

## Brief for website

### **Report of One-Day National Workshop to Accelerate Hydrochlorofluorocarbons (HCFC) Phase Out to preserve the Ozone Layer**

The one day National workshop on HCFCs Accelerated Phase Out, was held on 16 September 2009 on the occasion of the International Ozone Day at La Plantation Resort & Spa, Balaclava.

It was organized by the Ministry of Environment and National Development Unit and funded under the HCFC Management Plan project by the German Government through GTZ- Proklima which is also the implementing agency.

The workshop was attended by 72 participants from the different sectors namely Ministries, importers and end-users in the refrigeration/air-conditioning systems – namely supermarkets, hotels, retailers.

The main objective was to:-

- bring all stakeholders involved in the refrigeration/air-conditioning sectors together on one platform;
- understand the rationale behind the [2007 adjustment of the Montreal Protocol](#) on substances that deplete the ozone Layer to accelerate [the phasing out of the import of HCFCs by 2030 instead of 2040](#);
- kick-start the preparatory phase for the [January 2013 freeze](#).

The [main findings](#) and [recommendations](#) have been summarized to give the outcomes of the workshop.

The [report of proceedings](#) of the workshop and [presentations](#) delivered provide guidance for existing and potential natural alternative refrigerants in the refrigeration and air conditioning sectors for a sustainable future.

**PHASE OUT SCHEDULE**  
**(Adjustment under Montreal Protocol in 2007)**  
**Accelerated phase out of HCFCs**

<b>Developing Countries including Mauritius</b>	<b>Developed Countries</b>
<p><b>Base level 2009-2010 average</b>  <b>Freeze on 1 Jan 2013</b></p> <p><b>10% reduction on 1 Jan 2015</b></p> <p><b>35% on 1 Jan 2020</b>  <b>67,5% on 1 Jan 2025</b>  <b>Servicing tail 2.5% from 2030 to 2040</b></p>	<p><b>75% reduction on 1 Jan 2010</b></p> <p><b>90% on 1 Jan 2015</b></p> <p><b>Servicing tail of 0.5% from 2020 to 2030</b></p>

## **Main Findings of the Workshop**

The main the findings are as follows:-

- Concerning the potential natural refrigerants
  - Ammonia was considered as a more favourable option when it came to large undertakings such cold rooms, processing plants, supermarkets, chillers in hotels & buildings, refrigerated trucks and mortuaries.
  - Hydrocarbons were identified as potential alternatives in small applications such as in motor vehicles, domestic refrigeration systems and in refrigerated lorries.
  - Carbon dioxide was the least favoured option among the 3 alternatives that were considered since its technology is new and is still unknown to the refrigeration technicians in Mauritius. However, one of the groups has recommended its use in the commercial sector, cold storages and mobile refrigeration systems.
- On Mechanisms that need to be set up to meet the HCFC freeze, the *quantity of HCFC gases and their use in appliances on the market was elaborated and it was found that*
  - the national survey is fundamental to assess the use of the HCFC gases in the country.
  - The survey must also identify the type of equipment that are in use as in some cases where retrofitting would not be possible, the technology would have to be changed.
  - From the survey, importers could be tracked for devising quotas system for import of gases in 2013.
  - Importers and dealers of refrigerants also commented on trading issues on sale of cylinders to any buyer and record on whether the products which were of international importance were used properly or not.

- Regarding availability of alternative refrigerants on the market it was found that
  - the alternatives such as hydrocarbon refrigerant gases are available on the local market but only to a limited extent due to their prices
  - Many technicians are not trained to carry out the replacement of HCFCs with these Hydrocarbons gases.

MID fund could also be used for promotion of renewable sources of energy such as cooling from ocean thermal energy.

- Concerning the project Recovery & recycling units it was proposed that
  - The recycling project be made operational for recycling of recovered HCFCs.
  - It was pointed out that for the project to be properly functional, more recovery cylinders would be required and the cost for overall recovery & transportation and recycling must not be expensive so that the recycled HCFCs could be competitive to the imported virgin refrigerants.
- On training aspects, it was proposed that
  - hydrocarbons, ammonia and carbon dioxide technology form part of the capacity - building project of the HCFC Management Plan.
  - the training institutions review their syllabus for refrigeration courses and include the technologies of ammonia, hydrocarbons and carbon dioxide with emphasis on handling, use and safety aspects, if they are not catered for.
- With respect to legislations & Enforcement it was suggested that
  - the relevant legislations, namely the Dangerous Chemical Control Act 2004 & the Consumer Protection Act, be amended accordingly to control all HCFCs refrigerant and the banning of equipment containing HCFCs respectively.
  - For effective enforcement, the Customs & Excise Department should be informed of the amendment and they should be equipped with the identifiers for HCFC gases.

- Requests were also obtained to have a registered list of importers, technicians and suppliers to prevent illegal imports and to have a better control of the gases being used in Mauritius.
  
- On sensitization and awareness , it was found that
  - A communication strategy be developed to raise public awareness and key stakeholders for the HCFC phasing out through the press and media.
  - Regular meetings (at least once in 3 months) be organized by the NOU of the Ministry of Environment & NDU to discuss on the implementation of the HCFC Management Plan.
  - A network be established with the stakeholders
  - Sensitization be a component of the HCFC Management Plan.

## **11 Main Recommendations of the Workshop**

**The main recommendations of the working groups and plenary sessions are as follows:-**

### ***Potential environmental friendly refrigerant***

1. Ammonia, hydrocarbons and carbon dioxide should be environment friendly substitutes for HCFCs in the different sectors.

### ***Quantification of HCFC gases and their use in appliances on the market***

2. The importer of HCFC refrigerant be tracked through the national HCFC survey and be called upon to register themselves with the National Ozone Unit of the Ministry of Environment & NDU for calculation of the quota for each importer eventually.
3. All qualified technicians be certified by the Ministry of Environment through an identity card or other means to ensure better control on purchase, use, recovery and recycling of the HCFC refrigerant via a reporting mechanism.

***Availability of alternative refrigerants on the market***

4. Introduction of taxes on HCFCs and fiscal incentives on available clean technologies would encourage the shift from HCFCs to ozone and climate friendly substances. This would render the alternative refrigerants more competitive with the HCFCs.

***Recovery and recycling of HCFCs***

5. The recovery and recycling project be made operational and form part of the HCFC plan for additional recovery cylinders and training on recovery aspects.
6. The pricing mechanism of recycled HCFCs be worked out for successful marketing of recycled refrigerant.

***Training***

7. The training institutions review their syllabus for refrigeration courses and include the technologies of ammonia, hydrocarbons and carbon dioxide with emphasis on handling, use and safety aspects, if they are not catered for.
8. Training on hydrocarbons, ammonia and carbon dioxide technology form part of the capacity - building project of the HCFC Management Plan.

***Legislations & Enforcement***

9. The relevant Ministries should work together to bring timely amendment of the required legislations to meet the HCFC freeze and other target dates.

***Sensitization and Networking***

10. A network should be established with the stakeholders to keep them informed of all development on HCFCs/HFCs

11. Sensitization should be a component of the HCFC Management Plan.

## **Report**

[REPORT-HCFC-v2212.pdf](#)

## **Presentations**

[Alternative Refrigerants.ppt](#)

[Presentation CFC phase out success .ppt](#)

[Legislative and Institutional framework.ppt](#)

[Presentation169.ppt](#)

[Presentation Adjustment.ppt](#)

[Presentation HCFC.ppt](#)