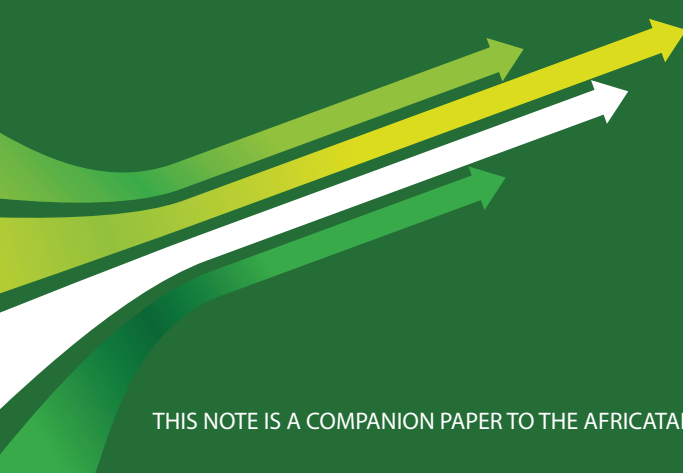


## TECHNICAL NOTE ON METHANE ABATEMENT ACTION IN AFRICA

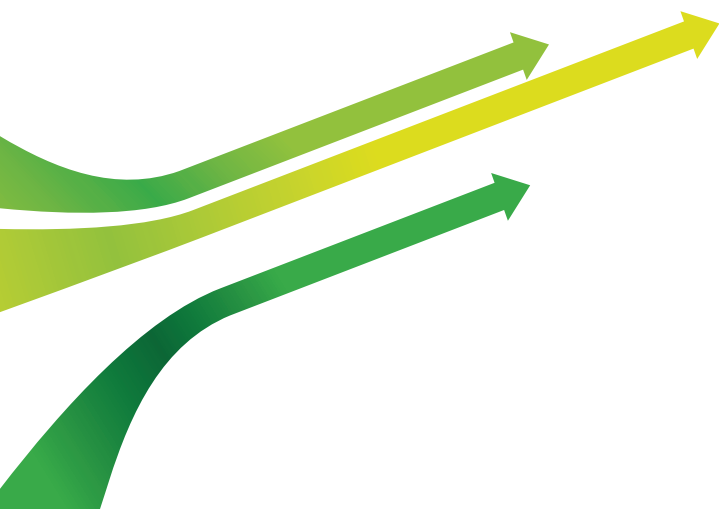


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## INTRODUCTION

Methane is the second largest greenhouse gas contributor to climate change, with a global warming power (GWP) 84-87 times greater than that of carbon dioxide (CO<sub>2</sub>) in the first 20 years after it is emitted into the atmosphere (GWP<sub>20</sub>), and 28-36 times greater over a 100-year period (GWP<sub>100</sub>).

According to Shindell et al., (2019), methane contributes to the formation of tropospheric ozone, a dangerous atmospheric pollutant that causes around half a million premature deaths per year worldwide and harms ecosystems and crops by limiting their growth and reducing their production.

The issue of financing to reduce methane emissions has received little attention from financing structures such as corporates, commercial banks as well as bilateral and multilateral development institutions. Siegel and Davis (2022) report that this lack of attention stems from the fact that methane reduction projects are not well identified and tracked, but also from structural constraints on both the supply and demand sides. Supply-side constraints include insufficient donor interest. Methane mitigation projects are not prioritized in the climate actions of donor countries. Also, the absence of an MRV system for methane and proof of the effectiveness of projects complicates the allocation of funds for methane emission mitigation actions. Finally, it is difficult to classify methane cleanly in specific sectors within major financing institutions. On the demand side:

- (i) countries are not asking for methane financing;
- (ii) there is an insufficient financial incentive to reduce methane emissions (the market value of methane is low and market not developed);
- (iii) there is a lack of quality methane project pipeline; and
- (iv) there is a little capacity to formulate methane mitigation projects.

However, the potential for mitigating global warming by reducing methane emissions is enormous. The report produced by (UNEP & CCAC, 2021) on the "Global Methane Assessment" shows that there are readily available control measures, in fossil fuel production and waste, that could reduce projected anthropogenic methane emissions by more than 30% by the end of this decade. These actions could reduce global warming by 0.3°C by 2040, while producing significant co-benefits, including improved public health and agricultural productivity.

The fossil fuel, agriculture and the waste sector are the biggest emitters of methane. UNEP & CCAC (2021) reports that scenarios produced by the Intergovernmental Panel on Climate Change (IPCC) indicate that methane emissions need to be reduced by 40 to 45% by 2030 if we are to meet the target set by the Paris Agreement that limits global warming to 1.5°C by the end of the century.

<https://www.iea.org/reports/methane-tracker-2021/methane-and-climate-change>

# MATERIALS AND FIGURES DISCUSSED IN THE REPORT ON

## 1. METHANE ABATEMENT COST AND AVAILABLE ABATEMENT OPTIONS

Table a: Abatement cost in the agricultural sector

Average cost per ton of methane reduced in the agricultural sector: \$830	
✓	Available abatement options
✓	Available abatement options
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Source: CCAC and UNEP (2021)





**Table b: Abatement cost in the oil and gas sector**

Average cost per ton of methane reduced in the Oil and gas sector: \$520	
Available abatement options	
✓	Upstream and downstream leak detection and repair
✓	Recovery and utilization of vented gas
✓	Capture of associated gas from oil wells
✓	Blowdown capture
✓	Recovery and utilization of vented gas with vapor recovery units and well plungers
✓	Installation of flares
✓	Improved control of unintended fugitive emissions from the production of oil and natural gas
✓	Regular inspections (and repair) of sites using instruments to detect leaks and emissions due to improper operations
✓	Replace pressurized gas pumps and controllers with electric or air systems
✓	Replace gas-powered pneumatic devices and gasoline or diesel engines with electric motors
✓	Early replacement of devices with lower-release versions
✓	Replace compressor seals or rods; cap unused wells

Source: CCAC and UNEP (2021)





Table c : Abatement cost in the oil and gas sector

Average cost per ton of methane reduced in the Oil and gas sector: \$520	
Available abatement options	
✓	Coal mine methane management
✓	Pre-mining degasification and recovery and oxidation of ventilation air methane
✓	Flooding abandoned coal mines

Source: CCAC and UNEP (2021)



Table d: Abatement cost in the agricultural sector

Average cost per ton of methane reduced in the agricultural sector: \$830	
Available abatement options	
✓	Residential source separation with recycling/reuse
✓	No landfill of organic waste
✓	Treatment with energy recovery or collection and flaring of landfill gas
✓	Solid waste management - industrial
✓	Recycling or treatment with energy recovery
✓	No landfill of organic waste

Source: CCAC and UNEP (2021)























**Table e : Abatement cost in the agricultural sector**









Average cost per ton of methane reduced in the agricultural sector: \$830	
Available abatement options	
✓	Wastewater treatment - residential
✓	Upgrade to secondary/tertiary anaerobic treatment with biogas recovery and utilization
✓	Wastewater treatment plants instead of latrines and disposal
✓	Wastewater treatment - industrial
✓	Upgrade to two-stage treatment, i.e., anaerobic treatment with biogas recovery followed by aerobic treatment

Source: CCAC and UNEP (2021)

## II. METHANE ABATEMENT PROJECTS ACROSS AFRICA

Table f: Methane abatement actions in countries with 80 per cent of African emissions

Countries	Project Title	Mitigation sectors /Thematic	Commitment Period	Financing (USD)
Ethiopia	Low-emission development for Ethiopia's dairy sector		2016	N/A
	Addis Ababa waste activities		2014	N/A
Kenya	Development of national and local solid waste regulations to reduce SLCP emissions in Kenya		2019	N/A
	Kenya's greenhouse gas inventory for livestock emissions		2016	N/A
Tanzania	Dar es Salaam waste activities		2014	N/A
Uganda	Biogas system to manage slaughter waste		N/A	N/A
	Support national planning processes for SLCP mitigation and deliver the National Methane Roadmap		2022- 2025	150,000 to 175,000
Cameroon	Valorization of Investments in the Valley of the Logone (VIVA Logone)	 	2021-2029	217.4 million
Central African Republic	Deliver methane emission and mitigation assessments for the livestock sector		2023-2026	100,000
Democratic Republic of Congo	Strengthen SLCP planning and advance mitigation action		2023-2026	150,000-200,000
Algeria	AIM-WELL: Algeria Integrated Management of Waste Energy at the Local Level		by 2030	N/A
Egypt	Greater Cairo Air Pollution Management and Climate Change Project		2021-2026	200 million
Ghana	Ghana's National Planning on short-lived climate pollutants		by 2040	N/A
	Develop SLCP measures for the 2024 NDC update on SLCP mitigation		2023-2026	70,000
	Deliver National Methane Roadmap and develop NDC implementation plans on SLCP mitigation		2022-2025	125,000-175,000

Countries	Project Title	Mitigation sectors /Thematic	Commitment Period	Financing (USD)
Mali	Strengthen national planning processes for SLCP mitigation		2022 - 2025	150,000-175,000
Nigeria	Development of Tier 2 Emission Inventory and Mitigation Assessment for the agriculture sector		2023-2026	150,000
	Abatement of Short-Lived Climate Pollutants (SLCPs) in the Nigerian Agricultural Sector by Reducing Open Field Burning (No Burn Alternatives)		2023-2026	200,000
	Support to Nigeria for methane mitigation from oil and gas sector		2023-2026	100,000
	Capacity building for the development of policies to reduce methane emissions from the oil and gas sector in Nigeria		2020	N/A
	Nigeria Sustainable Urban and Rural Water Supply, Sanitation and Hygiene Program-for-Results		2021-2027	875 million
Multiple countries projects				
Tanzania, Kenya, South Africa	eThekweni, South Africa waste mentoring activities		2017	N/A
Ethiopia, Ghana, Kenya, Tanzania	Sub-Saharan Africa Regional Network for waste management		2019	N/A

Legend:



Agriculture



Fossil Fuels (Oil&Gas)



Ecosystem

















National policy and Planning









Waste








Table g: Methane abatement action in other African countries

Countries	Project Title	Mitigation sectors /Thematic	Commitment Period	Financing (USD)
Rwanda	KivuWatt		N/A	20 million
	Develop a National SLCP Plan and National Methane Roadmap		2023 - 2026	N/A
Seychelles	NDC Action: Solid Waste Management		N/A	N/A
Gabon	Deliver a methane emissions inventory, mitigation plan and MRV framework for the oil and gas sector		2023 - 2025	200,000
Morocco	Develop landfill gas assessments, assessment of waste mitigation strategies, and MRV system for the waste sector		2023 - 2026	N/A
Eswatini	Steps towards low-carbon livestock in Eswatini	 	2020	N/A
Mozambique	Mozambique Urban Sanitation Project		2019-2025	115 million
	Developing a national organic waste		2023-2026	50,000
Benin	Strengthen SLCP planning and implementation while increasing capacity for methane mitigation		2023-2026	150,000
Cote d'Ivoire	Deliver an agriculture sector strategy for SLCP mitigation		2023-2026	350,000
	Project for the construction and operation of a technical landfill centre in Kossihouen for the disposal of household and similar solid waste in the Abidjan Autonomous District (DAA)		N/A	N/A
	Expand the SLCP planning and implementation process while increasing capacity for methane mitigation		2022-2025	100,000-125,000
Guinea	Strengthen national planning processes for SLCP mitigation		2022-2025	50,000-75,000
Liberia	Deliver National Methane Roadmap		2023-2026	75,000

Countries	Project Title	Mitigation sectors /Thematic	Commitment Period	Financing (USD)
Senegal	Develop a National SLCP Plan and National Methane Roadmap		2023-2026	187,500
Sierra Leone	Community-based waste management systems for low-income areas		2019	N/A
Togo	Togo's National Plan to reduce air pollution and short-lived climate pollutants (SLCPs)		2023-2026	N/A
	Roadmap for the efficient and sustainable management of municipal solid waste in the city of Lomé		2023-2026	60,000
	Capacity building to reduce SLCP emissions from the waste sector, with consideration of gender		2023-2026	75,000
	Build national planning capacity to implement and monitor priority SLCP and methane mitigation measures		2023-2026	150,000-175,000



Legend:	
	Agriculture
	Fossil Fuels (Oil&Gas)
	Ecosystem
	National policy and Planning
	Waste

### **III. Some outcomes from COP 28 for methane abatement actions**

At s COP28, Global Methane Pledge (GMP) partners announced:2

1. **Over \$1 billion in new grant funding** for methane action mobilized since COP27, more than triple current levels, which will mobilize billions in investment to reduce methane.
2. **Game-changing new national commitments and legislation from top oil and gas methane emitters** alongside decisive action on waste and food and agriculture.
3. **Transformational data tools** including the full launch of the Methane Alert and Response System and a new Data for Methane Action Campaign.
4. **New members and expanded leadership.** Canada, Federated States of Micronesia, Germany, Japan, and Nigeria joined the United States and European Union as Global Methane Pledge Champions. Turkmenistan, Kazakhstan, Kenya, Romania, and Angola joined the Pledge, bringing total participation to 155 governments.

Achieving the GMP goal of cutting anthropogenic methane emissions at least 30% by 2030 from 2020 levels is the fastest way to reduce near-term warming and is essential to keep a 1.5°C temperature limit within reach. Methane contributes 30% of current warming and is a precursor of tropospheric ozone, a powerful greenhouse gas and air pollutant that causes hundreds of thousands of deaths and hundreds of millions of tons of crop losses each year. Rapidly reducing methane emissions advances global climate, health, food security, and energy security objectives simultaneously.

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See <https://www.state.gov/highlights-from-2023-global-methane-pledge-ministerial/>





# AFRICATALYST

