

Key Messages – Nitrous Oxide (N₂O) Guidance for NDCs

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What is nitrous oxide (N₂O)?

- **Nitrous Oxide (N₂O) is a greenhouse gas used in industry and agriculture that depletes the stratospheric ozone layer and has a GWP nearly 300 times that of carbon dioxide over a 100-year period.**

Why is it important to tackle nitrous oxide emissions?

- **N₂O -- the third most significant greenhouse gas after carbon dioxide and methane --is nearly 300 times more potent than CO₂ and is also a potent ozone-depleting substance.**
- **Because of its potency and rapid growth, it is increasingly recognized as a critical factor in climate change and net zero strategies.**
- **Technically and economically feasible options to reduce N₂O exist and could deliver important emissions reductions that continue to protect the ozone layer.**
- **N₂O's long atmospheric lifetime means that the climate and ozone benefits of N₂O mitigation will manifest after 2050.**
- **However, due to the unique chemistry of the nitrogen cycle, ambitious N₂O mitigation today will deliver critical co-benefits for local, regional and global air and water quality in the near to mid-future.**
- **While the climate benefits will be seen only later in the century, action in the immediate future is needed to ensure the longer-term benefits.**
- **If CO₂ and methane are mitigated but N₂O emissions remain, N₂O could contribute to more significant stratospheric ozone depletion.**

How to include N₂O in NDCs?

- **Involve relevant national and local government institutions and experts to adequately assess current policies, practices, capacities, and emissions information.** Doing so will help gather inputs and identify responsibilities for implementation and ensure the involvement and coordination throughout the process.
- **Engage with stakeholders from sectors and activities that generate nitrogen pollution and from entities that have an interest in controlling nitrogen pollution** - this includes farmers and farm cooperatives, fertilizer manufacturers, food companies, sewage treatment managers, air quality regulators, relevant industries, research and educational institutions, civil society, and the public.
- **Consider undertaking a national nitrogen assessment**, taking stock of the body of knowledge involving national nitrogen flows and budgets, including expenditures that impact nitrogen production, consumption, and loss.
- **Evaluate options and assess the resources available and needed to undertake options, taking into consideration national circumstances.**

What are some tangible ways to address N₂O in NDCs?

- **Many of the actions required to reduce N₂O emissions at the same time prevent environmental degradation and reduce human health risks.**
- **Tangible ways to include N₂O emissions in NDCs include:**
 - **Set economy wide N₂O targets**
 - **Specify nationally relevant sectors for engagement** - including industry, agriculture, waste, transportation, and energy – and set specific mitigation goals by sector
 - **Incorporate N₂O emissions in the new round of NDCs provides an opportunity to achieve significant gains for mitigating climate change and aiding ozone recovery**
 - **Add potential co-benefits for health, environment, and adaptation, including by improved nitrogen management**