SAHARA AND SAHEL OBSERVATORY

CLEAN AIR TASK FORCE

Turning Methane into Opportunity: How Smart Regulations Can Strengthen Africa's Oil and Gas Sector?

Africa's oil and gas sector must balance economic growth with climate responsibility. This article highlights how methane regulation (backed by regional collaboration and global partnerships) can deliver both climate and economic benefits. OSS, in partnership with CATF and others, is working to advance this effort in North Africa.

Introduction

Methane emissions from the oil and gas sector represent one of the most urgent yet often overlooked contributors to climate change. Methane is a potent greenhouse gas that traps significantly more heat than carbon dioxide in the short term. For Africa, where natural gas and oil play an increasingly vital role in economic development, the emissions associated with their extraction and use present a critical challenge. But this challenge also brings a strategic opportunity for transformation. The continent can avoid repeating the mistakes made by more industrialized regions by embedding methane reduction strategies into the early development of oil and gas industries. At the Sahara and Sahel Observatory (OSS), with technical support from Clean Air Task Force (CATF) and funding from The Lemelson Foundation, we are contributing to a growing effort to build awareness, capacity and momentum for methane reduction across African countries. Raising awareness about methane emission reductions in the oil and gas sector is crucial for several reasons — environmental, economic, and social. Awareness efforts enable African oil and gas-producing countries to better communicate their climate actions to the international community. This can enhance the credibility of national climate commitments and improve access to international climate finance, technical assistance and investment opportunities.

Understanding methane and its global and African relevance

Methane is responsible for roughly half of the net global warming observed today. It is more than 80 times as powerful as carbon dioxide in trapping heat over a 20-year period. Fortunately, methane's atmospheric lifetime is relatively short, averaging about twelve years but with a much stronger short-term climate impact. This means that action taken today to reduce methane emissions can yield rapid and measurable climate benefits within the current generation. The International Energy Agency (IEA) and the Intergovernmental Panel on Climate Change (IPCC) have repeatedly emphasized that methane mitigation is one of the most impactful strategies for achieving short-term climate stabilization.

In Africa, this opportunity is especially relevant. The continent is experiencing rapid urbanization, increasing energy demand, and a growing number of countries developing their oil and gas sectors. This presents a unique chance to implement modern, climate-responsible practices from the start. In addition, methane abatement is not just about environmental protection. It is also a significant economic opportunity. Methane is the primary component of natural gas. Every tonne of methane that escapes into the atmosphere is energy that could have been used domestically or exported for revenue. Outside the oil and gas sectors, methane emissions also come from agriculture (livestock, manure management, rice cultivation), waste, wetlands, oceans, lakes, and geological sources.

Current state of methane emissions management in North Africa

Despite the opportunity and need for action, specific methane regulations remain largely absent in many North African oil-producing countries. Algeria, Libya and Tunisia all have commercially viable oil and gas sectors. Although, none of them have implemented dedicated methane regulations as of 2024. Egypt is currently developing policies, but implementation remains incomplete. This regulatory gap is not merely policy oversight. It represents a missed opportunity for improving energy efficiency, increasing economic returns, and reducing climate risks.

The data summarized in the table below highlights the state of methane regulations across North African oil and gas-producing countries.

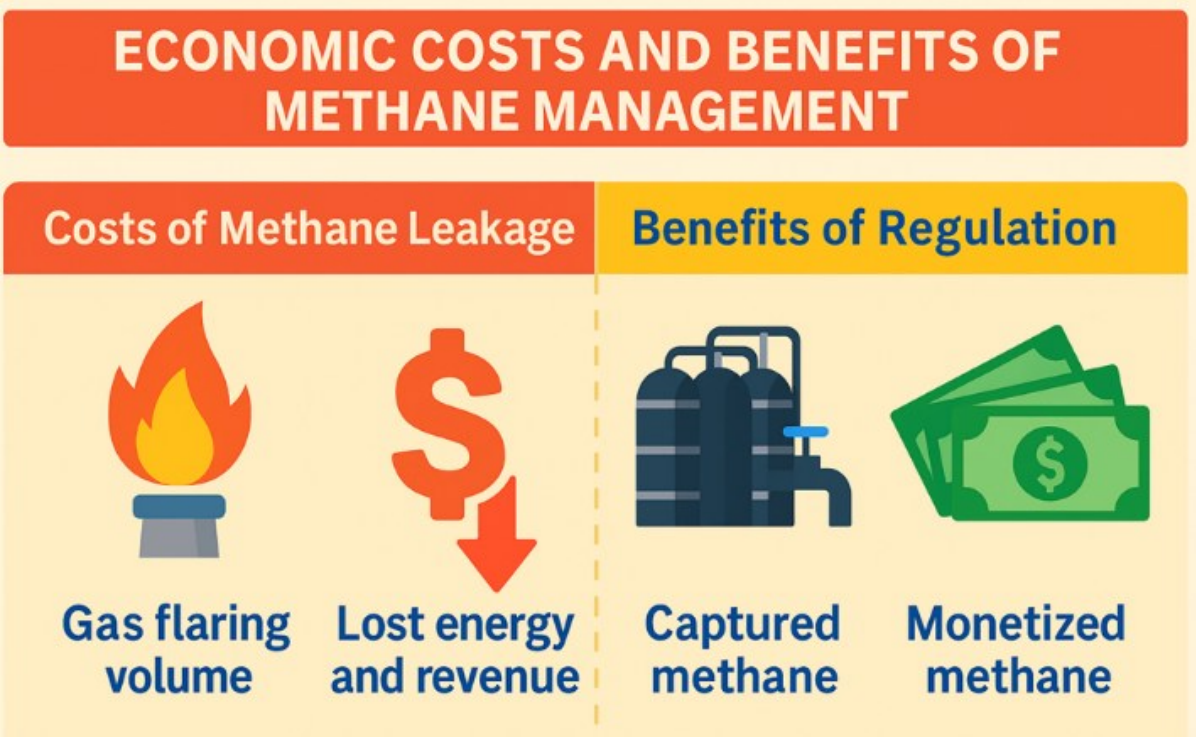
Table 1: North African countries with oil and gas sectors and methane regulation status

Country	Commercial oil and gas sector	Specific methane regulations
Algeria	Yes	No
Libya	Yes	No
Tunisia	Yes	No
Egypt	Yes	In Development

Algeria is one of the largest oil and gas producers in Africa, with substantial exports to Europe. It also has one of the highest methane emission intensities on the continent. Libya, despite facing political instability, has vast oil reserves and remains a major producer. Tunisia's production is smaller in scale but still commercially significant. None of these countries have yet embraced targeted policies to reduce methane emissions from their oil and gas activities.

Insights from CATF's work in Ghana & Nigeria

Over the past few years, CATF has partnered with regulators, academic institutions and civil society organizations to catalyze methane reduction efforts in West Africa. These efforts have provided a valuable blueprint for how similar work could be pursued in North Africa.



In Ghana, CATF has worked with the Environmental Protection Authority (EPA) to strengthen technical expertise and conduct methane assessments in the oil and gas as well as waste sectors. This work included training regulators and scientists, gathering emissions data using advanced monitoring technologies, and engaging policy leaders to integrate methane into national climate goals. These efforts laid the groundwork for the development of a methane measurement, reporting, and verification framework. Ghana's leadership in this space has shown that policy innovation and capacity development can go hand in hand, even in a developing country context.

In Nigeria, CATF has partnered with the Nigerian Upstream Petroleum Regulatory Commission (NUPRC) to help design and implement methane guidelines that are now among the most advanced in Africa. A field campaign in Delta State deployed Optical Gas Imaging cameras across five oil and gas sites. This campaign visually confirmed the presence of widespread methane leaks. It also demonstrated how cost-effective technologies could be deployed to support compliance with emerging regulations. Importantly, the campaign was not just a technical exercise. It was accompanied by capacity-building efforts, institutional coordination, and engagement with operators to ensure the outcomes were actionable.

How the lessons from West Africa apply to North Africa?

The experiences in Ghana and Nigeria show that effective methane regulation is not the exclusive domain of high-income countries. These successes were achieved through a combination of political will, strategic partnerships, and targeted technical support. North African countries can benefit from this experience in several ways.

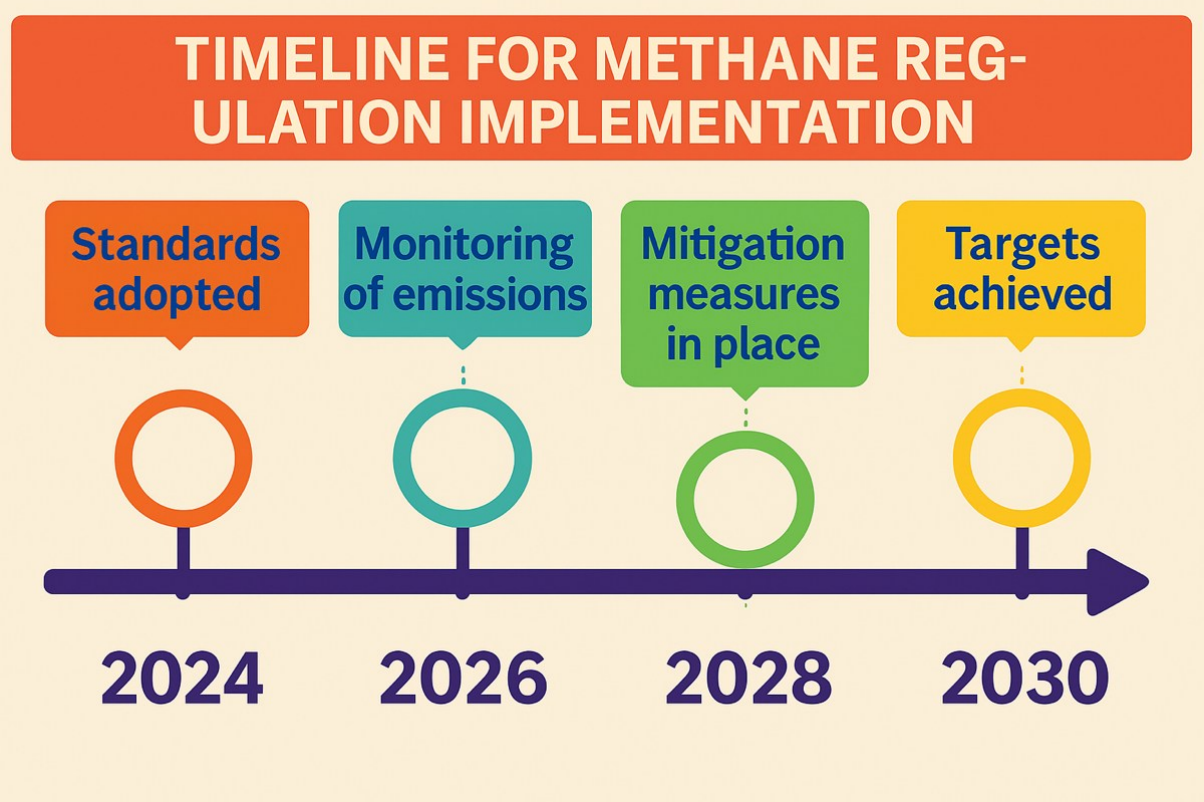
First, countries like Tunisia and Libya, which are still expanding their oil and gas infrastructure, are in an excellent position to build robust methane controls from the start. They can adopt best practices such as regular leak detection and repair programs, continuous emissions monitoring systems, and transparent emissions reporting mechanisms. These practices can be embedded into new infrastructure projects with minimal cost compared to retrofitting later.

Second, even mature producers like Algeria can benefit from modernizing their methane management strategies. Many of the country's oil and gas facilities are aging and therefore more prone to leakage. Applying lessons from Nigeria's regulatory evolution, Algeria can prioritize high-risk assets, develop inspection protocols and invest in technology deployment at scale.

Shifting the perception of regulation in Africa

One of the challenges that many African countries face is the perception that environmental regulation will slow down development or discourage investment. This perception is increasingly being challenged by evidence demonstrating the benefits of smart, efficient regulation. Globally, regulations are proving to be a force for modernization, not a barrier to growth. Well-crafted rules do not stifle industries. They instead help them operate more efficiently, reduce losses, and attract financing.

Effective methane regulations can actually lead to more robust oil and gas sectors by ensuring that resources are not wasted. Capturing methane rather than flaring or leaking unlocks economic value through domestic use or export. This not only creates economic value but also improves the resilience and credibility of the sector. Also, lenders and investors are increasingly considering environmental performance in their risk assessments. The countries that show leadership in methane management are more likely to access international finance, technology transfers, and investment partnerships.



Implementing strong regulations can also reduce long-term environmental liabilities, improve public health and enhance social license to operate. The communities living near oil and gas infrastructure often suffer from poor air quality and environmental degradation. Thus, addressing methane emissions can have important co-benefits that strengthen the social contract between industry, government, and citizens.

The role of OSS and the regional impact of capacity building

Alignment with the OSS 2030 strategy

OSS 2030 Strategy Pillar	Alignment
Pillar 1: Climate Change Adaptation and Mitigation	✔ Emphasizes methane reduction as a major mitigation opportunity with climate co-benefits.
Pillar 2: Sustainable Natural Resource Management	✔ Promotes efficiency and reduction of waste in oil and gas operations.
Pillar 4: Governance and Institutional Support	✔ Supports capacity building and regulatory frameworks for better methane management.
Cross-cutting: Science-Policy Interface	✔ Uses lessons from CATF and data-informed advocacy to shape policy dialogue.
Regional Cooperation	✔ Advocates for shared regional learning from West Africa to North Africa.

At OSS, our work is focused on helping countries across Africa to address the dual challenges of climate resilience and sustainable development. Through our collaboration with CATF, we are building institutional knowledge, sharing technical expertise, and supporting the creation of public engagement materials that can shape national conversations. We aim to continue to seek ways in which to raise awareness about the importance of methane mitigation in the oil and gas sector, and encourage all stakeholders, especially in North Africa, to take meaningful action. Although country-specific data remains limited, an estimate based on national commitments and total emissions suggests that the oil and gas sector accounts for approximately 60 to 70% of the methane emissions covered by African NDCs. This estimate is supported by regional analyses, such as those from the International Energy Agency (IEA), which indicate that methane emissions from fossil fuels in the sub-Saharan region have declined in recent years—partly due to reduced oil and gas activities in Nigeria.

Many African countries have included the reduction of methane emissions (and more broadly, emissions from the oil and gas sector) in their NDCs, as this is technically feasible using existing technologies (monitoring, leak detection, flaring reduction, gas recovery, etc.). This also offers economic co-benefits, such as the monetization of recovered gas. It strengthens their credibility on the international stage and can facilitate access to climate finance.

We believe that such public communication efforts are essential for catalyzing policy change. They help translate technical knowledge into accessible messages that resonate with diverse audiences. Through working with local media outlets and regional partners, we aim to ensure that the conversation around methane mitigation is not confined to technical experts but reaches decision-makers, investors, community leaders and the public.

Conclusion

Africa has an opportunity to become a global leader in responsible methane management. The continent can avoid the pitfalls experienced by more developed countries and chart a course that aligns economic development with environmental stewardship. The examples of Ghana and Nigeria demonstrate that meaningful progress is possible, even in the face of limited resources. With support from international partners such as CATF and The Lemelson Foundation, organizations like OSS are ready to help replicate and expand these successes.

We encourage governments, regulators, and industry stakeholders across North Africa to seize this opportunity. Methane mitigation is not just an environmental obligation. It is a path to a more prosperous, resilient, and competitive oil and gas sector. As countries like Tunisia begin to explore the next phase of energy development, now is the time to invest in policies and practices that will yield long-term benefits. With the right vision and partnerships, Africa can turn methane from a threat into a tool for sustainable growth. By institutionalizing methane regulation through inclusive, evidence-based policies, Africa can become a global model of environmentally responsible energy development—driven by African leadership and regional cooperation.