

A satellite-style map of the African continent, showing various geographical features like rivers, lakes, and terrain. The colors range from light tan to dark brown and blue. The map is the background of the entire page.

**AFRIC**CATALYST

**Mobilizing  
Finance for  
Methane  
Action in Africa**

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# Mobilizing Finance for Methane Action in Africa

**NOVEMBER 2023**

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## ABBREVIATION

AfDB	African Development Bank
AFOLU	Agriculture, Forestry and Other Land Use
bcm	billion cubic meters
CCAC	Climate and Clean Air Coalition
CH <sub>4</sub>	Methane
CO <sub>2</sub>	Carbon Dioxide
COP	Conference of the Parties
CPI	Climate Policy Initiative
ETS	Emissions Trading Systems
EU	European Union
FAO	Food and Agriculture Organization
FMR	Flaring and Methane emission Reduction
GHG	Greenhouse Gas
GMH	Global Methane Hub
GMI	Global Methane Initiative
GMP	Global Methane Pledge
GPG	Global Public Goods
GWP	Global Warming Potential
IDA	International Development Association
IEA	International Energy Agency
IFC	International Finance Corporation
IMF	International Monetary Fund
IRR	Internal Rates of Return
JETP	Just Energy Transition Partnership
kg	kilogram
kt	kiloton
LDAR	Leak Detection And Repair
mmscf/d	million standard cubic feet per day
MMTCO <sub>2</sub> e	million metric tons of carbon dioxide equivalent
NDC	Nationally Determined Contributions
NZE	Net Zero Emission
OECD	Organization for Economic Co-operation and Development
RST	Resilience and Sustainability Trust
SDR	Special Drawing Rights
SLB	Sustainability-Linked Bonds
SLL	Sustainability-Linked Loans
UNEP	United Nations Environmental Programme
US	United States
\$	United States Dollar



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# Executive Summary

## Methane challenge in Africa

Methane emissions across Africa increased at an annual rate of 2 percent on average from 1990 to 2022. Currently, these greenhouse gas emissions constitute 14 percent of total global methane emissions. Nineteen (19) African nations are responsible for 80 percent of the continent's methane emissions, with Nigeria, Sudan, the Democratic Republic of Congo (DRC), and Egypt contributing half of this total (see Figure 6). These countries, along with Ethiopia, Tanzania, South Africa, Algeria, Libya, Kenya, Chad, Cameroon, Uganda, Niger, Ghana, Angola, Central African Republic, Somalia, and Mali, exhibit a distribution where 51 percent originates from agricultural activities, 35 percent from energy production, and 14 percent from waste management. Overall African commitments under the Paris Accords can be met if these 19 countries reduce their methane emissions by 50 percent by 2030 (see Figure 9). Such a reduction is feasible at a relatively low cost and promises significant social and economic benefits. To support boosting domestic resource mobilization

for methane action in Africa, it is imperative for the international community to provide robust support to reduce methane emissions across the continent, particularly focusing on the major emitting countries.

Areas for action:

- *Energy sector*

Reducing methane emissions in the energy sector, particularly oil and gas production, is the most promising for swift action. As the technological innovation is readily available, energy companies should be encouraged to invest in new technologies to accelerate methane abatement, while taking steps to absorb associated costs. Given their significant contribution to methane emissions, oil and gas companies should bear primary responsibility for methane abatement and support resource mobilization efforts. This could be achieved without major distortions in view of record earnings of oil and gas companies operating in Africa. Furthermore, the investments made in methane

capture can be offset by the sale of the captured methane. African countries should seek technical support from the African Development Bank, the International Monetary Fund (IMF) and the World Bank to draw on international best practices to implement a mix of taxes and regulatory measures that serve as incentives for companies to reduce their emissions. There is also merit in promoting knowledge-sharing and peer learning among countries in the continent and beyond.

- *Agriculture*

Agriculture, particularly ruminants, accounts for the majority of methane emissions in Africa.

Tackling emissions in this sector poses a greater challenge compared to the energy sector. But there is increasing hope that significant inroads could be made building on new technologies. Based on extensive research over the past few decades, various promising strategies for enteric methane mitigation have been identified, including production intensification, dietary manipulation, rumen manipulation, and the selection of low methane-producing animals (Food and Agriculture Organization - FAO, 2023). However, further work is needed to make such strategies locally applicable and affordable in Africa.

The international community might consider approaches that balance taxation on meat production with subsidies for plant-based proteins. For instance, an IMF staff paper suggests that a proxy fee could be levied on farm level output for livestock and rice. This method would be more applicable to farms under corporate tax regimes or those receiving government subsidies. In places where it is not feasible to directly tax farms, as in many African contexts, consideration could be given to cross subsidization of taxes on meat to pay for subsidies on plant-based protein substitutes. Governments could also consider taxing the importation or sale of ruminants that produce more emissions and subsidize animals that produce more meat or milk, thereby allowing

fewer animals for the same production. That said, caution needs to be exercised when considering any tax schemes to mitigate methane emissions in the agricultural sector. It would be unjust and politically unsustainable to implement any tax proposals that impact adversely on African farmers and consumers, particularly those with low income.

- *Waste*

The waste sector presents a formidable challenge for rapid action in reducing methane emissions on the continent because of the high costs and the need for structural improvements in waste management practices. While significant health benefits and positive net gains can be achieved from investments in this area, the reduction of methane emissions is essentially a public good that must be primarily paid for by the public sector. Yet, the limited policy space in many African countries is further exhausted by strained government budgets in the post-COVID era and ongoing market disruptions due to the Ukraine war. Investment in waste management will require significant additional concessional financing from the international community including philanthropic organizations and multilateral development banks. To reduce the fiscal incidence and further strengthen waste management techniques, African governments and State actors would be well-advised to explore ways to increase private sector involvement in the delivery of waste management services, notably through improved processes for contracting, concession, franchise, and open competition.

- *Leveraging available financing for methane abatement finance*

At present, financing allocated for methane emissions abatement accounts for merely 0.4 percent of the total development and climate financing directed towards Africa, and just 4 percent of climate-specific financing. Considering the substantial global benefits and the practicality of swift measures in the 19 major African emitters, there is a pressing need to redirect development

partner financing to methane action, particularly in the agriculture and waste sectors.

This paper outlines the various sources of development and climate financing that can be tapped by African countries to meet immediate methane mitigation needs. In the short run, a major bottleneck relates to the absence of shovel ready projects – ideas developed into finance-ready projects with robust feasibility studies.

The good news is most of the 19 countries responsible for 80 percent of Africa’s methane emissions are currently formulating methane abatement plans. These should generate a host of good ideas for reducing methane emissions. The next step would be to take the ideas emerging from these plans to undertake feasibility studies.

Grants and concessional financing allocated to African countries are already fully committed and with tight budgets additional concessional financing will be required to support methane action, including by developing methane project pipelines. For instance, the 19 African countries responsible for 80% of methane emissions could join forces to unlock post-Cotonou European Union (EU) grants under the Neighborhood, Development, and International Cooperation Instrument – Global Europe (NDICI). The NDICI includes a thematic component of Euro 6.4 billion in support of the 2030 Agenda for Sustainable Development under the EU budget 2021-2027. Such grants could be complemented by technical support from the African Development Bank (AfDB), IMF and World Bank. Furthermore, mobilizing additional funding from philanthropies could be helpful. In this regard, a welcome move relates to the active involvement of several philanthropies in the recent launch of the new philanthropic investment organization Allied Climate Partners (ACP) whose mission is to increase the number of bankable, climate-related projects and businesses in emerging economies.

Once the project pipeline is ready it will be clearer by how much existing resources need to

be augmented. It is likely that in the short term (2024 to 2026) all projects can be financed from the various sources identified in this paper.

- *Mobilizing additional financing over the longer-term*

To bolster methane mitigation efforts, additional financial resources could be sourced both domestically and externally. In the short run, the available instruments could go a long way toward mobilizing adequate methane finance for African countries. But this requires that African countries organize themselves collectively, make the necessary domestic revenue mobilization efforts, leverage international support, and coordinate effectively the various initiatives undertaken by the development community in support of methane action on the continent. In parallel, the international community could consider a multilateral framework to reduce methane that is similar to the Montreal Protocol on Substances that deplete the Ozone Layer. The Montreal Protocol which is a global agreement signed in 1987 by all countries in the world is a successful model of multilateral cooperation that has helped made significant inroads toward the protection of the Earth’s stratospheric ozone layer by phasing out chemicals that deplete it, including the production and consumption of ozone-depleting substances (ODS).

Going forward, there is scope for Africa to innovate with the development of transition bonds. These bonds are designed to mobilize financing for firms to pay for investments that will reduce their environmental impact and/or reduce carbon emissions. However, the absence of accepted definitions and the lack of disclosed credible transition plans has hampered the development of the market except in Japan. African countries, with support from partners such as the African Development Bank, the European Investment Bank and the International Finance Corporation (IFC) should develop green taxonomies to finance investments that abate methane emissions.



AfriCatalyst recommends establishing the African Methane Abatement Bond (AMAB). This innovative financing mechanism is intended to bolster the execution of national methane mitigation strategies in African countries.

Over the medium term, this paper argues that the methane financing gap in Africa could be met by using innovative approaches to deploy additional instruments in both the private capital markets and the multilateral financing system. Most notably, this could include:

- Domestic taxation to finance the domestic component of projects in the waste sector.
- Leveraging of philanthropic funds.
- Recycling of Special Drawing Rights (SDRs) through multilateral development banks, particularly the African Development Bank.
- Emission of appropriate bonds to finance both private and public action;
- Operationalization of aspects of Article 6 of the Paris Agreement for methane abatement finance;
- Just Energy Transition Partnerships.

Clearly, a number of prerequisites will need to be met to secure progress on all these fronts, including an enabling regulatory framework, and strong political commitments to methane action at the country, regional and global levels. There is merit in incentivizing coordinated action among African governments notably in the establishment of green taxonomies and the introduction of policy and regulatory measures.

African countries have the crucial responsibility of adding substantive detail to their national methane action plans, effectively turning these frameworks into actionable strategies. Simultaneously, the international community is morally obligated to play a pivotal role. It must proactively engage in ensuring that every potential source of external financing is thoroughly pursued to bolster Africa's methane abatement efforts, thereby contributing significantly to the success of these initiatives.





# Introduction

Methane emissions in Africa are expected to increase in the coming decades because of increased production of oil and gas (Figure 1), increased demand for meat due to the emergence of a growing middle class, and more waste from population growth. Unless effective remedial actions are implemented, this trend will exacerbate the impact on human health due to air pollution, and reduce agricultural yields (AfDB, 2022).

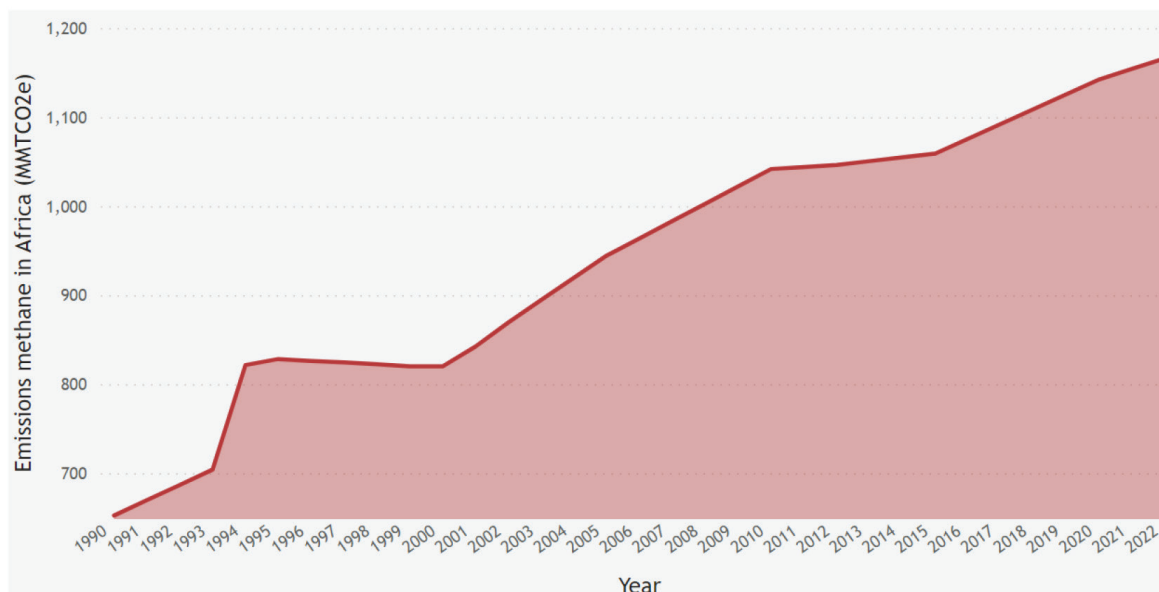
Although the continent's role in current and historical global emissions of greenhouse gases is well below that of other regions of the world, Africa is becoming a significant emission source. According to the Global Methane Initiative (GMI), between 1990 and 2022, emissions almost doubled, rising from 653 million metric tons of carbon dioxide equivalent (MMTCO<sub>2</sub>e) in 1990 to 1166 MMTCO<sub>2</sub>e in 2022 (Figure 1). In addition, through observation of satellite data from 2010 to 2016, researchers have shown that methane emissions have increased in tropical Africa, mainly in East Africa (Lunt et al., 2019).

This provides urgency for action by African countries to reduce emissions. UNEP and CCAC (2021) estimate that approximately 60% of the targeted measures available have a low mitigation cost, and just over 50% of them have a negative cost (i.e., the measures pay for themselves quickly by enabling savings to be made). However, these costs tend to be much more significant in Africa given the higher cost of financing compared with other regions of the world.

The International Energy Agency-IEA reports that 75% of current methane emissions from the oil and gas sector are entirely avoidable. More significantly, 50% of methane emissions from the coal sector could also be avoided using available technologies. In addition, existing targeted measures could reduce methane emissions from the agricultural sector by around 30 metric tons per year (Mt/yr) by 2030 (UNEP and CCAC, 2021).

This report is divided into five main parts. Part I addresses the issue of methane emissions in Africa by country, the emitting sectors, and the potential for reduction in the main methane-emitting countries.

Figure 1: Trends in methane emissions in Africa, 1990-2022



Source: AfriCatalyst calculations and data from Global Methane Initiative (GMI)

Part II explores the actions undertaken to reduce methane emissions in terms of costs, benefits, and financing needs. Part III outlines the financial instruments used to finance methane emission reduction actions, the sources of this financing, and potential actions that could promote the financing of methane actions. In Part IV suggests concrete

actions to scale up methane finance in Africa. Part V reviews some aspects related to governance, transparency, and accountability in African countries that could promote emission reductions, followed by a conclusion and recommendations for public policies.





# I. How much of a problem is Methane in Africa?

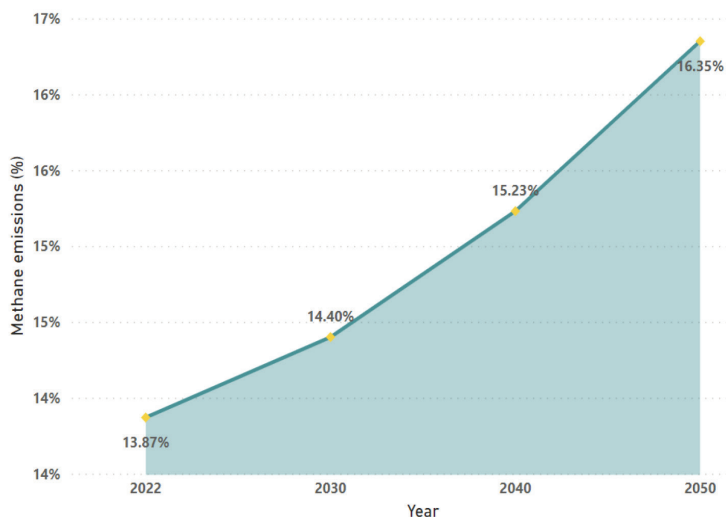
## I.I. Total methane emissions in Africa

Methane emissions in Africa have risen steadily in recent years with an average emissions growth rate of almost 2% from 1990 to 2022. This increase in emissions can be explained by increased production of oil and gas and the ever-growing needs of the African population, which is growing annually by around 2.4%. The need for food, energy, and transport has continued to increase, creating considerable waste to be managed, which in turn is a source of methane emissions.

The increase in emissions was most remarkable in the decade from 2001 to 2010, with an average growth rate of 2.4%. Methane emissions are currently on a growth trajectory on the continent, and by 2050 they are expected to reach 1628 MMTCO<sub>2</sub>e (GMI projection), an increase of almost 40% compared to 2022 emission's level. With currently just under 14% of global methane emission, if nothing is done, the emission of the

African continent will represent respectively 14.4% of global methane emission in 2030; over 15% in 2040, and 16% in 2050 (Figure 2).

Figure 2: Trends in methane emissions by 2050 (GMI projections).

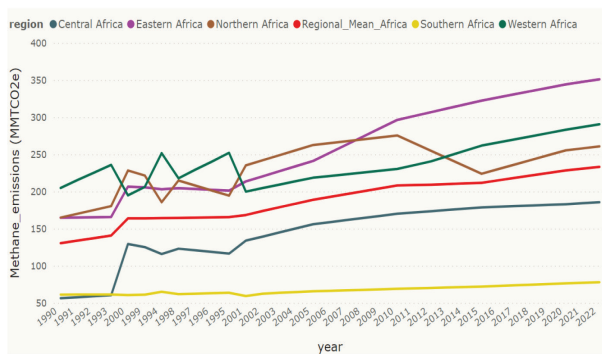


Source: AfriCatalyst calculations and data from Global Methane Initiative (GMI)

## I.2. Emission by region

Over the period 1990-2022, methane emissions showed an increasing trend in all 5 regions of the continent (Figure 3). East Africa, West Africa, and North Africa were the main methane-emitting regions. Moreover, emissions from these 3 regions exceed the African average (in red, Figure 3). These regions are home to the main fossil fuel energy-producing countries and have some of the largest populations on the continent. We can also see that the distribution of emissions is very disproportionate between the regions of the continent, with a very low level of emissions in Southern Africa despite is being home to two of the main fossil fuel-producing countries – Angola and South Africa.

Figure 3: Evolution of methane emissions 1990-2022, by African region



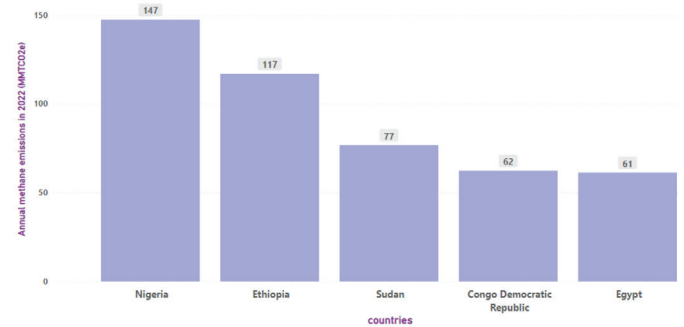
Source: AfriCatalyst calculations and data from Global Methane Initiative (GMI)

## I.3. Top 5 emitters in Africa in 2022 and main sources of emissions

Based on data from the Global Methane Initiative, Nigeria (147MMTCo2e), Ethiopia (117MMTCo2e), Sudan (77MMTCo2e), the Democratic Republic of Congo (62MMTCo2e) and Egypt (61MMTCo2e; Figure 4) are respectively the five main methane emitters in Africa.

These 5 countries will account for around 40% of the continent’s total methane emissions in 2022 and 5.5% of global emissions. Emissions are mainly concentrated in the agricultural sector and to a lesser extent in energy and waste. Emissions from

Figure 4: Top 5 African emitters of methane, 2022



Source: AfriCatalyst calculations and data from Global Methane Initiative (GMI)

industrial processes are almost non-existent, with only Nigeria emitting 0.00125 MMTCo2e in this sector for the group of five countries mentioned above.

### • I.3.1. Agricultural sector

Emissions from agriculture accounted for 84% in Sudan, 69% in Ethiopia and 55% in the Democratic Republic of Congo, 42% in Nigeria and 28% in Egypt (Figure 5). Agriculture’s large share of methane emissions reflects the scale of this sector in the economies of the countries mentioned. In 2022, the agricultural sector accounted for 38% of Ethiopia’s national Gross Domestic Product - GDP (the highest in Africa about its GDP), 24% in Nigeria, and 17% in the Democratic Republic of Congo. Ethiopia, Sudan, and Nigeria are also among the leading countries in terms of cattle population which is the largest methane emitter in the agricultural sector.

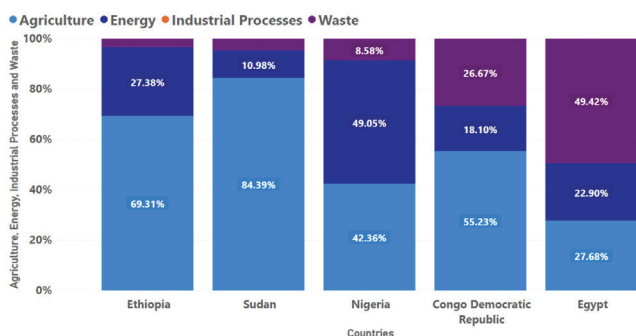
### • I.3.2. Energy sector

Nigeria is the main emitter of methane into the atmosphere, with almost 49% of the country’s total emissions coming from the energy sector. In Ethiopia and Egypt, methane emissions from the energy sector accounted for 27% and 23% respectively, compared with 18% in the Democratic Republic of Congo and 11% in Sudan (figure 5).

### • I.3.3. Waste Sector

In the 5 largest methane emitters in Africa,

Figure 5: Emissions by sectors in the top 5 African countries emitters of methane



Source: AfriCatalyst calculations and data from Global Methane Initiative (GMI)

emissions from waste are highest in Egypt (Figure 5). which produces more than 22 million tons, accounting for almost half its methane emissions. The Democratic Republic of Congo, with 27% of emissions, and Nigeria, with 9%, also have a significant share of methane emissions, compared with Sudan and Ethiopia, which emit less than 5% of their emissions from waste.

#### I.4. Countries responsible for 80% of Africa methane emissions in 2022

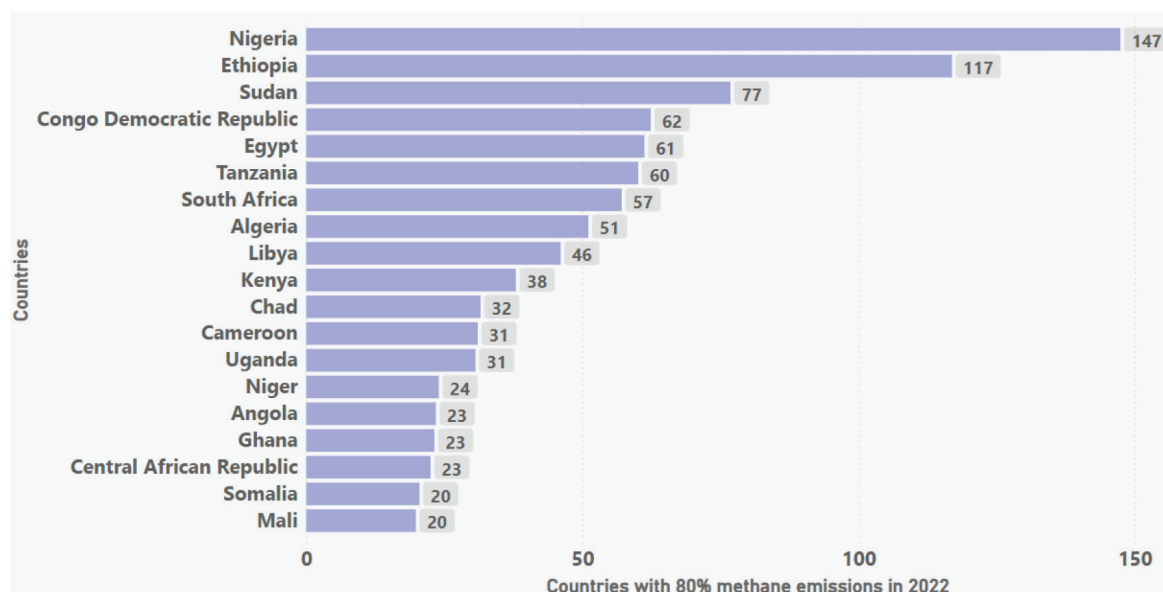
To achieve climate goals, a significant reduction in methane emissions is required. 5 countries account

for nearly 40% of methane emissions and 19 for 80% of emissions (Figure 6).

These countries can be divided into two groups: on the one hand, 8 with more than 50 MMTCO<sub>2</sub>e (including Nigeria, Ethiopia, Sudan, the Democratic Republic of Congo, Egypt, Tanzania, South Africa, and Algeria), which emitted a total of 633 MMTCO<sub>2</sub>e; and on the other hand, the other 11 (Libya, Kenya, Chad, Cameroon, Uganda, Niger, Ghana, Angola, Central African Republic, Somalia, and Mali), which emitted around 311 MMTCO<sub>2</sub>e.

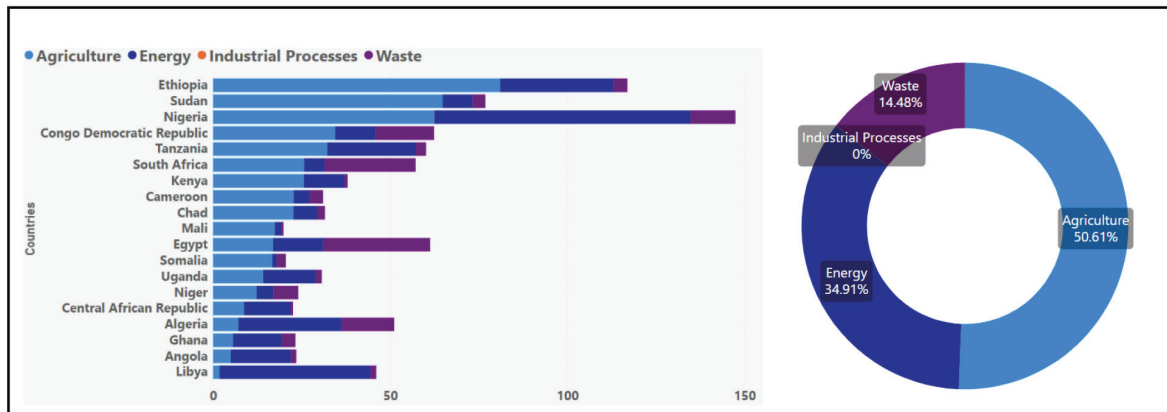
These emissions are dominated by the agriculture sector for most of the countries which represents around 51% of the cumulative emissions of the 19 countries, compared with 35% for the Energy sector and 14% for the Waste sector (Figure 7). Emissions from Industrial processes are almost zero for all countries except South Africa, Algeria, and Nigeria.

Figure 6: African countries with 80 percent of methane emissions, 2022



Source: AfriCatalyst calculations and data from Global Methane Initiative (GMI)

Figure 7: Methane emissions by sector with 80 percent emitters countries



Source: AfriCatalyst calculations and data from Global Methane Initiative (GMI)

### 1.5. Global impact of methane abatement in major African methane emitters

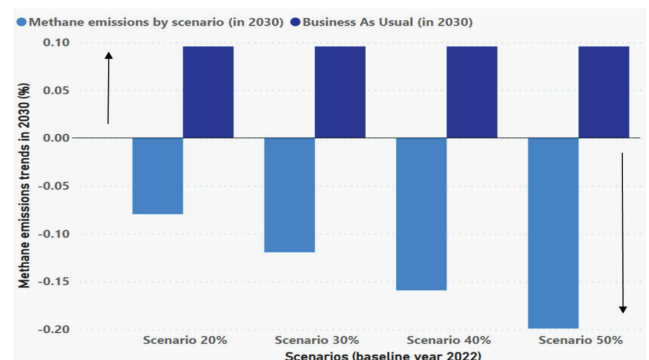
Reducing methane emissions is a good way to reduce overall African emissions. The five largest methane emitters account for around 40% of the continent’s total emissions, while 19 countries account for 80% of Africa’s emissions. According to the existing scenario reported in UNEP and CCAC (2021), global methane emissions need to be reduced by around 40% to 45% by 2030 to meet climate ambitions. Targeted actions by the 19 countries responsible for 80% of African emissions are sufficient for Africa to meet its contribution to global efforts to reduce global warming. Action in other African countries will be a bonus but international support should be focused on these 19 countries with a primary focus on the top 5 emitters.

- 1.5.1. For the Top 5 emitters

Reducing emissions in the 5 main methane-emitting countries has a significant impact in countering global warming. A 20% reduction in methane emissions in the 5 major African emitters, by 2030 relative to 2022 levels, would reduce overall African emissions by 8%. A 30% reduction would reduce total African emissions by 12%; a 40% reduction would reduce its emissions by 16%, and a 50% emissions reduction would result in a 20% reduction in overall African emissions.

Achieving the 40% to 45% reduction targets proposed in the UNEP and CCAC (2021) will require action in the 19 African emitters. Therefore, action by these 19 African countries is urgent because if not taken, in 2030 methane emissions for Africa will increase by around 10% (see Figure 8).

Figure 8: A scenario by 2030 with the top largest 5 emitters



Source: AfriCatalyst calculations and data from Global Methane Initiative (GMI)

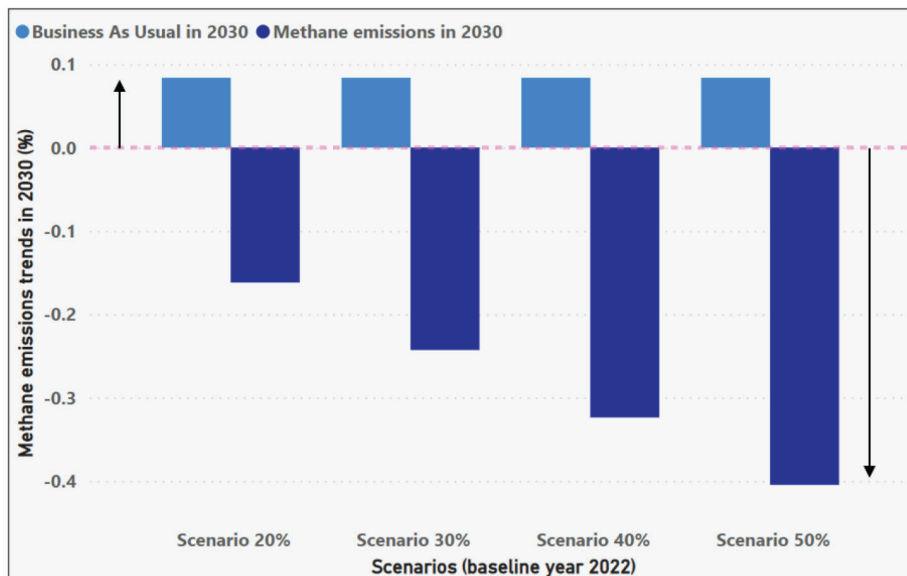
- 1.5.2. Countries with 80% of methane emissions in Africa

For the 19 countries representing 80% of African emissions achieving the desired lower bound of 30% reduction in overall emissions requires a 40% reduction in methane emissions by 2030 relative to 2022 levels (Figure 9).

The more ambitious target of a 40% overall reduction in African emissions can be achieved with a 50% reduction in methane emission by 2030 relative to 2022 levels. This corresponds to an emissions reduction of between 378 and 472 MMTCO<sub>2</sub>e by 2030. If the other 4 continents were to similarly reduce their emissions by at least 40% to 45% by 2030, the world would be in line with the Paris Agreement.

Although agriculture is the main methane-emitting sector in Africa, action in Africa should initially target all fossil fuel-producing countries even if they are not in the 19 top emitters. This is because emissions in this sector can be effectively and rapidly reduced at low cost based on available technologies and with the producers paying for the required investment.

Figure 9: A scenario to 2030 with 80 percent largest emitters.



Source: AfriCatalyst analysis, data from Global Methane Initiative (GMI)



## II. Methane Abatement Actions in Africa: Costs, Benefits, and Financing Needs

### II.1. Methane Abatement Costs

Recent technological developments have drastically lowered the cost of reducing methane emissions. According to UNEP and CCAC (2021), most emission reduction measures can be carried out at very affordable costs of less than \$600 per ton of methane. The average cost of reducing one ton of methane ranges from \$190 in coal mines to \$3,240 for waste water and a net benefit of \$2,900 for solid waste. Tables a through e in the Technical Note provide cost by sector as well as the methane reduction options available with a 30% reduction target by 2030.

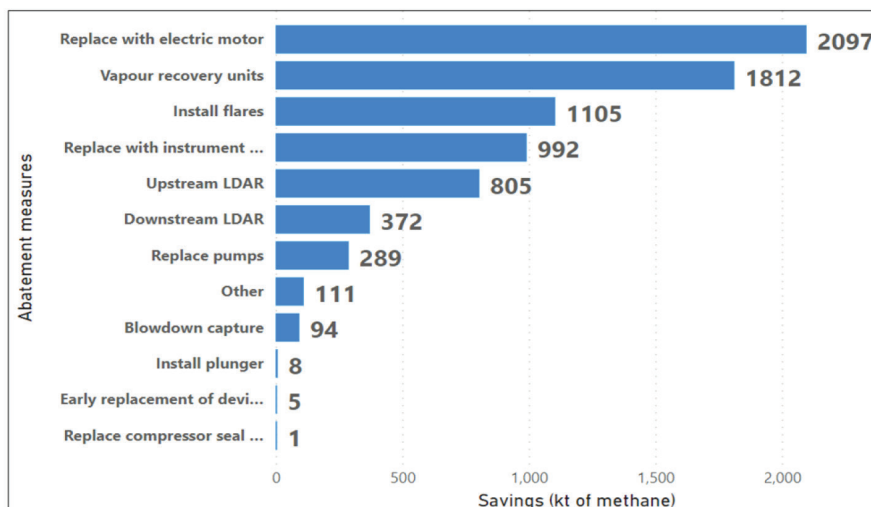
### II.2. Methane Abatement Benefits

The benefits of reducing methane emissions are considerable. According to estimates by UNEP and CCAC (2021), most of the methane reduction measures identified cost less than the societal benefits of \$4,300 per ton of methane. This

represents a considerable economic advantage if methane emission reduction projects are implemented. A 45% reduction in current emissions would prevent a 0.3°C reduction in global warming by 2040. Using data from the International Energy Agency - IEA, we highlight in Figure 10 & 11, the benefits in terms of the quantity of methane avoided by the reduction measures available, mainly in the fossil fuel sector – oil & gas and coal. Noticeably, all the mitigation options save methane, which could then be sold on and generate additional income.

For the oil and gas sector, the range of mitigation options may include blowdown capture, downstream or upstream leak detection and repair (LDAR), early replacement of devices, installation of flares and plunger; replacement of compressor seal, rod, and pumps; replace with electric motor, replace with instrument air systems, vapor recovery units and other. Figure 10 shows that the “replace with electric motor” option mitigates the most methane, with 2097 kiloton (kt) of methane, compared with

Figure 10: Methane saving with available abatement measures in the oil and gas subsector



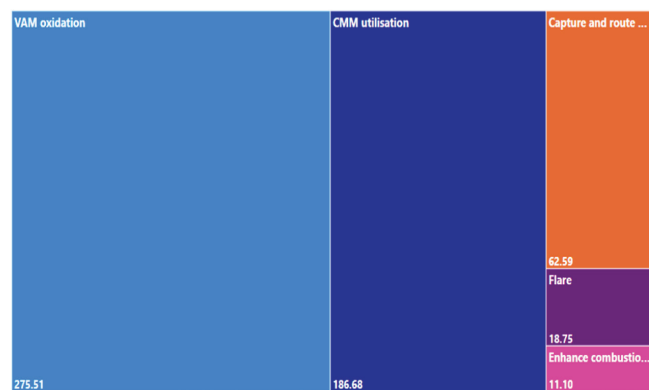
Source: AfriCatalyst Analysis, with data from methane tracker database (IEA, 2023)

1 kt of methane for the “replace compressor seal or rod” option, which is least effective.

For coal (Figure 11), the options for reducing methane emissions. Ventilation Air Methane (VAM) oxidation option offers the greatest methane savings in Africa, showing 276 kt of methane saved, compared with 11 kt of methane for the “enhance combustion efficiency” option – the lowest.

Such evidence makes it easier to plan and implement mitigation measures. Thus, with the two sub-sectors combined – oil & gas and coal – the African continent would have saved 8,244 kt of methane in 2022.

Figure 11: Methane saving with available abatement measures in the coal subsector



Source: AfriCatalyst Analysis, with data from methane tracker database (IEA, 2023)

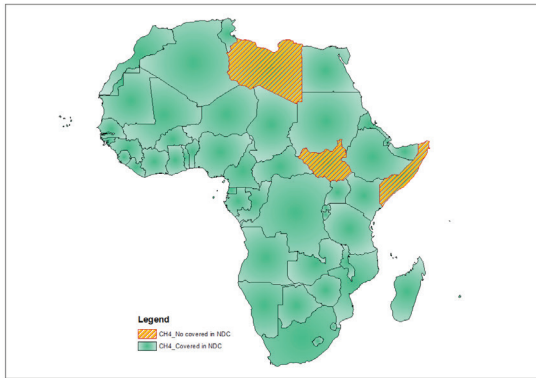
For agricultural and waste sectors, reducing emissions will have a considerable impact on the climate, but also on agricultural yields. The agricultural sector is the main methane emitting sector in Africa and therefore offers a significant opportunity in terms of methane reduction possibility. Many specialists report that reducing methane emissions in the agricultural and waste sector will improve agricultural yields, animal health, the well-being of the population, worker productivity, and prevent thousands of premature deaths.

### II.3. The Role of African Nationally Determined Contributions

In their Nationally Determined Contributions (NDCs), all African countries have committed to reducing methane emissions except for Libya which has not yet submitted its NDC, South Sudan and Somalia. Reducing methane emissions offers the African continent an opportunity to rapidly achieve its climate ambitions under the Paris Agreement (Figure 12).

The amount of methane emissions covered by NDCs is estimated at around 1134.6 MMTCO<sub>2</sub>e, distributed differently between countries (Figure 13). The countries with the most methane covered

Figure 12: Methane reduction measures in NDC

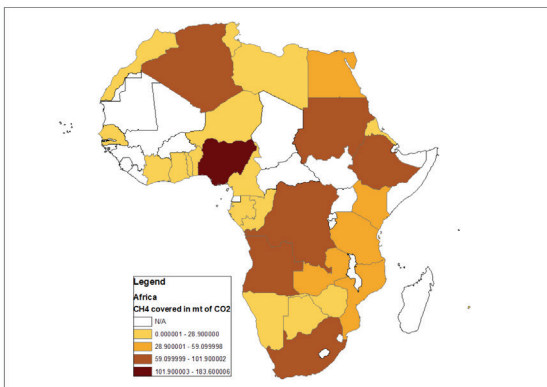


Source: AfriCatalyst analysis, with data from Institute for Global Environmental Strategies (IGES NDC Database)

are among the biggest methane emitters – Nigeria, Algeria, the Democratic Republic of Congo, South Africa, Angola, Sudan, and Ethiopia.

In most of the NDCs, the costs of reducing methane emissions have not been estimated because costs are estimated in a general way without distinguishing between the different types of methane emissions. It would be advisable to update the NDCs for the 19 African countries that account for 80% of methane emissions to make methane reduction a key component with a proper accounting of costs and benefits.

Figure 13: Amount of methane mitigation covered in the NDCs



Source: AfriCatalyst analysis, with data from the Institute for Global Environmental Strategies (IGES NDC Database)

To date, only 15 countries, including 5 in Africa – Algeria, Angola, Republic of Congo, Egypt, and Gabon – have clearly stated their gas flaring reduction targets in their NDCs (Table 1). The remaining oil and gas producing countries should make clear

commitments in the revision of their NDCs slated for 2025. In this endeavor, the World Bank’s Global Gas Flaring Reduction Partnership could provide technical and financial assistance to reduce routine gas flaring and venting. New pledges to catalyze funding in methane reduction investment were announced during the 28th Conference of Parties (COP28), with estimates totaling over \$1 billion in new grant funding including \$255 million for the World Bank Global Flaring and Methane Reduction Partnership and \$200 million for the launch of the Enteric Fermentation Accelerator. Ultimately, these initiatives make it possible to finance methane mitigation projects in the fossil fuel and agricultural sectors for developing countries.

Table 1: Countries that included flaring reduction in their Nationally Determined Contributions

COUNTRY	YEAR	FLARING REDUCTION COMMITMENT
Algeria	2016	Reduce the volume of gas flaring to less than 1 percent by 2030.
Angola	2021	Reduce flaring—295 million standard cubic feet per day-mmscf/d (42 percent of unconditional commitments) or 370 mmscf/d considering conditional commitments compared to 2015 levels.
Congo, Rep.	2021	Flaring is estimated to account for 23 percent of direct greenhouse gas (GHG) emissions from the energy sector in 2000. The first NDC refers to various measures of flaring being taken over the years, and a policy to encourage its productive use when reinjection is not possible. However, no specific emissions reduction target is provided.
Egypt	2017	Undertake GHG emissions reduction in the oil and natural gas sector, including venting and flaring through the use of advanced locally appropriate and more-efficient fossil fuel technologies, which emit less. However, no specific emissions reduction target is provided.
Gabon	2016	Over 2010–25, policies will reduce GHG emissions from flaring by an estimated 17,341 GtCO <sub>2</sub> e (giga ton carbon dioxide equivalent), or 41 percent of emissions (63 percent in 2025). Actions toward this goal include investments in reinjection, gas flare to power, and compression units.

#### II.4. Financing Needs

Climate Policy Initiative (CPI, 2022) estimates that the overall funding earmarked for reducing methane emissions represented only 2% of global climate funding, i.e., around 11 billion dollars over the period 2019/2020, whereas the minimum funding required is estimated at 110 billion dollars (about \$340 per person in the United States - US) per year to fulfil the ambitions of significantly reducing methane emissions on a global scale.

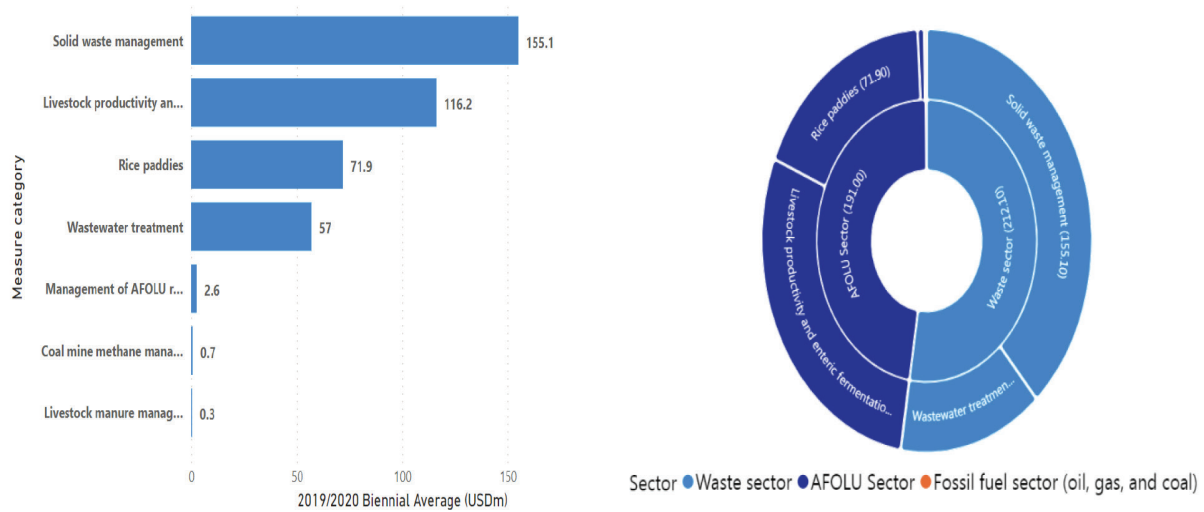
These statistics show that methane emissions mitigation is very underfunded, even though the potential for reducing emissions is considerable, as documented in the UNEP and CCAC (2021).

Furthermore, according to (CPI, 2022), reducing methane emissions has one of the highest ratios of global warming benefits per dollar of capital invested. Thus, the world can reduce greenhouse gas emissions without spending a lot of money.

The African continent has also received little attention in terms of funding for methane reduction, even though it is one the largest emitter of methane. The sub-Saharan African region received only around 6% of total methane financing while Middle East and North Africa have received around 12% over the 2021/2022 period (CPI, 2023).

The Climate Policy Initiative (CPI, 2022) reports that in Sub-Saharan Africa the most funding to reduce

Figure 14: Methane abatement finance by measure category



Source: AfriCatalyst analysis with data from Climate Policy Initiative (Methane abatement landscape data)

methane emissions went to solid waste management (\$155.1 million), livestock productivity and enteric fermentation (\$116.2 million), Rice paddies (\$71.9 million) and wastewater treatment (\$57 million). These four emission reduction measures accounted for approximately \$403.8 million. The management of Agriculture, Forestry and Other Land Use (AFOLU) residues (\$2.6 million), coal mine methane management (\$0.7 million) and livestock manure management (\$0.3 million) sectors received the lowest amounts of climate funding (Figure 14).

Table f and g in the Technical Note for details).

The sources of funding are in most cases public, with over 60% of funding essentially provided by multilateral financing institutions – around 87% of public funding. The CPI database does not show financing by country. Also, the North African region is excluded from this financing analysis since the North African countries have been grouped in the North African and Middle East regions (Figure 15).

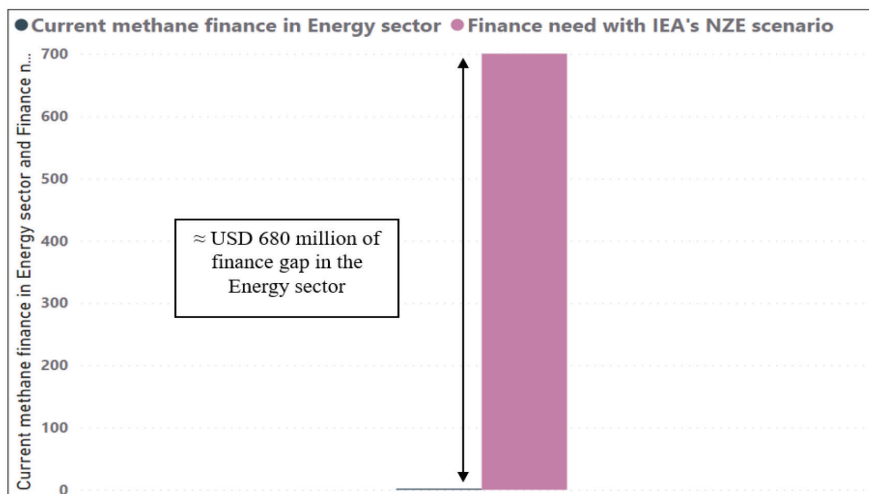
The waste sector dominated methane financing, followed by the AFOLU and energy sectors (see

Figure 15: Methane finance providers.



Source: AfriCatalyst analysis with data from Climate Policy Initiative (Methane abatement landscape data)

Figure 16: Methane finance gap need and gap in the oil and gas sector in 2021



Source: AfriCatalyst analysis, with data from (IEA, 2023)

### 11.5. Methane financing gap

According to the Net Zero Emission scenario-NZE of IEA (IEA, 2023), the African continent will need \$6.8 billion in financing for the oil and gas sector by 2030. Currently there is virtually no financing for sub-Saharan African countries in the oil and gas sector. With 2021 as the base year, annual funding for the African continent would be estimated at around \$680 million a year to reach \$6.8 billion in funding by 2030 (Figure 16 & 17).

This gap can be financed by the industries themselves by investing in the most efficient technologies to reduce gas leakage and flaring. The voluntary initiatives already undertaken by certain companies, such as the Oil and Gas Climate Initiative (OGCI), the Oil and Gas Methane Partnership 2.0 (OGMP) and the World Bank’s Zero Routine Flaring by 2030 Initiative, are a starting point for achieving such results.

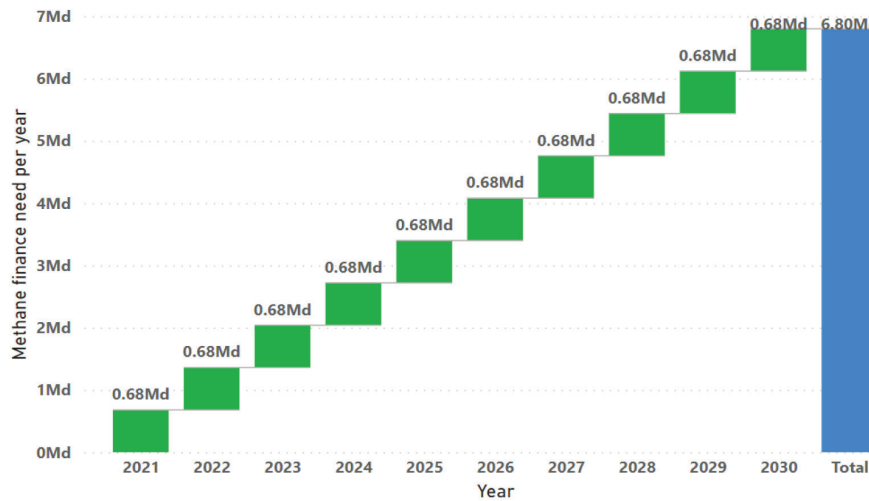
For African companies operating within the continent, it presents an opportunity to join similar initiatives and amplify their action towards methane reduction. Such collaboration could significantly enhance the collective impact on methane mitigation efforts across Africa. IEA et al (2023) highlights that the total spending

required to deploy all available methane mitigation strategies in the oil and gas sector through 2030 is less than 2% of the net income earned by this industry in 2022. These initiatives complement efforts aimed at diminishing the reliance on fossil fuels. With assistance from international partners, African nations are encouraged to intensify their investments in renewable energy sources. This strategic shift is essential to curb the rising demand for fossil fuels, favoring renewable alternatives instead. Africa possesses significant potential in green hydrogen, solar, and wind energy, which can be harnessed to foster a more sustainable energy future.

In addition to these measures, African governments will also need guidelines for methane abatement in the fossil fuel sector. Nigeria’s recent publication of guidelines for emissions management in the upstream oil and gas sector to support the elimination of systematic gas flaring by 2030 and a 60% reduction in fugitive methane emissions that escape during the production and transport of oil and natural gas by 2031 is a concrete example that other African fossil fuel producing countries should follow.

Using the scenario developed by UNEP and CCAC (2021), the reduction of one ton of methane

Figure 17: Methane finance gap need and gap in the oil and gas sector (2021-2030)



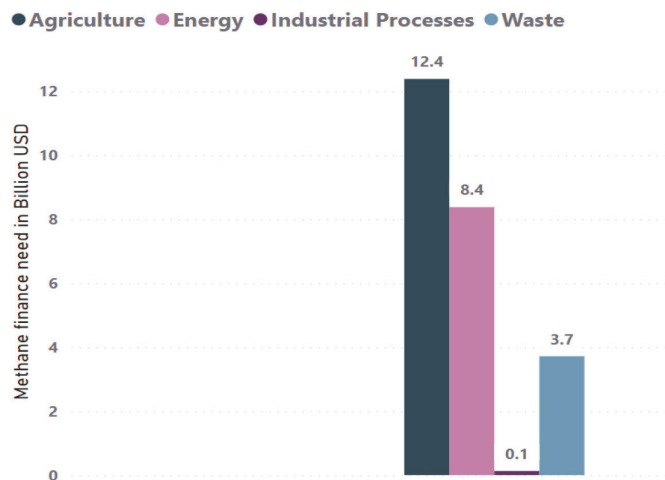
Source: AfriCatalyst analysis, with data from (IEA, 2023)

corresponds to \$21 of carbon dioxide equivalent, using a Global Warming Potential over 100 years (GWP100). Thus, in the case of a net-zero scenario (2030) based on 2022 emissions, the African continent would need approximately \$25 billion in financing between 2022 and 2030 (Figure 18) of \$20 billion for the 19 countries with 80% of African methane emissions. This corresponds to an annual financing requirement of 3 billion dollars through 2030.

emissions. Capturing methane emissions in the energy sector offers a valuable opportunity. This captured methane can be resold, generating additional revenue for companies involved. This potential income stream can significantly offset the costs associated with emission reduction, thereby enhancing the economic viability of these initiatives. According to the CCAC, for every million tons of methane emissions avoided, there is an estimated reduction of approximately 400 million working hours, underlining the broader positive impacts of these efforts.

The above estimates do not account for the benefits associated with reducing methane

Figure 18: Methane finance needs with NZE (Net Zero Emission) scenario



Source: AfriCatalyst analysis, with data from UNEP and CCAC (2021)

<sup>10</sup> The Global Warming Potential 100 (GWP100) is the most used metric to quantify greenhouse gas emissions and is meant to level set the global warming potential of greenhouse gases over 100 years. Carbon dioxide has a score of 1 while methane has a score of 28. In other words, 1 kilogram of methane is 28 times more potent than 1 kilogram of carbon dioxide over 100 years.



### III. Instruments, sources, and actors

Given the scientific and political relevance of Methane, a major question is how Africa could unlock resources to transform its food and energy systems, and waste management to mitigate methane alongside development objectives. Reducing methane emissions promises high rewards but comes with significant costs. Therefore, a variety of modes of foreign and domestic financing will need to be mobilized to enable African countries to tackle the problem. By making a significant effort to mobilize domestic resources, African countries can enhance the likelihood of complementary financing from the international community including investors and donors. In this context, methane financing should be approached broadly given the scientific and political relevance of methane to reducing carbon emissions. Since many interventions will be in extractive industries and agriculture by private entities, this also facilitates financing from the “sustainable” bond market. Given the high payoff from methane reduction in terms of overall diminution of carbon emissions, consideration could be given to trading reductions from methane to finance other commitments under

Nationally Determined Contributions (NDCs) under the Paris Accords.

Table 2 shows the current amount of climate and development financing received by Africa. Methane obtains only 4% of climate financing and less than 1% of total development and climate financing. The public sector share is only 0.2% of total climate and development financing. This suggests considerable room to fill the gap in methane financing required to meet the Paris Accord goals as outlined above. This additional financing effort will require stronger domestic efforts which should leverage international support.



Table 2: Development, Climate, and Methane Finance in Africa, 2021

Sources	Total (Development + Climate)	Development (\$Millions)	Climate (\$Millions)	Of Which methane	Methane as share of total (%)	Methane as share of climate (%)
Public	97,133.9	92,043.9	5,090	227.5	0.2%	4%
Multilateral	35,598.6	34,688.6	910	224.1	1%	25%
Bilateral	61,535.2	57,355.2	4,180	3.5	0.01%	0.1%
Private	7,718.0	3,874.0	3,844	166,9	2%	4%
Total	104,851.8	95,917.8	8,934	394,4	0.4%	4%

Source: OECD Glossary statistical at: <https://stats.oecd.org/glossary/index.htm>, Climate Policy Initiative – Africa Climate Landscape data & Methane Abatement Landscape data at: <https://www.climatepolicyinitiative.org/publication/the-landscape-of-methane-abatement-finance/>.

### III.1. Domestic Financing

#### • III.1.1. Domestic financing through Methane taxes

Work on taxation policies that explicitly target methane emissions is at an early stage (Pham, 2022). African countries have an opportunity to explore potential opportunities in this area, drawing on good practice elsewhere. Still, caution needs to be exercised when considering any tax schemes to mitigate methane emissions, especially in the agricultural sector. Tax schemes should include cross-subsidies that protect African farmers and consumers, particularly those with low income.

The international community could consider a multilateral taxation initiative that would help raise resources to support methane mitigation efforts in the Global South. An IMF staff paper suggests that putting a price on methane, ideally through a fee, would reduce emissions efficiently, and can be administratively straightforward for extractives industries and, in some cases, agriculture (Parry et al., 2022). Policies could also include revenue-neutral 'feebates' that use fees on dirtier polluters to subsidize cleaner producers. The levy of a \$70 methane fee among large economies suggested by IMF staff could not only help align 2030 emissions

with 2oC, but also mobilize additional catalytic financing that could support methane action in the developing world, particularly in Africa.

#### • III.1.1.1. Extractive Industries

Useful lessons can be drawn by African energy producers from the experience of various countries around the world that introduced tax schemes for mitigation purposes. Norway was one of the first countries in the world to introduce a carbon tax, in 1991. The tax is levied on all combustion of gas, oil, and diesel in petroleum operations on the continental shelf and releases of CO<sub>2</sub> and natural gas (Parry et al., 2022), the CO<sub>2</sub> Tax Act on Petroleum Activities. As a result of taxation and regulation Norway is one of the lowest emitters of methane in oil/natural gas extraction. Norway emits less than 1 kg CO<sub>2</sub>e/ GJ (kilogram carbon dioxide equivalent per giga joule) of fuel compared with 12 kg in Iran – one of the highest emitters – about 5 kg in the US and Russia and about 3 kg in Canada and Saudi Arabia. Norway has also reduced its flaring emissions from 0.3 billion cubic meters (bcm) in 2012 to 0.1 bcm in 2020.

The United States - US Inflation Reduction Act of 2022 introduces a methane emissions charge if emissions exceed a certain level. This charge applies to a facility's emissions in exceedance

<sup>11</sup> Climate-related development finance in the framework of OECD DAC refers to assistance that supports environmental issues, such as finance to local environmental objectives tracked since 1992, and finance targeting the global objectives of the Rio Conventions since 1998. Data are reported by members of the OECD DAC, collected through the "Creditor Reporting System" (CRS) and identified as using the "environment" and "Rio markers", where providers are requested to indicate for each development finance activity whether or not it targets environmental objectives. There are four Rio markers, covering: biodiversity, desertification, climate change mitigation, and climate change adaptation, in addition to the environment marker.

of 25,000 metric tons of carbon (Kenneth et al., 2022). The fees for these emissions will begin at \$900 per metric ton of methane emitted in 2024 and will increase to \$1,200 in 2025, and \$1,500 in 2026. To calculate methane waste emissions, facilities will apply applicable emissions thresholds. For petroleum and natural gas production facilities, the threshold is emissions exceeding 0.2% of the natural gas sent to sale from the facility. If a petroleum and natural gas production facility emits more than 0.2% of the amount of natural gas the facility sends for sale in 2024, the facility will be charged a fee of \$900 per metric ton of methane emitted above that threshold. The Inflation Reduction Act also authorizes the Environmental Protection Agency (EPA) to appropriate \$850 million in grants to facilities subject to the fee to meet a range of objectives, including “improving and deploying industrial equipment and processes” that reduce methane emissions, which may reduce emissions from a facility below the threshold.

Canada has opted against taxation in favor of regulation to achieve a 75% reduction in methane emission by 2030 (Weber, 2023). However, the US tax, which aims to incentivize investment to reduce methane emissions, may be more appropriate for Africa where regulatory capacity is much weaker than in Canada.

The cost of abatement can and should be borne by the energy companies, with part of the financing coming from capturing and selling methane. The necessary investment for capturing methane and for other abatement measures could be financed by Transition Bonds. African oil and gas producers can be induced to reduce emissions in their operations by setting emission quotas that result in heavy taxation if exceeded, along the lines of US action. Technical partners such as the IMF can provide technical assistance to design an appropriate regime. To facilitate such a regime from being accepted by oil and gas producers and to support early investment in the required technology, African Governments could work with the African Development Bank (AfDB), the European Investment Bank (EIB) and

the International Finance Corporation (IFC) to mobilize Transition Bonds that could finance the efforts of oil and gas producers. In parallel, to strengthen the regulatory framework applicable to energy producing companies and other sources of methane emissions, governments can obtain technical assistance from the African Development Bank and the World Bank to adopt best practices.

- *III.1.1.2. Agriculture*

Already back in 2013, scientists were proposing to tax gas emissions from ruminant meat production (Ripple et al., 2014). Ripple et al., (2014) suggested either taxing meat or implementing an emissions trading scheme. However, even though methane emissions from agriculture are higher than from oil and coal, no action has been taken to date. As reported by the Guardian at the time, the farming industry opposed the proposals saying, “To suggest a tax is a better way to cut emissions seems a simplistic and blunt suggestion that will inevitably see a rise in consumer prices (Vaughn, 2013).”

Change may be on the way and African countries could also get ahead of the curve in this area. New Zealand, which has one of the largest herds of ruminants in the world, has proposed a tax on cow emissions (Pannett, 2023). The levy is expected to reduce methane emissions by up to 47% by 2050. The amount levied will depend on the number of animals, the size of the farm, the type of fertilizer used, and steps farmers take to reduce their emissions.

The IMF suggests that a proxy fee could be levied on farm level output for livestock and rice (Parry et al., 2022). Such a fee could be more easily implemented where farms are subject to corporate taxation or receive government subsidies. Where it is not administratively feasible to tax farms, which may cover many producers in Africa, there could be cross subsidization of taxes on meat to pay for subsidies on plant-based protein substitutes. Government could also tax the importation or sale of ruminants that produce more emissions

and subsidize animals that produce more meat or milk, thus allowing fewer animals for the same production.

- *III.1.1.3. Waste*

Taxing emissions from waste is more complicated because landfills, where the emissions are produced, do not control the amount of waste received from households and restaurants. Subsidies and other incentives to reduce emissions in landfills by using technology and encouraging innovation would be more appropriate. At the same time, programs can be developed to encourage more composting of organic waste and reduction of food waste. These programs could be paid for by a tax on packaging and food that tends to be wasted together. Households would be given an income allowance to offset these taxes provided they participated in food waste reduction and composting programs. Such programs could be run by Civil Society Organizations with financing from the Corporate Sector as part of their Corporate Social Responsibility obligations.

### III.2. International Sources of Finance

- *III.2.1. Operationalizing aspects of Article 6 of the Paris Agreement that are relevant to methane abatement finance: Emissions Trading Schemes*

Article 6 of the Paris Agreement allows countries to voluntarily cooperate to achieve emission reduction targets set out in their NDCs. Under Article 6, emission reductions that have been authorized for transfer by the selling country's government may be sold to another country, but only one country may count the emission reduction toward its NDC. The World Bank has various programs and instruments that can enable countries to reduce carbon emissions and to assist them in pricing and trading. Country specificity will determine which of these programs is most helpful.

Given the variety of programs and complexity of issues, the main operational recommendation is for each African Country to request the World Bank or Climate and Clean Air Coalition to produce a blueprint that identifies the most promising areas for reducing methane emissions. The blueprint would map for each proposal the appropriate instruments available at the African Development Bank, the World Bank and Climate financing agencies. Where there are gaps, the blueprint would also suggest alternative support that is currently available such as from the EU. The blueprint would also suggest where the reductions in methane may be more valuable if sold on the carbon market than if applied to the Nationally Determined Contributions. The limited funding available at the World Bank and the African Development Bank could be augmented in the short run by joint action to mobilize additional grants, including from the European Union, and over the medium term through SDR recycling, as discussed below.

Funding could support methane abatement programs by using financing for progress in reducing other carbon emissions, or the monetization of methane reductions. For instance, revenue from selling reduction in emissions from methane could allow carbon taxes to be introduced together with income support to households to compensate for the higher costs arising from the tax. Even if there is full compensation, the higher price of carbon related energy will induce substitution whilst leaving households better off as they substitute for other products. The blueprint could also suggest the appropriate Emissions Trading Scheme for the reduction in methane emissions from each of the programs.

The International Carbon Action Partnership (ICAP) was founded in 2007 in Lisbon by 19 governments to discuss market-based solutions as a response to global climate change (ICAP, 2023). ICAP now has 40 member and observer jurisdictions and has become the central discussion forum and knowledge hub for emissions trading. It has delivered courses to over 700 participants from more than 60 countries, building capacity on emissions trading

as a key policy instrument to tackle climate change globally.

In 2023 there are 28 operational Emissions Trading Systems (ETS) with another 21 at various stages of development. In the African context, however, there are few mechanisms due to the nascent state of the African carbon market. To date, no African country has its own ETS. Existing ETSs are issued by other countries, from which the continent can benefit primarily through the mechanisms of the United Nations Framework Convention on Climate Change (UNFCCC). These include the Clean Development Mechanism, the Joint Implementation and the voluntary carbon market.

### • *III.2.2 International Private Finance*

In the post-COVID environment when most African countries have accumulated significant debt, the scope for commercial bank financing is limited. However, bond markets may still be open to financing green initiatives including reducing methane emissions. Some countries may have access to bond markets on their own standing. Most African countries, particularly those in the low-income and lower-middle-income groups, will need some form of development partner involvement to convince investors that the projects are worth financing. It should be possible to design schemes to finance methane reduction and benefit from Emissions Trading Schemes to generate resources for further action on methane or other actions to build resilience and sustainability.

Transition bonds are designed to secure financing for companies to fund investments aimed at lessening their environmental footprint and reducing carbon emissions. However, the lack of universally accepted definitions and credible, disclosed transition plans has impeded market growth, with Japan being a notable exception. In 2022 only \$3.5 billion transition bonds were issued, all in Japan, compared with \$487 billion in green bonds and \$166 billion in sustainability bonds (Murdoch, 2023).

One of the first transition bonds was issued in 2019 with a 10-year horizon. It mobilized \$500 million to enable a Brazilian beef producer, Marfrig, to buy only from suppliers that had committed to not destroying the rainforest (Riordan, n.d).

Transition bonds may be important to help companies finance programs to reduce methane emissions. Indeed, Marfrig's initial attempt to issue a green bond was unsuccessful, as beef production is generally classified as 'Brown' rather than 'Green'. Additionally, it is clear that extractive industries do not fall under the 'Green' category.

An alternative to Transition bonds is Sustainability-linked loans (SLLs) and bonds (SLBs). These are relatively new and innovative performance-based financial instruments that allow companies to raise capital for general purposes. SLLs' and SLBs' financial and structural characteristics, such as the interest rate of a loan or coupon of a bond, vary depending on whether the borrower or issuer achieved sustainability performance targets for a predefined set of Key Performance Indicators (KPIs), which can cover a range of environmental and/or social targets. SLLs and SLBs represented respectively 26% (\$428 billion) and 7% (\$109 billion) of the total sustainable debt market in 2021 (OECD, 2022).

In recent years, the International Capital Market Association (ICMA) Climate Transition Finance Working Group aimed to develop a transition label. However, consensus quickly emerged that the group should focus on climate transition disclosures to be added to SLBs rather than creating a separate label, especially in the absence of a global consensus around key definitions and components of such an instrument (Olszowska, 2023). Interest in Transition Bonds is now on the rise because of perceptions that SLBs are not ambitious enough to prevent accusations of green washing.

### III.3. Multilateral Climate and Development Finance

The primary short-term challenge lies in the

absence of a ready pipeline of projects, rather than a lack of financing for well-conceived projects. In the case of Mauritius, all projects to build resilience and sustainability that had credible feasibility studies found financing. However, there is a large pipeline of project ideas which would require financing of about Euro 10 million for the feasibility studies. In a constrained budget post-COVID most of these feasibility studies will not be financed unless a development partner takes an interest in developing the idea for financing a project.

Grants are increasingly scarce as national parliaments of donor countries trade off development assistance against growing demand for public services in an ageing population, coupled with a world of greater uncertainty that necessitates increased military spending. To optimize grant opportunities, countries must develop clear evidence-based roadmaps, with senior public officials engaging proactively and demonstrating the leadership needed to incentivize third party players, notably from the private sector that can bring solutions and capital. African countries should build on the global “methane momentum,” whilst drawing lessons from the Montreal Protocol to strengthen multilateral cooperation and mobilize dedicated concessional financing for methane action.

While most available grants are fully committed, there are still opportunities available for African countries to access grants in support of their methane abatement initiatives. However, effective coordination at the country and multilateral level is critical to produce homegrown programs with fleshed out methane emissions reduction action plans. Adequate grant resources for project preparation need to be mobilized to catalyze development and private finance.

### • *III.3.1. Regional Funds*

The post-Cotonou arrangements of the EU present an underutilized opportunity for mobilizing grants through collective action by African countries. This funding could be pivotal in developing a project

pipeline focused on interventions aimed at reducing methane emissions. Moreover, collective action may also be necessary to bundle small methane projects and transform them into more sizable and bankable regional projects.

Under the EU budget 2021-2027, the Neighborhood, Development, and International Cooperation Instrument – Global Europe (NDICI) will be granted a total financial envelope of around €79.5 billion to support development programs for African, Caribbean and Pacific (ACP) countries. This includes a thematic component of Euro 6.4 billion in support of the 2030 Agenda for Sustainable Development (Concord, 2022).

Accessing funds for methane emission reduction would require countries to work together. The Organization of African, Caribbean and Pacific States (OACPS) could be a useful partner for African members interested in undertaking such an initiative. Under this approach, in addition to mobilizing grants the standards for Transition Bonds could also be developed.

Most of the Euro 6.4 billion for sustainable development has not been committed. If African countries join together there should be more than enough to finance at least a first tranche of feasibility studies. In the short run EU grant financing could be used in African countries to turn ideas into projects ready for financing. Once a project pipeline is ready EU grant financing would need to be complemented by the various facilities already in place. The World Bank and regional development banks can provide technical assistance to:

1. Develop terms of reference for the feasibility studies;
2. Provide support for quality control over the execution of the feasibility studies;
3. Identify possible sources of concessional financing for implementing the projects emerging from the feasibility studies;
4. Assist in the implementation of methane mitigation projects.

<sup>15</sup> When developing proposals for financing by the EU, it would be useful to take account of the EU Fuel Quality Directive which required a reduction of the greenhouse gas intensity of transport fuels by at least 6% by 2020. It has been amended by the revised Renewable Energy Directive adopted by the Council on October 9th, 2023, with a view to removing the greenhouse gas intensity reduction target from the Fuel Quality Directive and introducing an ambitious 2030 target for transport fuels and energy carriers.

To move forward at least three African countries would need to request the OACPS to play a coordination role and to seek participation of as many other African countries as possible. Whilst this paper focuses on Africa, the OACPS may also inform its members in the Caribbean and Pacific to provide greater weight to any initiative and maximize economies of scale and scope.

While the OACPS is a logical option for coordination, considering that most African countries are members and its close ties with the EU, African nations have the flexibility to opt for alternative coordination mechanisms. The crucial factor is for at least three countries to collaborate to access regional funds that are not designated for specific nations.

- *III.3.2. Multilateral and Bilateral Partnerships*

The World Bank and some regional development banks were recapitalized just before COVID hit and have significant resources to support methane emission reduction programs. Once the project pipeline is ready each country could request the World Bank to organize a development partner meeting with the African Development Bank, and bilateral partners to share out the project financing. Given that significant action will be from private sector entities, particularly in extractive industries and agriculture, the private sector arms of the various agencies should also be part of the dialogue on mobilizing financing.

It is likely that in the short term (2024 to 2026) all projects can be financed. Over the longer-term, additional resources are likely to be required which could justify further capitalization of the World Bank and African Development Bank as well as mobilizing unused Special Drawing Rights (SDRs). Official development financing can also be supplemented by Global philanthropies and pan-African financial institutions such as Afreximbank, Arab Bank for Economic Development in Africa (BADEA), Africa Finance Corporation (AFC), and others.

- *III.3.3. IMF Finance*

For many years, the main IMF contribution to its member countries' efforts to mobilize climate finance has mainly been through capacity building and policy advice. With the establishment of the Resilience and Sustainability Trust (RST) in April 2022, the IMF began providing long-term financing to countries undertaking reforms to reduce risks to prospective balance of payments stability related to climate change. RST-eligible Countries include all low-income countries eligible for concessional financing, small states with per capita GNI (Gross National Income) below 25 times the 2021 International Development Association (IDA) operational cutoff, and all middle-income countries with per capita GNI below 10 times the 2021 IDA operational cutoff.

A growing number of African countries have received RST funding in support of their climate adaptation and mitigation policy agenda. Some of them have already taken this opportunity to seek technical support from the IMF, the World Bank, and other partners for methane abatement policy implementation. Other countries with an RST-supported program would be well-advised to use this opportunity to secure similar assistance.

RST resources are mobilized based on voluntary contributions from countries with strong external positions, including those wishing to channel part of their holdings of IMF special drawing rights (SDRs) for the benefit of low-income and more vulnerable middle-income countries. As of mid-September 2023, total pledges made under the RST amounted to about \$41 billion. Yet, the G20 has pledged \$100 billion of SDR recycling, and even though some have been channeled to the other IMF concessional window (the Poverty Reduction Growth Facility), about \$40 billion of the amount pledged has yet to find a destination (Plant, 2023).

In view of the \$650 billion worth of SDRs that was allocated by the IMF to its members in 2021, there

is therefore ample scope for channeling more SDRs not only to the RST, but also to other multilateral development banks to allow these institutions to boost their contribution to the financing of climate and methane actions. This could build on the plan developed by the AfDB to use recycled SDRs as hybrid capital to boost its lending capacity.

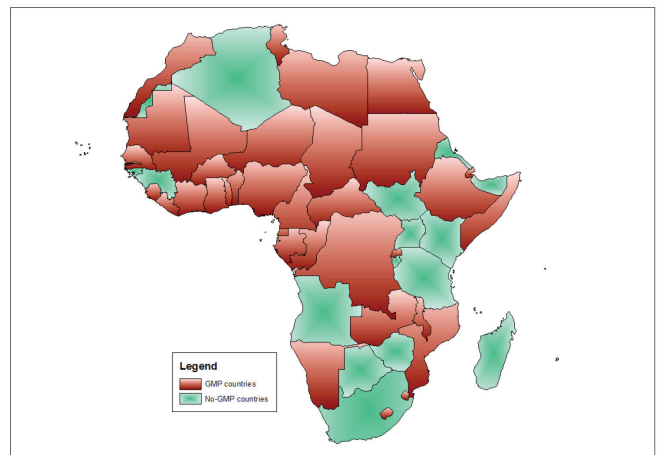
• *III.4. Funding from Global Philanthropies*

Philanthropies have played a leading role in global efforts to reduce methane emissions to date. Their support for methane action has taken the form of funding, technical assistance, and grants allocated to various stakeholders including governments, civil society, researchers, investors, and the private sector. In this connection, a flagship initiative is the Global Methane Hub (GMH) set up in May 2022 by more than 20 leading philanthropies and organizations committed to allocating roughly \$340 million to the formulation and implementation of concrete methane abatement measures. At COP28 in December 2023, the Global Methane Pledge partners announced that over \$1 billion in new grant funding was mobilized for methane action since COP27, including contributions totaling over \$637 million from philanthropies and the private sector.

The Global Methane Hub has strived to provide grant and technical assistance to facilitate the implementation of the Global Methane Pledge which was launched at COP26 in 2021 and co-convened by the United States and the European Union to cut anthropogenic methane emissions by at least 30% between 2020 and 2030 and keep the goal of limiting warming to 1.5 degrees Celsius within reach. As of October 2023, 149 countries and the European Union—including 39 African countries—have signed up to the Global Methane Pledge, of which more than 50 countries have developed national methane action plans or are in the process of doing so (Figure 19).

Using the resource envelope made available by its philanthropic members, the Global Methane Hub

Figure 19: Global Methane Pledge: List of participating African countries



Source: AfriCatalyst, with information from GMP website. Last visit October 24th, 2023.

acts as connector, funder, and educator within the international methane space, accelerating progress toward global methane mitigation (GMH, 2022). In so doing, it symbolizes the exemplary ability of philanthropic organizations to partner with the public and private sectors as well as national and multilateral entities to boost financing for methane solutions, including:

- **Supporting methane abatement initiatives carried out by governments, private sector, local and international NGOs, local community and grassroots organizations, investors, and other domestic stakeholders.**

The Green Climate Fund partnered with the International Fund for Agricultural Development (IFAD), the Food and Agriculture Organization (FAO), Global Dairy Platform and Global Methane Hub to mobilize \$3.5 million of project preparation funding with the objective of leveraging up to \$400 million in financing that will help reduce methane emissions from dairy systems in Kenya, Rwanda, Tanzania, and Uganda.

- **Increasing the lending capacity of multilateral lenders**

The lending capacity of multilateral lenders such as the World Bank and the African Development Bank (AfDB) should be strengthened to support methane action in Africa. For instance, the development community will be well-advised to pursue global efforts to mobilize support for facilities hosted by multilateral development banks such as the World Bank’s Global Gas Flaring Reduction Partnership, and the AfDB’s Africa Climate Change Fund.

- **Promoting methane abatement solutions enabled by advanced technologies and innovation.**

In partnership with other philanthropies and

organizations, Bloomberg Philanthropies announced a \$25 million commitment to accelerate the deployment of satellite and airborne methane sensing technologies.

- **Developing a pipeline of quality methane mitigation projects.**

The Methane Finance Sprint, initiated in April 2023 by multiple advanced economies, was established with a key objective of mobilizing at least \$200 million in new public and philanthropic support for methane abatement activities by COP28. Notably, half of this amount has been pledged by philanthropic organizations through the Global Methane Hub. Participants include Canada, France, Germany, the United States, Ireland, Norway, and the European Union.







## IV. Proposed Methane Financing Mechanisms for Africa

This section summarizes AfriCatalyst proposals for boosting financing for methane action in Africa. For most financing schemes for methane abatement to be effective, it is essential to manage the high risk—perceived or real—which the market associates with project implementation in Africa. Clearly, governance weaknesses magnified by political and institutional instability in many countries across the continent provide evidence that the risk is likely to be very real. But risk assessments by credit rating agencies may not always be fully aligned with country fundamentals. In this light, engaging with credit rating agencies may help correct potential biases and identify avenues for mitigating the real risks associated with project finance in Africa. In addition, to the extent that methane abatement is a global public good, the emphasis should be put on mobilizing and leveraging concessional financing to reduce risk.

### IV.1. Leveraging philanthropic funds for methane action in Africa

Overall, philanthropic organizations have been

providing significant funding to support methane mitigation efforts around the world. Still, the magnitude of support for methane action from philanthropies and other donors in developing countries has remained relatively limited. Moving ahead, the potential for increasing the impact of philanthropic resources on methane abatement remains largely unfulfilled. There is scope for making inroads in this direction. First, funding commitments to the GMP could be boosted, notably by expanding the range of participating philanthropic organizations.

Second, more strategic use of their advocacy power could prove useful to encourage effective implementation of methane mitigation policies. To help effectively address the issues flagged in this paper, they could, for instance, focus primarily on the 19 African countries where methane abatement could enable the continent as a whole to reach its targets under the Paris Accord in terms of reduction in overall emissions.

Third, philanthropies should take necessary

steps to optimize the leveraging effect of their funding allocated to methane action. This could be inspired by innovative financing solutions being experimented to leverage philanthropic sources of finance to raise public and private capital for the purpose of providing incentives for accelerating progress toward mitigation policy objectives. For example, Southbridge, a pan-African advisory and investment firm, collaborated with the Arab Bank for Economic Development in Africa (BADEA) to establish a \$2 billion fund focused on reforestation and land restoration in Africa. This initiative was made possible through a grant from the Bezos Earth Fund, facilitated by the World Resources Institute. This Vumbuzi fund aims to blend \$500 million of concessional finance with \$1.5 billion private investment and channel these resources toward reforestation and land restoration efforts carried out across the continent, notably the African Forest Landscape Restoration Initiative (AFR100) Initiative which aims to restore 100 million hectares of deforested and degraded landscapes in Africa by 2030 and the Great Green Wall. Vumbuzi centers around four pillars:

- A foundation providing finance solutions to locally led businesses and community groups;
- a private fund accounting for the complexities of reforestation and land restoration;
- a public fund factoring in externalities and impact at different scales;
- and a sports and sustainability program linking wins in sports to reforestation.

Similar actions to encourage methane abatement in the 19 largest African emitters would increase the likelihood of meeting the 2030 targets. It would be useful for philanthropies to contribute seed financing for preparing the project pipeline emerging from methane abatement plans. In each country, this effort could be carried out by a three-person team working for three months with civil society and governments. A limited financing envelope of about \$3 million for this task would set the stage for conducting more comprehensive and costly feasibility studies financed by the African

Development Bank, the World Bank, and the European Union.

To boost methane finance for African countries, a scheme inspired by innovative financing solutions such as Vumbuzi could be developed to leverage philanthropic and concessional finance to tap into liquidity available in private capital markets.

In this connection, AfriCatalyst proposes to develop an African Methane Abatement Bond (AMAB) as an innovative financing scheme to support the implementation of national methane mitigation plans in African countries. Such a scheme would build on:

- A strong partnership between pan-African financial institutions, global philanthropies, and leading global asset management and investment firms;
- Use of philanthropic and concessional finance from philanthropies and pan-African financial institutions as a guarantee;
- A non-for-profit organization tasked with providing financial and technical assistance in support of the formulation and implementation of methane abatement measures outlined in countries' national plans;
- A private investment vehicle that will support African Small and Medium-sized Enterprises (SMEs) and entrepreneurs to develop practices that help mitigate methane emissions.

#### IV.2. Mobilizing methane finance in the oil and gas space

Available evidence suggests that methane abatement in the oil and gas industry is among the cheapest options to reduce greenhouse gas emissions and the most cost-effective ways to cut methane emissions (IEA, 2023). The IEA estimates that a 75% reduction in energy-related methane emissions would lead to a 15% cut in the emissions of total energy-related greenhouse gas (GHG) emissions reductions by 2030. This would require about \$77 billion in cumulative spending,

including \$15-20 billion required to reduce methane emissions in low- and middle-income countries, notably those without strong methane reduction policies and regulations (IEA, 2023). The recent announcement of a new pledge of \$255 million for the relaunch of the World Bank Global Flaring and Methane Reduction Partnership bodes well for the reduction of gas flaring and venting in developing countries. However, cutting down methane emissions significantly in the oil and gas sector in these countries will require mobilizing additional funding from the public, private and philanthropic sectors.

In Africa, the cumulated spending needs of low-income countries (LICs) and middle-income countries (MICs) are estimated to amount to \$6.8 billion (IEA, 2023). A critical question is how African countries could mobilize the resources needed to advance their methane action plans in the oil and gas space.

Given their significant contribution to methane emissions, oil and gas companies should bear primary responsibility for methane abatement and support resource mobilization efforts. This is particularly true since the spending required to cut methane emissions in the IEA's Net Zero Emissions by 2050 Scenario represents less than 2% of their net income in 2022. In 2022, oil companies reported record profits, with four of them alone—Chevron, ConocoPhillips, Exxon and Shell—reporting \$1 trillion in sales (Ivanova, 2023).

In Africa, oil companies have recently reported record earnings boosted by rising crude prices. For instance, Sonatrach, Algeria's state-owned oil company, earned \$21 billion between January and May while the National Oil Corporation its counterpart in Libya reported earnings of \$6.95 billion during the first months of the current year (Ibrahim, 2023).

Nigeria, Libya, Algeria, Angola, and Egypt compose the five largest producers of oil and natural gas in Africa, accounting for over 90% of the continent's

output as of 2020. In this regard, inroads that are being made in countries such as Nigeria should be further encouraged by the global community.

#### IV.3. Mobilizing methane finance through a Just Energy Transition Partnership (JETP)

Reducing methane venting and flaring in oil and gas operations is one of the most ambitious options for significantly reducing methane emissions in the fossil fuel sector. The World Bank's Global Gas Flaring Reduction Partnership (GGFR) estimates that the total volume of natural gas flared globally was 142 billion cubic meters in 2020 (World Bank, 2021), which is enough to power sub-Saharan Africa.

Considering that the coal potential of the continent is relatively limited, the focus for Africa will need to primarily be on the oil and gas sector, which holds significantly greater potential. Financing the reduction in emissions will require a fair and equitable energy transition plan. The international initiative launched at COP26 in Glasgow set the headland for this international collaboration with countries with a high potential for greenhouse gas emissions. South Africa, the first country to benefit from the Just Energy Transition Partnership (JETP), with a commitment of up to US\$8.5 billion in initial funding by 2027, will initiate an energy transition from fossil fuels to renewable energies. The JETP is expected to make a significant contribution to reducing South Africa's emissions from 420 MtCO<sub>2</sub>eq to 350 MtCO<sub>2</sub>eq by 2030, as stipulated in the updated NDCs. This energy transition will mainly concern the electricity sector, the New Energy Vehicle (NEV) and green hydrogen.

Senegal has also signed a US\$2.7 billion agreement with the International Partners Group, which should also enable it to make progress on the energy transition by increasing the share of renewable energies and, at the same time, reducing greenhouse gas emissions, including methane emissions in the energy sector.

JETP could therefore play a key role in decarbonizing the African continent through different approaches depending on the characteristics of the beneficiary countries. The current version of the JETP certainly makes it possible to increase the share of renewable energies and reduce GHG emissions, but it would be better to focus on reducing methane losses in the oil and gas sector and effectively and significantly reduce the continent's emissions. African countries will therefore need to forge closer partnerships with the International Partners Group (IPG) to benefit from such funding and learn from the experiences of the two countries that have already benefited from this initiative on the continent, namely South Africa and Senegal.

#### IV.4. Developing flaring and methane emission reduction (FMR) projects

Operators of flare fields or other sources of flaring and methane emissions in the value chain should be a natural source of funding for FMR projects. World Bank (2022) highlighted six financing options based on financial assessments such as the Net Present Value (NPV) and Internal Rates of Return (IRRs) of FMR projects of 5 million standard cubic feet per day (mmscf/d) and 10 mmscf/d that tackle flaring. These solutions include: (1) gas-to-power, with power sold to the grid or other third-party off-takers; (2) gas-to-power, with power sold to the oil field operator for on-site use; (3) gas delivery to an existing pipeline network; (4) gas delivery to an existing gas processing plant; (5) compressed natural gas (CNG); and (6) small-scale liquefied natural gas (LNG) with the following financial benefit:

- At 10 mmscf/d, all FMR solutions would produce positive NPVs and double-digit IRRs, ranging from 12% (gas delivery to gas processing plant) to 24% (small-scale LNG).
- At 5 mmscf/d flare sites, project IRRs—unlevered and pretax—range from a barely acceptable 7 percent (gas delivery to gas processing plant) to an attractive 20% (small-scale LNG).
- On a standalone basis, 1 mmscf/d flares do

not offer attractive financial returns but can be clustered to reach an aggregate project size closer to 5–10 mmscf/d.

- FMR projects at 5–10 mmscf/d flare sites (unique flares or clusters) involve a capital investment estimated in the range of US\$7 million to US\$59 million, depending on the FMR solution adopted and according to the model's assumptions.

The demonstrated appeal of flaring and methane reduction (FMR) projects provides a solid foundation for the private sector, independent investors, and policy makers to formulate investment plans.

#### IV.5. Reducing methane emissions through international climate finance

Although there are currently several mechanisms in place to support states in their climate commitment, there are few initiatives that focus specifically on the methane issue. For example, the Green Climate Fund, which is currently the largest multilateral climate finance fund, should open funding windows for reducing methane emissions in the waste management and agricultural sectors. The Climate Investment Fund and the Global Environment Facility, which are all administered by the World Bank Group, should take concrete steps to increase state-of-the-art infrastructure in the oil and gas sector, especially on the African continent, in order to reduce flaring operations and gas leaks.

Creating mechanisms of this kind will enable producing countries to achieve substantial reductions in methane emissions. This initiative could be supported by the African Development Bank, the Islamic Development Bank, the World Bank Group, and Bilateral Development Banks. The continent will also be able to mobilize additional funds under the Clean Development Mechanism (CDM), the Joint Initiative or the Cooperative Implementation, as stipulated in Article 6 of the Paris Agreement.

In addition, the establishment of a new climate

finance mechanism such as the “New Collective Quantified Goal on Climate Finance” as part of the implementation of the Paris Agreement (Article 9) should facilitate access of African countries to financing. This new financing mechanism was adopted at COP29 in 2024, and provides a floor of \$100 billion per year, taking into account the needs and priorities of developing countries.

#### IV.6. Scaling up methane finance by establishing an African Green Taxonomy

In the absence of an international taxonomy, the establishment of an African green taxonomy is an important step in the recognition of so-called sustainable finance sectors and will increase the mobilization of resources for greenhouse gas reduction projects, particularly methane abatement actions. The African Development Bank, under the aegis of the African Union, will be able to steer such a project by drawing lessons from countries or regions of the world that have already experimented with such an initiative (the European Union (EU) sustainable finance taxonomy, Common Ground Taxonomy (CGT) between EU and China, the Association for Southeast Asian Nations-ASEAN Taxonomy for Sustainable Finance and the South African Taxonomy). These initiatives have made significant progress in establishing the principles of green finance and creating sources of finance such as green bonds, sustainable bonds, and green

loans that the continent can draw on to attract more financing for the oil and gas sector. The establishment of such an initiative will certainly mobilize private sector funds, which have long been absent from the financing of climate objectives at the African level.

#### IV.7. Introducing quota emissions systems

Legislation based on a market approach would also encourage oil and gas companies to reduce emissions in their operations. To achieve this, African oil and gas producing countries could consider a system of emission quotas that must not be exceeded, at the risk of paying additional costs to be allowed to emit. This system, which differs from the conventional taxation system, will give companies the opportunity to gradually reduce their methane emissions without increasing the price of energy. Utilizing this system, Norway has reduced its flaring emissions from 0.3 billion cubic metres (bcm) in 2012 to 0.1 bcm in 2020. The same is true of Malaysia, where flaring emissions have fallen from 3.7 bcm in 2015 to 2.4 bcm in 2020. In addition, this strategy should be complemented by the development of national methane emission reduction plans and policies undertaken by CCAC in several African countries. It will give a comprehensive view to all stakeholders who could potentially contribute additional resources in the form of investment to reduce methane emissions.



## V. Governance, Transparency, and Accountability

### Proposed Governance Framework

As discussed by Sembene et al., (2022), country platforms have the potential to play a critical role in facilitating contributions to the provision of global public goods (GPGs) such as the reduction of methane emissions if:

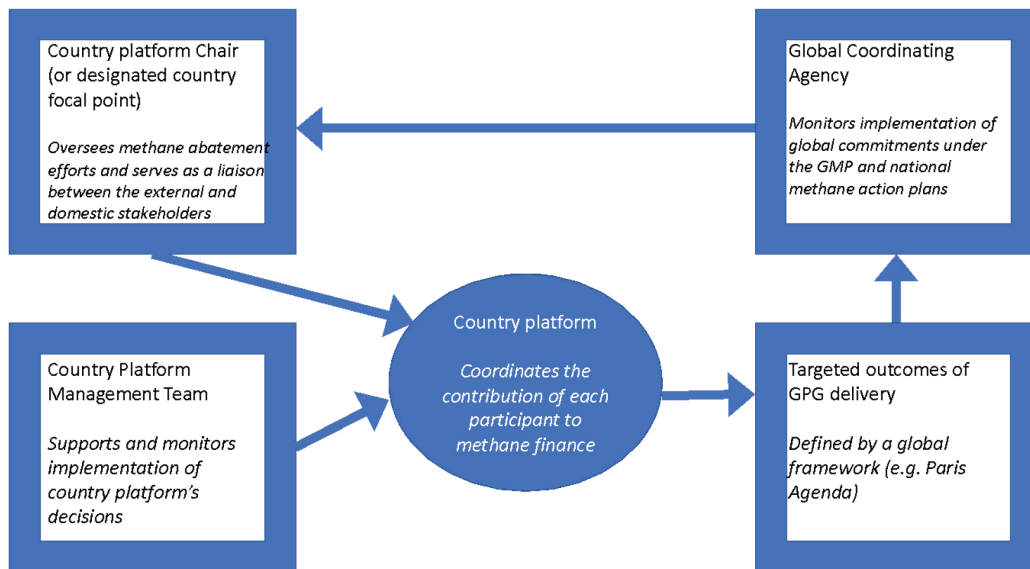
- Focused on the delivery of the GPG, rather than aid coordination;
- linking explicitly country-level efforts to global initiatives to provide that GPG;
- embedded in a clear accountability framework at both the country and global level to help meet global delivery goals.

There is value in either creating new national platforms or repurposing existing ones to bolster climate and methane action. This would include enhancing efforts to mobilize resources. These government-led platforms should establish well-defined stakeholder engagement processes, underpinned by clear terms of reference. These terms would elucidate the platform's purpose,

governance structure, and operational guidelines. The primary objective of these platforms would be to focus on specific methane mitigation outcomes that developing countries aim to attain, utilizing funding from various platform participants. This collective would encompass governments, local stakeholders including Civil Society, donors, philanthropic entities, private investors, and financial institutions.

As illustrated in Figure 20, the platform would help coordinate the contribution of each participant to the mobilization of methane finance in the concerned country, thus increasing the transparency and effectiveness of the resource allocation process. A United Nations entity such as the United Nations Framework Convention on Climate Change (UNFCCC) could be selected as the global coordinating agency tasked with monitoring the implementation of global commitments made under initiatives such as the GMP as well as under national methane action plans. Acting as a liaison between the global coordinating agency and domestic stakeholders, the platform chair—

Figure 20: Governance Framework



Source: AfriCatalyst and Sembene et al. (2022)

or its representative—would oversee methane abatement efforts at the national level and oversee the implementation of the platform’s decisions.

Each of the domestic and external stakeholders identified in the abovementioned governance framework has a critical role to play in fostering methane abatement finance. Drawing on the suggested entry points to methane abatement related investment listed in CPI (2023a), we propose various priority actions in the following matrix (Table 3) that could be implemented in the largest methane emitters in Africa, notably the 19 countries that are responsible for 80 percent of methane emissions in the continent. These actions may include:

- **Implementing regulations and fiscal policy tools by**
  - Providing sector-specific advice from best international practices;
  - Strengthening financial incentives and the legal framework;
  - Providing technical support & promoting peer learning.
- **Embedding methane strategy by**
  - Developing a project pipeline building notably on National Methane Abatement Plans under preparation
  - Cross subsidization in agriculture, regulations, and taxation in Energy Sector & Public Investment in Waste
  - Developing monitorable plans embedded in national budgets.
- **Deepening investment opportunities by**
  - Securing support from International Financial Institutions for Private-Public Partnerships where appropriate from the project pipeline;
  - Working with Credit Rating Agencies to identify high risk and work with Development Partners to mitigate them.
  - Initiating joint action to mobilize grants and concessional finance in the short term and secure recycling of SDRs in the medium term.
- **Creating R&D funding and incentives for innovation by**
  - Developing a framework for an African Methane Abatement Bond

- Taking lead in action on agriculture with cross-subsidization financed by the International Community to protect small farmers and consumers.
- Improving capacity and transparency of measurement, reporting and verification for methane emissions, including by leveraging development and climate finance to set up monitoring mechanisms.

Table 3: Matrix of Actors and Priority Actions in the largest methane emitters in Africa

		Implement regulations and Fiscal Policy Tools	Embed Methane Strategy	Deepen Investment Opportunities	Create R&D funding and incentives for innovation	Improve Capacity and transparency of Measurement, Reporting and Verification for methane emissions
Actors	Development Partners	X	X	X		X
	Domestic Policy Makers	X	X	X		X
	Private Sector		X	X		
	Philanthropies		X			
Key barriers addressed	Regulatory framework		Promote and Catalyze Action on Methane through Technical Assistance and Financial Incentives	Mobilization of private investment where possible	Absence of market for transition and sustainability bonds	Limited data on methane emissions
				Deal with High-Risk reality/perception in relation to African projects	Need to improve agricultural practice	Absence of capacity to monitor targets for methane abatement
	Economic Incentives		Increasing focus on methane to achieve overall NDC targets	Increase concessional financing for methane abatement		
Activities	Providing sector-specific advice from best international practices		Develop a project pipeline from the ideas in the Methane Abatement Plans under preparation	Securing support from International Financial Institutions for Private-Public Partnerships where appropriate from the project pipeline	Developing a framework for an African Methane Abatement Bond	Leveraging development and climate finance to set up monitoring mechanisms
	Strengthening financial incentives and the legal framework		Promoting cross-subsidization in agriculture, regulations and taxation in energy sector and public investment in waste	Working with Credit Rating Agencies to identify high risks and collaborating with development partners to mitigate these risks	Taking the lead in action on agriculture with cross-subsidization financed by the International Community to protect small farmers and consumers	
	Providing technical support & promoting peer learning		Developing monitorable plans embedded in national budgets	Initiating joint action to mobilize grants and concessional finance in the short term and secure recycling of SDRs in the medium term		





# Conclusion and Recommendations

In the current global context, budgets in advanced economies are facing increasing constraints. These are due to their own climate change mitigation efforts, challenges associated with an aging population, and a shift towards military spending, particularly in light of the Ukraine war and developments in the Middle East. Additionally, the World Bank and Regional Development Banks, having received capitalization in recent years, along with various Climate Funds, are equipped with resources to finance projects that have completed credible feasibility studies. This situation indicates that African countries need to:

- step up their domestic revenue mobilization efforts in addition to requesting additional external financing for methane action;
- work together to tap the main sources of additional concessional financing that have not yet been allocated;
- focus on developing a credible project pipeline before requesting funding.

Action in 19 African countries accounting for

80% of methane emissions should be prioritized, as it is essential for Africa to meet Paris Accord commitments by 2030. Moreover, existing technologies and global experience suggest that this could be done at a low-cost relative to the benefits. The cost to achieve a 50% reduction in methane emissions by 2030 for these 19 countries is \$10 billion whilst the economic and social benefit would be \$4,300 per ton of methane avoided.

The building blocks are there thanks to support from the World Bank, the African Development Bank, and bilateral assistance for the preparation of methane reduction plans. By working together with the OACPS and/or other organizations that these 19 countries are members of, they should be able to mobilize additional grants from regional and multilateral funds that are there for collective action on global issues. These grants should enable feasibility studies to be undertaken for the project ideas identified in the Methane Reduction Plans under preparation.

In the short run through 2026, the available

resources at the World Bank, African Development Bank, the European Union, the IMF, multilateral climate funds, and bilateral partners should give the necessary impetus to begin implementing the Methane Reduction Plans. This would require close coordination among all actors involved, under the leadership of national governments. However, additional resources will be required in the medium term, and these could come from:

1. Contributions from energy companies secured through regulations and taxes assessed on methane emissions with the aim at incentivizing the adoption of best global practices;
2. Domestic taxation to finance the domestic component of projects in the waste sector;
3. Leveraging philanthropic funds;
4. Recycling SDRs multilateral development banks, particularly the African Development Bank;
5. Emission of appropriate bonds to finance both private and public action;
6. Operationalizing aspects of Article 6 of the Paris Agreement of relevance to methane abatement finance;
7. Just Energy Transition Partnerships.

A central message of this paper is that, by employing currently available technologies, 19 African countries can achieve a level of methane abatement by 2030 that aligns with Africa's overall emission reduction commitments under the Paris Accords. Most importantly, such a reduction would come at a relatively low cost with social and economic benefits that are about twice as large.

Moreover, in the short run, the available instruments could go a long way toward mobilizing adequate methane finance for African countries provided, on the one hand, they organize themselves collectively, make the necessary domestic revenue mobilization efforts and leverage international support, and, on the other, they coordinate effectively the various initiatives undertaken by the development community in support of methane action in the continent. Over the medium term, the methane financing gap can be met by using precedents to deploy additional instruments in both the private

capital markets and the multilateral financing system.

African nations are tasked with substantiating their national methane action plans, transforming them from skeletal frameworks into robust strategies. Concurrently, the international community bears a moral obligation to proactively assist in these efforts, particularly in view of the global public good nature of methane abatement. It is imperative that every potential avenue for securing the external financing necessary for the success of Africa's methane abatement efforts is thoroughly explored and utilized. This will require strong leadership and accountability at the highest level not only in African countries but also within the development community.

## Reference:

- African Development Bank (AfDB). (2022). Methane in Africa: A high-level assessment of anthropogenic methane emissions in Africa with case studies on potential evolution and abatement. August, 0–41.
- AfriCatalyst (2023). Upscaling and Upsizing Debt for Climate & Nature Swaps in Africa. [Paolo Zacchia and Daouda Sembene]. <https://africatalyst.com/publications/>.
- AfriCatalyst (2021). Options Paper on SDR Reallocations for Africa. [Ali Mansoor and Daouda Sembene] <https://africatalyst.com/publications/>.
- Climate Policy Initiative. (2023a). How to Start Scaling Methane Abatement Finance. Policy Brief. November 2023. <https://www.climatepolicyinitiative.org/wp-content/uploads/2023/11/How-to-Start-Scaling-Methane-Abatement-Finance.pdf>
- Climate Policy Initiative. (2023b). Landscape of Methane Abatement Finance 2023. <https://www.climatepolicyinitiative.org/wp-content/uploads/2023/11/Landscape-of-Methane-Abatement-Finance.pdf>
- Climate Policy Initiative. (2022). The Landscape of Methane Abatement Finance [Paul Rosane, Baysa Naran, Angela Ortega Pastor, Jake Connolly, Dharshan Wignarajah].
- Concord (2022). Guide To Global Europe Funding 2021-2027: For Civil Society Organisations Part I. 2022. <https://concordeurope.org/resource/guide-to-global-europe-funding-2021-2027-for-civil-society-organisations/>.
- FAO. (2023). Methane emissions in livestock and rice systems – Sources, quantification, mitigation and metrics. Rome. <https://doi.org/10.4060/cc7607en>.
- Global Methane Hub (GMH). (2022), Annual Impact Report. [https://www.globalmethanehub.org/wp-content/uploads/2023/05/2022-GMH-Annual-Impact-Report\\_email.pdf](https://www.globalmethanehub.org/wp-content/uploads/2023/05/2022-GMH-Annual-Impact-Report_email.pdf).
- Ibrahim. A. (2023). African state-owned oil companies report \$27.95bn earnings in 2023. Business Day. <https://businessday.ng/energy/article/african-state-owned-oil-companies-report-27-95bn-earnings-in-2023/>
- ICAP. (2023). Emissions Trading Worldwide: Status Report 2023. Berlin: International Carbon Action Partnership.
- IEA, UNEP, & CCAC. (2023). The Imperative of Cutting Methane from Fossil Fuels. International Energy Agency Publications. [www.iea.org](http://www.iea.org).
- IEA. (2023). Financing reductions in oil and gas methane emissions. Financing Reductions in Oil and Gas Methane Emissions. <https://doi.org/10.1787/7be9c08b-en>.
- Ivanova. I. (2023). 4 oil companies had total sales of \$1 trillion last year. CBS News. <https://www.cbsnews.com/news/exxon-chevron-shell-conocophillips-record-profits-earnings-oil-companies-most-profitable-year/>.
- Kenneth J. Markowitz, Stacey H. Mitchell, Jessica H. Maloney. (2022). The Inflation Reduction Act Applies the Polluter Pays Principal: Carbon Tax Will Accelerate Reduction of Methane Emissions.
- Lunt, M. F., Palmer, P. I., Feng, L., Taylor, C. M., Boesch, H., & Parker, J. (2019). An increase in methane emissions from tropical Africa between 2010 and 2016 inferred from satellite data. June, 1–30.
- Mark, Plant. (2023), Funding Hybrid Capital at the AfDB is the Best Deal for SDR Donors, Center for Global Development. <https://www.cgdev.org/blog/funding-hybrid-capital-afdb-best-deal-sdr-donors>.
- Murdoch, Adrian (2023). Unlocking the puzzle of transition bonds. Capital Monitor, August 14, 2023 at <https://capitalmonitor.ai/asset-class/fixed-income/unlocking-the-puzzle-of-transition-bonds/>.
- OECD. (2022). Guidance on Transition Finance: Ensuring Credibility of Corporate Climate Transition Plans. <https://www.oecd.org/environment/oecd-guidance-on-transition-finance-7c68a1ee-en.htm>. Green Finance and Investment.
- Olszowka, Jarek. (2023). Transition bonds: Could 2023 be the year we see them take off? Environmental Finance, 20 February 2023 at <https://www.environmental-finance.com/content/the-green-bond-hub/transition-bonds-could-2023-be-the-year-we-see-them-take-off.html>.
- Pannett, Rachel. (2023). How New Zealand plans to tackle climate change: Taxing cow burps. The Washington Post, February 1, 2023 at <https://www.washingtonpost.com/climate-solutions/interactive/2023/new-zealand-cows-burps-methane-tax/>.
- Parry, I., Black, S., Minnett, D., Mylonas, V., Vernon, N., Parry, I., Black, S., Minnett, D., Mylonas, V., & Vernon, N. (2022). How to Cut Methane Emissions.
- Pham, A. (2022). Can We Widely Adopt A Methane Tax to Cut the Greenhouse Gas? earth.org. <https://earth.org/methane-tax/>. Climate Change Policy & Economics.
- Plant, M. (2023), Funding Hybrid Capital at the AfDB is the Best Deal for SDR Donors, Center for Global Development.
- Riordan, R. (n.d). Transition Bonds. Institute for Sustainable Finance Primer Series, Smith School of Business, Queen’s University, Kingston, Ontario, Canada at <https://smith.queensu.ca/centres/isf/resources/primer-series/transition-bonds.php>.
- Ripple, W., Smith, P., Haberl, H. et al. Ruminants, climate change and climate policy. (2014). Nature Clim Change 4, 2–5 (2014). <https://doi.org/10.1038/nclimate2081>.
- Sembene, D., Lee, N., and Plant, M. (2022). Country Platforms and Delivery of Global Public Goods. Center for Global Development.
- Sembene, D., Mitchell, I., and Brown, H. (2022). What Is Holding Back Private Climate Finance in Africa and How Can It Be Unleashed? Center for Global Development. Washington.
- United Nations Environment Programme and Climate and Clean Air Coalition (2021). Global Methane Assessment: Benefits and Costs of Mitigating Methane Emissions. Nairobi: United Nations Environment Programme. ISBN: 978-92-807-3854-4.
- Vaughn, Adam. (2013). Tax meat to cut methane emissions say scientists. The Guardian. 20 December 2013 at <https://www>.

theguardian.com/environment/2013/dec/20/tax-meat-cut-methane-emissions-scientists.

Weber, B. (2023). Cheaper for industry to meet methane reduction targets than to pay carbon tax on emissions: study. The Canadian Press · Posted: Jul 20, 2023 10:56 AM EDT | Last Updated: July 20. <https://www.cbc.ca/news/canada/edmonton/methane-reductions-costs-1.6912227>.

World Bank. (2022). Financing Solutions to Reduce Natural Gas Flaring and Methane Emissions. International Development in

Focus. Washington, DC: World Bank. doi:10.1596/978-1-4648-1850-9.

World Bank. (2021). "Seven Countries Account for Two-Thirds of Global Gas Flaring." Press Release 2021/143/EEX, April 28. <https://www.worldbank.org/en/news/press-release/2021/04/28/seven-countries-account-for-two-thirds-of-global-gas-flaring>.



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