



Mitigation Potential of F-Gas Banks Management and Options for Market-based Approaches

COP 26 Side Event | 03 November 2021 | 09:00 – 10:30 (GMT+1/UK time)

giz Deutsche Gesellschaft
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Zusammenarbeit (GIZ) GmbH

On behalf of:

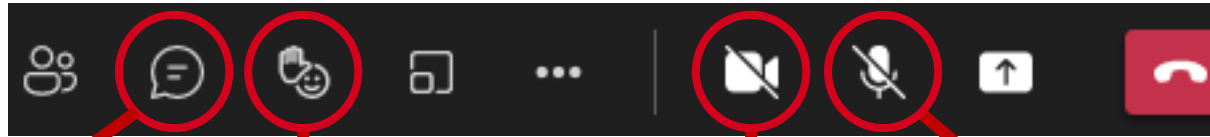


Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety

of the Federal Republic of Germany



Ground Rules for Online Sessions



Use the chat for your questions.

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If the connection allows it, please turn on your video when you speak

For best audio quality, please stay muted.

- Please **use headphones** or **earphones** in order to prevent echoing-effects



Agenda

Time (UK time)	Topic	Presenter
09:00 – 09:05	Introduction to the Event	Julia Schabel (GIZ Proklima/Facilitator)
09:05 – 09:15	Official Welcome	Rachel Pekker (German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety)
09:15 – 09:30	Global F-Gas Banks – Emission forecasts and challenges in taking mitigation action	Irene Papst (HEAT GmbH)
09:30 – 09:45	Options for market-based approaches	Daniela Lassmann (Perspectives Climate Group)
09:55 – 10:15	Q&A	All
10:15 – 10:30	Summary & Outlook	Philipp Munzinger (GIZ Proklima)

Global F-Gas Banks

Emission forecasts and challenges in taking mitigation action

Irene Papst

Consultant – HEAT GmbH

Ozone depleting substances and F-gases

Organic compounds, containing one or more halogens like Fluorine, Chlorine, Bromine, Iodine

Summarized as **halogenated hydrocarbons**

	CFC	HCFC		HFC	
Ozone Depleting Potential	High	Lower		None	
Global Warming Potential	Very high	High		High	
Regulated consumption under the Montreal Protocol	Phase-out completed 2010	Phase-out		Phase-down	
		Industrial Countries: Completed in 2020	Developing Countries: Completed in 2030	Industrial Countries: Started in 2019	Developing Countries: Starts in 2024

Main uses

Refrigerants

- Refrigerators
- Room AC
- Car AC
- Supermarkets
- Cold chain
- ...

Foam blowing agents

- Refrigerators
- Cold Rooms
- Buildings
- ...

Quiz time!

What is the average Global Warming Potentials of commonly used HFCs?

A

200

B

2

C

2000

D

20 000

Quiz time!

What is the average Global Warming Potentials of commonly used HFCs?

A

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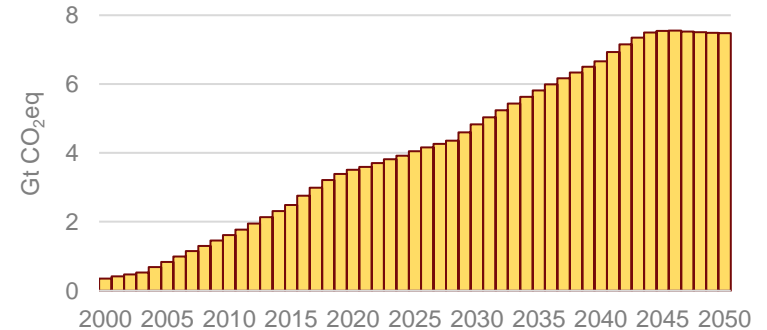
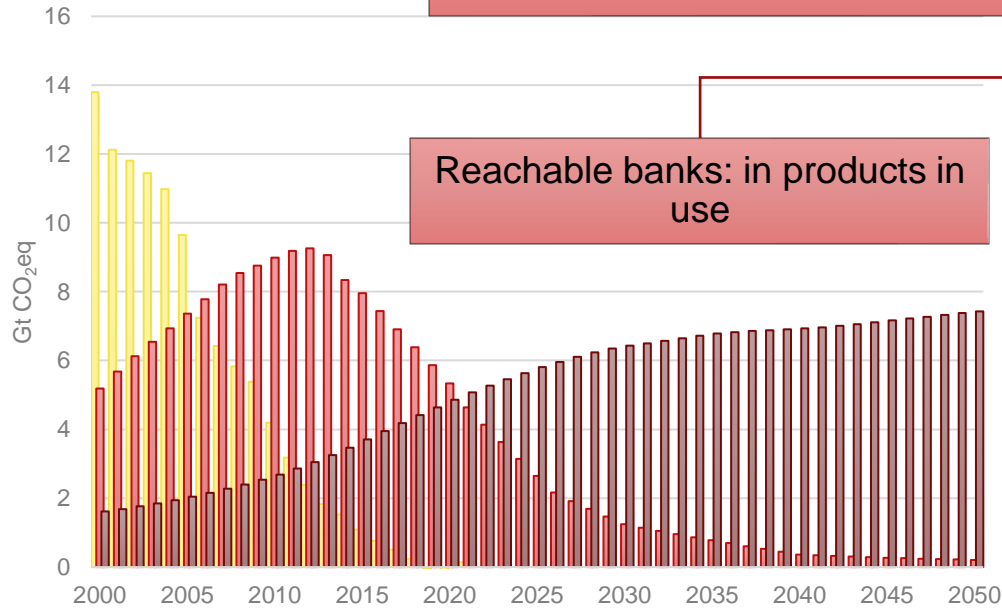
20 000

Banks of halogenated hydrocarbons

Banks are the “total amount of substances contained in existing equipment, chemical stockpiles, foams and other products not yet released to the atmosphere” (IPCC/TEAP 2005).

Reachable banks: in products in use

Non-Reachable banks: in products that are landfilled or dumped



Legend: CFC (yellow), HCFC (red), HFC (grey)

Source: ODS banks – a country level estimate, GIZ Proklima 2018

Legend: CFC foam waste bank (yellow)

Source: Banks and Emissions of CFC-11 and CFC-12, GIZ Proklima 2019

Regulation gap

The end-of-life treatment of **ODS and HFCs** is **not regulated** on international level and often leads to uncontrolled emissions.

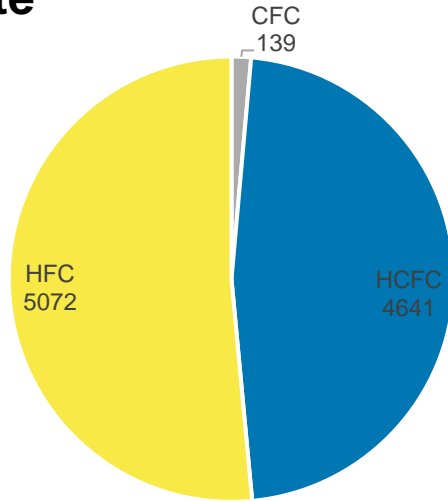
HFC emissions are part of the basket of GHG gases and should be reported on within National Inventory Reports. (Mandatory for industrialized countries, recommended for developing countries.)



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Current state

Banks in 2021:
9.8 Gt CO₂eq



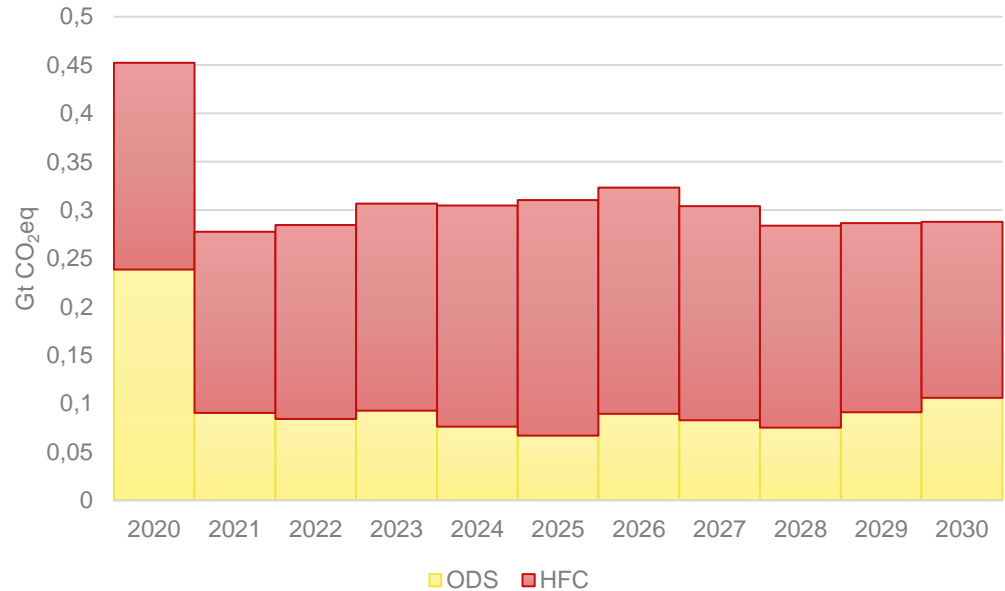
Between 2022 and 2030 proper bank treatment of decommissioned products could **avoid**

760 Mt CO₂eq of ODS

1 930 Mt CO₂eq of HFC

Total: 2.7 Gt CO₂eq until 2030

Substance entering the waste stream



Source: ODS banks – a country level estimate, GIZ Proklima 2018

Core processes for bank management

Goal:

CFC

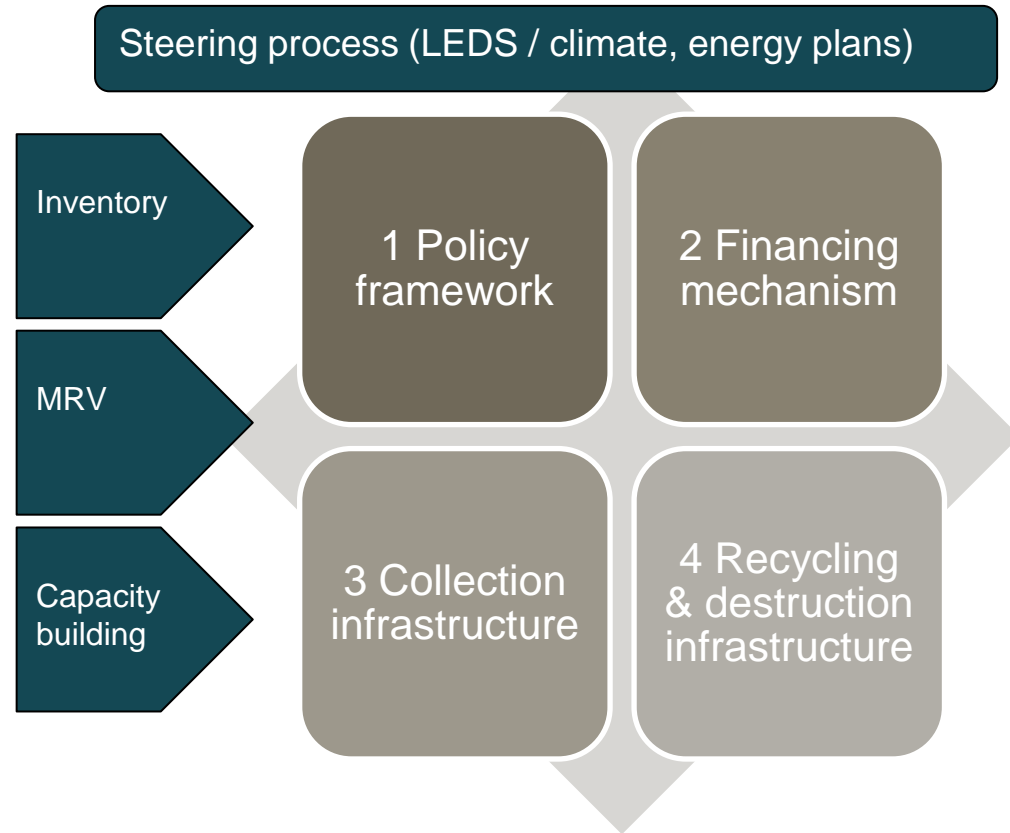
Collection and destruction

HCFC and HFC

Recovery and reuse for servicing

Recovery and reclaim for servicing

Collection and destruction



Further reading: <https://www.giz.de/en/worldwide/30797.html>

Issues to think about when using market mechanism

Ensure environmental integrity

- HFCs have much shorter atmospheric lifetimes than CO₂. Thus, their highest climate impact occurs within the first half of the century, while CO₂ has atmospheric lifetimes of several 100 years.
- Mitigation action is required for both and reducing ODS and HFC emissions should not result in higher CO₂ emissions.

The additionality requirement can impede national regulations.

- Additionality is only given when no legal obligation for ODS destruction applies in the country.
- This can lead to slowing down of such legislation if financing opportunities depend on non-regulation.
- Market mechanism for ODS and HFC banks management should include an exit strategy that ensures ongoing banks management after the project end.

Contact

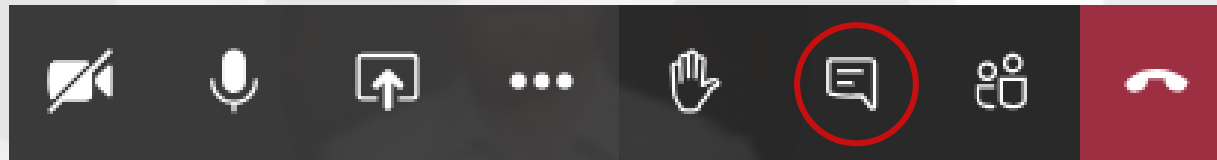


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HEAT GmbH

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True or False?

The Montreal Protocol fights climate change only since the adoption of the Kigali Amendment (global HFC phase-down) in 2016.

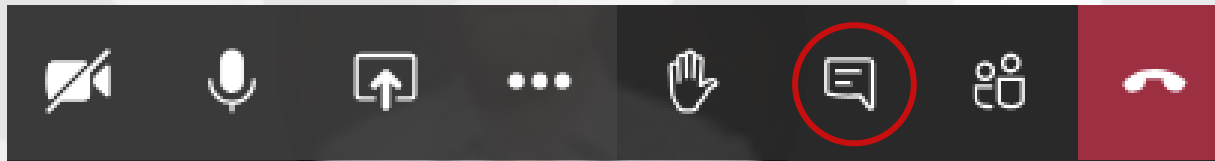


False!

The Montreal Protocol fights climate change since its adoption in 1987. Ozone depleting substances (ODS) are also potent greenhouse gases. The climate protection already achieved by the Montreal Protocol due to the ODS phase out alone was far larger than the reduction target of the first commitment period of the Kyoto Protocol.

True or False?

Under the Paris Agreement countries have to report their HCFC emissions.



False!

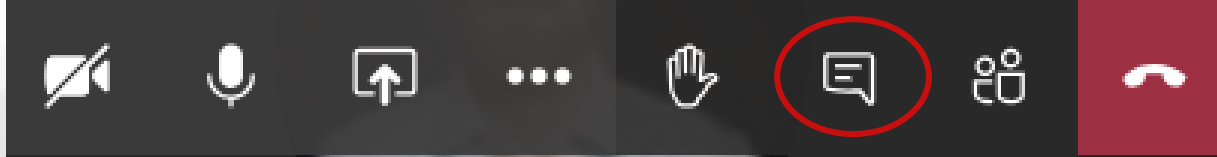
Under the Enhanced Transparency Framework of the Paris Agreement, countries shall submit National Inventory Reports that cover emissions and removals of direct GHGs from the 'Kyoto basket of gases': CO₂, CH₄, N₂O, PFCs, HFCs, SF₆, NF₃.

Those developing country Parties that need flexibility in the light of their capacities have the flexibility to instead report at least three gases (CO₂, CH₄ and N₂O) as well as any of the additional four gases (HFCs, PFCs, SF₆ and NF₃) that are included in the Party's NDC under Article 4 of the Paris Agreement, are covered by an activity under Article 6 of the Paris Agreement, or have been previously reported.

→ **HFCs, although they do have GWPs, are not included in the national inventories**

Quiz time!

Can you name a country that lists HFC and/or ODS banks management in its NDC?



Examples:

Colombia:

- Promotion of environmentally sound management of banks of ODS substitutes (HFCs) at the end of their lifetime (HCFCs, HFCs)

Namibia:

- Safe disposal of old (replaced) RAC equipment, incl. split ACs, domestic and commercial refrigerators and car AC (HFC)

Paraguay:

- Development and operation of two recovery, recycling and storage centres for refrigerants that deplete the ozone layer (ODS) and/or contribute to climate change (HCFCs, HFCs, CFCs)
- Implementation of the project for the destruction of refrigerant gases in cement kilns (HCFCs, HFCs, CFCs)

Options for market-based approaches

Daniela Laßmann

Consultant – Perspectives Climate Group

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climate change

The logo for Perspectives Climate Change features a stylized graphic of blue squares and rectangles of varying sizes and orientations, arranged in a cluster that suggests a globe or a network of data points.

Agenda

- **The F-Gas banks challenge**
- **Benefits of engaging in carbon markets**
- **Key features of carbon markets under Article 6 of the Paris Agreement**
- **HFC and HCFC mitigation through Article 6**
 - Synergies and differences between the Paris Agreement and Montreal Protocol/ Kigali Amendment
 - Inclusion of HFCs and HCFCs in NDCs
 - Challenges for reporting and accounting under the Paris Agreement
- **Conclusions and recommendations**

The F-Gas Banks challenge...

...The Montreal Protocol/ Kigali Amendment does **not address the emissions that occur from F-Gas banks.**

... If not handled in a proper way, they eventually **enter the atmosphere in an unpredictable manner** and grow to a **substantial size of emissions.**



Source: EIA (2009)



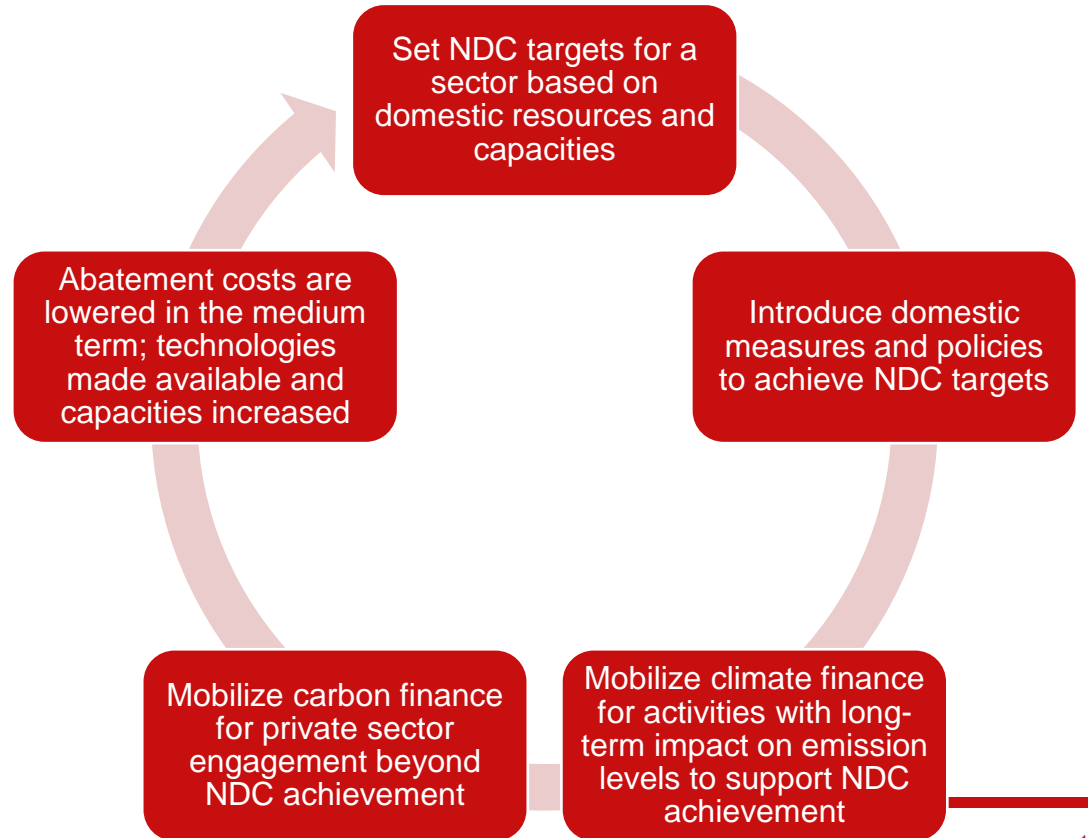
BUT

Domestic and international carbon markets
as well as voluntary uses of mitigation outcomes
can help to close the gap!

Benefits of engaging in carbon markets

- **Domestic and international carbon markets** are increasingly interconnected
- Host countries can strategically engage in **market-based cooperation** to mobilize finance for additional mitigation

→ **“Division of labour”**



Key features of the carbon markets under Article 6 of the Paris Agreement

Art. 6.4

(Sust. Development Mechanism)

- Open to **all countries**, to contribute to GHG mitigation and sustainable development;
- **Similar features as CDM: international rules** → successor mechanism
- **International oversight**

Art. 6.2

Cooperative Approaches

- **CA** between **two or more** countries, on the basis of **bilateral agreements**
- Involve the use of internationally transferred mitigation outcomes (ITMOs)
- **No international oversight**

- **Ongoing international negotiations, rules to be finalized by COP 26**
- **Common principles**
 - **Environmental integrity (→ additionality, NDC ambition)**
 - **Transparency, prevention of double counting**

HFC and HCFC mitigation through Article 6 to...

... promote **destruction of HFC and ODS banks** not covered by the Montreal Protocol/ Kigali Amendment

... ensure that HFC-23 reduction is **not “falling through the cracks”** by mobilizing MLF funding while making it ineligible for Art. 6 due to high rents

... **transition CDM baseline and monitoring methodologies** to cover HFC mitigation activities under the Kigali Amendment and the Paris Agreement

.... transition CDM approaches such as PoAs and **standardized baselines** that performed well



Source: EIA (2009)



Article 6 pilots worldwide

Source: Perspectives Climate Group/Climate Focus (2020)

Article 6 mechanisms of the Paris Agreement: synergies with the Montreal Protocol/ Kigali Amendment

- Prerequisites for high quality credits

1. Ratification of the Kigali Amendment

2. Inclusion of HFCs and HCFCs in NDCs

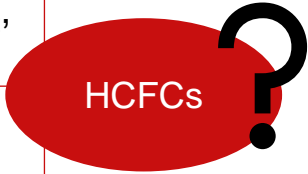
- Paris Agreement allows for a wide range of targets and related indicators, **inclusion of ODS (HCFCs) is therefore possible and essential** for Article 6 activities related to F-Gas banks management

3. Synchronized accounting of HFCs and HCFCs

- Link to **quantified GHG targets** needs to be clarified to fulfil the general principles for reporting and review under the UNFCCC (**TACCC principles**)

Linkages and differences of the Paris Agreement and the Kigali Amendment

	Kigali Amendment	Paris Agreement
GHG types	HFC	HFC and other GHG (CO ₂ , CH ₄ , SF ₆ ...)
Type of emissions/ accounting approach	Potential emissions (based on annual HFC production and consumption)	Actual emissions (considering time lag between HFC consumption and emissions)
Emission sources covered	HFCs	HFCs + emissions from energy use
National GHG reduction pathway	HFC Phase Down Plans	NDCs LT-LEDS
Major international funding sources	Multilateral Fund	Green Climate Fund Carbon markets under Art. 6



How to include HFCs and HCFCs in NDCs?

- Include HFC phase-down under Kigali Amendment in Paris Agreement NDC baseline



Different accounting methods of HFC emissions need to be taken into account when **converting the KA schedule into the NDC baseline.**

- Include mitigation of HCFC emissions and ODS-related indicators in NDC



Tracking and transparent communication needs to be ensured. Once an emission source or sink is included in the NDC it must consistently be reported upon.

Challenges for reporting and accounting under the Paris Agreement

- **National inventories and national inventory reports (in line with ETF)**
 - Inventories based on the **2006 IPCC inventory guidelines**
 - NIRs cover emissions and removals of direct GHGs from the 'Kyoto basket of gases', including **actual HFC emissions**
 - HCFCs not included in the national inventories → **HCFCs in ODS banks are not covered in NIRs of Parties**

- **Reporting and review under Article 6.2 guidance**
 - Initial report, annual quantitative information, and regular reports (BTRs)
 - **HCFC-related mitigation action** could be added as **CO₂e emissions to emission balance** against which NDC achievement will be accounted for

Conclusions and recommendations



International carbon markets and climate finance can be **key drivers to address F-Gas banks**



Art. 6 helps to **leverage climate finance resources** needed for closing the financial gap and promote F-Gas banks mitigation action



Baseline setting for the integration of HFCs and ODS/HCFCs into NDCs requires a **stringent approach** for the conversion of potential emissions as accounted for under the Montreal Protocol/Kigali Amendment into actual emissions



Accounting needs to be synchronized across regimes in order to ensure environmental integrity

Contact



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