MONTREAL PROTOCOL
WAY FORWARD IN MALAYSIA

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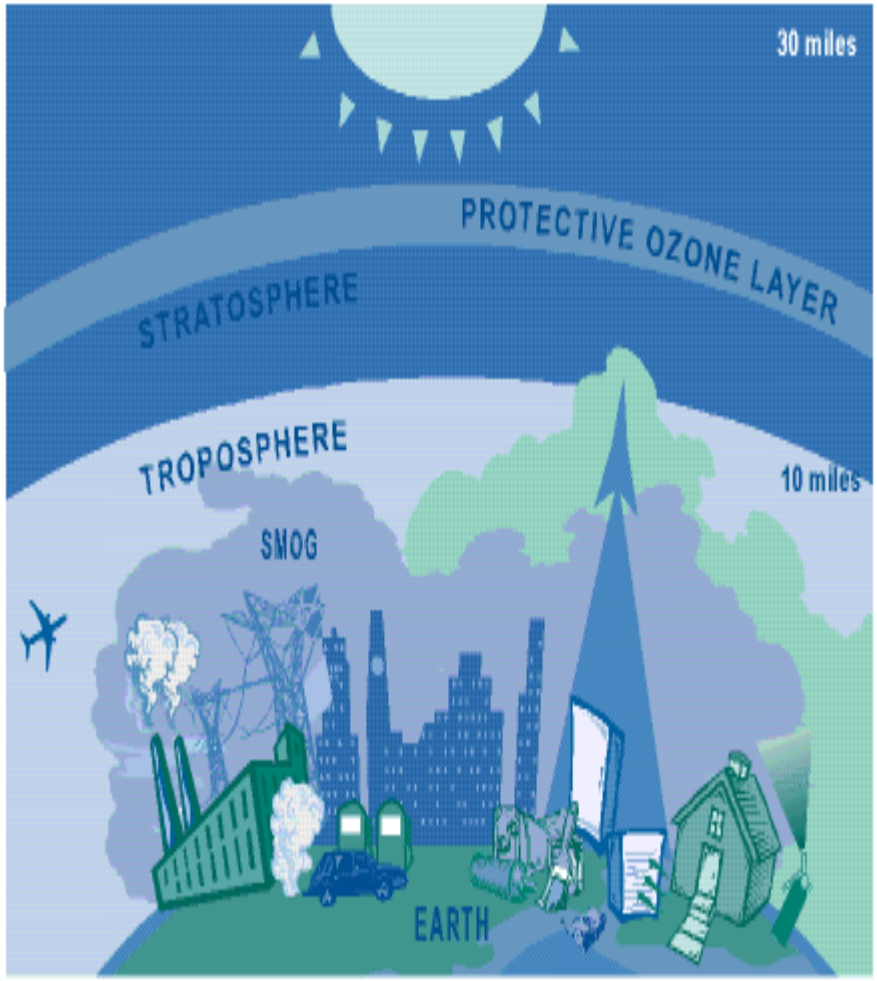
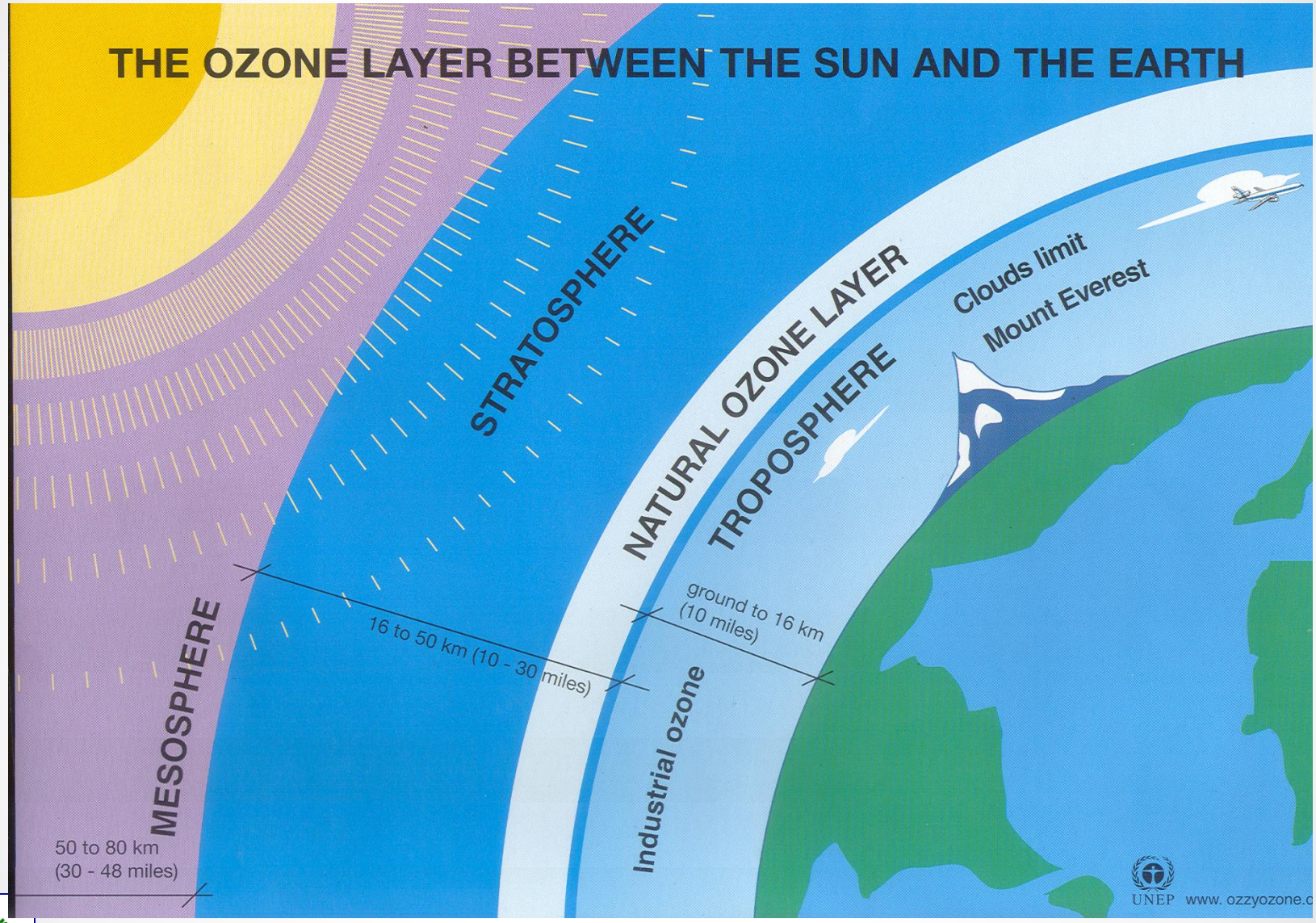
REVAC

KUALA LUMPUR CONVENTION CENTRE

OZONE & OZONE LAYER

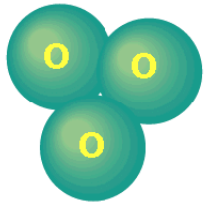


- Ozone occurs naturally in the Earth's upper atmosphere – 10 to 30 miles above the Earth's surface where it forms a protective layer that shields us from the sun's harmful ultraviolet rays.
- This beneficial ozone is gradually being destroyed by manmade chemicals
- For people, overexposure to UV rays can lead to skin cancer, cataracts and weakened immune systems.
- Increased UV can also lead to reduced crop yield and disruptions in the marine food chain.

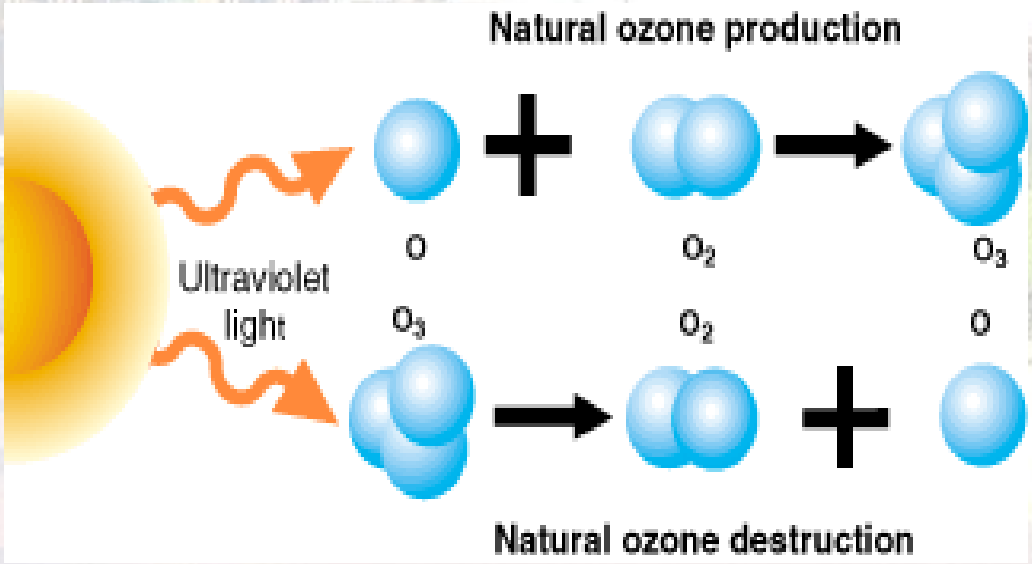

THE OZONE LAYER BETWEEN THE SUN AND THE EARTH
MESOSPHERE
STRATOSPHERE
TROPOSPHERE
NATURAL OZONE LAYER
Industrial ozone
Clouds limit
Mount Everest
50 to 80 km
(30 - 48 miles)
16 to 50 km (10 - 30 miles)
ground to 16 km
(10 miles)
UNEP
www. ozzyozone.c

OZONE & OZONE LAYER

- Ozone is a molecule that contains three atoms of oxygen and thus has the formula O_3.

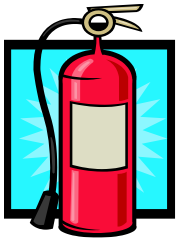


- Formed by the action of solar ultraviolet light on oxygen.
- Ozone is vital to human and animal survival because it is responsible for the absorption of the sun's ultraviolet light.

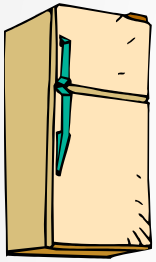


Source of Ozone Depleting Substance (ODS)

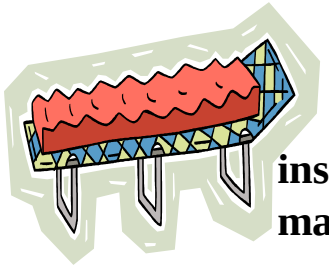
BUILDING & MOBILE AIR CONDITIONING – refrigerant used in domestic & industry air conditioning, chillers and vehicle air-conditioning



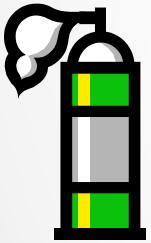
FIRE EXTINGUISHER - Halon used in mobile and fixed fire extinguisher



DOMESTIC REFRIGERATOR – refrigerator, cold room, freezer, ice machine and mini-bar

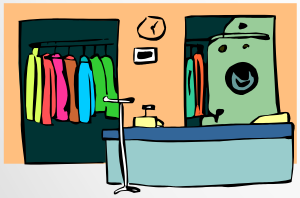


FOAM – Food container, pipe insulator, cushion, mattress, wire insulation



AEROSOL – Cleaning agent, paint spray, adhesive sticker and pesticide

FUMIGATION - Methyl Bromide used in crop fumigation, quarantine in wood products and golf course maintainance



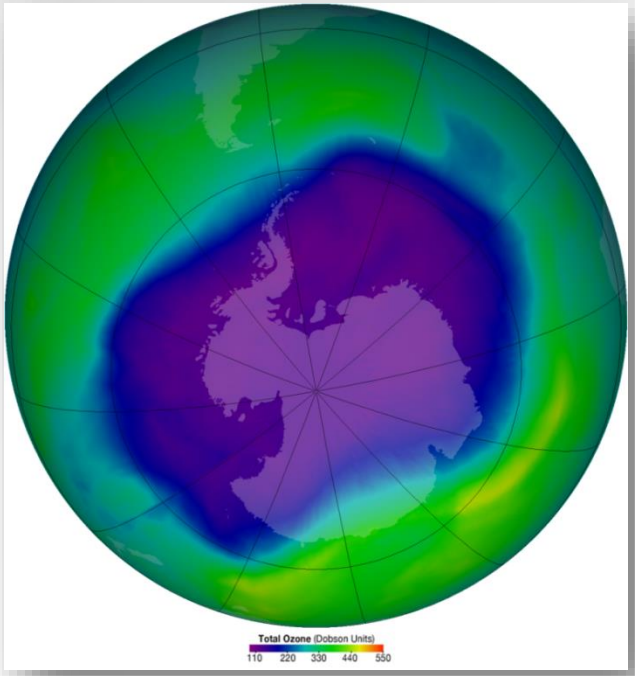
DRY CLEANING AND GREASE REMOVER – solvent used in dry cleaning and industry cleaning agent

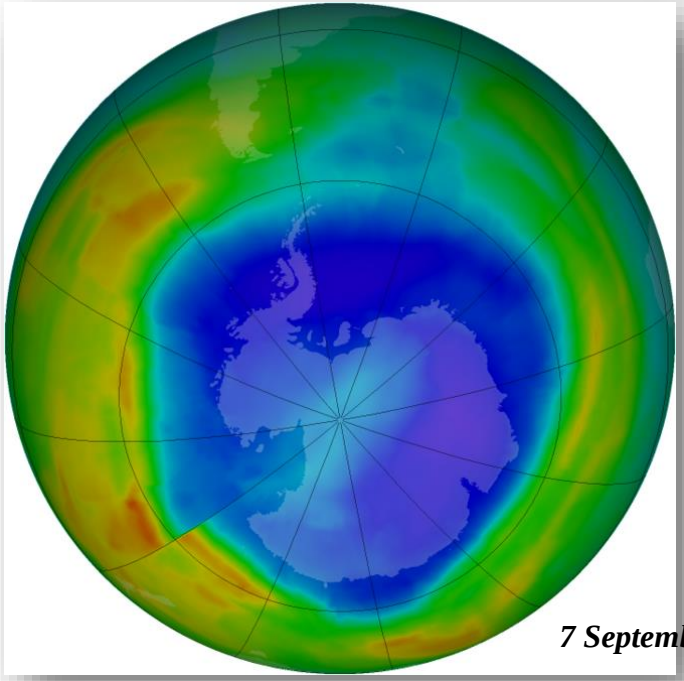
METERED DOSE INHALER - CFC used in inhaler

CHLOROFLUOROCARBONS (CFCs)

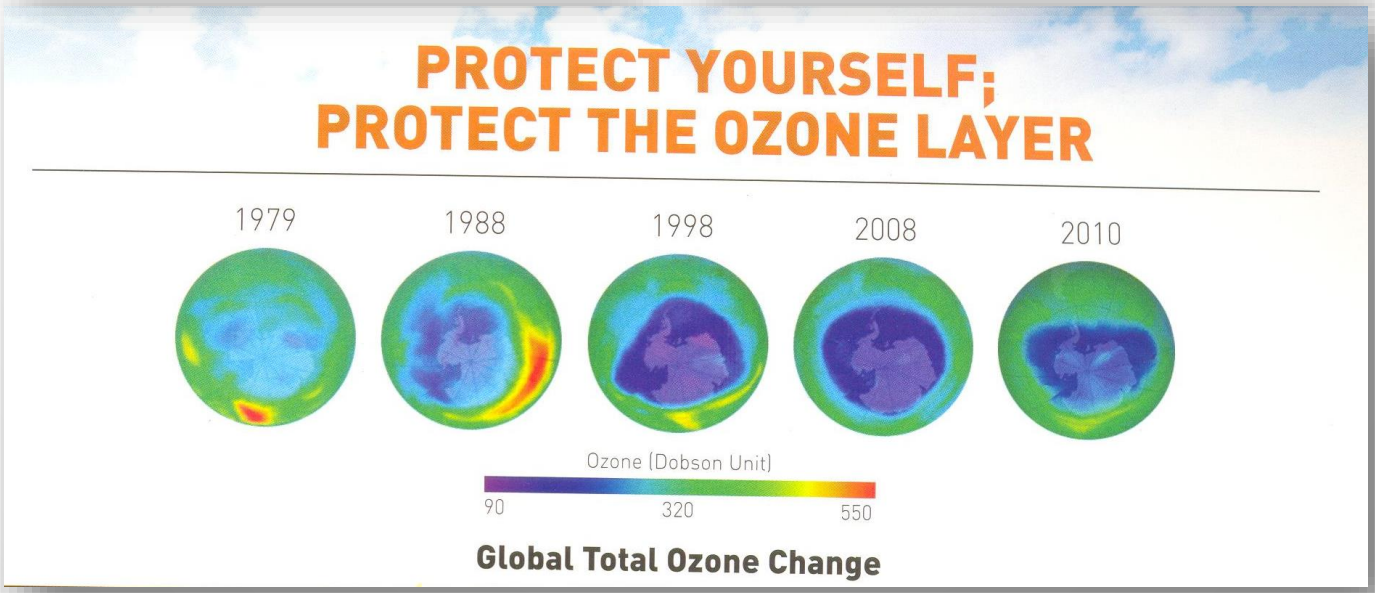
- CFCs was the major cause of ozone depletion in the upper atmosphere.
- **Hydrochlorofluorocarbons** (HCFCs) are similar to CFCs but less destructive to ozone. They are used as transition replacements for CFCs, but are to be phased out by the year 2030. It will be replaced by **Hydrofluorocarbons** (HFCs) or **Natural Refrigerant** (hydrocarbons, nitrogen, carbon dioxide, ammonia) which do not have any potential for the destruction of ozone/ozone friendly.

CFCs → HCFCs → HFCs/HFO/ Natural gases





7 September 2014- NASA



Weaken immunization system

Cataract

Ageing/ skin cancer

Montreal Protocol

- A Multilateral Environment Agreement (MEA) which was established on 16 September 1987 with 24 countries became its signatories. Now, there are 197 countries that ratify Montreal Protocol with the objective **to control the production and consumption of ODSs :**

- **CFCs, HALON, CARBON TETRACHLORIDE, 111-TCA, METHYL BROMIDE, HCFCs, HBrFC, Bromochloromethane.**

- Malaysia had successfully phased-out CFC, Halon and CTC in January 2010

- Malaysia is now committed to **phase-out HCFC by 2030**

RATIFICATION STATUS	
VIENNA CONVENTION	29 AUGUST 1989
MONTREAL PROTOCOL	29 AUGUST 1989
1990 LONDON AMENDMENT - additional CFCs (CFC 13, 111, 112, 211, 212, 213, 214, 215, 216, 217) and the two solvents (carbon tetrachloride and methyl chloroform)	16 JUNE 1993
1992 COPENHAGEN AMENDMENT - added methyl bromide, HBFCs	05 AUGUST 1993
1992 MONTREAL AMENDMENT - finalised the schedules for phasing out methyl bromide	26 OCTOBER 2001
1999 BEIJING AMENDMENT - included bromochloromethane for immediate phase-out; introduced production controls on HCFCs as well as controls on trade with non-parties.	26 OCTOBER 2001
2016 KIGALI AMENDMENT Phase down of HFCs	**PENDING**

MULTILATERAL FUND (MLF)

- MALAYSIA IS ELIGBILLE FOR GRANT (A5 Party)
- PHASE I – NATIONAL ODS COUNTRY PROGRAMME,1992-2001 (USD 36.5 MIL)
- PHASE II – NCFCP, 2002-2010 (USD 11.5 MIL)
- HPMP- STAGE 1 2012 -2016 (USD 9.587 MIL)
- HPMP- STAGE 2 (2017 – 2011) (USD 6,138 MIL)

HCFC Consumption Baseline

(average of 2009 and 2010 consumption levels)

SUBSTANCE	2009 (ODP tonnes)	2010 (ODP tonnes)	BASELINE (ODP tonnes)
Annex-C Group-I substances (HCFCs)	494.2	537.5	515.8

Targets for compliance

Target of Reduction	Maximum Consumption Level (ODP tonnes)
From 01 January 2013 (Freeze)	515.8
From 01 January 2015 (10%)	464.2
From 01 January 2020 (35%)	335.3
From 01 January 2025 (65%)	167.6
From 01 January 2030 (97.5 %)	12.89 (Strictly for servicing)

STRATEGY TO PHASE OUT HCFC

YEAR	PLANNED REGULATORY ACTION
2012	Establishment of Approved Permit (AP) import quota system based on HCFC Baseline (515.8 ODPT - average consumption for 2009/2010)
	Amend existing regulations for controlling use, imports, manufacturing, assembly and installation of products containing HCFCs
2013	Licensing re-export of HCFCs
	Enforcement of Approved Permit (AP) quota system
	Prohibition of establishment and expansion of new HCFC-based manufacturing capacities
	Establish incentive system for promoting use of alternatives to HCFCs
	Certification of technicians for handling HCFCs
2015	Prohibition of manufacturing, assembly and import of HCFC-based air conditioners (2.5 HP and lower) for use in Malaysia
	Prohibit imports of polyols pre-blended with HCFCs
	Include HCFCs in the list of restricted gases

STRATEGY TO PHASE OUT HCFC

YEAR	PLANNED REGULATORY ACTION
2020	Prohibit the manufacture, assembly and import of all products and equipment using HCFC (except for essential use)
	Prohibit HCFC 141b as blowing agent
	Prohibit the use of HCFC in the manufacturing and installation of new fire extinguishing systems
2025	No more installation of new products and equipment using HCFCs
2030	AP limited to 2.5% of baseline for servicing use only
2040	Total ban on the import and use of HCFCs

HPMP STAGE I (2012-2016)
HPMP STAGE II (2017- 2022)

- Funding approved at the :

Stage I - 65th Meeting of Executive Committee of Multilateral Fund for the Implementation of Montreal Protocol, 13-17 November 2011,

Stage II - 77th Meeting on the 2nd December 2016

- Focus on understanding the profiles of the various HCFC consuming sector and sub-sectors

- The initiation of measure to discourage the use and consumption of HCFC and the conversion of manufacturing facilities in major HCFC consuming sectors to the extent necessary to non-HCFC, zero ODP and low-GWP technologies

HCFC PHASE-OUT STRATEGY

Stage I of HPMP (2012-2016) is intended **to address 103.16 ODP tones** of consumption will focus on:

- Converting manufacturing facilities in HCFC consuming sector where non-HFCF, zero ODP and low-global warming potential (GWP) technologies can be applied (foam sector plan)
- Assistance in the servicing sector to control the growth of HCFC consumption; and
- Technical assistance, training and awareness actions to support the sustainability of the HCFC reduction proposed; and
- Targeted regulations to ensure sustainability of the HCFC reductions proposed.

HPMP STAGE II

Stage II of the HPMP proposes to phase out 322.71 mt (17.75 ODP tonnes) of HCFC-22 used in the refrigeration servicing through the following activities:

- Regulatory actions;
- Conversion of the remaining PU foam manufacturing enterprises;
- Technical Assistance (TA) to Refrigeration and Air-Conditioning (RAC) manufacturing enterprises to completely phase-out the use of HCFC-22;
- A workshop to provide TA to enterprises in the solvent sector;
- Activities in the servicing sectors; and
- Administration and monitoring.

HPMP STAGE II

PROPOSED ACTIVITIES IN STAGE II OF THE HPMP

Regulatory actions

- Ban on the use, import and export of HCFC-22 in RAC manufacturing by 1 January 2020;

- Ban on the import and export of HCFC-141b contained in pre-blended polyols and the phase-out of all uses of HCFC-141b, both in bulk and contained in imported pre-blended polyols except for the solvent sector by 1 January 2022.

RAC Activities

- Demo projects
  – Installation of R32 units at UniKL & EiMAS

- Capacity Building to 20 Master Trainers from ATC on Hands on Training in Daikin Training Centre Japan

- Procurement of R32 to be given 44 ATCs
  Installation and training to the trainers

Jabatan Alam Sekitar

KIGALI AMENDMENT

- Agreed at the 28th Meeting of the Parties to the Montreal Protocol, 14 October 2016, Kigali, Rwanda.
- The Amendment adds powerful greenhouse gases hydrofluorocarbons (HFCs) to the list of substances controlled under the Protocol to be phased.
- The Kigali Amendment will enter into force on 1 January 2019, provided that it is ratified by at least 20 Parties to the Montreal Protocol.

HFC PHASE DOWN SCHEDULE

	Non-A5 (developed countries)	A5 (developing countries) Group 1	A5 (developing countries) Group 2
Baseline HFC component	2011-2013 (average consumption)	2020-2022 (average consumption)	2024-2026 (average consumption)
Baseline HCFC component	15% of baseline	65% of baseline	65% of baseline
Freeze	-	2024	2028
1st step	2019 – 10%	2029 – 10%	2032 – 10%
2nd step	2024 – 40%	2035 – 30%	2037 – 20%
3rd step	2029 – 70%	2040 – 50%	2042 – 30%
4th step	2034 – 80%	-	-
Plateau	2036 – 85%	2045 – 80%	2047 – 85%
Notes	Belarus, Russian Federation, Kazakhstan, Tajikistan, Uzbekistan, 25% HCFC component and 1st two steps are later: 5% in 2020, 35% in 2025	Article 5 countries not part of Group 2	GCC (Saudi Arabia, Kuwait, United Arab Emirates, Qatar, Bahrain, Oman), India, Iran, Iraq, Pakistan

Thank you for your kind attention

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