12:00	النقاش
Group Lunch	12:45	الغداء
Parallel Consultation Sessions	14:00	حلقتي نقاش متوازيتين
Session-A: Phase-out strategy for A/C manufacturing Sector		المجموعة الأولى استراتيجية التخلص من HCFC في قطاع صناعة التكييف
Session-B: Phase-out strategy for the Servicing Sectors		المجموعة الثانية استراتيجية التخلص من HCFC في قطاعات الصيانة
Break	16:00	استراحة
Plenary Concluding Session and Closing	16:30	جلسة النقاش الختامية

Report of Day 1

The conference started at 10:00 with an apology for delay and a welcome speech by Dr. Ezzat Lewis.

The first speaker was Mr. Ahmed Al Orashy whose speech was about achievements and learned lessons. He mentioned the implementers of the project (UNDP, UNIDO) and specified their jobs. Then he defined HCFCs: a set of substances, governed by Montreal Protocol, used in air conditioning and manufacturing foam. Air conditioning manufacturing in Egypt usually used HCFC 22 by 61.77 % and foam manufacturing usually used HCFC 14. From 2009 to 2010 Egypt didn't exceed the allowed levels of HCFC. When HPMP was approved and funded in 2011, it aimed at freezing Egypt's level of HCFCs use. By 2018 they will be less than 25%. The project worked on increasing the efficiency of service centers and replacing the current production lines in companies with ones that doesn't depend on ozone debiting substances. The companies that converted from using HCFC to other alternatives are *Mondial* in the 3rd quarter of 2015, *Al Araby* in 2015, and *Keryazi* that will convert within the next two months as they faced many problems. He also talked about PRAHA project in Gulf Countries for assessing the alternatives used in air conditioners manufacturing as some of them could be challenging; for instance because they are toxic. Egypt has implemented a similar project called EGYPRAHA that involved all air conditioning factories. Finally, in the 4th quarter of the year, a report on assessing alternatives will be made. He displayed a PowerPoint presentation that tackled HCFC's substances and application, the milestones of the stage 1 of HPMP, an overall view on HPMP implementation, and progress status.

The second speaker was Mr. Amir William. He first clarified the job of UNDP that mainly focuses on foam manufacturing rather than other sectors like freezing. He said that from 2011 to 2015, after visits, consultation, announcements, supplying with machines, six factories were converted to alternatives. The second part of work was signing memos of agreement with major chemical companies to convert to alternatives and help the smaller companies afterwards. He displayed a

PowerPoint presentation about HCFC's phase-out management plan – stage I, UNDP contribution, and activities in PU Foam.

Then the floor was for Mr. Ranojoy Basu Ray who gave an overview on stage 1. Then he talked about activities planned, conversion on domestic refrigeration, and conversion with manufacturers, strategy developed, and UNDP future areas of work. After that he talked about the roles of other partners. First, UNEP developed phasing out strategy for services sector. Second, GIZ aims mainly to design safety regulations and provides training and capacity building for all technicians. The goal is to reduce the consumption of refrigerant gases in manufacturing, services, and foam by 20 % in 2020 and 75 % in 2025 according to Montreal Protocol. By 2030 the use of HCFC will be stopped. However, conversion is hard in services sector because a lot of pieces of equipment are still in use. He stressed the need to a regulatory framework. When a sector is converted, it should be guaranteed that it won't use HCFCs again. This is attainable by laws. The approach of the policy enforcement used is bringing technology and monitoring, management, and implementation.

The outline of stage 2 : Status of implementation and a financial report of stage I activities; methodology, validation, and data of HCFC consumption; sector distribution of HCFC; phase out strategy and overarching strategy; and finally the second stage implementation program. His PowerPoint presentation tackled the strategy and outline of stage 2.

Coffee Break from 10:52 A.M to 11:31.

The conference was resumed with an acquaintance session that lasted for 6 minutes.

The first speaker was Mr. Bert Veenendaal, International environmental and process specialist, foam sector program. He said the target of the program is to eliminate all remaining HCFCs. This is achieved by providing technical and financial assistance, and establishing suitable conditions. The tasks for achieving targets are a survey on foam companies, agreeing on alternatives for HCFC, and a phasing out strategy. Then he talked about the main five applications of HCFC

which are domestic refrigeration, commercial refrigeration, rigid insulation foams, non-insulation rigid foams, integral skin foams. By the survey, the following results have been identified: 60 downstream users, 1,546 t HCFC-141b, 1 system distributor, 1 system importer. Then he discussed replacement technologies that include water/CO₂, hydrocarbons, (HFCs - HFOs), Methyl format. He explained the strategy of work which is addressing users individually or as sub-sector and the suppliers who communicate afterwards with their small users. At the end of his presentation he mentioned the requirements of compliance and they are keeping technology affordable, providing financial incentives, restricting HCFC availability, enforcing fairness, and restricting HCFC import and export. In the PowerPoint presentation he explained the steps of implementing the strategy in foam sector.

After Mr. Veenendaal, the floor was for Ms. Lamiaa Ben Abbas, UNIDO. She started her presentation with the results of a survey done in air conditions manufacturing sector. The survey identified 8 eligible companies with total or partial Egyptian ownership. The companies were established after the cut-off date and their total R 22 consumption is 1.1 ton/year. She said that fund will be available after the endorsement of the project from MLF. She talked about EGYPRAHA initiative that allows companies assessing the potential elements for conversion. A gradual conversion was suggested starting from smaller equipment for smaller companies and then bigger ones. Concerning commercial refrigeration, there are 39 licensed SMEs consuming 40 ton of R22 per year. They will be subject to group projects depending on their production and they will receive technical and financial assistance. There are 187 unlicensed manufacturers with total R22 consumption of 40 ton/year. Addressing them will be through awareness and technical assistance but they won't be assisted for conversion. Her presentation tackled the status of companies involved.

Then the floor was for Mr. Ayman Al Talouny, UNEP. He first gave an overview on Staged-Approach Overarching Strategy. He discussed the components of phase-out strategy which are phase-out in Foam Industry (XPS & PU), Phase-out in RAC Industry, Phase-out in Servicing Sector. Concerning servicing sector, work will not stop in 2030 because of "service tail". This concept means that some devices in service will need maintenance with the old techniques. He said there are about 100 alternative gases in service now. Some of them are prevented after awhile.

Because developing countries adopt these alternative late, they use it after they are prevented in developed countries. Developing countries also struggle for the different alternative substances coming from east and west and inventory companies impose them. Then he explained the gradual implementation of overarching policy. He said that when the different sectors are converted, HCFC imports and goods should be prevented. He illustrated the non-investment activities paying special attention to legislation enforcement, standards and codes, and certification. He also highlighted the RefrigerantsMarket Surveillance Program (RMSP) that will be carried out in stage 2 to prevent cheating and using the prevented HCFC. In his PowerPoint presentation, he explained in details the Staged-Approach Overarching Strategy.

The discussion session started at 12.37 P.M and was run by Dr. Ezzat Lewis.

First Ms. Lamia Ben Abbas answered the question she was asked during her presentation which is “what the acronyms of the certificate stand for?” Her answer was that they stand for Technical Inception Association.

The first question by Mr. Hassan Ali: We need qualified technicians in service centers, have you thought about how to qualify them?

The second question by Mr. Osama Labib: Will we have enough time for updated training courses while the technology is rapidly developed?

The third question by Mr. Mohamed Fekry: Are the social aspect and the infrastructure of issuing certificates of the program considered when choosing alternatives?

The forth question by Mr. Gamal Abd Al Ghafar: What would happen if a consumer complains the malfunction of a device which its technology is not in service anymore?

The fifth question: Why refrigerant gases are used in manufacturing gases instead of natural gases?

The sixth question: The unofficial sector is more dominant, how to deal with it while there are various alternatives, especially it would exploit consumer's ignorant of gases?

The seventh question: Is the economic impact of phasing out strategy taken into consideration?

The eighth question: Does Media have a role to play to help us achieving our goals?

The ninth question by Eng. Yassmin: How would the equipment suit the plan?

The tenth question: Does the industrial control, which license reforms, ban using the unsafe Freon or it is a matter of persons? And is there a safe affordable alternative in the market?

Finally, there was a suggestion to make the different aspects of the project a thesis for an academic study.

The answers of the questions:

- Eng. Ayman Al Talouny: Licensing workers and vocational qualification represent a bigger system and concerned by a higher and more complicated political decision. Financial incentives enable us to find persons in work market.
- Mr. Pert & Mr. Ezzat: refrigerant gases are used until other alternatives are available. We try to use natural components as much as we can. There are proposals of water based alternatives taking into consideration that they are not Ozone Depleters.

- Ms. Lamiaa: The financial support is offered by MLF and covers the cost of conversion. There are two components for support: implemental capital cost and operating cost.
- Concerning the role of media, if a clear image is available, media will be informed with. What could be said now is that there is a strategy for phasing out HCFCs otherwise the consumer would be confused. Some other sectors worth informing as they will incorporate the strategy in specification manuals.
- Concerning dealing with the unofficial sector, we usually start with providing training for official sector and creating momentum in the market. Thus, the unofficial sector will ask for training. Another point is that restrictions cannot be imposed on the unofficial sector in which many middle educated people work. So, what can be provided is awareness raising tools.
- Concerning curriculum development, it is a secondary process. Moreover, there is nothing new could be added as the existent now is mixed. The current technical curriculum would benefit us for 15 years.
- Concerning consumer's safety and service centers, we are not the developers of technology. We are rather receivers and have to deal with what the world imposes.

The second session of the conference started at 2:24 with a welcome speech by Dr. Ezzat. Then Mr. Bert Veenendaal gave his second presentation.

He started his presentation by saying that *"we don't make the decision. We guide you and don't impose anything on companies"*. So, he presents different alternatives and the criteria of each of them and companies choose what suits them. First, he presented the criteria of replacement in general. Then he moved to the two kinds of replacement technologies and the effects of each. The technologies commercially available include water (CO₂), Hydrocarbons that he

recommended touse, HCFs that he said they are 10 times better than HCFCs, Methyl format but it is not widely used, and Methyl that is not used in Egypt but used in Europe. The new developments of replacement technology include FEA-1100, HBA-2, HFO-1234ze that is like HCFCs in properties but cause less global warming, and AFA-L1. Concerning the environmental impact, after calculating how much they affect global warming, the substances in both types of technology are divided into green gases and Ozone depleters. Then he explained an illustration of the chemical reaction that is likely to happen in the phase-out. After that he reviewed the properties of each of the validated technology. He started with hydrocarbons, then HFC134a that is not recommended by UNDP but used in Mexico and not used in Egypt because the structure here is less complicated. The cost of HFCs is not going to decrease in the future while he prefers the cheaper technologies. He continued with HFCs like HFC245fa and HFC-365mfc that he didn't recommend. He concluded with reviewing the properties of Methyl format, methelal, HFO-1234ze, FEA1100, HBA2, and AFA-L1. The properties of each alternative substance, blowing agents, and replacement technologies and criteria are more detailed in the PowerPoint presentation.

After finishing his presentation, he called the audience to ask the questions they want.

1- Why methyl is not used in Egypt?

- The reason is unknown. He said that he used it in Mexico and Ukraine and there was no problem. But if you are a small company and cannot afford the installation you can depend on water chemical reaction or cycle-pentane.

2- Concerning insulation forms by methyl, is there any success record?

-He said that he had a client in Mexico uses 75% of methelal and 25% of HCFC in spry foam and it is successful. Another client in Ukraine uses methyl with 50% and it was good. My principle is that you have to walk before you run. I never say stop HCFCs directly. I say use them with 50% then move to decrease them and use 53% of methyl then 58%. I always say use the cheaper solution.

3- We have made experiments on these alternatives and picked one blowing agent C65. The problem is that we found a global shortage in the markets after a while.

The fast shortage means that there is a lack in one of the constituent elements and my understanding it is sulfate. I can sell you c65. C65. It is a very a good material but the issue is not processing but environmental. It is better than other materials and causes less global warming.

Mr. Bert announced that they will make a visit to foam factories this week [as](#) after analyzing data, he still has questions. The visit will provide him with sufficient information to make a definite plan. Concerning big refrigeration companies, we have already prepared the project and verifying data to present them to companies. There are two other projects; one for distributors who buy locally and the other for distributors who buy from Gulf countries.

At the end Dr. Ezzat said, who would like to have an advice from Mr. Bert or have any issue that any company wants to treat confidentially can meet with Mr. Bert after the coffee break.