

Technology and Economic Assessment Panel

Progress of work and emerging issues
10th Ozone Research Managers Meeting
Marta Pizano, TEAP co-chair



TEAP

10th ORM Geneva,
28-30 March 2017

TEAP 2017

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TEAP and its TOCs bring together the experience and expertise of nearly 150 experts from over 30 countries



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SECTOR ACHIEVEMENTS AND LOOKING AHEAD



T E A P

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Foams

- Insulating foams are important in mitigating climate change
- 25 Million tonnes of foam/year globally
- Increasing by 3%/year in A5 (developing) countries
- By 2016, one third of HCFCs had converted directly to low GWP blowing agents in A5 Parties:
 - Hydrocarbons
 - HFO/HCFO
 - Methyl formate/ Methylal
 - Blends

Fire Protection Sector



- In October 2016, the International Civil Aviation Organisation (ICAO) approved the requirement to replace halon in cargo bays in all new aircraft designs by 2024
- From 2024, there is no longer a need to use halon in any new designs in any fire protection application
- This milestone was achieved through more than a decade of engagement between the Montreal Protocol and ICAO

Fire Protection Sector

- Halons will be needed for existing equipment and current aviation designs for the foreseeable future (excl. those with EU retrofit requirements)
- Many new designs continue to need high GWP HFCs
- Two new low-GWP agents have been introduced that may be suitable in some applications

Medical and Aerosols

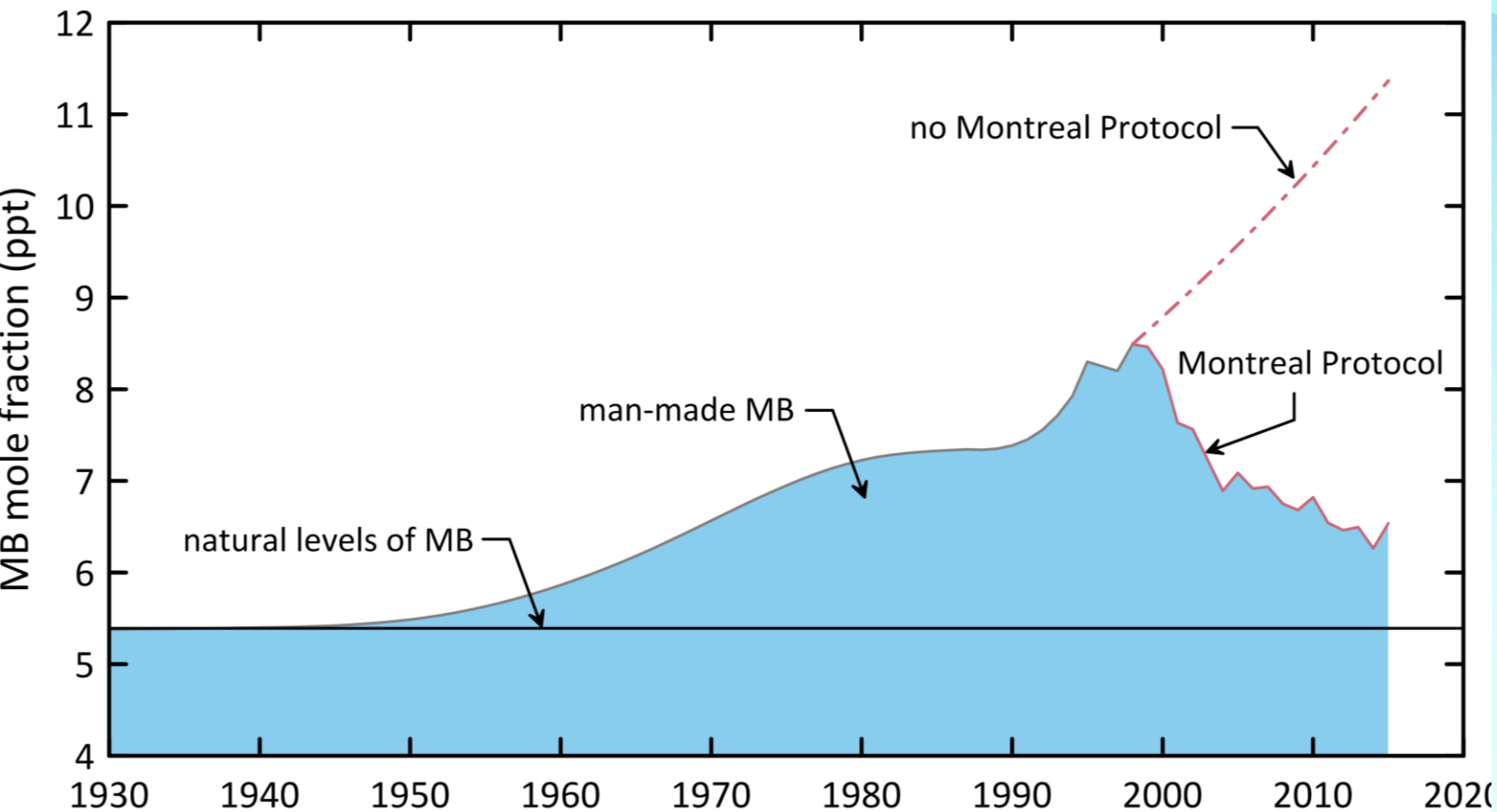


- Phase-out of CFCs used in metered-dose inhalers was achieved in 2016, following 30 years of concerted global action
- Affordable CFC-free alternatives to MDIs have been developed over the last 20 years, and are available worldwide.
- The global use of HCFCs in aerosols and sterilants is relatively very small, with alternatives available.

Chemical uses

- In 2016, the Russian Federation phased out CFC solvents in aerospace applications, completing the global phase-out.
- ODS process agents have decreased, with some uses phased out.
- Global ODS use for feedstock is still increasing.
- Laboratory and analytical uses of ODS continue under the global exemption, and one essential use exemption.
- A recent international study provided new insights on CTC emissions. Further investigations are required to better understand the sources of emissions.

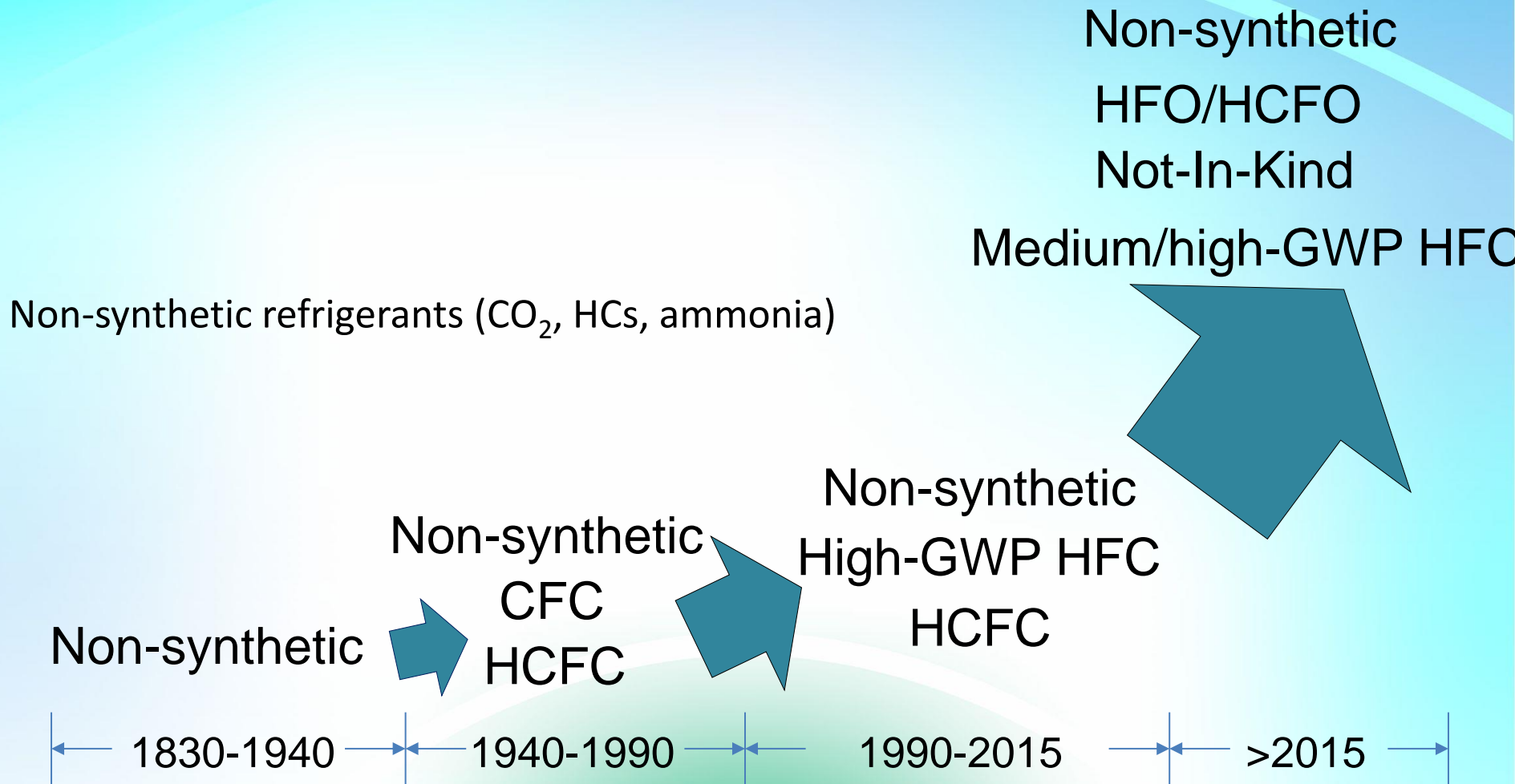
Impact of Montreal Protocol controls on bromine concentrations in the troposphere since the late 1990s



11,000t
QPS +
possibly
under-
reported or
unaccounted
controlled
amounts

Source: Porter, I., Derek, N and Fraser, P. Latrobe University and CSIRO, Australia

Refrigerant Evolution



Refrigeration and A/C

- 100% CFC phased out
- HCFC phase-out almost complete in non-Article 5
- HCFC consumption in Article 5 is decreasing
- Low-GWP solutions available for many applications
- Alternatives are being tested under high ambient temperature conditions
- Rapidly evolving technology environment
 - More comprehensive approach needed for e.g., energy efficiency, flammability, toxicity
 - Industries actively looking for best solutions

2018 Assessment Reports

Decision XXVII/6 of the Montreal Protocol requests TEAP Assessment Reports to consider,

- a) Impact of the phase-out of ODS on sustainable development;
- b) Technical progress in the production and consumption sectors in the transition to alternatives and practices that eliminate or minimize emissions of ODS in consideration of factors stipulated in the Vienna Convention;
- c) Technically and economically feasible choices for reduction and elimination of ODS in all relevant sectors;
- d) Status of banks containing ODS and their alternatives, including those maintained for essential and critical uses, and options for handling them;
- e) Accounting for production and consumption for various applications and relevant sources of ODS and their alternatives;