



**International
Fertilizer Industry
Association**

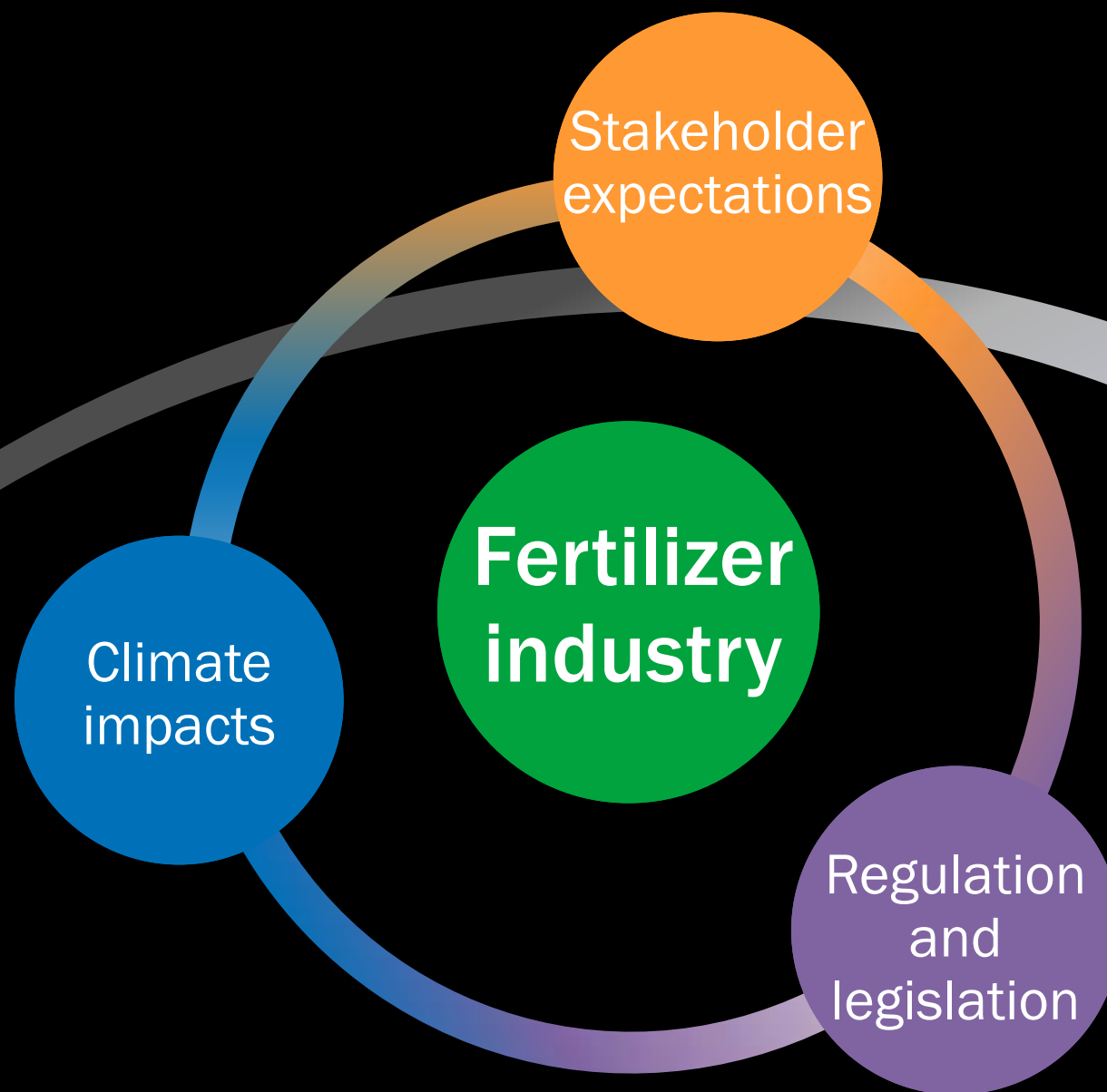
Why Climate Change Policy Matters for the Global Fertilizer Industry

L.M. Maene

TFI, FIRT, Fertilizer Outlook and Technology Conference
Tampa, Florida, USA, 28-30 October 2009



**Why does
the
fertilizer
industry
care about
climate
change?**



Why Climate Change Policy Matters for the Global Fertilizer Industry

Kyoto Protocol agreed

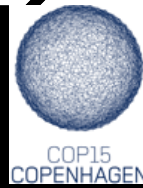
Entry into effect

Protocol expires

1997

2005

2012



Why Climate Change Policy Matters for the Global Fertilizer Industry

IFA Data Collection

Production

- Energy consumption and CO₂ emissions in NH₃ synthesis
- N₂O from nitric acid
- Energy / CO₂ benchmark
- Safety, Health and Environmental (SHE) benchmark

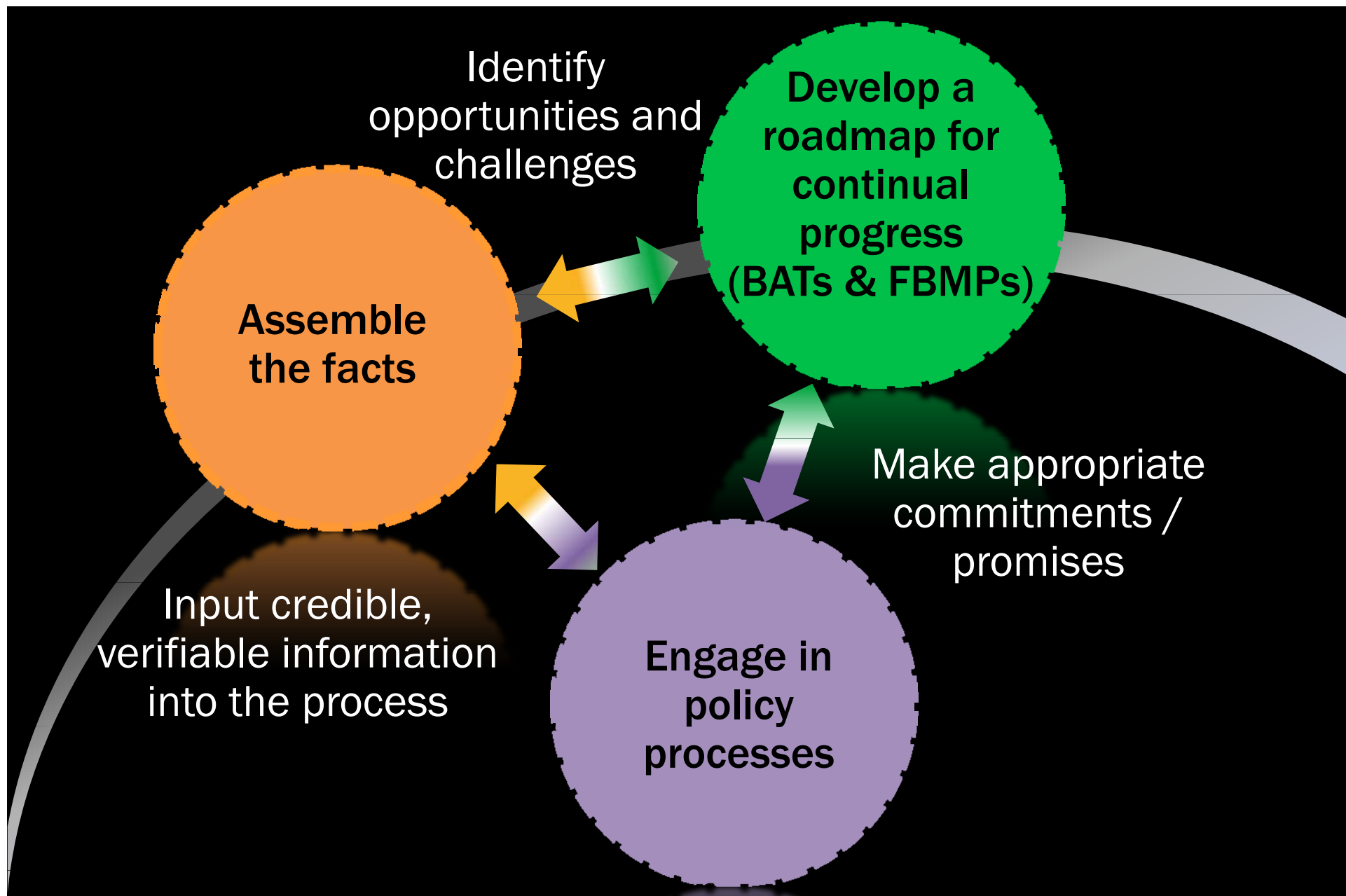
Transportation

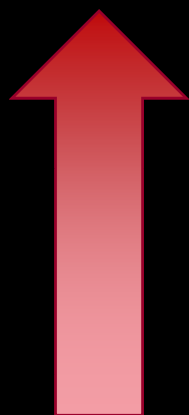
- Emissions per kg transported

Use

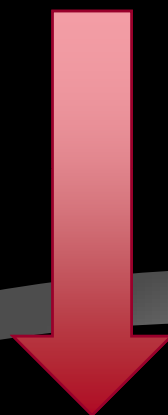
- N emissions
- C sequestration
- FBMP initiative
- Expert report on GHG emissions from agriculture
- Crop-based LCA case studies







Food
Security



GHG
Emissions

Competing goals?

48%

Nitrogen fertilizers are estimated to contribute to feeding as much as half of the world's population

3%

The fertilizer life-cycle accounts for 2 to 3% of total global greenhouse gas (GHG) emissions



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Putting in perspective

Activity	Share of total global GHG emissions (%)
Agriculture	10-12
Deforestation and land-use change	12
Fertilizer (total)	2-3
Fertilizer production	0.93
Fertilizer distribution	0.07
Fertilizer use	1.5



Fertilizer Production 0.93%



Direct control over emissions

- Responsibility to minimize them
- Economic incentive to increase energy efficiency

Now:

- Use Best Available Techniques and Best Practice Technologies

In the future:

- Clean coal technologies

“ The manufacture of all N fertilizers together accounts for about 94% of the sector's energy use ”



**Fertilizer
Transportation
0.07%**

**Work with responsible partners
to:**

- Optimize logistics
- Optimize warehouse centralization and transport-logistic systems
- Opt for modes of transport with lower carbon intensities, alternative fuels, freight consolidation and catalytic emissions abatement
- Shift transportation nodes
- Develop higher concentration products



Fertilizer
Use
1.5%



Work with farmers to:

Now:

- Adopt Fertilizer Best Management Practices
- Increase nutrient use efficiency

In the future:

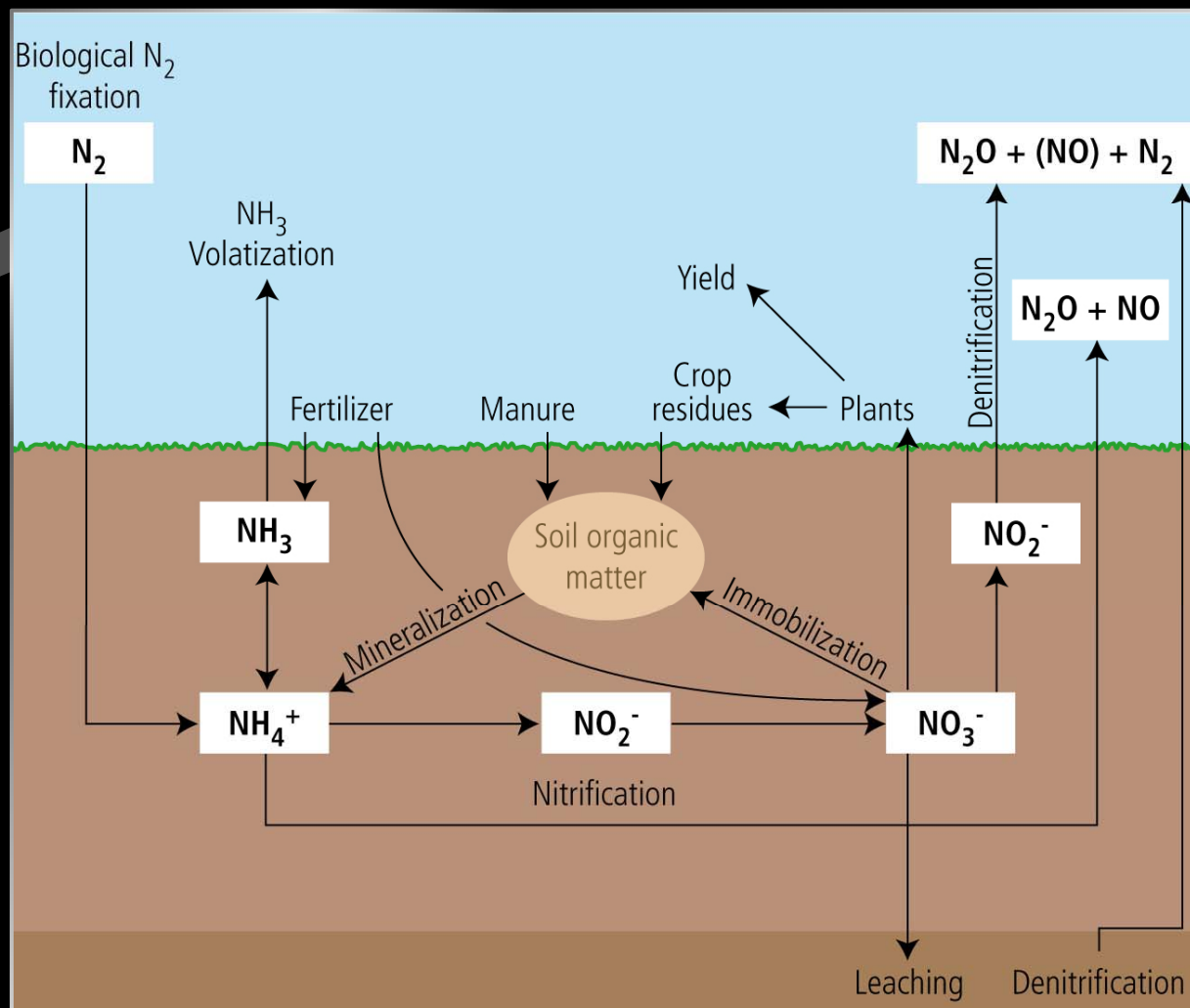
Soil carbon sequestration
Greater adoption of slow- and controlled-release fertilizers



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Fertilizer
Use
1.5%

The Soil Nitrogen Cycle



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**Fertilizer
Use
1.5%**

Agricultural carbon sequestration



- Decrease rate of land clearing
- Increase soil carbon sequestration
- Restore degraded land
- Stop deforestation and promote tree growth



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Emissions reduction potential

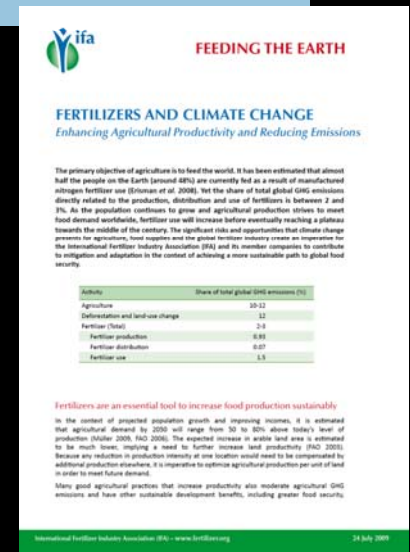
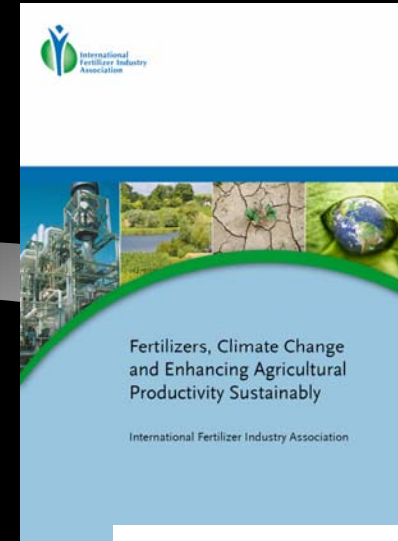
15% Best Production Techniques in ammonia production

25 - 40% N₂O abatement technology in nitric acid production



Key Policy Messages

1. Fertilizers are an essential tool to increase food production sustainably
2. Reducing emissions that affect climate is a priority of the fertilizer industry
3. Appropriate and timely policy decisions are critical to ensure desired emissions reductions



Why Climate Change Policy Matters for the Global Fertilizer Industry

Advocacy

FARMING
FIRST



- Agriculture in general and farmers in particular, are vital to mitigate and adapt to climate change
- Increasing farming productivity in a sustainable way and decreasing waste and losses can significantly mitigate the effects of climate change, prevent deforestation, and protect biodiversity
- Adopting proven sustainable agricultural practices can reduce greenhouse gas emissions and enhance the effect of natural carbon sinks
- Further research and innovation are essential to find the necessary adaptation and mitigation solutions



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COP15 COPENHAGEN

Agriculture and Rural Development Day - 12 December 2009

University of Copenhagen

- Identify 'no-regret' priorities for agriculture and food security
- Develop a workplan to incorporate agriculture in the post-Copenhagen agenda



Agriculture & Rural
Development Day

COPENHAGEN 12 December 2009



Why Climate Change Policy Matters for the Global Fertilizer Industry

Technical Committee	Agricultural Committee	Production & International Trade Committee
Fertilizer production	Fertilizer use	Transport & logistics
• Promoting BATs • Assisting in data collection • Participating in energy/CO₂ and SHE benchmarks	• Researching the nitrogen cycle • Assisting in data collection • Promoting FBMPs	• Assisting in data collection • Promoting optimization

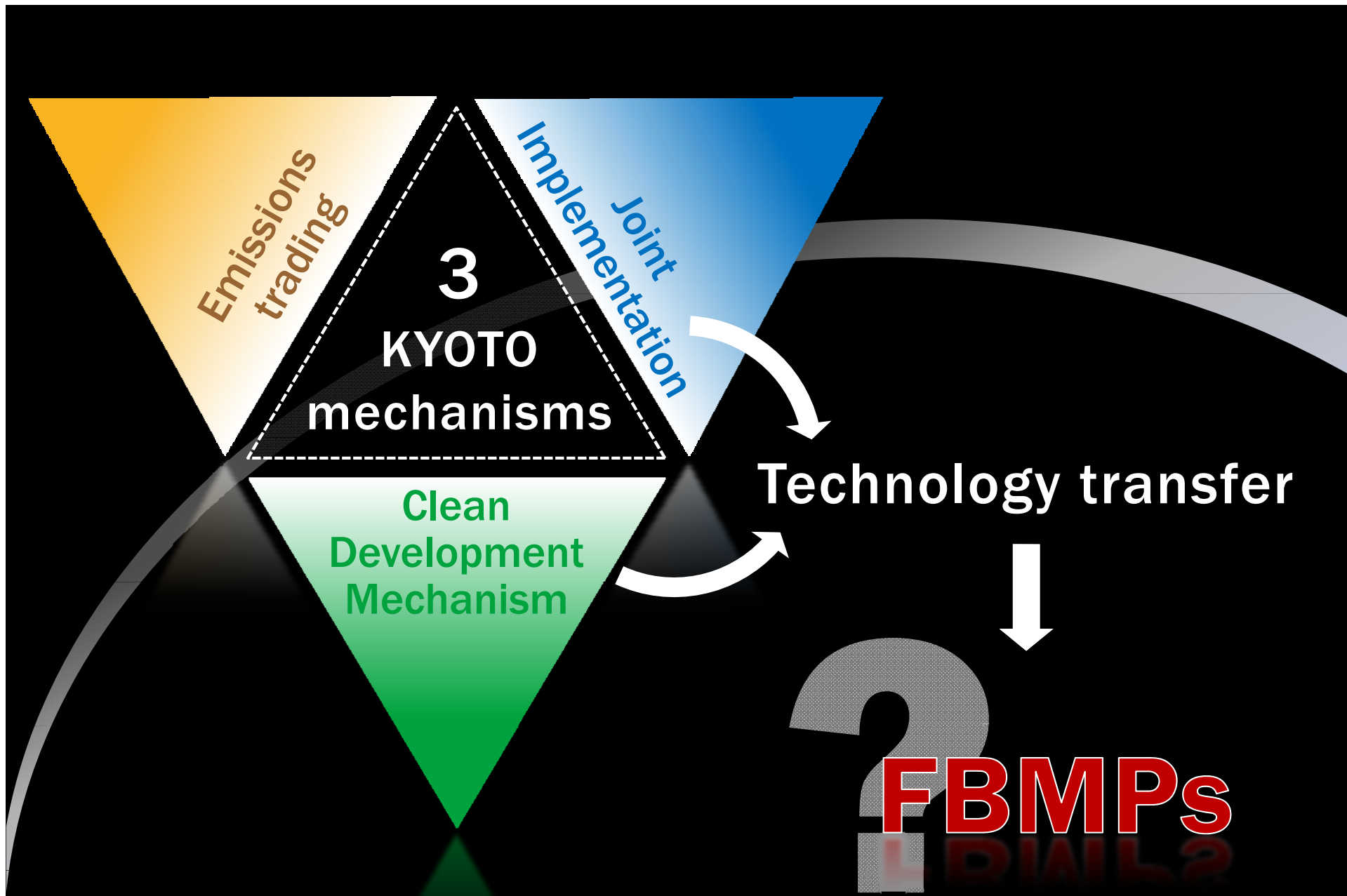
SUSTAINABILITY
Integrated management of all impacts
for greatest net benefit



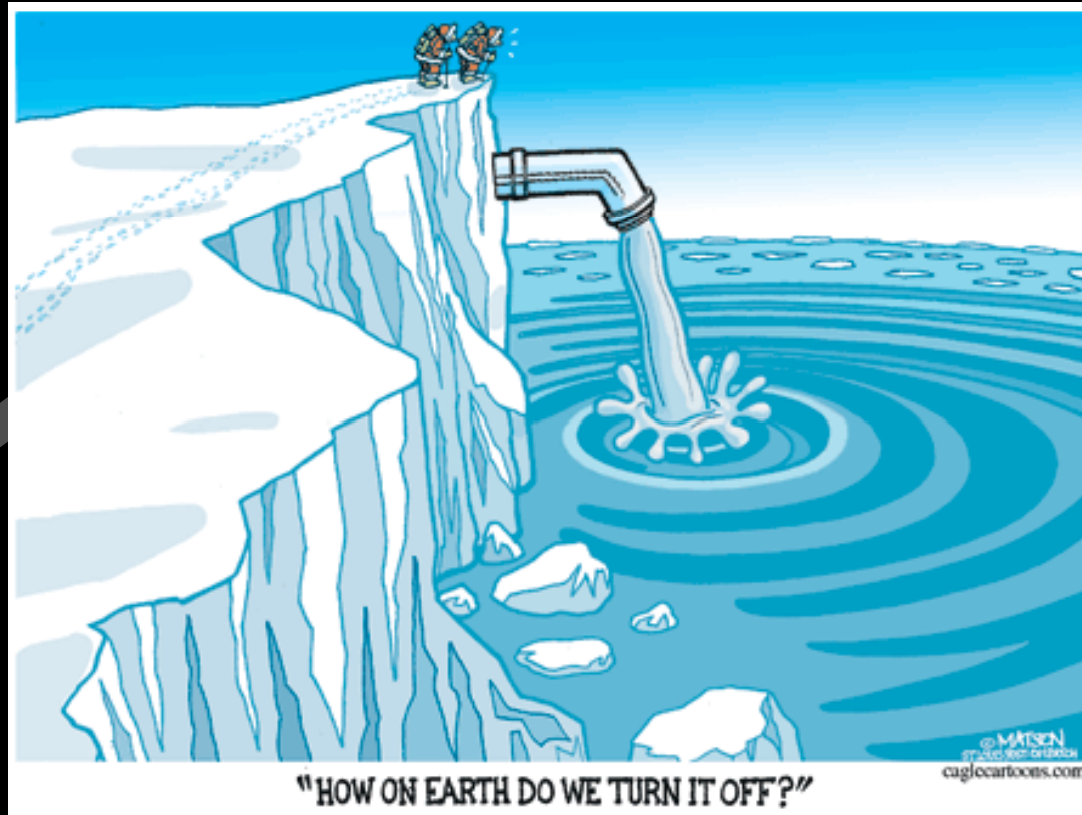
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