

EXPLORING OPERATIONAL PATHWAYS FOR ARTICLE 2.1(C) OF THE PARIS AGREEMENT IN AFRICA

Navigating Economic Growth and Climate Objectives –
Managing Newly Discovered High-Carbon Assets

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KEY FEATURES

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Intended Audience

This working paper is crafted to stimulate discourse and welcomes constructive engagement from policymakers, researchers, and practitioners navigating the complexities of the evolving landscape of Article 2.1(c) of the Paris Agreement in Africa

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CONTENTS

EXECUTIVE SUMMARY

1	INTRODUCTION	1
1.1	Purpose of this Pathway Paper	1
2	Operationalising Article 2.1(c) in Africa: Implications for Countries with New High Carbon Assets	2
3	Emerging Perceptions on the Role of Gas in the Energy Transition	3
4	Development Landscape and Implication of Gas Discoveries in Mozambique	5
4.1	Mozambique's development context and challenges	5
4.2	Overview of Mozambique's Energy Sector	5
4.3	Assessing the Potential and Real Economic Implications of Recent Gas Discoveries	6
4.4	Mozambique's Current Policy Framework and Status of Gas Extraction	7
5	Opportunities and Risks of Managing Fossil-based Energy Investment	8
5.1	Assessing the Implication of Gas Discoveries in Mozambique	9
6	Pathway for Operationalising Article 2.1(c) in Developing Countries with Recent Discoveries of High Carbon Asset	10
6.1	Step 1: Promote Awareness, Capacity and Expertise on Article 2.1(c) and Emissions Tracking Across Key Sectors to Facilitate the Identification of Sector Champions	13
6.2	Step 2: Develop Macroeconomic Models to Consolidate Existing Data and Enhance Monitoring, Reporting, and Evaluation Systems	13
6.3	Step 3: Build Capacity and Skills in Energy Sector Reform and Transitions and Identify Gaps and Opportunities for Operationalising Article 2.1(c)	14
6.4	Step 4: Establish Governance, Policy and Legal frameworks for the Management of High Carbon Assets	14
6.5	Step 5: Identify Medium- to Long-Term Strategies for 2.1(c) Alignment and Ensure Alignment with National Development Goals	14
6.6	Step 6: Create a Transition Financing Plan and Incentives for Enhanced Climate-Aligned Investments	14
6.7	Step 7: Re-Invest in Climate-Resilient Infrastructure and Technology Innovation in Mozambique	15
6.8	Step 8: Enhance Reporting and Evaluation Systems and Enforce Continuous Monitoring, Realignment, Learning, and Improvement	15
7	RECOMMENDATIONS	16
8	CONCLUSION	17

EXECUTIVE SUMMARY

This executive summary provides a condensed overview of a comprehensive pathway to guide developing country nations in their efforts and contributions to achieving Article 2.1(c) of the Paris Agreement and aligning financial flows with low-carbon development objectives. Using Mozambique as a case study, it highlights the significant challenge faced by countries endowed with newly discovered high-carbon assets and underscores the importance of viewing these resources as a critical investment opportunity for essential developmental priorities. However, it stresses the need to balance this imperative with the objectives of the Paris Agreement, considering the integration of sustainable development and poverty eradication, as well as the principles of Common but Differentiated Responsibilities and Respective Capabilities. The paper refrains from a definitive stance on gas as an energy source. Instead, it offers a thorough and impartial analysis of the potential advantages and drawbacks of gas exploitation while providing insights into a carefully managed approach to its consideration and utilisation in the context of Article 2.1(c) of the Paris Agreement.

Introduction and Context

The pathway paper seeks to outline a strategy for developing countries to strategically utilize newly discovered high-carbon resources, such as gas in Mozambique, while ensuring alignment with low greenhouse gas (GHG) emission targets and climate-resilient development goals. Initially focused on gas, the proposed pathway can also be adapted to include other high-carbon assets like coal, which has also been recently discovered in Mozambique. By examining Mozambique's recent gas discoveries within its context of significant developmental challenges— including poverty, inequality, and vulnerability to climate shocks—and considering the ongoing debate about using gas as a transitional fuel, Mozambique serves as a critical case study. The paper highlights the importance of Article 2.1(c) of the Paris Agreement in steering the global shift towards a low-carbon economy and emphasizes its relevance for African countries facing similar issues. Given the financial constraints and varied socioeconomic conditions in countries like Mozambique, a tailored approach is essential for navigating paths toward climate-aligned development.

Challenges and Strategies

Section Two discusses the challenges and opportunities of implementing Article 2.1(c) of the Paris Agreement in Africa, focusing on nations with substantial high-carbon assets. It covers the complexities of aligning economic goals with global climate commitments, including the distinction between 'operationalising' and 'implementing' the article. It emphasises the need for a strategic approach considering short-term socioeconomic objectives and long-term sustainability goals, particularly in countries like Mozambique.

Gas as a Transitional Energy Source: Implications for Africa's Energy Transition

Section Three examines changing views on gas as a transitional energy source in Africa's energy transition. It discusses whether gas can serve as a bridging fuel, balancing immediate energy needs with attainment of long-term sustainability goals. Despite gas' projected GDP contribution, there are concerns about investment risks, especially amid global moves away from fossil fuel support. It underscores the African Union's stance on utilising all energy resources, with gas as a short-term solution while promoting renewables in the long term. To meet ambitious energy goals and achieve net-zero emissions by 2050, a balanced approach integrating gas and renewables is crucial, aligning with Mozambique's efforts to boost renewable energy adoption.

Navigating Mozambique's Gas Discoveries: Opportunities, Challenges and Governance

Section Four delves into Mozambique's intricate development landscape following the discovery of extensive gas reserves, juxtaposing its rich natural resources with persistent challenges. Despite strides in economic and social development, poverty remains widespread, largely due to low productivity in agriculture and structural challenges. Climate change further exacerbates vulnerabilities, necessitating a delicate balance between development goals and climate responsibility. Mozambique's energy sector holds significant potential, with plans to expand power generation capacity through gas and renewables, aiming for universal electrification by 2030. However, effective management of gas resources is paramount to ensure inclusive growth and mitigate risks of corruption and conflict. While Mozambique's gas discoveries offer economic promise, robust governance frameworks rooted in transparency, accountability, and equity are essential for realising their potential as a sustainable transition fuel, driving economic growth and industrialisation while navigating complex challenges.

Moving to Section Five, the paper delves into the broader opportunities and risks associated with managing high-carbon assets like gas before delving into the specific implications of gas discoveries in Mozambique. Considering these factors, the paper explores potential measures that countries can adopt to ensure the managed utilisation of these critical resources, leading to pathways that offer opportunities for sustainable growth and heightened climate resilience. Importantly, the paper acknowledges that most developing countries are not major emitters and that utilising these resources does not necessarily entail a transition but rather a phased approach to gas exploitation. This approach aligns with the imperative of curbing emissions in accordance with the global objectives outlined in the Paris Agreement. The paper then proceeds in Section Five to present a detailed pathway for operationalising

Crafting a Managed a Pathway for High Carbon Assets Utilisation

Countries that have recently discovered high-carbon assets must utilise them in a manner that ensures overall alignment with the goals of the Paris Agreement. This may involve refraining from exploitation, exporting the assets, or using them domestically while ensuring that investments in carbon sinks outweigh emissions from the high-carbon resources' utilisation. In order to ensure this net alignment with the Paris Agreement, Section Six of the paper proposes a series of actions, including:

Step 1 | Promote Awareness, Capacity and Expertise on Article 2.1(c) and Emissions Tracking Across Key Sectors to Facilitate the Identification of Sector Champions

- ❖ **Raise Awareness:** Increase understanding of Article 2.1(c) of the Paris Agreement to align gas exploration with emissions reduction goals and address associated risks.
- ❖ **Understand emissions profiles:** Develop a comprehensive emissions profile to identify key sectors for carbon reduction investments and balance economic benefits with environmental commitments.
- ❖ **Build Expertise and technical capabilities:** Train national and local officials in emissions measurement and management and collaborate with international experts to enhance technical capabilities.
- ❖ **International Engagement:** Participate in global carbon markets and mechanisms to offset emissions from gas exploitation and strengthen commitments to Article 2.1(c).

Step 2 | Develop Macroeconomic Models to Consolidate Existing Data and Enhance Monitoring, Reporting, and Evaluation Systems

- ❖ **Data and Monitoring:** Establish comprehensive data and monitoring frameworks to assess the economic and environmental impacts of gas as an export or transitional fuel. Balance gas and renewable energy investments, track carbon footprints, and prioritize emissions reduction efforts.
- ❖ **Investment and Emission Reduction:** Continuously evaluate the balance between investments in high-carbon assets and climate-aligned activities. Monitor carbon-intensive sectors, set targets for carbon reduction, and align efforts with Mozambique's NDC and Article 2.1(c).
- ❖ **Compliance and Accountability:** Ensure transparent reporting on emissions and reduction efforts to build investor confidence and support informed decision-making. Adhere to the Enhanced Transparency Framework of the UNFCCC for accountability and to monitor progress towards Article 2.1(c) goals.
- ❖ **Transparent Reporting:** Use transparent reporting to enhance accountability, monitor domestic efforts to reduce emissions from high-carbon assets, and align with international standards for credible progress towards Article 2.1(c).

Step 3 | Build Capacity and Skills in Energy Sector Reform and Transitions and Identify Gaps and Opportunities for Operationalizing Article 2.1(c)

- ❖ **Skills and Capacity Building:** Invest in developing skills and capacity to harness clean technology and implement transition plans. Focus on leveraging renewable energy opportunities for sustainable economic growth and alignment with Article 2.1(c).
- ❖ **Community Engagement:** Foster inclusive and participatory capacity building by engaging local communities and stakeholders. Ensure equitable sharing of benefits from natural gas development, addressing social, environmental, and job creation concerns.

Step 4 | Establish Governance, Policy, and Legal Frameworks for the Management of High- Carbon Assets

- ❖ **Regulatory Oversight Body:** Establish a central regulatory body, like Mozambique's National Petroleum Institute (INP), to manage high-carbon assets as a transition fuel. This body will centralize decision-making, enhance transparency, and ensure sustainable management practices aligned with Article 2.1(c).
- ❖ **Legal Frameworks and Policies:** Develop clear policies for responsible resource extraction, use, and export, setting stringent environmental and safety standards. Ensure these policies support compliance with international climate agreements and national emission targets, coordinating with key sectors and international entities for resilience and sustainability.

Step 5 | Identify Medium- to Long-Term Strategies for 2.1(c) Alignment and Ensure Alignment with National Development Goals

- ❖ **Set Clear Targets:** Establish emission reduction targets aligned with medium- and long- term climate goals to guide the transition, prioritising re-investment in low-carbon sectors, and ensuring alignment with Article 2.1(c) principles.
- ❖ **Balance Economic and Environmental Goals:** Evaluate the trade-offs between exploiting high-carbon assets and investing in low-carbon alternatives, balancing economic development with sustainable practices in accordance with Article 2.1(c).
- ❖ **Integrate with Sectoral Plans:** Align transition strategies with existing sectoral and clean development plans to ensure a coordinated and holistic approach to sustainable growth and climate objectives under Article 2.1(c).

Step 6 | Create a Transition Financing Plan and Incentives for Enhanced Climate-Aligned Investments

- ❖ **Develop Financing Plan:** Establish a strategy to fund low-carbon and climate-resilient investments, ensuring alignment with Article 2.1(c) and national development goals.
- ❖ **Leverage Private Investment:** Promote private sector co-investments in clean energy and innovative financing mechanisms.

- ❖ Engage Financial Institutions: Collaborate with financial institutions to access capital and support a low-carbon transition.

Step 7 | Re-Invest in Climate-Resilient Infrastructure and Technology Innovation in Mozambique

- ❖ Build Climate Resilience: Invest in climate-resilient infrastructure and key sectors like agriculture to mitigate climate impacts and support sustainable development, aligning with Article 2.1(c).
- ❖ Reinvest Revenues from High Carbon assets: Redirect revenues from high-carbon assets into climate-resilient and renewable energy projects to support long-term sustainability and alignment with Article 2.1(c) goals.

Step 8 | Enhance Reporting and Evaluation Systems and Enforce Continuous Monitoring, Realignment, Learning, and Improvement

- ❖ Ongoing Monitoring and Adjustment: Regularly assess market, emissions, and economic factors to adapt strategies and ensure alignment with Article 2.1(c).
- ❖ Utilise Emissions Modelling: Use economic and emissions models to guide decision-making and support a transition to low-carbon development in line with Article 2.1(c).
- ❖ Promote Economic Diversification: Invest in diverse sectors to build resilience and align economic goals with climate objectives, reducing reliance on high-carbon industries

Recommendations

The paper offers several key recommendations to ensure effective implementation:

1. Enhancing Cross-Sectoral Engagement: Encouraging collaboration across sectors to develop comprehensive emissions profiles and holistic energy diversification plans.
2. Formulate Comprehensive Long-Term Energy Diversification Plans: Prioritising the gradual reduction of high-carbon assets in favour of cleaner energy sources.
3. Channel Revenues from Gas into Low-Carbon Investments: Using proceeds from gas exploitation to fund sustainable and climate-resilient projects.
4. Develop Regulatory Frameworks for Clean Energy Investment: Creating a conducive regulatory environment to attract private sector investment in renewable energy.
5. Enhance Capacity and Understanding of Multilateral Processes: Building sectoral knowledge and leveraging mechanisms like carbon markets to support climate goals.

Conclusion

In conclusion, the pathway paper offers a comprehensive framework for advancing climate-aligned finance in Africa, particularly focusing on countries with recently discovered high-carbon assets like Mozambique. The paper navigates the intricate steps necessary for operationalising Article 2.1(c) of the Paris Agreement, aligning financial flows with low-carbon development, and ensuring a sustainable future. While illuminating Mozambique's challenges and opportunities in gas utilisation, the paper acknowledges its inherent limitations, serving as an informative guide rather than a prescriptive directive. Valuable insights drawn from Mozambique's experience underscore the importance of strategic planning and careful decision-making in balancing economic growth with sustainability, serving as a model for other countries.

The recommendations outlined stress the need to establish monitoring frameworks, foster multilateral cooperation, and strengthen governance for sustainable investments. Concerted efforts from governments, international partners, and investors are crucial to implementing these recommendations and creating an enabling environment for low-carbon development. Additionally, the paper emphasises the relevance of its pathway to other developing countries facing similar challenges, offering a roadmap for aligning financial flows with climate objectives while addressing developmental priorities. By embracing these recommendations and committing to long-term vision and action, African countries can play a pivotal role in advancing the global transition to a low-carbon economy while ensuring a sustainable and resilient future for their people

ABBREVIATIONS AND ACRONYMS

AFF	Aligning Financial Flows with the Paris Agreement in Africa
BMU	The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
IKI	International Climate Initiative
SSN	SouthSouthNorth
ADIN	Integrated Development Agency for the North
AfDB	African Development Bank
AFF	Aligning Financial Flows
AU	African Union
BCI	The Business Continuity Institute
BCM	Billion Cubic Metres
CETP	Clean Energy Transition Partnership
COP	Conference of the Parties
COVID-19	Coronavirus disease
DSA	Debt Sustainability Analysis
EDM	Electricidade de Moçambique
EITI	Extractive Industries Transparency Initiatives
ENH	Empresa Nacional de Hidrocarbonetos
ENI	Ente Nazionale Idrocarburi (Italian: “State Hydrocarbons Authority”)
EU	European Union
FDI	Foreign Direct Investment
FID	Final Investment Decision
FLNG	Floating Liquified Natural Gas
G7	Group of Seven (Canada, France, Germany, Italy, Japan, the United Kingdom and the United States)
GHG	Greenhouse Gas
GDP	Gross Domestic Product

1 INTRODUCTION

Mozambique, a developing country facing a spectrum of development challenges, has recently unveiled significant potential in high-carbon assets, specifically Liquid natural gas (LNG). In 2010, large natural gas deposits estimated at 277 trillion metric cubes were discovered in the Rovuma Basin off the country's northern coast. More recent estimates in 2020 suggested that Mozambique holds Africa's third-largest proven natural gas field, in addition to discoveries of mineral coal reserves estimated at 20 billion tonnes.¹

Amidst grappling with various developmental hurdles of job creation, poverty alleviation and human capital accumulation,² Mozambique's newfound LNG reserves are viewed as a potential catalyst for economic transformation. Additionally, LNG has been taunted as a transitional energy source with some short-term economic benefits given its relatively lower emissions potential when compared to other high carbon assets such as oil and coal. However, in the broader context of achieving long term climate goals, LNG is not a sustainable long-term solution for energy access and emissions reduction due to its carbon-intensive nature and substantial infrastructure costs required to ensure widespread access. The renewed interest of developed countries in fossil fuel investments, reminiscent of the export-led industrialisation models of the Industrial Revolution, presents both growth opportunities and at the same time, complex dilemmas for Mozambique. These dilemmas revolve around balancing economic growth with climate and sustainable development objectives.

Considering the global climate crisis and obligations set forth by the United Nations Framework Convention on Climate Change (UNFCCC), aligning financial flows with low-carbon and climate-resilient development becomes imperative. At a time when rising fuel prices threaten global energy security, this alignment is crucial, especially amid geopolitical dynamics like the Ukraine-Russia war, which could have substantial implications, including further investments in fossil fuels. Consequently, the dilemma of making future energy investments in high-carbon assets is further exacerbated.

Article 2.1(c) of the Paris Agreement mandates signatories to "make their financial flows consistent with a pathway towards low Greenhouse Gas (GHG) emissions and climate-resilient development." This necessitates transitioning to low-carbon development pathways and calls for a universal shift towards economic pathways with low GHG emissions and climate resilience, including conserving GHG sinks and avoiding further investments in GHG-emitting activities. However, this must be considered alongside the principle of common but differentiated responsibilities and respective capabilities (CBDR-RC), especially

since developed countries have not historically capitalised on high-carbon assets

African countries stress the need for a just and equitable implementation of the Paris Agreement, highlighting that the effectiveness of their Nationally Determined Contributions (NDCs) depends on sufficient financing, capacity building, and technology transfer. The lack of explicit guidelines for implementing Article 2.1(c) of the Paris Agreement further poses a complex dilemma for countries with significant fiscal revenue streams from high-carbon assets.

Mozambique, for instance, must align its financial and investment flows with the objectives of the Paris Agreement while addressing its own developmental goals and priorities, including considering whether to 'phase in' or 'phase up' high carbon assets like gas. "Phasing in" typically implies domestic utilisation, whereas "phasing up" suggests increasing extraction primarily for export. In contrast, countries like South Africa, historically dependent on high-carbon assets like coal, are considering the "phasing down" and "phasing out" of these assets. Countries like Norway and the United Arab Emirates (UAE), which have utilised their carbon-intensive resource endowments for economic development, now face urgent need to phasing down and transition to sustainable energy sources.

Like most developing countries, Mozambique currently contributes minimally to global emissions and must balance leveraging its high-carbon resources for economic growth with its commitment to mitigating climate change. Arguably, countries like Mozambique have the potential to manage the utilisation of their high-carbon assets in a way that fosters economic development without necessitating an abrupt transition away from such assets in the long term.

Transitioning to low-carbon energy sources is accompanied by multifaceted challenges that impact (directly or indirectly) various sectors of the economy. These include the stranding of assets that could contribute to the country's development, loss of employment in the industry and related sectors, and political as well as distributional issues impacting inequality. These challenges must be addressed within the framework of energy justice within the political economy.

1.1 Purpose of this Pathway Paper

This pathway paper aims to create a framework for operationalising Article 2.1(c) of the Paris Agreement in countries with recently discovered high-carbon assets, using Mozambique

¹ Club of Mozambique. 2022. [Mozambique: Rovuma gas expected to be 0.3% of 2023 state revenue](#)

² The World Bank 2024. [The World Bank in Mozambique](#)

as a case study. The overarching goal is to explore how developing countries can manage these resources while aligning with Article 2.1(c) and contributing to the global goal of reducing global temperatures below 1.5 °C. This is crucial as many countries consider their just transition pathways and the urgency of investing in clean energy diversification.

To achieve this main goal, this paper actualises the following specific objectives:

OBJECTIVES	
❖	Develop an understanding of how operationalising Article 2.1(c) of the Paris Agreement can support climate action and sustainability in developing countries with newly discovered high-carbon assets.
❖	Assess the potential economic, financial, developmental and environmental implications of investing in newly discovered high-carbon assets within the context of Article 2.1(c) of the Paris Agreement.
❖	Outline a framework of considerations for how countries like Mozambique can manage their resources in a way that exemplifies a just energy transition in line with the goals and objectives of the Paris Agreement.
❖	Provide recommendations for short- to medium-term actions to support the operationalisation of Article 2.1(c) for decision-makers at the country level

This methodology includes a comprehensive literature review and document analysis to examine existing research and policy documents related to Mozambique’s LNG sector and climate commitments. Economic analyses will assess market dynamics and the financial viability of LNG investments in the context of climate change. The research will involve a detailed case study analysis of Mozambique, focusing on developing an understanding of Article 2.1(c) of the Paris Agreement and Mozambique’s recent discoveries of high-carbon assets. The analysis will help develop a tailored framework for Mozambique, projecting different pathways for aligning LNG investments with the goals of the Paris Agreement.

2 OPERATIONALISING ARTICLE 2.1(c) IN AFRICA: IMPLICATIONS FOR COUNTRIES WITH NEW HIGH CARBON ASSETS

Implementing Article 2.1(c) of the Paris Agreement presents unique challenges and opportunities for African countries, especially those with significant high-carbon assets such as oil, coal, and natural gas. This section explores the complexities involved in operationalising Article 2.1(c) within the African context, focusing on the implications for countries that have

recently discovered substantial high-carbon resources. By examining these challenges and potential pathways, we aim to provide a comprehensive understanding of how African nations can align their economic and development goals with global climate commitments.

The operationalisation of Article 2.1(c) is a prerequisite for achieving the long-term objectives of the Paris Agreement³. Despite its urgency and importance, there remains a widespread disparity in understanding and interpretation, as evidenced by the launch of the Sharm El-Sheik dialogues in 2023⁴. The key outcomes of these dialogues were adopted at COP28, with a decision to extend and fortify the discussion from 2024 until 2025. The ongoing need for a unified understanding concerning Article 2.1(c) and its complementarity with Article 9 of the Paris Agreement, coupled with the implications for developing countries with restricted options to align financial flows, underscores the critical necessity for the continuous Sharm El-Sheik dialogues. These dialogues are pivotal in further facilitating understanding in this complex and vital space.

Despite the continued gap in understanding, the comprehensive implementation of Article 2.1(c) presents significant implications for Africa, owing to the considerable proportion of high-carbon financial assets held in the region, including 9.5% of global total proven reserves of crude oil, 8% of natural gas and 4% of coal reserves⁵, and the considerable investment flows associated with these resources. About 90% of African countries depend on primary commodities for generating state revenues or export earnings, while two-thirds rely on minerals.⁶ Furthermore, financial flows to developing countries intended to support and capitalise on the continent’s abundant renewable energy resources have been notably lacking, creating a substantial gap in financing for renewable energy initiatives. Reports indicate that the continent receives a mere 3% of global energy investment and only 2% of the world’s clean energy investment⁷, highlighting the urgent need for increased financial support to unlock the full potential of renewable energy across Africa. This situation underscores the predicament faced by African countries, where they must also consider investments in fossil fuels to meet immediate energy access needs alongside efforts to transition to cleaner energy sources.

Mbewe et al. (2024)⁸ underscore, in a paper that makes the distinction between ‘operationalising’ and ‘implementing’ Article 2.1(c), the significance of Article 2.1(c) redirecting financial resources from high-carbon to low-carbon alternatives, aligning with the Paris Agreement’s goal of mitigating global warming. The

³ World Resources Institute (WRI). 2024. [What is the Paris Agreement’s Article 2.1\(c\) on Climate Finance, and why does it matter?](#)
⁴ UNFCCC. 2023. [Sharm El-Sheik Dialogue Report](#)
⁵ ClimateDev-Africa. 2013. [Policy Brief 10: Fossil Fuels in Africa in a Carbon Constrained Future](#)

⁶ African Development Bank (AfDB). 2019. [Can Africa afford to Straddle its Fossil Fuel?](#)
⁷ IEA 2023. [Financing Clean Energy in Africa, World Energy Outlook Special Report](#)
⁸ Mbewe, S., Rahman, P., Tredoux, A. & Dobson, B. 2024. [Exploring Operational Pathways for Article 2.1\(c\) of the Paris Agreement in Africa](#)

effective implementation of the article ensures that public and private investments support sustainable, low-carbon initiatives, contributing to climate mitigation efforts under the principles of CBDR-RC. Importantly, it points out that "implementing" Article 2.1(c) is a broader concept, encompassing strategic planning (operationalisation) and the actual execution of plans, aiming not only for financial alignment but also broader goals like sustainable development, poverty eradication, and achieving the Paris Agreement's objectives. Finally, the paper stresses that the full implementation of Article 2.1(c) will catalyse investment in low-carbon solutions.⁹

In the context of developing countries like Mozambique, implementing Article 2.1(c) must mitigate investment risks associated with fossil fuels while addressing socio-development challenges such as poverty alleviation and energy access. From this perspective, operationalising Article 2.1(c) must consider both short-medium-term objectives like poverty alleviation, as well as the long-term imperatives supporting low-carbon and sustainable development. The link between implementing Article 2.1(c) and natural gas utilisation underscores the importance of integrating climate considerations into energy policies, emphasising transparency, accountability, and international cooperation to ensure that natural gas projects contribute to, rather than hinder, global efforts to combat climate change and the attainment of sustainable development.

3 EMERGING PERCEPTIONS ON THE ROLE OF GAS IN THE ENERGY TRANSITION

A key challenge with using gas as an energy source is determining whether, and to what extent, it should be considered a transition fuel and, if so, how it can be part of a clear plan for moving towards cleaner energy alternatives in the long term. There is a growing call for recognising the importance of gas as a transition fuel and its role in expanding energy access for the largely unmet demands in the African context. The European Union has also recognised gas in its taxonomy of sustainable activities as a transition fuel, as clearly articulated in the Complementary Delegated Act on Climate Change Mitigation and Adaptation covering certain gas and nuclear activities.¹¹ Consequently, the pivotal question revolves around whether Mozambique can steer towards a sustainable energy future by adopting a strategic approach that positions natural gas as a transitional resource while steadily transitioning towards clean and renewable energy sources. This strategic shift will profoundly influence the country's long-term trajectory, thus shaping its

Notably, implementing Article 2.1(c) and investing in high-carbon assets, such as natural gas, are not mutually exclusive. Investing in high-carbon assets may expedite the transition to renewable and cleaner energy sources. Firstly, the infrastructure developed for high-carbon assets, including pipelines and power plants, can be repurposed or adapted for renewable energy projects in the future. Additionally, revenue generated from high-carbon assets can provide financial stability and resources for governments to invest in research, development, and deployment of renewable energy technologies. This includes funding for research institutions, subsidies for renewable energy projects, and incentives for private investment in renewables. Furthermore, the workforce and expertise developed in the high-carbon industry can be transitioned to the renewable energy sector, minimising job displacement and facilitating the growth of the clean energy workforce. This strategic approach requires proactive measures, strong governance, and a clear commitment to decarbonisation to ensure that investments in high-carbon assets contribute to, rather than hinder, the achievement of the Paris Agreement's objectives.

Moreover, as highlighted in the World Bank Country Outlook report, post-2028, income derived from LNG sales could potentially bolster the nation's debt sustainability, potentially creating substantial fiscal leeway to bolster investments in adaptation measures and climate-resilient infrastructure.¹⁰ Ultimately, this would facilitate the alignment of financial flows with Article 2.1(c) of the Paris Agreement.

journey towards a more sustainable and resilient energy landscape.

While noting the gas sector's potential contribution to GDP, it is also important to consider the possible risk from investing. As stated above, the total investment need is significant, and the return on the investments will take time. For example, constructing liquefaction plants alone will cost roughly USD 55 billion.¹² Financing the extraction and utilisation of these reserves will also be challenging in the coming years due to the global shift away from fossil fuels and the commitment countries are taking toward phasing out support for fossil fuel investments. At COP26 in Glasgow, 39 signatories to the Clean Energy Transition Partnership (CETP), including governments and financial institutions, committed to – "end new direct public support for the international unabated fossil fuel energy sector by the end of 2022, except in limited and clearly defined circumstances that

⁹ Ibid.

¹⁰ The World Bank Group. 2023. [Mozambique Country Climate and Development Report](#). CCDR Series.

¹¹ European Commission. 2022. [EU Taxonomy: Commission welcomes the result of today's vote by the European Parliament on the Complementary Delegated Act](#)

¹² IMF Country Report. 2019. [Mozambique, Selected Issues paper](#)

are consistent with a 1.5°C warming limit and the goals of the Paris Agreement.¹³

Despite their multilateral commitments, developed nations have initiated efforts to boost coal investments to address energy shortages caused by the Ukraine–Russia conflict and the resulting limited supply. Crucially, the ongoing energy crisis stemming from the Russia–Ukraine conflict could position Africa as an alternative energy provider, encompassing various energy sources, potentially including natural gas. The imperative for immediate action and the European nations’ drive to reduce their reliance on Russian energy could prompt increased investments in Africa, including Mozambique. This trend has already materialised, with the proportion of gas exports from North African nations like Algeria, Egypt, and Libya showing a notable increase over the past year. Other African countries, such as Nigeria, have amplified their focus on developing their gas sector, where an inter-ministerial committee has been established to identify strategies for ramping up gas supply for power-generating plants.¹⁴ There should, however, be consideration of the long-term ramifications of these rapid investments and the lock-in impact it will have on the sector. The long-term outlook for fossil fuels is not promising, and locking in resources in such a sector could be disadvantageous for countries.

The African Union’s Executive Council adopted the African Common Position on Energy Access and Just Transition in July 2022, which charts the continents’ short-, medium-and long-term energy development pathways to accelerate universal energy access and transition in ways that do not compromise the continent’s development imperatives.¹⁵ The African Union’s Common Position on Energy Access and Just Transition states that Africa must utilise all energy resources.¹⁶ The continent currently has the lowest energy access and consumption, and with the demand for energy increasing, natural gas is presented as a transition fuel, and the least polluting fossil fuel for Africa.¹⁷

The Common Position includes fossil fuels (including natural gas) and renewable energy sources to address energy demand and expand short-term modern energy access while enhancing renewables uptake in the long term as the continent transitions towards a low- carbon, climate-resilient development pathway. Hence, the African Union launched the Transition Fuels Oversight & Regulatory Management Accelerator Platform (TRANSFORMA) at COP27 in 2022.¹⁸ The platform brings businesses, African energy regulators and consumers together to advance the continent’s clean energy and green transformation agenda. Given this marked shift in policy directives, coupled with Africa’s current electrification rate of 48 percent¹⁹ and its ambition to provide universal energy access to all, it is predicted that gas will play a prominent role in several countries’ energy mix.

In 2021, PricewaterhouseCoopers (PwC) estimated that for Africa to achieve Sustainable Development Goal 7 (ensuring access to affordable, reliable, sustainable, and modern energy for all) would require doubling its current energy generation capacity by 2030 and growing it fivefold by 2050.²⁰ For the continent to achieve net-zero emissions by 2050, Africa would need investments of approximately USD 2.8 trillion in a clean energy mix.²¹ This could potentially include gas. However, this has been contested, given that methane is emitted over the full life cycle of natural gas production, and methane is more potent at warming than carbon dioxide.²² Therefore, natural gas as a transition fuel would need to be considered in the context of the parallel promotion of the development and deployment of renewable energy sources, such as solar, wind, and hydropower, and importantly, at a faster rate. Mozambique government’s promotion of investment in renewable energy projects, incentivising their adoption through supportive policies and regulations, and facilitating the integration of renewable energy into the national grid will therefore be a critical aspect of the energy transition.

¹³ [Clean Energy Transition Partnership](#)

¹⁴ AEC Week. 2024. [Nigerian Gas Investment to Bolster Power Generation: Power Minister Joins AEW 2024](#).

¹⁵ African Union. 2022. [Africa Speaks with Unified Voices as AU Executive Council Adopts African Common Position on Energy Access and Just Energy Transition](#)

¹⁶ African Union. 2022. [Report of the Second Extraordinary Session of the Specialised Technical Committee on Transport, transcontinental and Interregional Infrastructure and Energy \(STC-TTIE\), 14 June–16 June 2022](#)

¹⁷ Chandler, B. 2022. [Addressing Africa’s energy deficit: Climate change, renewables and gas](#)

¹⁸ African Union. 2022. [African Union Launches Transforma Platform to Boost Clean Gas in Africa at COP27](#)

¹⁹ IEA. 2019. [World Energy Outlook 2019](#).

²⁰ PwC. 2021. [Africa Energy Review 2021](#).

²¹ Ibid.

²² African Union. 2022. [African Union Launches Transforma Platform to Boost Clean Gas in Africa at COP27](#)

4 DEVELOPMENT LANDSCAPE AND IMPLICATION OF GAS DISCOVERIES IN MOZAMBIQUE

Against the backdrop of Mozambique's rich tapestry of natural resources and developmental challenges, the discovery of extensive gas reserves heralds both promise and complexity. From the intricacies of poverty alleviation to the imperative of sustainable resource management, Mozambique stands at a crossroads, balancing the pursuit of development objectives with the imperative of climate responsibility. This section delves into Mozambique's multifaceted development context, exploring its challenges and the potential implications of recent gas discoveries on its economic trajectory.

4.1 Mozambique's development context and challenges

Mozambique is a country that has an abundance of natural resources, vast amounts of arable land and miombo forests, considerable hydropower resources, wildlife, biodiversity and, of course, one of the continent's largest natural-gas reserves; Mozambique holds the third- largest proven natural gas reserves in Africa.²³ While the country has made significant economic and social development strides, this progress has not been inclusive nor resulted in widespread poverty reduction. In 2021, only 40% of the population in Mozambique (36% on the grid and 4% off the grid) has access to electricity.²⁴

Mozambique has a large share of agricultural employment, and small-scale subsistence agriculture is the primary source of income for nearly nine in ten rural households. Moreover, the services sector remains dominated by low-productivity commerce and informal activities, and a structural transformation that sees a shift in labour from low subsistence agriculture to more productive activities is identified as one of the country's most pressing development challenges.

The World Bank highlights human capital and transport infrastructure investment as crucial elements for driving the necessary structural transformation of the economy. These investments not only foster inclusive growth but also play a vital role in poverty eradication. In 2023, an alarming 62 percent of Mozambique's population lived in extreme poverty, underscoring the urgency of addressing this issue.²⁵ In addition, several other developmental challenges persist, including high levels of public debt, low human capital accumulation, low access to infrastructure services and weak institutions.²⁶ These factors have subsequently impeded the potential structural transformation of the economy. Moreover, the economic growth achieved has mainly been driven by megaprojects and FDI in the extractive industries, with modest benefits to poor and

vulnerable populations and limited linkages with the rest of the economy.²⁷

Climate change presents an additional formidable challenge to the country's development aspirations and its efforts to pursue sustainable development. Mozambique is amongst the ten countries that are most vulnerable globally to the impact of climate change and natural hazards. Its location, extensive coastline, and large expanse of low-lying hinterland contribute to its vulnerability, with the impacts of climate change expected to increase over the next decades. The devastating impacts of climate change have had knock-on detrimental effects on the country's ability to make significant progress in achieving its development goals and have resulted in the frequent destruction of critical infrastructure.

4.2 Overview of Mozambique's Energy Sector

Mozambique boasts the most significant untapped power generation potential within the Southern African Development Community (SADC) region, primarily driven by hydropower²⁸ with access to coal,²⁹ gas, and solar resources capable of producing 187 gigawatts of electricity. However, the limited infrastructure, including transmission and distribution networks and unfavourable market conditions for new power generation, have resulted in a low electricity access rate, with only 31 percent of the population having access to electricity. Frequent blackouts and high electricity costs have hampered industrial development.

The Government of Mozambique remains committed to achieving universal access to electricity by 2030, involving significant generation, transmission, and distribution initiatives. The country is actively pursuing expanding its power generation capacity by incorporating natural gas, other fossil fuels, and renewable energy sources into its energy mix.

Hydropower accounts for between 75 and 81 percent of installed capacity, with Cahora Bassa Hydroelectric Dam capable of generating 2075 MW of power, much of which is exported to other countries (e.g. Zimbabwe and South Africa). Currently, most of the power generation comes from hydroelectric projects. Mozambique's energy sector includes eight large independent power producers (IPPs) operating in hydropower, gas, and photovoltaic power plants. These are exemplified by the Mocuba Solar Power Plant (40 MW), the Neoen Metoro Solar Power Plant (30 MW), and the Mphanda Nkuwa Hydropower Plant (1,300 MW), among others. The Central Solar de Mocuba (CESOM) provides over 79 GWh of electricity annually and is expected to result in a

²³ U.S. Energy Information Administration. 2020. [Mozambique Analysis](#)

²⁴ African Development Bank (AfDB) Group. 2021. [Country Priority Plan and Diagnostic of the Electricity Sector Mozambique](#).

²⁵ The World Bank Group. 2023. [Mozambique Country Climate and Development Report](#). CCDR Series.

²⁶ Ibid.

²⁷ Ibid.

²⁸ International Trade Administration U.S. Department of Commerce. 2024. [Mozambique Country Commercial Guide: Power Generation Transmission & Distribution](#)

²⁹ U.S. Energy Information Administration. 2020. [Mozambique Analysis](#)

reduction of approximately 79,000 tonnes of CO₂ emissions annually compared to standard national grid emissions.³⁰

Looking ahead, natural gas and renewable energy sources are poised to play a pivotal role, with natural gas projected to contribute 44% of total energy generation in the coming decade.³¹ Worth noting is that at the time of writing, gas exploration in Mozambique was primarily intended for the export market and while the government has expressed the role that gas is intended to play in the country's industrialisation, the short term exploration of the resource has mostly been intended for export revenue generation.

In 2020, the United Nations University Institute for Natural Resources in Africa (UNU-INRA) ranked Mozambique's natural gas reserves as the fifth largest reserve in the world.³² Mozambique has a long history of exploration that dates back to 1901, with significant reserves in Temane³³ and Pande fields. In 2017, the country had an estimated 2.832 trillion cubic metres of gas reserves. Gas production, consumption and exports stood at 6 billion cubic metres, 1.84 billion cubic metres and 4.16 billion cubic metres,³⁴ respectively. The National Institute of Petroleum (NIP), the regulatory body managing the country's petroleum operations and assets, is still exploiting the largest offshore gas fields estimated to exceed a reserve of 160 trillion cubic metres. In addition, NIP launched the sixth round of offshore exploration licensing in November 2021.³⁵ The Ministry of Mineral Resources and Energy estimated that the country has 38.4 billion tonnes of coal in the Tete province, and 8 million tonnes were produced in 2020.³⁶ Since 2018, the coal sector has been the largest contributor to export earnings (33 percent), making Mozambique the tenth largest coal exporter in the world.³⁷

4.3 Assessing the Potential and Real Economic Implications of Recent Gas Discoveries

Until 2016, Mozambique experienced rapid growth, averaging 7 percent annually and attracting 10–15 percent of foreign direct investment (FDI) into sub-Saharan Africa.³⁸ However, growth slowed due to falling commodity prices, climate shocks, fiscal tightening and a slowdown in FDI following the USD 1.4 billion hidden-debt disclosure. Post-COVID-19, credit rating agencies³⁹ improved their outlook for Mozambique, driven by LNG production potential and strengthened governance. Furthermore, the World Bank estimates that the economy could

grow, on average, by 5.7 percent between 2022 and 2024 as demand recovers and LNG production begins.

The Rovuma gas reserves could yield approximately USD 96 billion, almost five times the country's annual GDP. Mozambique plans to use these revenues to establish its first sovereign wealth fund, modelled after successful international examples. The Central Bank of Mozambique proposes allocating 50 percent of LNG revenues from the first 20 years to the fund, increasing to 80 percent later, with the remainder going to the state budget. This could provide long-term economic benefits, including stability, investment stimulus, and financial market deepening.

The extractive sector's contribution to GDP is expected to rise from 1.7 percent in 2011 to 18 percent by 2025 and potentially 30 percent by 2030 with near full capacity LNG production. The IMF forecasts Mozambique to be the third-largest LNG exporter in the world by 2028 (after Qatar and Australia), with a reservoir of 89 million tonnes per annum (MTPA).⁴⁰ The World Bank projects economic growth to reach 6 percent before 2025, driven by service recovery, land production and high commodity prices. The sector contributed 45 percent of total exports in 2022⁴², with oil and gas projects expected to generate USD 300 billion over the next 30 years⁴³

Effective management of oil and gas resources is crucial for inclusive development. Linking mineral resources revenue to other economic sectors is both a key challenge and opportunity. The IMF notes that the extractive sector, particularly LNG production, will significantly boost Mozambique's foreign exchange. In 2014, the extractive sector accounted for 57 percent of export earnings, 3.5 percent of GDP, and 20.6 percent of government revenue⁴⁴

Mozambique's extractives industry contributes to the economy primarily through exports, with main export partners including India (28.1 percent), The Netherlands (24.4 percent) and South Africa (16.7 percent). The government plans to use gas production to drive its industrialisation, as demonstrated in the development of the country's Natural Gas Master Plan, which sets a policy framework for both the export of LNG and the domestic use of natural gas as a driving force for industrialisation in Mozambique.⁴⁵ Accordingly, a portion of the Rovuma Basin's natural gas production has been earmarked for local use to address the needs of the domestic market.⁴⁶ This aims to support

³⁰ Norfund. 2024. [Central Solar de Mocuba](#).

³¹ United States Department of Commerce– International Trade Administration. 2024. [Data on Mozambique's Power Generation, Transmission and Distribution](#).

³² Júnior. 2020. [The Local Content and Value Addition in the Mining Oil and Gas Sector in Mozambique: the Context and Resource Governance](#). UNU-INRA

³³ Republic of Mozambique Cabinet Council. 2014. [Natural Gas Master Plan](#)

³⁴ The Oil & Gas Year. 2019. [Mozambique 2019](#)

³⁵ Frontier Energy Network. Mozambique 6th Licensing Round Case Study

³⁶ Mozambique EITI. [Mozambique 2020 EITI Report](#)

³⁷ The World Bank Group. 2023. [Mozambique Country Climate and Development Report](#). CCDR Series

³⁸ Gebregziabher, F.H. and Sala, A.P. 2022. [Mozambique's "hidden debts": Turning a crisis into an opportunity for reform](#). World Bank Blogs

³⁹ Moody's. 2022. [Mozambique Government of – Moody's changes Mozambique's outlook to positive affirms Caa2 rating](#)

⁴⁰ International Monetary Fund (IMF). 2016. [Republic of Mozambique: Selected Issues](#)

⁴¹ International Monetary Fund (IMF). 2022. [Mozambique: First Review under the Three-Year Arrangement under the Extended Credit Facility and Request for Modification of the Monetary Policy Consultation Clause and Financing Assurances Review-Press Release; Staff Report; and Statement by the Executive](#)

⁴² The World Bank. 2023. [Mozambique Economic Update: Shaping the Future – Why Services Matter for Growth and Jobs](#)

⁴³ The World Bank. 2024. [GDP \(current US\\$\) – Mozambique](#)

⁴⁴ EITI. 2023. [Mozambique: Overview and role of the EITI](#)

⁴⁵ AMETrade. N.d. [Mozambique is Determined to Change its Fortunes with Natural Gas Resources](#)

⁴⁶ International Trade Administration U.S. Department of Commerce. 2024. [Mozambique – Country Commercial Guide: Oil & Gas](#)

industries such as aluminium, petroleum products, chemicals, textiles, cement and glass, providing reliable energy supply for growth.

Despite its potential, the gas industry has yet to yield significant widespread benefits, instead exacerbating issues like corruption, debt, and conflict in gas-producing regions. The ongoing conflict, which has been fuelled by inequality, forced relocations of communities in the region, as well as low transparency and increasing corruption⁴⁷ in north-eastern Mozambique, poses a risk to the sustainability of gas reserves. To address this, the government plans to allocate 10 percent of gas revenues directly to the Cabo Delgado region⁴⁸

FDI has declined due to political uncertainty and weak commodity prices. The main sources of FDI are the UAE, Mauritius, Italy, Portugal, and the Netherlands,⁴⁹ which traditionally target mining, hydrocarbons, logistics, retail, and real estate. Gas discoveries have strained Mozambique's fiscal space, with external debt as a proportion of GDP tripling since the gas discovery, reflecting a 'pre-source curse' pattern.

Robust governance structures rooted in transparency, accountability, and equity are crucial for gas as a transitional energy source. Transparency ensures open processes, accountability addresses mismanagement, and equity ensures fair distribution of benefits. Effective governance frameworks can make gas a sustainable transition fuel, supporting an environmentally responsible and socially equitable future.

4.4 Mozambique's Current Policy Framework and Status of Gas Extraction

Mozambique's Industrial Policy and Strategy (2016–2025)⁵⁰, informed by the government's five-year programme (2015–2019), aims to create jobs, reduce poverty and enhance competitiveness through higher productivity. The National Development Strategy (2015–2035) focuses on industrialisation as the cornerstone for achieving prosperity, sustainability and competitiveness. Mozambique's development strategy has relied on the extractives industry, with significant investments made in the oil and gas industry between 2003 and 2013. These investments are mostly megaprojects by international companies, including Sasol, Vale, Exxon, and Rio Tinto.⁵¹ However, the reliance on the extractive sector leaves the country vulnerable to commodity price shocks and has yet to yield the expected job growth and economic disparity reductions.⁵² Furthermore, these megaprojects have not consistently delivered the anticipated economic benefits, and any potential gains for the government and people of Mozambique hinge heavily on the international LNG market beyond the 2030s.⁵³

Further extensive literature on the potential of the gas sector in Mozambique to deliver the intended benefits suggests the need for a renewed approach to governance and resource management

Mozambique's NDC submitted in 2021 aims to reduce emissions by approximately 40 million tCO₂eq from 2020 to 2025. Although Mozambique is investing in diversifying energy sources within the country, with a strong emphasis on economic viability as a significant factor in the decision-making process, it currently has no specific legislation regarding the decarbonisation of the gas sector. Mozambique's NDC (2020–2025) mentions the massification of LPG and enhanced access to cooking gas and repair of natural gas-powered buses as part of the country's promotion of low carbon urbanisation and overall industrialisation. Accordingly, a portion of the Rovuma Basin's natural gas production has been earmarked for local use to address the needs of the domestic market.⁵⁴ Over the next five years, Mozambique envisions several megaprojects as key economic drivers, thus presenting a wide array of direct and indirect business opportunities. Among these, the most significant prospects lie in constructing separate onshore LNG plants led by two distinct consortia: Total S.A. and ExxonMobil/ENI. These ventures are valued at USD 23 billion and over USD 20 billion. Additionally, exploration activities spearheaded by ExxonMobil, ENI, and other players will further unlock opportunities within the oil and gas sector, which are primarily intended for the export market.

Mozambique remains equally committed to investing in renewable energy. At COP26, the Prime Minister announced a new target for Mozambique – 62 percent of energy from renewable sources. At COP28, Mozambique announced the launch of its Energy Transition Plan, worth \$80 billion and expected to span until 2050, and that will aim to harness its solar and hydro potential to improve energy access to local communities through off-grid solutions, as well as to power the beneficiation of graphite and lithium minerals and transform the transport sector to clean transport technologies by 2030.⁵⁵ However, Mozambique has also made public their intentions to implement a gradual and phased transition that minimises the impact on the country's economic development, using natural gas as a transition fuel.⁵⁶

⁴⁷ International Institute for Sustainable Development (IISD). 2023. [Navigating Decisions on LNG Exports: Risks and Opportunities for Mozambique](#)

⁴⁸ Rosenfeld, D. 2023. [In Southern Africa, national budget trends are under debt distress](#)

⁴⁹ Bank of Mozambique. 2022. [Quarterly Balance of Payments Bulletin Report](#)

⁵⁰ UNCTAD/BR. 2022. [Industrial Policy in Southern Africa: Mozambique's experience](#)

⁵¹ The World Bank Group. 2021. [Assessment of the Legal and Regulatory Framework for Foreign Direct Investment](#)

⁵² Ibid.

⁵³ International Institute for Environment and Development. 2023. [Navigating Decisions on LNG Exports: Risks and Opportunities for Mozambique](#). International Institute for Environment and Development.

⁵⁴ U.S. Department of Commerce. 2024. ["Mozambique – Oil and Gas."](#) U.S. Commercial Service.

⁵⁵ Bloomberg. 2023. [Mozambique Approves \\$80 Billion Energy Transition Strategy](#).

⁵⁶ Ibid.

5 OPPORTUNITIES AND RISKS OF MANAGING FOSSIL-BASED ENERGY INVESTMENT

The discovery of natural gas in Mozambique offers significant opportunities for enhanced energy access, economic growth and poverty alleviation. However, these prospects are accompanied by notable risks, particularly those associated with transitioning to low-carbon energy sources and the potential for stranded assets. As the world moves towards a low-carbon future, investments in high-carbon assets are increasingly susceptible to changing global energy policy, technological advancements and shifting market dynamics. Mozambique's current strategy of expanding natural gas production risks entrenching a carbon-intensive path. This could lead to stranded assets that are both economically burdensome and environmentally unsustainable. These decisions surrounding the phase-in and capitalisation of natural gas must also consider the political economy of energy justice, which involves ensuring energy access, energy security, and minimal negative environmental impacts.⁵⁷

One critical risk is the potential impact of carbon taxes associated with carbon border adjustment mechanisms (CBAM). In the face of new CBAM regulations, gas production could face increased costs under trade agreements with markets compliant with CBAM regulations, affecting the competitiveness of its gas production. Furthermore, CBAM could reduce the competitiveness of other Mozambican products in the export market. On the other hand, CBAM might drive the country's efforts towards reducing the carbon intensity of its gas production processes, given the necessary support to facilitate investment in the relevant technologies.

Adopting cleaner technologies can reduce carbon emissions from gas extraction, processing, and transportation, which would help maintain competitiveness in CBAM-regulated markets and align with global decarbonisation goals. For example, Mozambique produces 201,295.50 million cubic feet (MMcf) of natural gas annually, exporting 67 percent of this production. This export-oriented strategy minimises domestic carbon emissions compared to countries with high domestic consumption levels.⁵⁸ Table 1 below presents an overview of the inherent opportunities and risks of natural gas discovery and exploration.

As a country endowed with high-carbon assets, Mozambique must identify a pathway to guide the transition to renewable energy in a managed process that avoids over-exploitation of these resources. For example, there is an opportunity for a planned approach to offset the carbon emissions from current gas production by reinvesting proceeds into clean energy alternatives and establishing carbon sinks that can derive economic and socioeconomic co-benefits.

The risks and opportunities highlighted in Mozambique's progression with gas development must be carefully considered in the formulation of a robust transition plan. As Mozambique advances swiftly and expansively in its gas sector, the opportunities outlined earlier are becoming increasingly attractive. However, it is crucial to approach this development with a clear understanding of the associated risks. Therefore, a meticulously crafted transition plan must be one that is dynamic, responsive to evolving circumstances, and closely integrated with the broader development objectives of the country. By doing so, Mozambique can effectively harness the benefits of its natural resources while mitigating potential risks and ensuring sustainable long-term growth.

⁵⁷ Healy, N. and Barry, J. 2017. [Politicizing energy justice and energy system transitions: Fossil fuel divestment and a "just transition"](#)

⁵⁸ Worldometer. 2015. [Mozambique Natural Gas](#)

Table 1: Opportunities and Risks of Gas Exploitation in Mozambique

Opportunities	Risks
<u>Energy Security</u> Developing countries, such as Mozambique, which has substantial gas reserves, can use these resources to enhance energy security. By relying on domestic gas production, they reduce their dependence on imported energy sources and mitigate potential supply disruptions	<u>Environmental Concerns</u> Ecological risks could include increased negative direct and indirect impacts of climate change on development aims, water, food, exposure to disease vectors and human health, the economy and/or natural ecosystems;⁵⁹ the high-water demand related to fossil fuel extraction, processing, and conversion; the high local pollution associated with oil extraction (i.e., water or air pollution). They could also include the environmental disasters related to natural resource extraction, as experienced in the Niger Delta (i.e., gas flaring, oil spills, pipeline explosions), causing crop failure or pollution of farmlands and drinking water⁶⁰
<u>Economic Growth</u> Gas reserves can become an asset and revenue generator for developing countries. The exploration, production, and export of natural gas can stimulate economic growth, create jobs, and contribute to the country's GDP.	<u>Social Impacts</u> Gas projects may involve the displacement of communities or disruption of traditional livelihoods. It is essential to address the social impact and ensure the equitable distribution of benefits among all stakeholders. <u>Conflict</u> The discovery and exploration of gas in Mozambique has contributed to an already conflicted region and exacerbated inequalities, which has led to increased tensions, insecurity, and violence in the region
<u>Foreign Investment</u> The existence of gas reserves often attracts foreign investment as international companies seek to participate in exploration and production activities. This influx of investment can lead to technological advancements, skills transfer, and infrastructure development.	<u>Stranded Assets</u> 'Creating' stranded assets and the liability for decommissioning costs. <u>Revenue Management</u> Debt or a lack of investments in other areas; economic losses due to political or social risks related to investing in unstable environments Could occur. Effective management of gas revenues is critical to avoid the 'resource curse' phenomenon, whereby sudden wealth could lead to mismanagement, corruption, and economic instability
<u>Government Revenue</u> Gas exports and domestic sales can provide substantial government revenues via taxes, royalties, and other fees. These funds can be used for public services, infrastructure projects, and social development programmes	<u>Infrastructure Development</u> Infrastructure development may face challenges such as stranded assets, potential litigation on domestic and international fronts, and policy freezes, particularly when foreign investors are involved. <u>Potential for Illicit financial flows</u> Another potential risk posed by gas development is the potential for illicit financial flows to diminish the benefits to a country in the absence of a robust governance framework.
<u>Industrial Development</u> Access to affordable and abundant natural gas can promote the growth of energy-intensive industries, such as petrochemicals and manufacturing, thus leading to industrial development and diversification.	<u>Legal Risks</u> This could include climate change litigation whereby countries or companies are held responsible for GHG emissions or environmental disasters caused by fossil fuel extraction and investments (for example, by local groups).

Source: Author's Own

5.1 Assessing the Implication of Gas Discoveries in Mozambique

Article 2.1(c) of the Paris Agreement plays a pivotal role in shaping the climate strategies and economic prospects of countries like Mozambique, which have recently discovered significant volumes of LNG. For Mozambique, the implications of Article 2.1(c) are profound as the country attempts to align their financial flows with this framework while unlocking the potential of their newfound carbon assets. Beyond Mozambique, Article 2.1(c) also holds significant implications for the broader African continent, given its heavy reliance on fossil fuels for state revenues and export earnings, thus making the transition to low-carbon alternatives a complex challenge. As such, operationalising Article 2.1(c) while addressing economic dependencies on high-carbon assets becomes a pressing concern.

The principle of CBDR-RC is crucial in this context, as it acknowledges the historical exploitation of high-carbon assets by developed nations. Like many other developing countries, Mozambique emphasises the just and equitable implementation of the Paris Agreement. This means that financial support, capacity building, and technology transfer are vital for Mozambique to manage its carbon assets while effectively achieving climate goals. The challenge is not only about aligning financial flows with Article 2.1(c) but also about doing so in a manner that ensures fairness and inclusivity.

Mozambique's LNG reserves present a significant opportunity for economic growth and transformation. However, as the world increasingly emphasises the urgency of transitioning to a 1.5°C temperature threshold and achieving net-zero economies, how Mozambique and other African economies with similar characteristics can adopt these measures and effectively operationalise Article 2.1(c) is uncertain. The uncertainty surrounding

⁵⁹ DNV. [New report reveals: Business a key activist in turning global risks into opportunities](#)

⁶⁰ Eweje, G. 2006. "Environmental Costs and Responsibilities Resulting from Oil Exploitation in Developing Countries: The Case of the Niger Delta of Nigeria" *Journal of Business Ethics*, 69(1)27–56.

the use of carbon-intensive assets for development in the face of climate change and a time-bound objective of meeting the temperature goals of the Paris Agreement is a significant concern.

In light of this, Mozambique faces a dual challenge. On the one hand, the country must leverage its high-carbon assets for economic development. At the same time, it must mitigate emissions contributing to climate change, thus aligning it with global efforts to limit global temperature rise. This entails a fundamental shift towards clean energy alternatives and the conservation of GHG sinks, which will require substantial financial investments.

Mozambique's approach to Article 2.1(c) should therefore be strategic and carefully planned, carefully considering how to navigate the transition to low-carbon development pathways without hampering its economic growth and development prospects. This could involve a 'phasing in' strategy, allowing them to gradually reduce their reliance on high-carbon assets over time, while investing in cleaner energy alternatives. International support and partnerships will be crucial in this endeavour. Mozambique's ability to balance economic development, climate objectives, and the global commitment under Article 2.1(c) will significantly influence its future trajectory and contribution to global climate action.

Central to decisions about utilising and managing these resources is a shift from linear thinking and single-intervention approaches. Instead, a holistic approach is necessary, considering the country's energy system dynamics and the contributions of different energy sources to the overall economy. Therefore, the decision to the extent to which the country will continue to capitalise on gas needs to be considered alongside several other factors, such as the emission intensity of the country's other energy sources and its overall investment in renewable energy, to name a few. This approach acknowledges the complexities of the energy landscape and seeks to navigate a path that promotes sustainability yet still aligns with the goals of the Paris Agreement. By adopting such a system-wide perspective, countries like Mozambique can work towards balancing their development needs with the imperative to address climate change, thus fostering a sustainable and resilient future.

Mozambique's transition strategy represents a dynamic and evolving journey towards a sustainable energy future. It involves complex economic and environmental considerations to balance development needs and global climate commitments. Recalling a key objective of this paper, i.e., to outline a pathway for operationalising Article 2.1(c) of the Paris Agreement, the following section outlines the proposed pathway that countries with newly discovered high carbon assets could follow while ensuring continued alignment between the goals and objectives of the Paris Agreement and meeting their development objectives.

6 PATHWAY FOR OPERATIONALISING ARTICLE 2.1(c) IN DEVELOPING COUNTRIES WITH RECENT DISCOVERIES OF HIGH CARBON ASSET

This pathway provides a framework for African countries with newly discovered high-carbon assets to strategically leverage these resources, mitigate climate and investment risks, and align with Article 2.1(c) of the Paris Agreement. By adapting this framework to local contexts and development priorities, countries can navigate the complexities of transitioning towards more sustainable energy systems while maximizing the socio-economic benefits of their natural resource endowments.

Additionally, this pathway provides a comprehensive approach to operationalizing Article 2.1(c) by addressing the practical implementation gap—specifically, the 'how to' of integrating high-carbon assets into sustainable development strategies. It offers actionable steps and methodologies to bridge this gap and ensure alignment with climate goals. It emphasizes the importance of implementing concrete and practical processes that align economic development driven by high-carbon assets with global climate commitments. By prioritizing practical implementation over theoretical frameworks, countries can successfully navigate the challenges posed by Article 2.1(c), making substantial strides towards a sustainable future.

As a developing nation, Mozambique faces a delicate balancing act. While it has invested in fossil fuels, it now grapples with conflicting priorities of climate mitigation and revenue generation. Simultaneously, it must contend with the risks of stranded assets as global efforts to divest from high-carbon resources escalate, aligning with the imperative to achieve net-zero emissions outlined in the Paris Agreement. Amidst these challenges lies an opportunity for Mozambique to leapfrog developed nations that historically relied on polluting fuels. Achieving green industrialisation hinges on strategically utilising discovered high-carbon assets while fostering a pathway that promotes the gradual phase-out of such assets in favour of investments aligned with Paris goals.

In the medium and long term, countries such as Mozambique should adopt frameworks that facilitate the implementation of Article 2.1(c) over a temporal horizon. This approach aims to transition away from high-carbon assets towards a full reliance on clean and renewable energy, ultimately achieving net-zero emissions. Effective governance, well-defined policy targets and robust accountability measures are crucial for managing gas as a transition energy source and achieving Paris-aligned financial flows. By prioritising governance, Mozambique can balance energy needs, reduce emissions, and safeguard environmental and social interests, ensuring resource utilisation aligns with climate objectives and supports sustainable development. It does also necessitate support for developing countries to build the necessary capacity and expertise for accurate emissions measurement, as well as support towards enhancing climate resilience.

Article 2.1(c) emphasises redirecting investments towards reduced emissions, enhanced climate resilience, and sustainable development. For countries like Mozambique, with newly discovered high-carbon assets, strategic planning is crucial to managing transition risks and supporting economic growth and poverty alleviation. For nations yet to fully integrate the utilisation of recently identified high-carbon resources—an aspect that could profoundly impact their economic growth and poverty alleviation prospects—such an approach demands a deliberate strategy. This need is particularly pronounced for nations with newly discovered assets, as they face heightened exposure to transition risks amidst the global shift toward renewable energy. A clear framework for managed gas utilisation, aligned with climate goals and economic benefits, is essential, and establishing a long-term vision for sustainable gas utilisation early-on in the discovery of these assets provides can reduce regulatory uncertainty and guide sustainable investments.

It is hoped that the processes outlined in this paper can assist developing countries considering the development of their transition plans, as critical tools that will determine the advancement of development priorities and strategies that support the operationalisation of Article 2.1(c).

This comprehensive approach calls for policy reforms, regulatory frameworks, financial incentives, and international cooperation to transition towards a sustainable future. Implementing Article 2.1(c) presents challenges, especially for countries lacking financial resources for climate resilience investments. Addressing these challenges requires private finance and clear guidance on aligning financial flows with Article 2.1(c). This challenge is exacerbated by the perception that investments in environmental sustainability detract from financial profitability, contributing to the disparity in the availability of private capital for environmental sustainability between developed and developing countries. Compounding this issue is the absence of comprehensive guidance on how developing countries should align financial flows with Article 2.1(c) amidst global energy constraints, limited development opportunities, and rising poverty rates.

The current focus on assessing implementation consistency falls short of providing a clear pathway for African countries. Considering their specific needs and circumstances, it is imperative to address this gap to establish a robust pathway that enables these countries to integrate steps towards aligning financial flows with Article 2.1(c).

Individual pathways that countries must chart to attain these goals remain intricate and largely undefined. This complexity arises due to the multifaceted nature of transition pathways, which dictate the scale and nature in which financial flows can be shifted towards greener and more sustainable economic development trajectories.

Ultimately, Mozambique's decisions on gas utilisation rest with the national government and how it navigates its competing priorities of carbon-cutting objectives versus poverty alleviation and development. Nevertheless, effectively operationalising Article 2.1(c) will necessitate the coordinated involvement of a broader spectrum of stakeholders, energy regulators, energy ministries, civil society, and

research institutions and which will vary across specific transition pathways. The following section presents essential considerations and stages for defining a pathway towards net realignment of investments and embracing low-carbon, sustainable energy solutions. As illustrated in Figure 1, achieving Paris-aligned financial flows follows a pathway that involves continuous, iterative steps requiring ongoing monitoring and adjustment

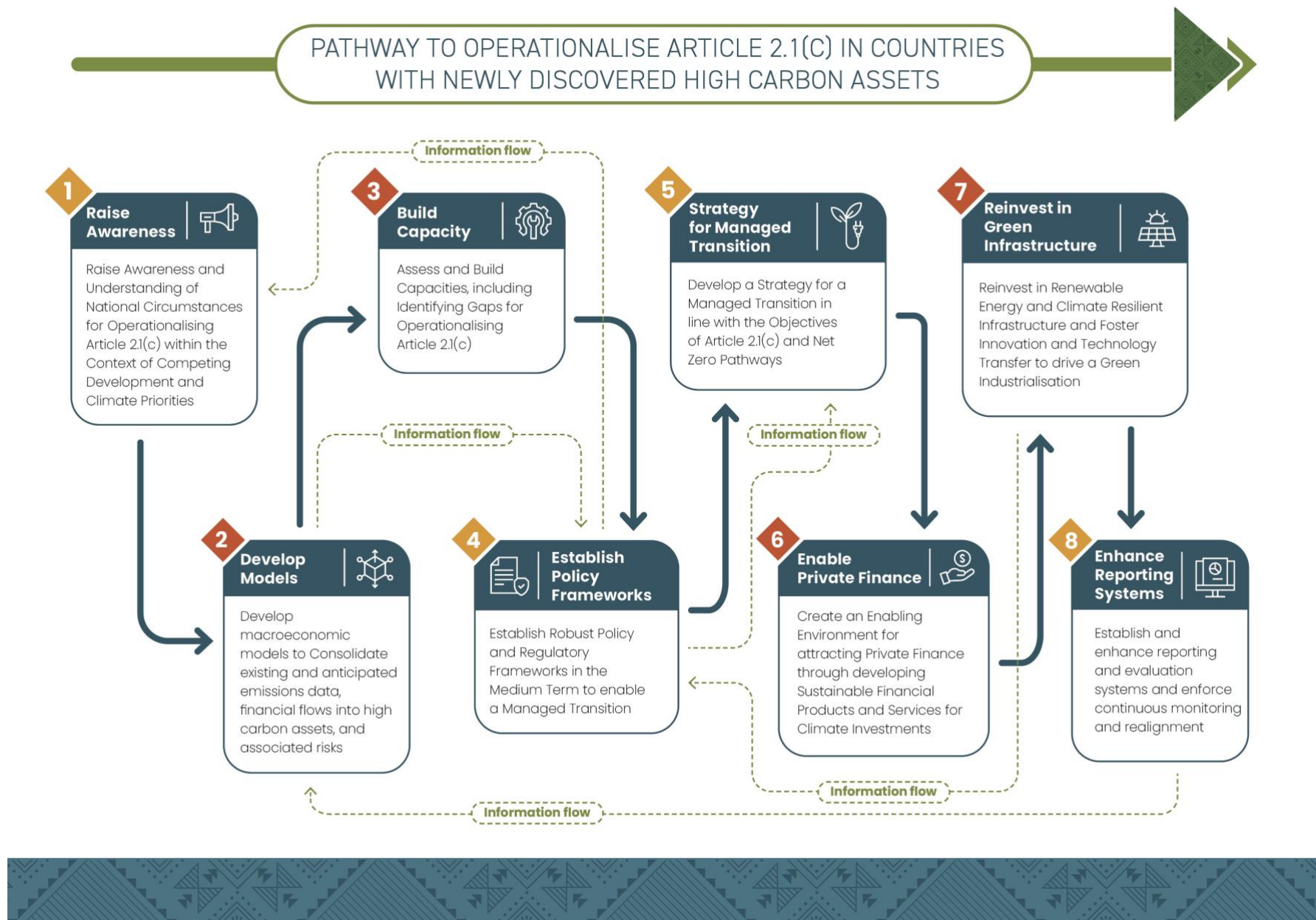


Figure 1: Pathway for operationalising Article 2.1(c) in Africa: Authors own conceptualisation

6.1 Step 1: Promote Awareness, Capacity and Expertise on Article 2.1(c) and Emissions Tracking Across Key Sectors to Facilitate the Identification of Sector Champions

- ◇ Enhancing Awareness and Comprehension: Raising awareness of Article 2.1(c) is crucial for sustainable development and climate action. Enhanced emissions tracking across key sectors will help identify leaders committed to reducing emissions. Stakeholders must understand how Article 2.1(c) affects recent gas discoveries and investments. While current investments seek economic benefits and opportunities, gas exploration must also address the risks detailed in Section 5. **This is crucial for aligning all relevant parties with the objectives of Article 2.1(c) and fostering a unified approach to emissions reduction**
- ◇ Understanding Emissions Profiles: Key government sectors must grasp the country's overall emissions profile and sectoral contributions to greenhouse gases (GHGs). This insight enables the government to identify sectors needing significant investment in carbon reduction technologies and to highlight the technologies with the greatest emissions reduction potential. This knowledge is vital for developing scenarios for gas exploration that adhere to Article 2.1(c) principles. It informs the emissions reduction strategy and guides decisions on gas exploration, ensuring alignment with Article 2.1(c) of the Paris Agreement. As Mozambique exports its gas reserves, prioritizing domestic use would require a thorough understanding of the overall emissions profile. Assessing the costs of investing in carbon reduction technologies versus potential revenues from gas investments is essential for balancing economic goals with environmental commitments. Mozambique's transition plan must demonstrate this balance, showing progress towards Paris Agreement goals. Additionally, tracking financial flows within the gas sector is crucial for assessing climate and investment risks and ensuring alignment with Article 2.1(c) principles for sustainable investment practices. **This understanding helps target the most significant sources of emissions and aligns efforts with Article 2.1(c) goals.**
- ◇ Building Technical Capabilities: Investing in training for national and local government officials to build local expertise in emissions measurement and management is critical. Collaboration with international organisations, experts and developed country counterparts is essential to enhance local technical capabilities required for informing national energy policy and developing pathways for managing high-carbon assets and effectively operationalising Article 2.1(c). **Building technical capabilities ensures accurate emissions tracking and effective implementation of Article 2.1(c) strategies.**
- ◇ International Collaboration and Carbon Markets: It is essential to participate in international carbon markets and mechanisms, such as Internationally Transferable Mitigation Outcomes (ITMOs). For example, Mozambique can use carbon offset credits generated through emission reduction activities to compensate for emissions from gas exploitation,

achieving a more neutral impact on global emissions. International collaboration enhances Mozambique's capacity to meet its Article 2.1(c) commitments through global partnerships and mechanisms.

6.2 Step 2: Develop Macroeconomic Models to Consolidate Existing Data and Enhance Monitoring, Reporting, and Evaluation Systems

- ◇ Data and Monitoring Frameworks: Assessing the economic and environmental impacts of using gas as an export commodity or transitional fuel requires comprehensive data and monitoring systems that address both investment and transitional risks. These frameworks should demonstrate how to balance gas investments with renewable energy investments across sectors, aligning with climate-resilient goals as outlined in Step 1 of the pathway. They should also facilitate tracking carbon footprints, identifying emission sources, and prioritizing reduction efforts to offset and potentially overcompensate for investments in high-carbon assets. **Accurate data and monitoring are essential for assessing progress towards Article 2.1(c) and making informed policy decisions.**
- ◇ Assessing Investment and Emission Reduction: Monitoring, evaluation, and reporting are crucial for continually assessing the balance between investments in high carbon assets and climate-aligned activities, climate resilient infrastructure and/or carbon sinks. This involves evaluating carbon-intensive sectors, including gas, and setting targets for energy efficiency and carbon reduction technologies. Mozambique's updated Nationally Determined Contribution (NDC) indicates that the Land Use, Land-Use Change, and Forestry (LULUCF) sector is the largest contributor to national emissions, followed by the energy and agriculture sectors. For example, Mozambique aims to reduce carbon emissions by 10 million tonnes by 2024 through sustainable agricultural practices and forest restoration. Provided the emissions reductions from these sustainable practices outweigh emissions resulting from the consideration of gas albeit as a transitional fuel, the country could potentially remain on a path of alignment with article 2.1(c). **Ongoing assessment ensures that efforts remain aligned with Article 2.1(c) and adapt to new information and circumstances.**
- ◇ Compliance, Accountability and Transparent Reporting under the Enhanced Transparency Framework: Transparent reporting on carbon emissions and emission reduction efforts enhances investor confidence and supports informed decision-making. Investors increasingly consider climate-related risks and opportunities, and access to reliable data allows them to evaluate carbon performance, assess risks, and support low-carbon and sustainable projects. As a Paris Agreement signatory, countries with newly discovered high-carbon assets like Mozambique are required to ensure accountability and compliance with the UNFCCC's Enhanced Transparency Framework. Countries should therefore view this framework not only as a tool for accountability and

transparency but also as a means to monitor and evaluate domestic efforts to transition away from the high carbon assets, gas in the case of Mozambique, the effectiveness of policies aimed at reducing these emissions, and efforts toward emission reduction and alignment with Article 2.1(c). **Transparency and accountability are key to maintaining trust and ensuring that actions align with Article 2.1(c) objectives. Compliance with international transparency standards supports credible and verifiable progress towards Article 2.1(c).**

6.3 Step 3: Build Capacity and Skills in Energy Sector Reform and Transitions and Identify Gaps and Opportunities for Operationalising Article 2.1(c)

- ❖ **Building:** Developing countries with newly discovered high carbon assets must prioritise investment in skills and capacity building to leverage the clean technology revolution, to effectively implement the transition plan and seize re-industrialisation opportunities centred around renewable energy products, positioning Mozambique for sustainable economic growth in the evolving clean energy landscape. **Building capacity is vital for enabling the energy sector to transition in line with Article 2.1(c) commitments.**
- ❖ **Community Engagement:** Effective inclusive and participatory capacity building involves meaningful engagement with local communities and stakeholders. This ensures that the benefits of natural gas development are shared equitably and addresses social and environmental concerns, including job creation, community development, and environmental protection. **Community engagement ensures that the transition is inclusive and that local populations support and benefit from Article 2.1(c) initiatives.**

6.4 Step 4: Establish Governance, Policy and Legal frameworks for the Management of High Carbon Assets

- ❖ **Regulatory Oversight Body:** Managing high-carbon assets as a transition fuel requires establishing a regulatory oversight body or agency. This body will centralise decision-making processes, enhance transparency, and coordination amongst relevant sectors, and ensure a strategic approach to sustainable management practices. In Mozambique, this is represented by the National Petroleum Institute (Instituto Nacional do Petróleo —INP), the regulatory entity responsible for the administration and promotion of oil and gas operations. **Strong governance is essential for effectively managing resources and ensuring alignment with Article 2.1(c).**
- ❖ **Legal Frameworks and Policies:** Establishing clear policies for responsible resource extraction, use, and export is crucial. These policies should set stringent environmental and safety standards, address social considerations, and ensure compliance with international climate agreements and national emission targets. The governing body will coordinate

with key sectors and international entities to manage high-carbon assets within multilateral climate frameworks for resilience and sustainability. **Clear policies provide a structured approach to resource management, ensuring that actions support Article 2.1(c) objectives.**

6.5 Step 5: Identify Medium- to Long-Term Strategies for 2.1(c) Alignment and Ensure Alignment with National Development Goals

- ❖ **Setting Clear Targets:** Mozambique must establish clear emission reduction targets aligned with medium—and long-term climate objectives. These targets will guide the transition pathway and ensure alignment with Article 2.1(c) principles. **Setting targets provides clear goals to guide efforts and measure progress towards Article 2.1(c).**
- ❖ **Balancing Economic and Environmental Goals:** It is crucial to strike a balance between exploiting high-carbon assets and investing in low-carbon alternatives. The government must assess the economic costs and benefits of transitioning away from fossil fuels while considering the country's developmental needs. **Balancing these goals ensures that economic development aligns with sustainable practices under Article 2.1(c).**
- ❖ **Integration with Sectoral Development Plans:** Aligning transition strategies with existing sectoral development plans and clean development plans will facilitate a coordinated approach to sustainable growth. **Integration with sectoral plans ensures a holistic approach to development and climate goals in line with Article 2.1(c).**

6.6 Step 6: Create a Transition Financing Plan and Incentives for Enhanced Climate-Aligned Investments

- ❖ **Develop a Comprehensive Financing Plan:** Establishing a transition plan and securing its financing are crucial steps toward achieving the Paris goals. Central to aligning with Article 2.1(c) is the creation of a financing strategy that channels resources into investments in low- carbon and climate-resilient initiatives. As mentioned earlier, Mozambique has formulated a transition plan. This paper proposes that such a plan should evaluate potential revenues and reinvestments into sectors aligned with climate objectives, ensuring sustainable and resilient economic growth. **A robust financing plan is essential for mobilising the resources needed to achieve Article 2.1(c) goals.**
- ❖ **Leverage Private Sector Investment:** Recognising the role that private developers play in the exploration and exploitation of high carbon asset such as gas, countries should seek to enforce regulations that promote co-investments in supporting local private sector. In addition, countries like Mozambique should look to leverage these revenues to explore innovative financing mechanisms and incentives to attract and promote opportunities for private sector investment in other sectors of the economy, including in clean energy and climate-resilient infrastructure. **Private**

sector investment leverages additional resources and innovation to support Article 2.1(c) implementation.

- ◇ Engaging Financial Institutions: Collaboration with financial institutions, including local development finance institutions, facilitates investment in climate-aligned development interventions by identifying financial instruments and strategies that support the transition to a low-carbon economy. **Engaging financial institutions ensures access to capital and financial products that facilitate the transition in line with Article 2.1(c).**

6.7 Step 7: Re-Invest in Climate-Resilient Infrastructure and Technology Innovation in Mozambique

- ◇ Building Resilience to Climate Change: Investing in climate-resilient infrastructure is critical for mitigating the impacts of climate change and supporting long-term economic growth. By prioritising projects that enhance resilience, Mozambique can reduce vulnerability to climate-related disasters and promote sustainable development. This includes building resilience across other key productive sectors, such as agriculture. **Building resilience ensures long-term sustainability and aligns development with Article 2.1(c).**
- ◇ Utilising Gas Revenues for Development: Reinvesting revenues from high-carbon assets into climate-resilient projects can redirect resources towards sustainable development initiatives. To operationalise Article 2.1(c) there is a need to ensure deliberate efforts in investing in natural infrastructure, research and technology innovation in the energy sector, and renewable energy sources to build a more resilient and sustainable economy. By re-investing in renewable energy infrastructure, Mozambique can achieve net alignment with Article 2.1(c) of the Paris Agreement while promoting economic growth and environmental

sustainability. Reinvestment ensures that current resources support future sustainability and Article 2.1(c) goals.

6.8 Step 8: Enhance Reporting and Evaluation Systems and Enforce Continuous Monitoring, Realignment, Learning, and Improvement

- ◇ Ongoing Monitoring and Adjustment: Ongoing monitoring and evaluation are crucial for aligning with the Paris Agreement goals. Regular assessment of market dynamics, carbon emissions, and economic factors is needed to guide decision-making and adjust pathways. Governing bodies must continuously adapt their strategies, including updating gas exploration plans, in response to changing market and environmental conditions. **Continuous monitoring and adjustment ensure that strategies remain effective and aligned with Article 2.1(c).**
- ◇ Utilising Emissions Modelling: Economic and emissions modelling provides valuable insights into the impacts of gas exploitation on emissions reductions and economic development. These models inform decision-making and ensure a steady transition towards low-carbon development. **Modelling provides insights that guide decision-making and support alignment with Article 2.1(c) objectives.**
- ◇ Promoting Economic Diversification: Investing in diverse sectors alongside gas exploration builds resilience against economic shocks and aligns economic goals with climate objectives. This comprehensive approach fosters sustainable development and supports local communities. **Economic diversification reduces reliance on high-carbon industries and supports sustainable development under Article 2.1(c).**

7 RECOMMENDATIONS

To effectively implement Article 2.1(c) of the Paris Agreement and ensure the alignment of financial flows with low-carbon development, governments in developing countries with recently discovered high-carbon assets should contemplate the subsequent short- to medium-term integrated measures:

Enhancing Cross-Sectoral Engagement for Comprehensive Emissions Understanding and Planning

- **Holistic Emissions Analysis:** Understand emissions across sectors to develop comprehensive long-term energy diversification plans. Analyse emissions per sector under scenarios where gas is both exploited and not exploited and at various levels of exploitation. Assess the impact of net emissions when proceeds from gas exploitation are reinvested in carbon sinks and other carbon-abating activities. For instance, improving transportation infrastructure can reduce vehicle emissions and enhance economic productivity.
- **Collaborative Decision-Making:** Foster cross-sectoral engagement to enable informed decision-making. Consider the complex interplay of emissions, mitigation strategies, and broader socioeconomic implications. This interdisciplinary approach will help create resilient and sustainable energy transitions benefiting both the environment and society.

Formulate Comprehensive Long-Term Energy Diversification Plans and Execution Strategies

- **Gradual Reduction of High-Carbon Assets:** Develop and implement plans to gradually reduce reliance on high-carbon assets, such as gas, in favour of cleaner energy sources. Leverage sectoral emissions data to inform these strategies and identify opportunities for reinvesting financial resources.
- **Sustainable Financing Partnerships:** Seek green financing partnerships and technology transfer to support climate adaptation projects, including renewable energy infrastructure and initiatives for vulnerable communities. This will help achieve economic development and environmental sustainability.
- **Systemic Perspective:** Adopt a systemic perspective in crafting diversification strategies, identifying economic prospects within various sectors, and pinpointing opportunities for reinvesting financial resources.

Channel Revenues from Gas into Leveraging Financing Low-Carbon, Climate-Resilient Investments

- **Attract Sustainable Financing:** Attract green financing for climate adaptation initiatives by leveraging existing funding mechanisms. Engage with financial institutions, international organisations, and private sector stakeholders to secure capital for projects like renewable energy infrastructure, climate-resilient agriculture, and initiatives to mitigate climate change impacts on vulnerable communities.
- **Strategic Investment:** Use revenues from gas to catalyse further finance for low-carbon, climate resilience-building investments. This strategic and collaborative effort should embrace a systematic reduction of high-carbon assets and innovative financing solutions for sustainable climate adaptation.

Develop Regulatory Frameworks to Facilitate Investment in Clean Energy

- **Conducive Regulatory Environment:** Create a regulatory environment that encourages investment in renewable energy and supports transition finance to bolster access to low-carbon and clean energy investments. Incentivise private sector involvement in sustainable investments.
- **Energy-Efficient Initiatives:** Promote energy-efficient practices in buildings, industries, and transportation as alternatives to gas-powered solutions. Outline initiatives and policies to support these energy-efficient practices.

Enhance Capacity and Understanding of Multilateral Processes and Markets at the Sectoral Level

- **Awareness of Multilateral Mechanisms:** Increase awareness and knowledge of multilateral mechanisms, such as carbon markets, at the sector level. This will enable the effective utilisation of these processes to address climate change and its impacts.

8 CONCLUSION

This pathway paper has outlined a series of steps for operationalising Article 2.1(c) of the Paris Agreement and aligning financial flows with low-carbon development in African countries

with recently discovered high-carbon assets. By introducing strategies for 'phasing in' these high-carbon assets in the short term and creating longer-term plans to ensure alignment with the goals of the Paris Agreement, the paper provides a comprehensive approach to using gas as a transition fuel.

While this paper endeavours to illuminate the challenges and opportunities tied to gas utilisation in Mozambique, it has inherent limitations. It relies primarily on secondary research and lacks a quantitative assessment of the required investment approach. Due to the complex and nuanced nature of the topic, this paper serves as an informative guide rather than a prescriptive directive.

Nevertheless, Mozambique's experience in exploiting its high-carbon assets offers valuable insights into the careful planning and strategic decision-making required to balance economic development with sustainability. This experience can serve as a model for other countries seeking a low-carbon future while ensuring economic growth.

The recommendations emphasise the importance of establishing monitoring and evaluation frameworks to inform emission scenario analysis and the development of long-term energy diversification plans and execution strategies. By focusing on building capacity and fostering multilateral cooperation, countries can develop mechanisms to consistently measure, evaluate, and adjust their pathways to ensure continued alignment with the goals of the Paris Agreement.

These recommendations provide a roadmap for African and other developing countries to navigate the complexities of aligning financial flows with climate objectives. They offer strategies to leverage high-carbon assets while ensuring consistent action towards maintaining a low-carbon economy. The emphasis on detailed scenario analyses recognises the risks and challenges associated with gas extraction, whether for domestic or export markets.

Implementing these recommendations will require concerted efforts from governments, international partners, and investors. Strengthening governance, transparency, and accountability in managing these assets and the associated revenues is crucial. A shared commitment is needed to overcome challenges, bridge knowledge gaps, and create an enabling environment that incentivises sustainable investments. By embracing these recommendations and implementing the pathway outlined in this paper, African countries can make significant progress in realising their development potential through a managed approach that integrates sustainability, resilience, and the principle of 'doing no harm.'

African countries recognise the urgency of addressing climate change and the need to align financial flows with low-carbon development. However, this must be done with consideration of Africa's needs and circumstances, including the persistent challenges of economic inequality and poverty. Developing countries with newly discovered high-carbon assets must take ownership of defining a managed approach. By doing so, they can unlock new opportunities for economic growth, job creation, and resilience. Active engagement in global climate negotiations and collaborative efforts will ensure that Africa's unique interests and challenges are represented in the international discourse on climate finance.

The pathway presented in this paper is particularly relevant to Mozambique. Still, it may also serve as a valuable reference for other developing countries facing similar challenges of pursuing economic and industrial development based on newly discovered high-carbon assets while striving to meet climate objectives.

In conclusion, the operationalisation of Article 2.1(c) of the Paris Agreement requires a comprehensive and coordinated approach that considers African countries' specific context and needs. By embracing the recommendations outlined in this pathway paper and committing to long-term vision and action, African countries can play a crucial role in advancing the global transition to a low-carbon economy while simultaneously addressing their developmental priorities and ensuring a sustainable and resilient future for their people.

DISCLAIMER

This paper, titled "Exploring Operational Pathways for Article 2.1(c) of the Paris Agreement in Africa: Enhancing Clean Energy Access in Ethiopia," is a product of the Aligning Financial Flows with the Paris Agreement in Africa (AFF) project, implemented by SouthSouthNorth (SSN). The project receives funding from the International Climate Initiative (IKI) of the Federal Ministry for Economic Affairs and Climate Action of Germany (BMWK). The views expressed and information contained in this document do not necessarily reflect those of IKI or BMWK, nor of the entities managing the AFF project. These parties disclaim any responsibility or liability for the views expressed, the completeness or accuracy of the information, or any reliance placed on them.

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