

Benefits for the Protection of Ozone Layer from Brazil- Argentinean Proposal and this consequences to Climate

Secretaria de Mudanças Climáticas e Qualidade Ambiental / SEMUC
Ministério do Meio Ambiente / MMA
República Federativa do Brasil

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Brief Brazilian History related with ODS

- 1990 – Ratification of the Montreal Protocol & Vienna Convention (Presidential Decree N°99.280/00)
- 1994 – PBCO (Brazilian Program for the Elimination of Production and Consumption of Ozone Layer Depleting Substances)
- 1995 – CONAMA Resolution 13
- 2000 – CONAMA Resolution 267
- 2002 – NPOP (National Phase-Out Plan)

CONAMA Res. 13/95

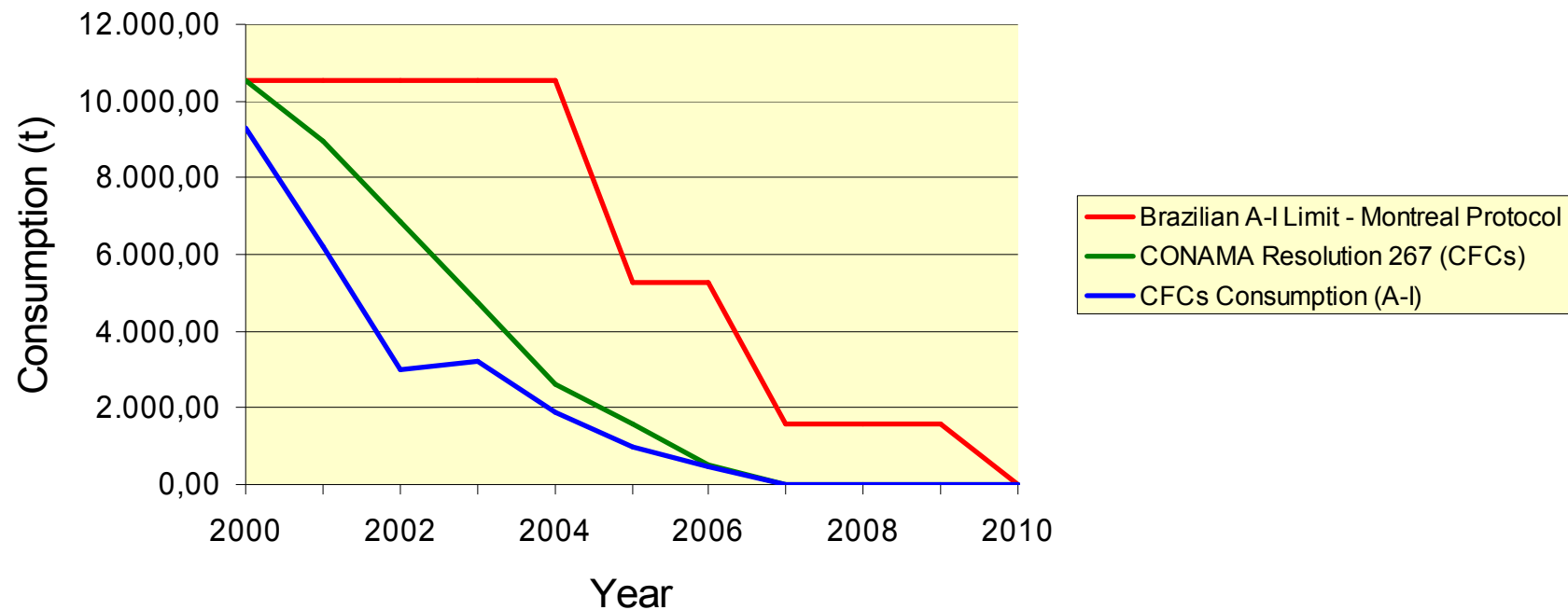
- Registration of companies that import, export, produce or trade ODS in the Federal Technical Registration of IBAMA, informing annually their consumption.
- Prohibit the utilization in new and imported equipment (Annex A & B substances):
 - Since 1995:
 - Fire Combat
 - Central Air Conditioning
 - Cold-Storage room >100HP
 - Aerosol
 - Since 1997:
 - Vehicles Air Conditioning
 - Solvent
 - Since 2001:
 - Domestic Freezers and Refrigerators
 - All others refrigerators
 - Rigid and Semi-rigid Foam
 - Sterilizant

CONAMA Res. 267/00

- Restricted importation of CFC-11, CFC-12, Halon 1211 and Halon 1301:
 - CFC-12 (average importation/production 1995-1997):
 - 2001: 15% reduction
 - 2002: 35%
 - 2003: 55%
 - 2004: 75%
 - 2005: 85%
 - 2006: 95%
 - 2007: 100% reduction
 - “Essencial uses”:
 - Medical use
 - Agent in chemical processes and reagent in scientific researches
 - Fire Extinguisher in marine and air transportation; army uses not-specified; cultural and artistic collections; generation and transformation of electric and nuclear energy; and marine platforms of petroleum – Halon 1211 and Halon 1301.

Limits of the Montreal Protocol & Brazilian Consumption of CFCs

Limits & Consumption of CFCs in Brazil

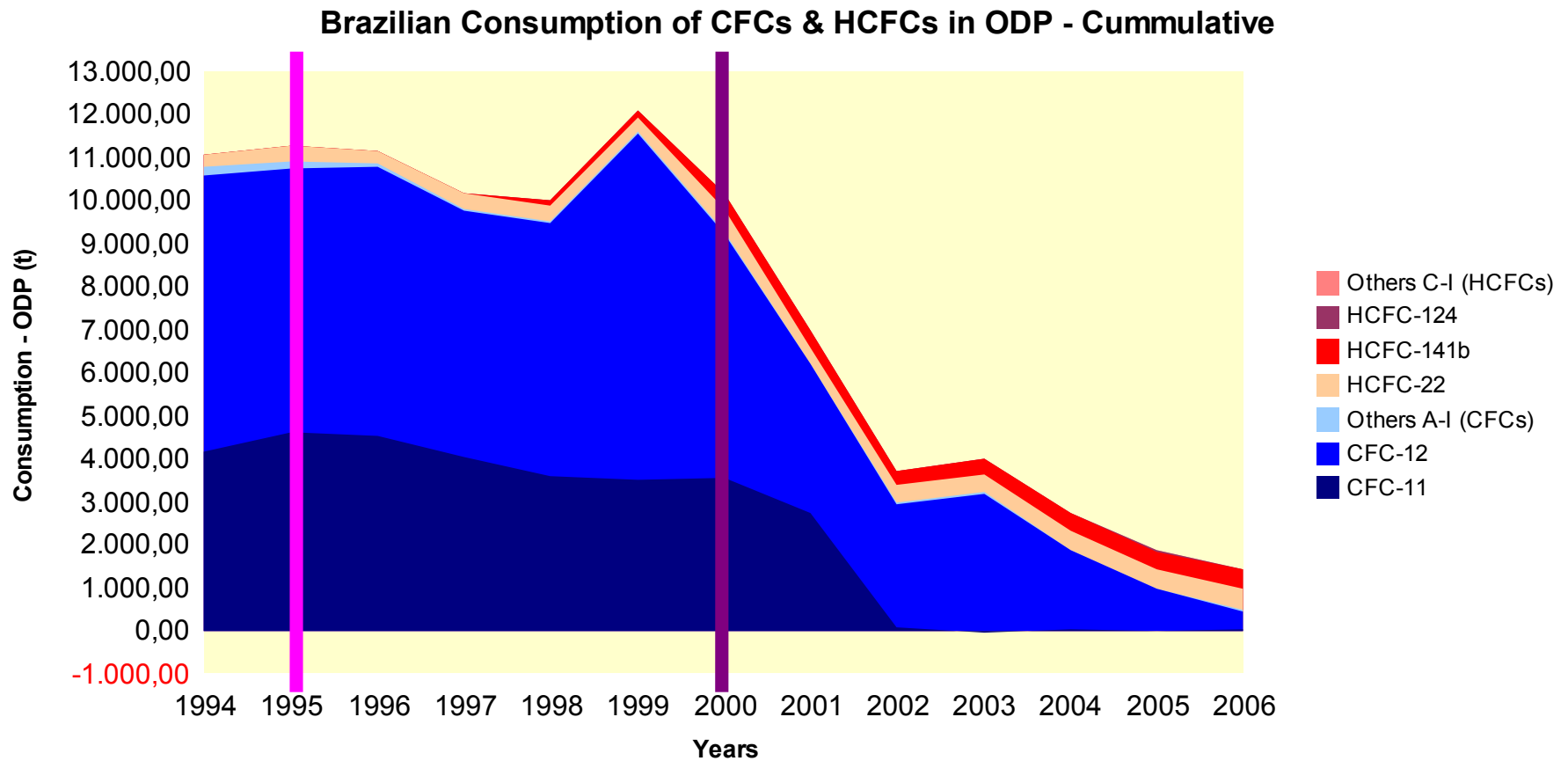


Source: IBAMA (Consumption Values)

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Brazilian Consumption in ODP



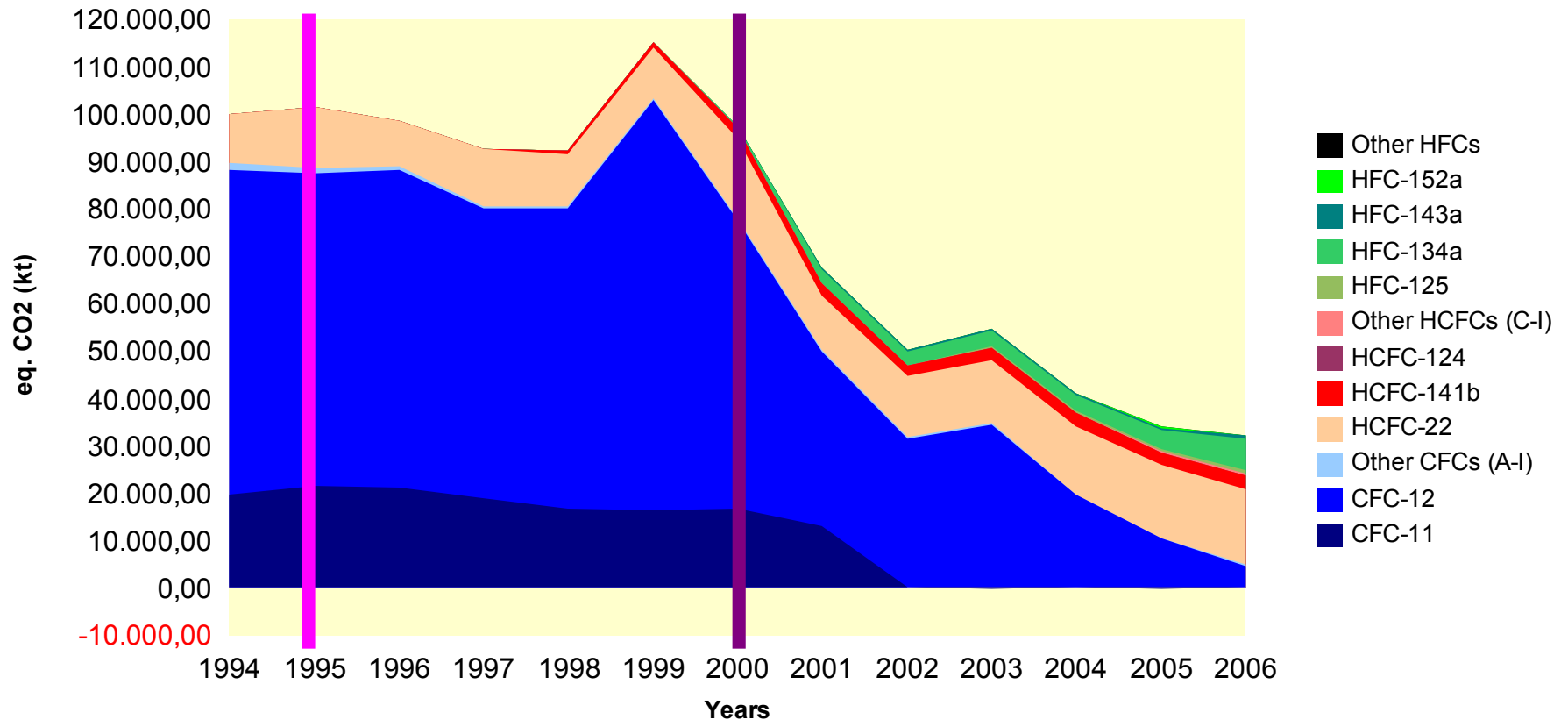
Source: IBAMA (Consumption Values)

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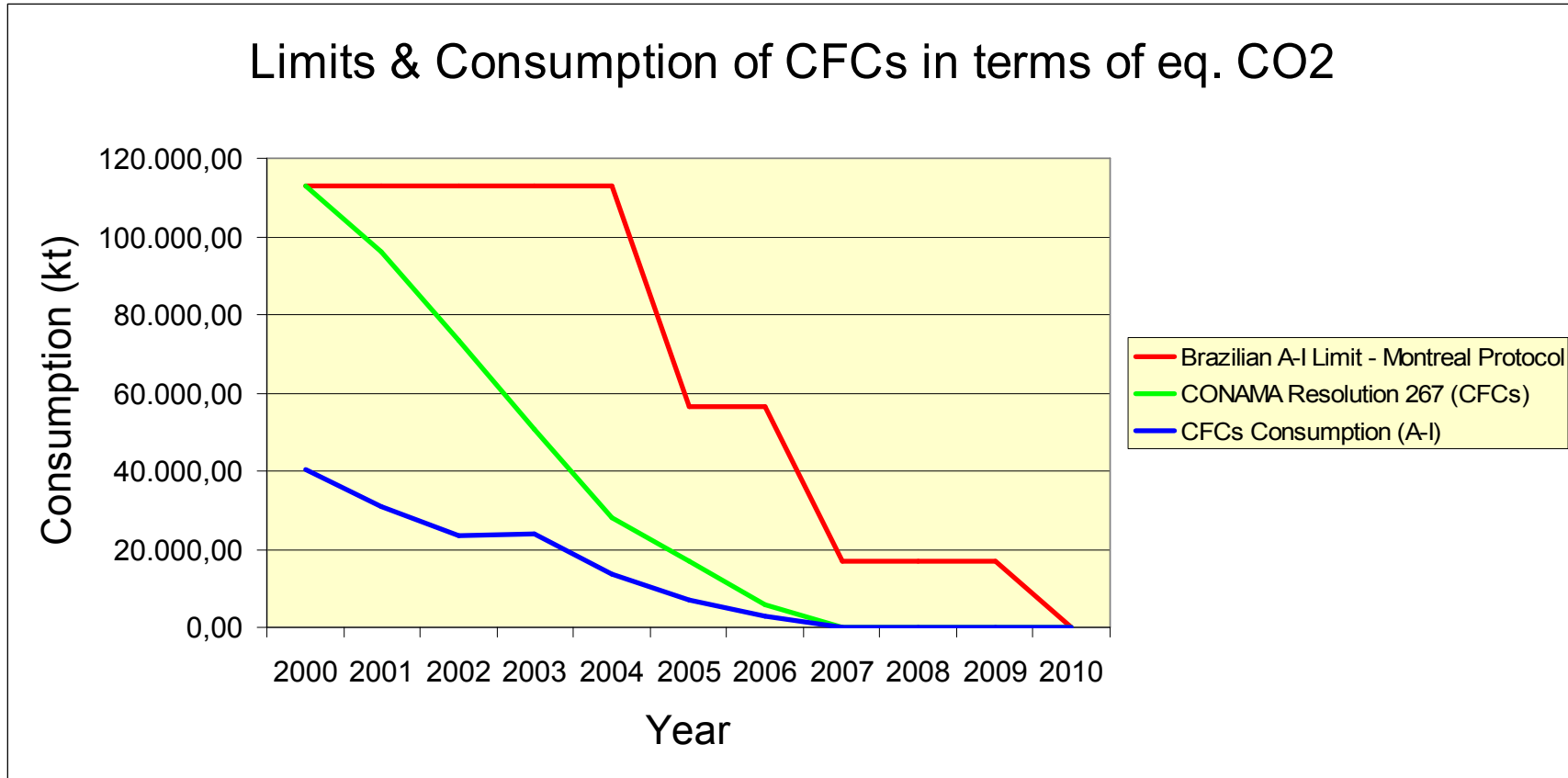
Brazilian Consumption in terms of eq. CO₂

Brazilian Consumption of CFCs, HCFCs & HFCs in terms of eq. CO₂



Source: IBAMA (Consumption Values)

Benefits for the Climate from the Brazilian Voluntary Reductions



GWP used in the Protocol Limit and Resolution 267 are from the CFC-12
Source: IBAMA (Consumption Values)

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Estimating the Benefits to the Climate from CONAMA Res. 267

- Premises:

- CFC-11 was substituted by HCFC-141b (worth case)
- CFC-12 was substituted by 47% of HCFC-22 and 53% HFC-134a
- Participation of HCFC-22 and HFC-134a as substitutes was based in their consumption from 2000 to 2006.
- Baseline Year: 1999

Brazilian Voluntary Reductions

- **Results:**

- Consumption in ODP: **36.5 thousand tonnes**
- Consumption in terms of eq. CO₂: **360 million tonnes**

- **Equivalent to:**

- 22,75 % of the Brazilian Emission in 1994 (GWP CH₄=21)
- 8% of Kyoto
- **US\$ 3.6 billion**, if it was possible to negotiate in terms of CDM (US\$ 10/t eq. CO₂)

NEXT CHALLENGE: HCFCs

Brazilian-Argentinean Proposal

- Countries related with the 1st paragraph of the 5th Article
- Consumption and Production
- Base Year: 2010 for all substances of the Annex C, Group I
- Freezing: 2012 for all substances of the Annex C, Group I
- Reductions:

	2009	2012	2015	2020	2025	2030	2035	2040
HCFC-22		Freezing	20%	40%	65%	100%	100%	100%
HCFC-141b & 142b		Freezing	20%	40%	65%	100%	100%	100%
HCFC-123		Freezing	10%	20%	30%	40%	95%	100%
HCFC-124		Freezing	10%	20%	30%	40%	95%	100%
HCFC-21		Freezing	0%	20%	30%	40%	95%	100%
HCFC-225		Freezing	0%	20%	30%	40%	95%	100%
Others C-I	100%	100%	100%	100%	100%	100%	100%	100%

Comparison between Brazilian-Argentinean Proposal & Montreal Protocol

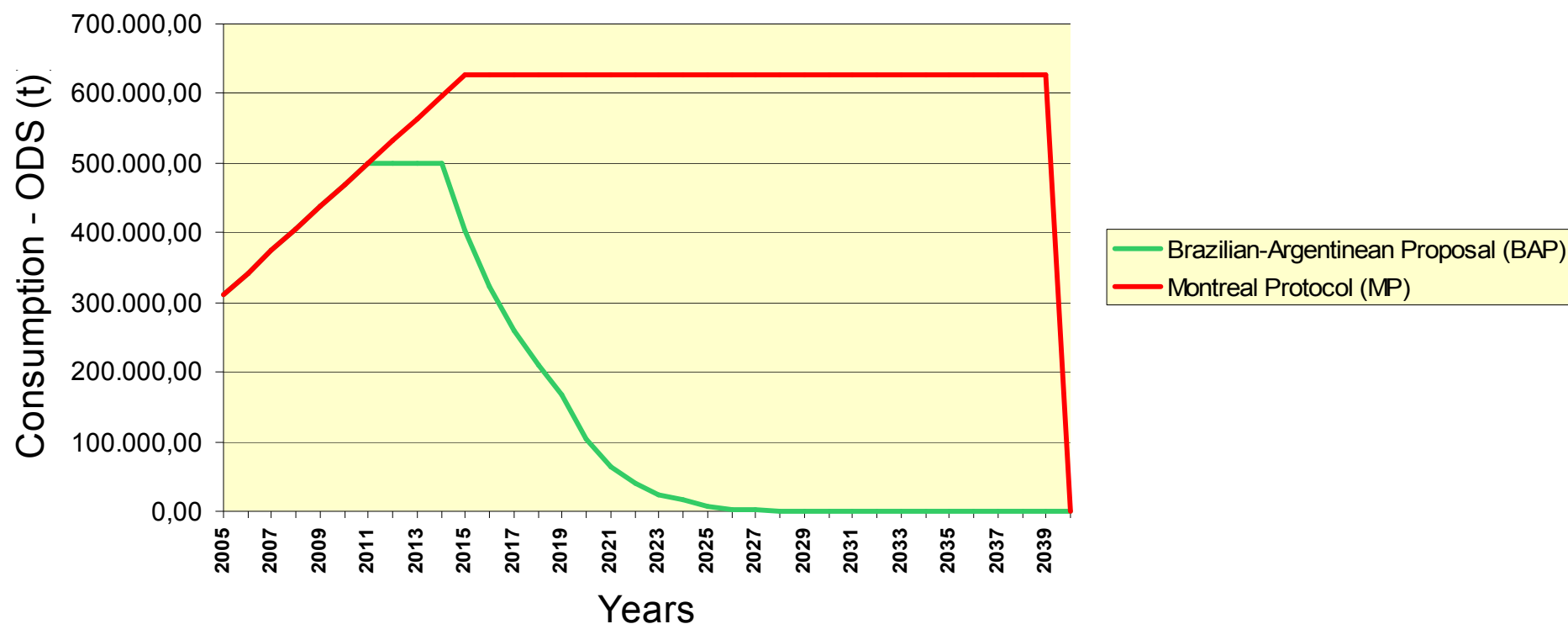
Premises:

- World Consumption of HCFCs in **2005**: 19,818.00 t ODP*
- World Consumption of HCFCs in **2015**: 40,000.00 t ODP*
- 68% HCFC-22
- 31% HCFC-141b & HCFC-142b
- 01% Other HCFCs
- Considering the ODP & GWP of the **HCFC-141b** in the agroupment (HCFC-141b & 142b)
- Considering the ODP & GWP of the **HCFC-124** in the agroupment (Other HCFCs)
- Considering insignificant Other HCFCs besides HCFC-21, 22, 123, 124, 141b, 142b, 225.

*UNEP/OzL.Pro/DKFC/1/2

BRAZILIAN-ARGENTINEAN PROPOSAL-BAP vs. MONTREAL PROTOCOL-MP

Consumption of HCFCs



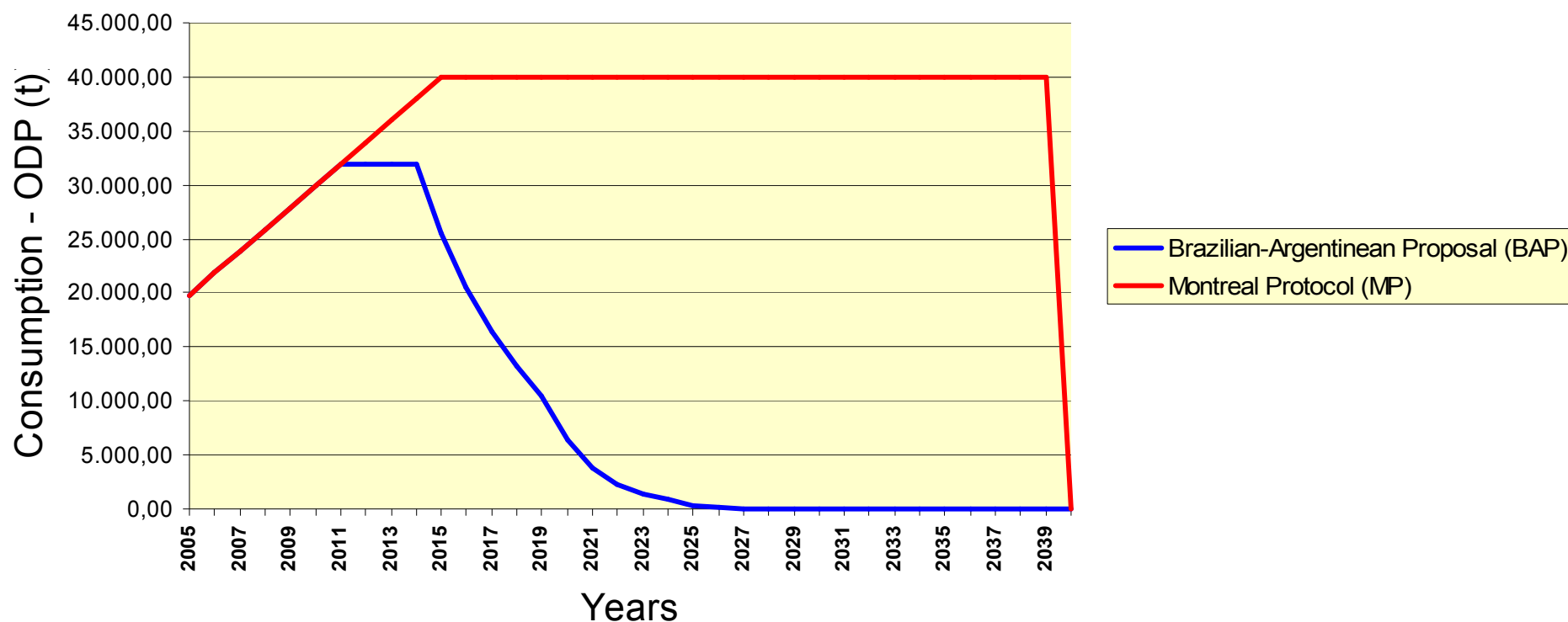
MP-BAP = 14,250,947 t of HCFC

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BRAZILIAN-ARGENTINEAN PROPOSAL-MAP vs. MONTREAL PROTOCOL-MP

Consumption of HCFCs in ODP



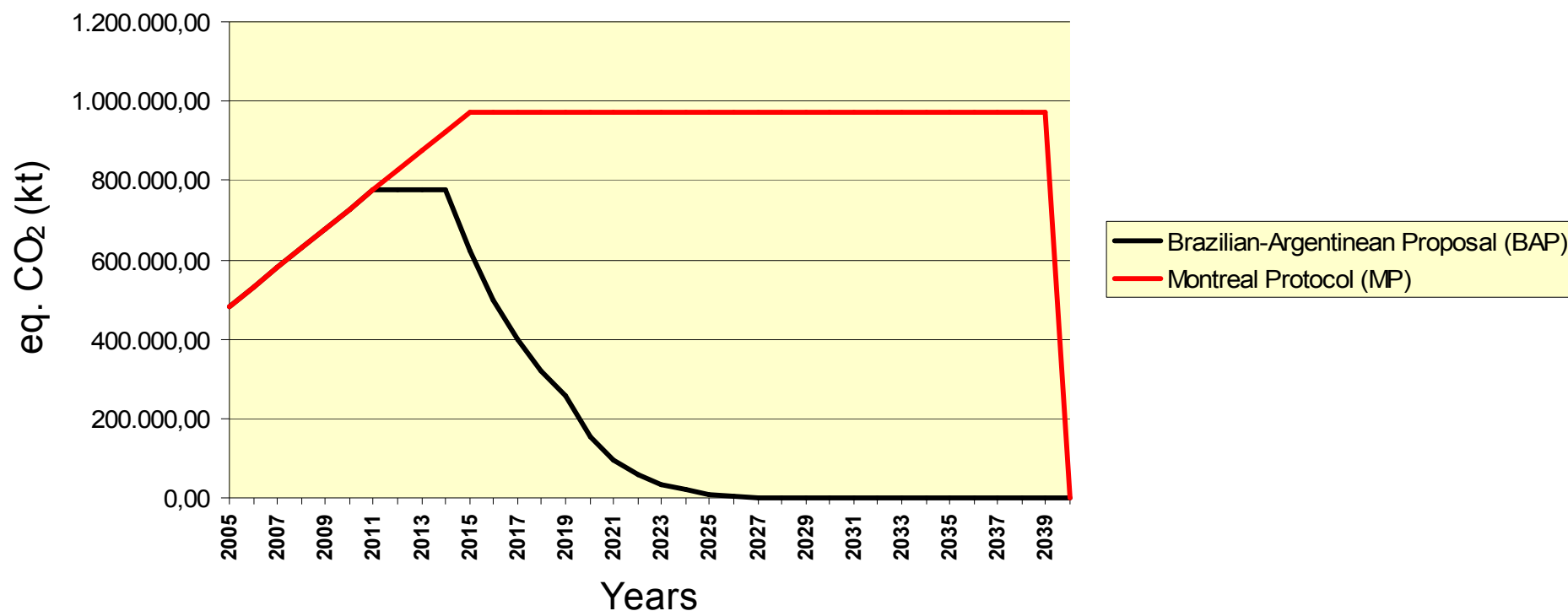
MP-BAP = 910,529 t of ODP

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BRAZILIAN-ARGENTINEAN PROPOSAL vs. MONTREAL PROTOCOL

Consumption of HCFCs in terms of eq. CO₂



MP-BAP = 22,135,991 kt of eq. CO₂

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Benefits to the Climate

- Converting 14 million tonnes of HCFC results in to 22 billion tonnes of eq. CO₂;
- If the HCFC replacement occurs with the average reduction of 25% of the GWP of blends, the equivalent reduction will be 5.5 billion tonnes of eq. CO₂.