



**CLIMATE &
CLEAN AIR
COALITION**
TO REDUCE SHORT-LIVED
CLIMATE POLLUTANTS



GLOBAL METHANE ASSESSMENT

Benefits and Costs of Mitigating Methane Emissions



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FOREWORD



Inger Andersen,
Under-Secretary-General of the United Nations and Executive Director of the UN Environment Programme

Today humanity is facing three systemic and escalating planetary crises: the climate crisis, the biodiversity and nature crisis, and the pollution and waste crisis. These crises are not independent but linked and often stem from the same sources and unsustainable models of consumption and production. These links provide an opportunity to identify and deploy solutions which deliver multiple-benefits and the ambitious emissions reductions needed to overcome these crises.

This *Global Methane Assessment* highlights one of the greatest opportunities available today to simultaneously address our interlinked planetary crises and make peace with nature. Methane is a powerful and short-lived climate pollutant which drives climate change and harms human and ecosystem health by contributing to the formation of ground-level ozone. Over the past decade, global methane emissions have risen at a rate faster than at any time in the last 30 years. While methane has both human and natural sources, recent increases are attributed to activity in three anthropogenic sectors, namely fossil fuels, waste and agriculture.

Current methane concentrations are well above those needed to achieve our 2° C target. According to the 2018 Intergovernmental Panel on Climate Change *Global Warming of 1.5° C* report, we cannot achieve the Paris Agreement targets without immediately reducing methane along with carbon dioxide and all other climate forcing emissions.

Fortunately, there are readily available targeted control measures that can reduce more than 30 per cent of projected anthropogenic methane emissions this decade. Most of these technical solutions are in the fossil fuels (oil, gas and coal) and waste sectors, and

can be deployed at low or negative cost. These measures must be implemented urgently and paired with increased efforts to find breakthroughs in agriculture and nature-based solutions. Additional measures that don't specifically target methane, like shifting to renewable energy, residential and commercial energy efficiency, and a reduction in food loss and waste, can reduce methane emissions by a further 15 per cent by 2030.

Readily achievable methane mitigation can deliver nearly 0.3° C of avoided warming over the next two decades while simultaneously reducing ground-level ozone concentrations. Such steps can avoid 255 000 premature deaths and help prevent more than half a million emergency room visits from asthma every year. And because ground level ozone also harms ecosystems and plants, the reduced methane concentrations could increase global crop yields by 26 million tonnes per year.

Fast and ambitious methane mitigation is one of the best strategies available today to deliver immediate and long-lasting multiple benefits for climate, agriculture, human and ecosystem health.

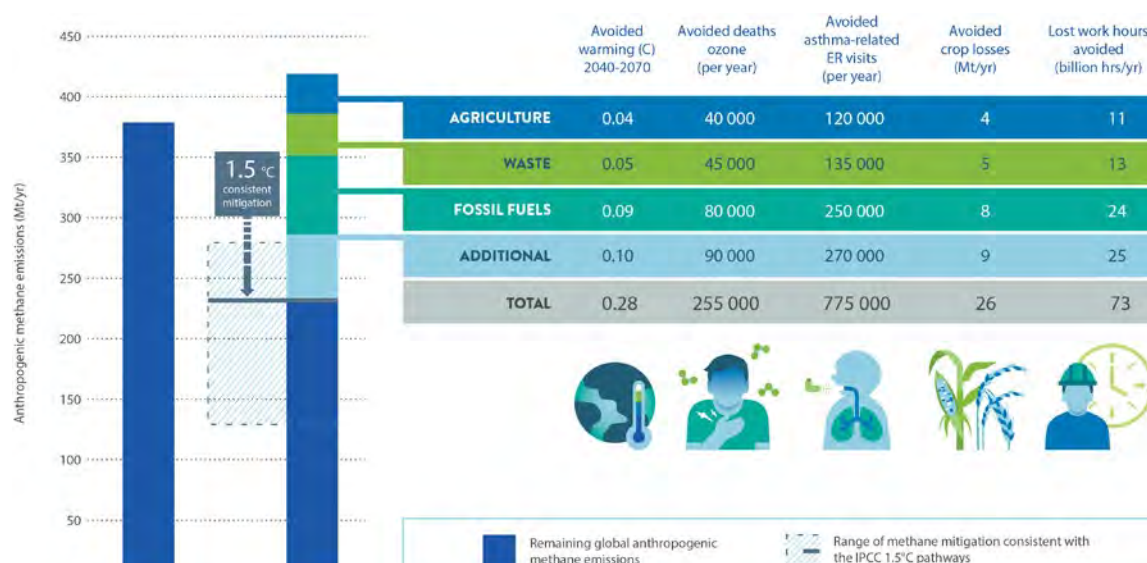
Since its founding in 2012, the Climate and Clean Air Coalition has led on global methane mitigation. As one of its founding partners, the UN Environment Programme (UNEP) has helped lead the Coalition's pioneering oil and gas work through the Oil and Gas Methane Partnership and the Global Methane Alliance. UNEP now hosts the International Methane Emissions Observatory an initiative that will integrate and reconcile methane emissions data, improve reporting and verification of information, and validate monitoring and measurement methodologies and techniques.

This year UNEP launched the UN Decade on Ecosystem Restoration. The next ten years will be paramount in the fight to avert climate change, the loss of nature and biodiversity, and the pollution and waste crisis. Nations, businesses, international organizations and individuals must commit to delivering methane mitigation consistent with the conclusions of this report to make progress towards restoring our degraded ecosystems and secure the future for humanity.

An aerial, top-down view of an industrial facility at night. The scene is illuminated by artificial lights, creating a mix of warm yellow and cool blue tones. Several large buildings with bright blue roofs are visible, some with internal structures exposed. A network of red-painted concrete walkways or roads crisscrosses the site, connecting different areas. Various industrial equipment, pipes, and storage tanks are scattered throughout the landscape. The overall impression is one of a complex, active industrial environment.

EXECUTIVE SUMMARY

Reducing human-caused methane emissions is one of the most cost-effective strategies to rapidly reduce the rate of warming and contribute significantly to global efforts to limit temperature rise to 1.5°C. Available targeted methane measures, together with additional measures that contribute to priority development goals, can simultaneously reduce human-caused methane emissions by as much as 45 per cent, or 180 million tonnes a year (Mt/yr) by 2030. This will avoid nearly 0.3°C of global warming by the 2040s and complement all long-term climate change mitigation efforts. It would also, each year, prevent 255 000 premature deaths, 775 000 asthma-related hospital visits, 73 billion hours of lost labour from extreme heat, and 26 million tonnes of crop losses globally (Figure ES1).



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