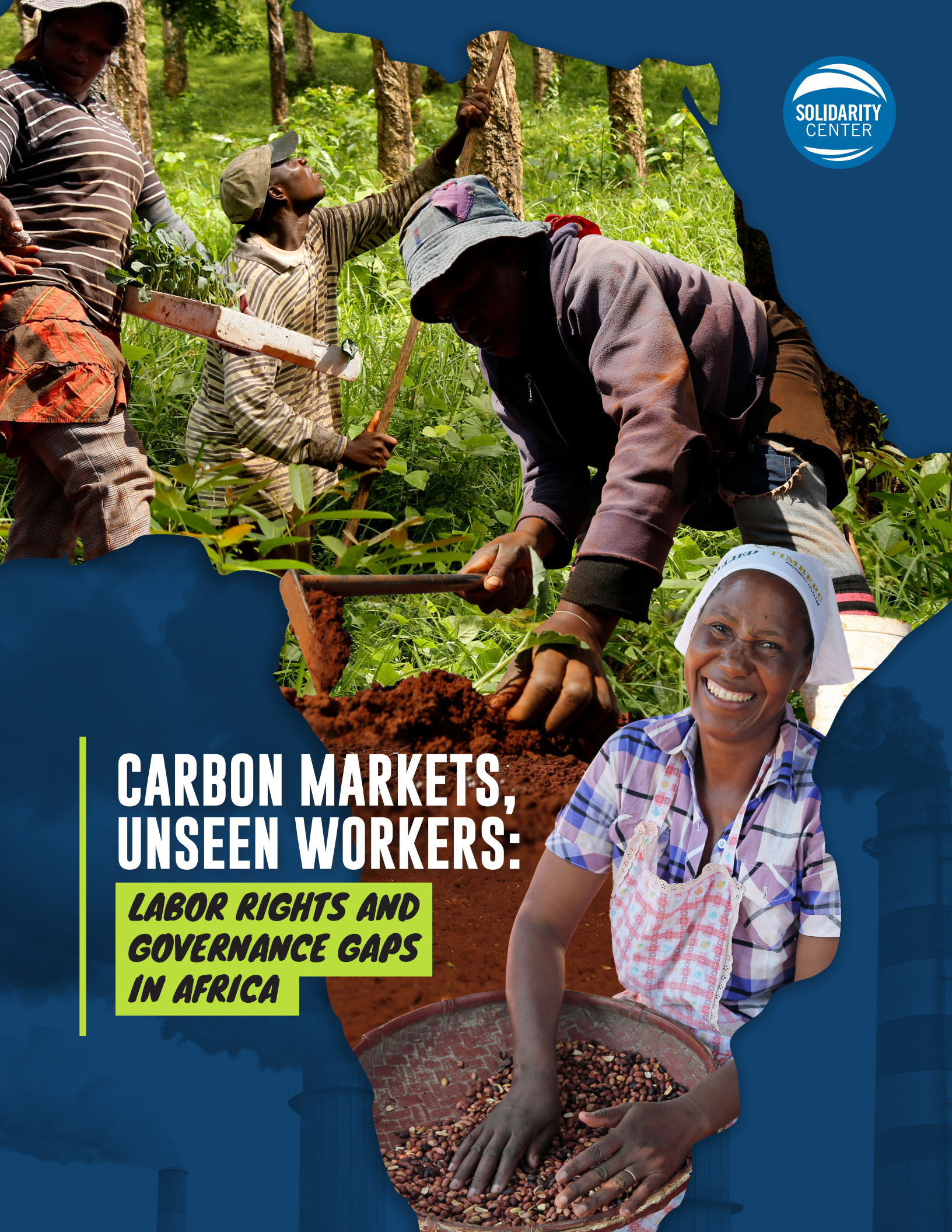

SOLIDARITY CENTER

CARBON MARKETS, UNSEEN WORKERS:

LABOR RIGHTS AND GOVERNANCE GAPS IN AFRICA

April 2026

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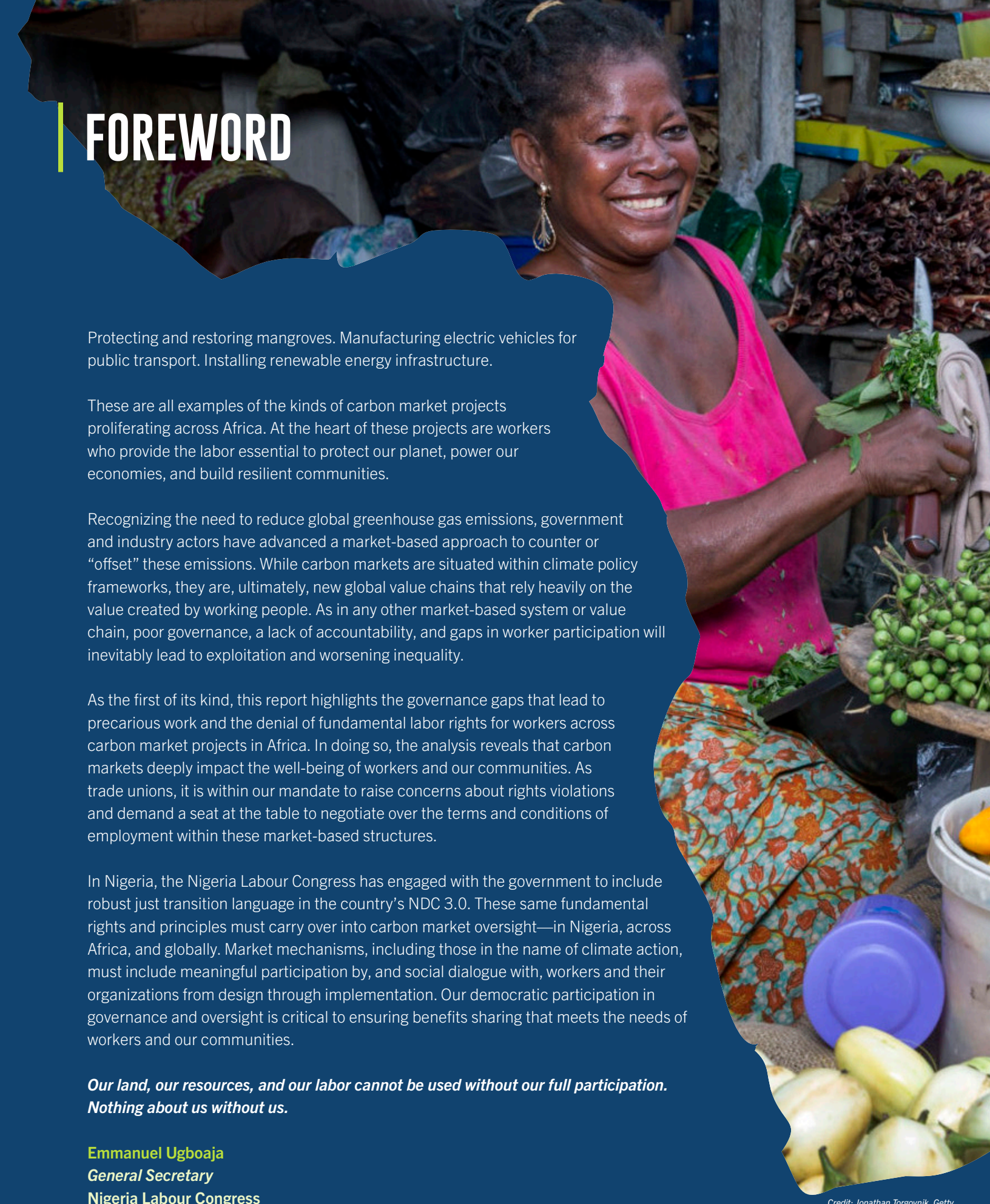


Protecting and restoring mangroves. Manufacturing electric vehicles for public transport. Installing renewable energy infrastructure.

These are all examples of the kinds of carbon market projects proliferating across Africa. At the heart of these projects are workers who provide the labor essential to protect our planet, power our economies, and build resilient communities.

Recognizing the need to reduce global greenhouse gas emissions, government and industry actors have advanced a market-based approach to counter or "offset" these emissions. While carbon markets are situated within climate policy frameworks, they are, ultimately, new global value chains that rely heavily on the value created by working people. As in any other market-based system or value chain, poor governance, a lack of accountability, and gaps in worker participation will inevitably lead to exploitation and worsening inequality.

As the first of its kind, this report highlights the governance gaps that lead to precarious work and the denial of fundamental labor rights for workers across carbon market projects in Africa. In doing so, the analysis reveals that carbon markets deeply impact the well-being of workers and our communities. As trade unions, it is within our mandate to raise concerns about rights violations and demand a seat at the table to negotiate over the terms and conditions of employment within these market-based structures.

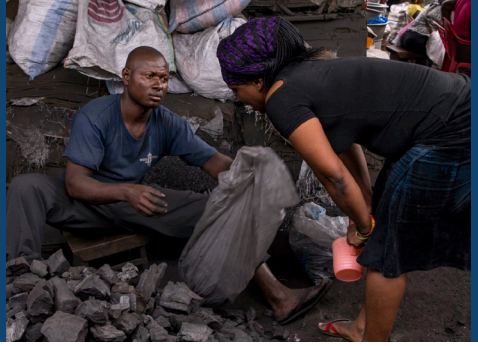
In Nigeria, the Nigeria Labour Congress has engaged with the government to include robust just transition language in the country's NDC 3.0. These same fundamental rights and principles must carry over into carbon market oversight—in Nigeria, across Africa, and globally. Market mechanisms, including those in the name of climate action, must include meaningful participation by, and social dialogue with, workers and their organizations from design through implementation. Our democratic participation in governance and oversight is critical to ensuring benefits sharing that meets the needs of workers and our communities.

Our land, our resources, and our labor cannot be used without our full participation. Nothing about us without us.

Emmanuel Ugboaja
General Secretary
Nigeria Labour Congress

Credit: Jonathan Torgovnik_Getty

ACRONYMS LIST



Credit: Jonathan Torgovnik_Getty Images_Images of Empowerment

AAPCM: Africa Action Plan on Carbon Markets

ACMI: African Carbon Markets Initiative

AU: African Union

AUC: African Union Commission

CCB: Climate, Community and Biodiversity (Standards)

CDM: Clean Development Mechanism

COP: Conference of the Parties (to the UNFCCC)

COP26: 26th Conference of the Parties (to the UNFCCC)

DACC: Direct Air Carbon Capture

DRC: Democratic Republic of Congo

ESG: Environmental, Social, And Governance

EV: Electric Vehicle

FPIC: Free, Prior, and Informed Consent

GDP: Gross Domestic Product

GHG: Greenhouse Gas

ICT: Information And Communications Technology

ILO: International Labor Organization

ITUC: International Trade Union Confederation

KII: Key Informant Interview

LPG: Liquefied Petroleum Gas

MESTI: Ministry of Environment, Science, Technology and Innovation

MoU: Memorandum Of Understanding

MRV: Measurement, Reporting And Verification

NCCC: National Climate Change Council (Kenya)

NCCC: National Council on Climate Change (Nigeria)

NDC: Nationally Determined Contributions

NESREA: National Environmental Standards and Regulations Enforcement Agency

NGFCP: Nigerian Gas Flare Commercialization Program

NGO: Non-Governmental Organization

PCC: Presidential Climate Commission (South Africa)

PV: Photovoltaic

REDD+: Reducing Emissions from Deforestation and Forest Degradation

STEM: Science, Technology, Engineering, And Mathematics

tCO_2e: Tons of Carbon Dioxide Equivalent

UN: United Nations

UNFCCC: United Nations Framework Convention on Climate Change

UNGPs: United Nations Guiding Principles on Business and Human Rights

USD: United States Dollar

VCS: Verified Carbon Standard

EXECUTIVE SUMMARY

Carbon markets have emerged as a central instrument in global climate policy, monetizing emissions reductions through the creation and trade of carbon credits. Corporations, governments, and other actors have promoted and used these market-based systems to offset emissions in one place by financing projects that reduce emissions elsewhere, such as through reforestation, renewable energy, clean cooking, and soil conservation. While promoted as mechanisms to advance climate goals under frameworks like the Paris Agreement, carbon markets remain deeply contested. Critics question both their environmental integrity and their broader social and economic impacts, including concerns related to transparency, equity, and the distribution of benefits and risks. Increasingly, these concerns are understood through the lens of carbon colonialism, whereby mitigation efforts are geographically shifted to the Global South, allowing continued emissions elsewhere while land, labor, and resources are mobilized under unequal power dynamics.

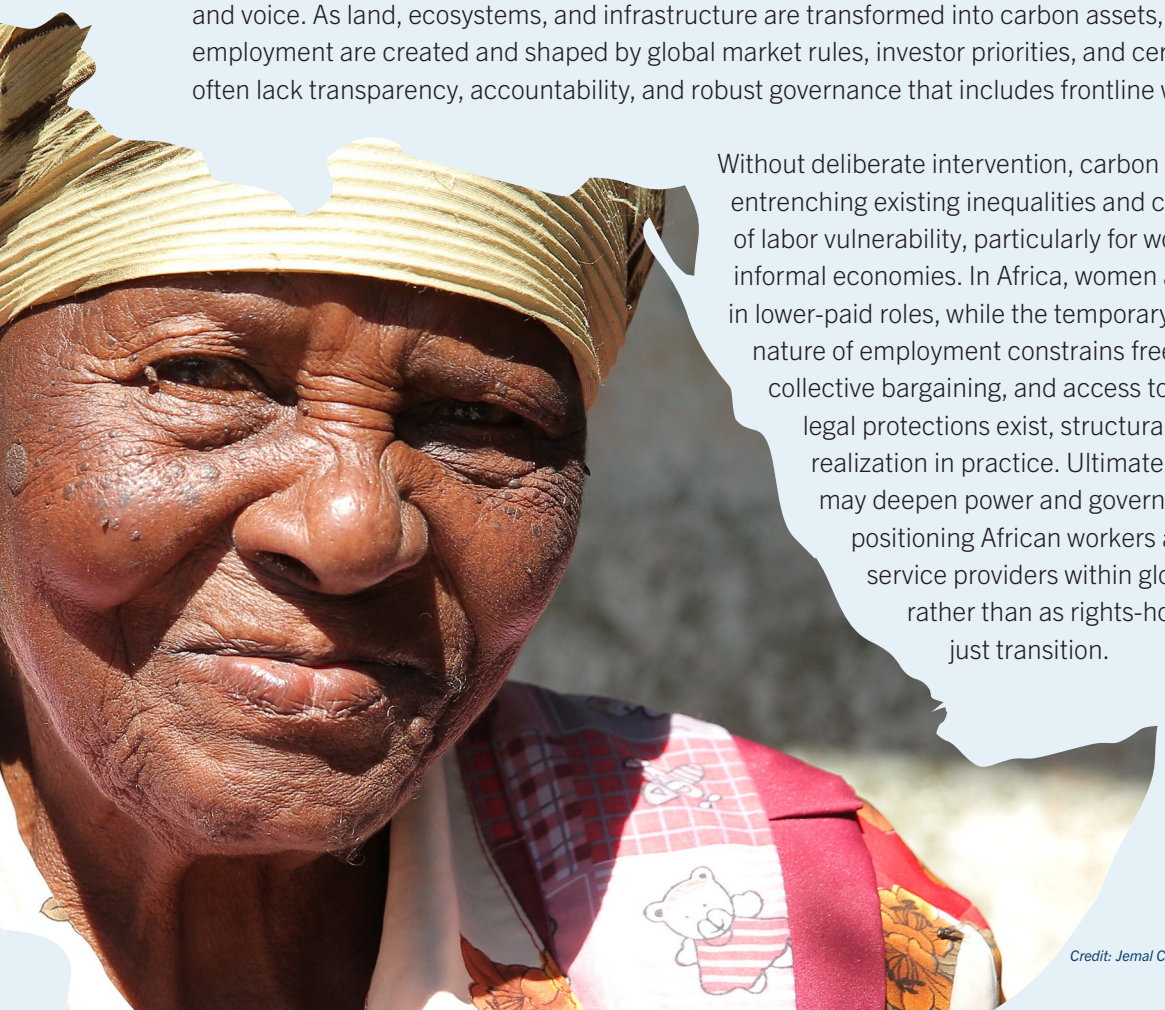
Within this contested landscape, Africa has rapidly become a focal point for carbon market expansion. More than 500 carbon offset projects are registered across the continent under voluntary certification standards such as Verra's Verified Carbon Standard (VCS), Gold Standard, Plan Vivo, and the Clean Development Mechanism (CDM). Countries including Kenya, Ghana, Nigeria, South Africa, Mozambique, Malawi, Rwanda, and the Democratic Republic of Congo are increasingly positioned as key sites of carbon credit generation. Initiatives such as the African Carbon Markets Initiative (ACMI) project that the continent could produce approximately 300 million credits annually by 2030 and more than 1.5 billion credits per year by 2050 if its land-use, forestry, renewable energy, and other mitigation opportunities are fully developed. At current and projected market prices, this could generate approximately US$6 billion annually by 2030 and over US$100 billion annually by 2050. This growth would further position the continent as a key supplier of land-based mitigation and labor-intensive project implementation within global carbon value chains.

Carbon markets are frequently promoted as development opportunities capable of attracting investment, generating employment, and expanding access to sustainable livelihoods. Yet, growing evidence highlights significant risks, including land dispossession of local communities and Indigenous Peoples, restrictions on customary land use, weak governance, and inequitable benefit-sharing. These dynamics reflect deeper structural flaws: carbon markets may reproduce global inequalities by concentrating the rule-setting authority and financial control outside the continent, while African countries, workers, and communities shoulder the social, economic, and environmental burdens of implementation, often with limited influence over decision-making processes that govern them.

Despite these debates, one critical dimension remains systematically overlooked: *the role of workers and the implications of carbon markets for labor rights.* This report argues that this omission is not incidental, but structural: Workers are largely ignored or sidelined in carbon market design, certification systems, governance frameworks, and policy discussions. Yet carbon markets are fundamentally labor-dependent systems. From project development and implementation to monitoring and verification, workers underpin every stage of carbon credit production.

The rapid expansion of carbon markets across Africa is, therefore, deeply consequential for workers. It represents a significant restructuring of work, livelihoods, and labor relations. At its core, this is about the future of work, democratic governance, and the realization of rights. Carbon markets function as systems of production: they organize labor, define employment relationships, distribute risks and rewards across value chains, and determine who benefits—and who does not. They influence which sectors are prioritized, which workers are engaged, under what conditions—and critically, with what degree of protection, representation, and voice. As land, ecosystems, and infrastructure are transformed into carbon assets, new forms of employment are created and shaped by global market rules, investor priorities, and certification regimes that often lack transparency, accountability, and robust governance that includes frontline workers.

Without deliberate intervention, carbon markets risk entrenching existing inequalities and creating new forms of labor vulnerability, particularly for workers in rural and informal economies. In Africa, women are often concentrated in lower-paid roles, while the temporary and decentralized nature of employment constrains freedom of association, collective bargaining, and access to remedy. Even where legal protections exist, structural conditions inhibit their realization in practice. Ultimately, these structures may deepen power and governance asymmetries, positioning African workers and communities as service providers within global carbon value chains rather than as rights-holding participants in a just transition.



Credit: Jemal Countess

SCOPE AND CONTRIBUTION

This study addresses a critical gap by analyzing carbon markets through a labor and political economy lens. Focusing on four case countries, Kenya, Ghana, South Africa, and Nigeria, it examines how both compliance and voluntary carbon market mechanisms shape employment, labor conditions, and worker participation.

Grounded in international labor standards, the report:

- Illuminates the role of workers across carbon value chains
- Assesses alignment with ILO core conventions and decent work principles
- Identifies governance and accountability gaps
- Explores pathways for worker and trade union engagement

Rather than prescribing a uniform approach, this report provides a framework for workers and their organizations to develop their own engagement and advocacy strategies tailored to their specific priorities.

SUMMARY OF KEY TAKEAWAYS AND DISCUSSION OF FINDINGS

This study identifies four interrelated structural dynamics that define how carbon markets currently operate in Africa and how they shape labor outcomes.

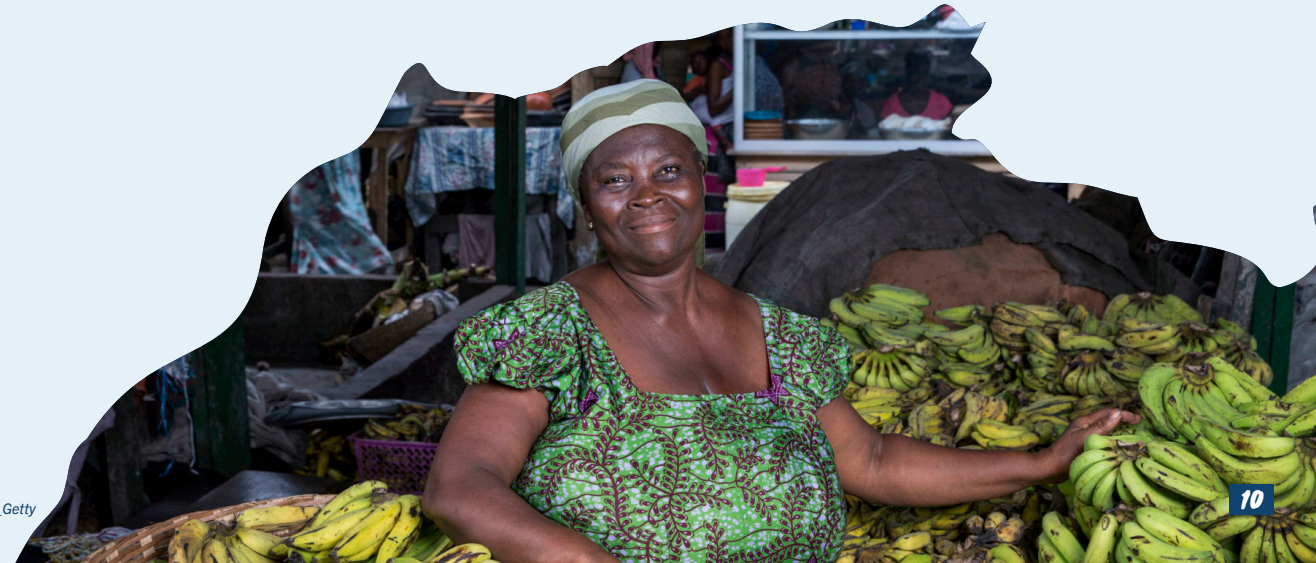
1. **Workers are excluded from decision-making.**
   Workers remain systematically excluded from carbon market governance, despite being central to carbon credit production. This report finds that labor is not merely overlooked; it is structurally sidelined within carbon market systems. Carbon markets are governed through technocratic systems involving governments, certification bodies, and private investors, with limited participation from labor institutions and trade unions. At the national level, ministries of labor, trade unions, and workers' organizations are often absent from climate policy design and implementation processes. With few exceptions, including South Africa, workers are not represented in national climate governance structures, weakening their ability to influence key issues such as wages, occupational safety, and benefit-sharing. This exclusion extends to global governance systems, including certification bodies and Article 6 mechanisms under the United Nations Framework Convention on Climate Change (UNFCCC), where labor rights are not embedded as core considerations. As a result, workers, while foundational to the system, often lack voice and representation across all levels of carbon market decision-making.

2. **Labor protections are weaker than environmental standards.**
   In their current form, carbon markets risk entrenching precarious and unequal labor conditions. Carbon market systems prioritize environmental integrity and financial accountability through detailed methodologies, verification processes, and registries. However, labor rights are not embedded with equivalent rigor. While some standards reference international labor principles, compliance is often non-binding, inconsistently enforced, or deferred to national systems with limited capacity. This creates a structural imbalance: environmental criteria are mandatory and auditable, while labor protections are treated as secondary or optional. At the project level, fragmented employment arrangements — characterized by subcontracting, short-term contracts, and informal work — weaken accountability. Workers are frequently misclassified as "community participants," excluding them from labor protections such as minimum wages, social security, and occupational safety and health standards. Further, these dynamics limit access to remedy and constrain the practical exercise of rights, including freedom of association and collective bargaining.

3. **Benefits and power are concentrated outside Africa.**
   Carbon markets operate as global production systems in which standard-setting, verification, and financial intermediation are concentrated in transnational institutions, while labor-intensive activities are localized within African economies. This segmentation mirrors broader patterns in global supply chains, where value capture and decision-making authority are unevenly distributed. African workers contribute directly to the generation of carbon credits but have little influence over pricing, governance, or revenue allocation. At the same time, competitive pressures within carbon markets, particularly in voluntary markets, create incentives to reduce production costs, including labor costs. This can result in downward pressure on wages, increased reliance on precarious employment, and the transfer of market risk onto workers. Without corrective measures, these dynamics risk reinforcing dependency and inequity within global climate finance systems.

4. **Transparency on labor conditions is limited.**
   While carbon registries provide detailed data on emissions reductions and credit issuance, they lack standardized reporting on labor conditions. Information on employment types, wages, social protection, and worker representation is largely absent, rendering workers statistically and politically invisible. This lack of transparency limits oversight by labor institutions, trade unions, and civil society, and enables investors and buyers to participate in carbon markets without demonstrating alignment with labor or other human rights standards. Additionally, the concentration of technical expertise in external verification bodies reinforces asymmetries in knowledge and governance, further limiting domestic oversight. Revenue flows and benefit-sharing arrangements are also often opaque, with workers typically compensated through fixed wages or stipends, rather than sharing in financial gains from carbon credit sales.

OVERALL, THE FINDINGS REVEAL A FUNDAMENTAL TENSION: while carbon markets could have the potential to contribute to climate mitigation and economic development, their current structure marginalizes workers and weakens labor protections. If left unaddressed, this risks undermining both equitable development and the long-term effectiveness of climate action. Without the deliberate integration of labor rights, social dialogue, and accountability mechanisms, carbon markets risk reinforcing existing inequalities and creating new forms of labor precarity. Embedding decent work principles into carbon market governance is therefore not peripheral; it is acutely essential to ensuring that climate action in Africa is both effective and just.



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SUMMARY OF RECOMMENDATIONS

1. **Labor rights must be embedded as core, enforceable elements of carbon market governance.** Governments should integrate the International Labor Organization (ILO) Core Conventions and the Decent Work Agenda into national carbon market legislation, Article 6 frameworks, and climate policies. Carbon project approval should require demonstrated compliance with national labor laws aligned with international labor standards. Labor inspection authorities must be formally incorporated into project accreditation processes, ensuring that labor compliance is verified alongside environmental integrity. Regional bodies, including the African Union, should develop coordinated frameworks linking carbon markets to just transition principles to reduce fragmentation and strengthen Africa's negotiating position globally.

2. **Social dialogue must be institutionalized within carbon governance systems.** Carbon market decision-making should include structured, tripartite participation of governments, employers, and workers. Trade unions and labor ministries should be represented as standing members in national carbon governance bodies and Article 6 mechanisms. Embedding worker voice in governance will improve accountability, strengthen policy coherence, and ensure that labor conditions, wages, and benefit-sharing mechanisms are addressed systematically.

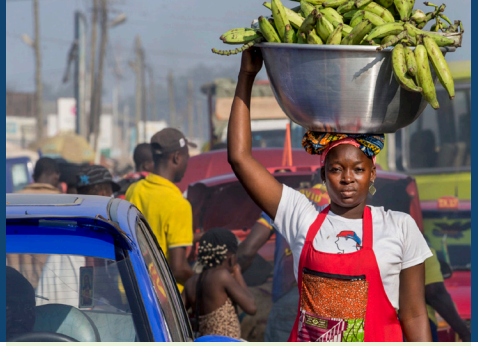
3. **Certification systems must elevate labor standards from optional safeguards to binding, operationalized, and enforceable requirements.** Certification bodies should require compliance with fundamental labor rights as a condition of project validation and credit issuance. Operationalizing core labor standards within the project cycle would include mandatory labor assessments, worker consultation processes, and evaluation of enabling environments for labor rights. Workers' organizations should also be formally represented in certification governance structures to address current asymmetries in rule-setting.

4. **Transparency and accountability must be strengthened through labor reporting and effective grievance mechanisms.** Carbon registries and project reporting systems should include standardized labor indicators, such as employment types, wages, social protection coverage, occupational safety, and freedom of association. Independent labor audits and human rights due diligence should be implemented with rigor comparable to environmental verification. Worker-informed grievance mechanisms must be accessible, effective, and aligned with international human rights standards and should complement, and not undermine, collective bargaining processes.

5. **Domestic institutional capacity must be reinforced.** Labor ministries and inspection systems require targeted investment to oversee carbon-related sectors effectively. Carbon revenues can support labor inspection, occupational safety systems, and union engagement. Strengthening worker organization and representation is critical as workers themselves are key to monitoring and enforcing workplace standards.

6. **Carbon markets must be integrated into broader just transition strategies.** Carbon finance should support long-term employment pathways, skills development, sectoral formalization, and expanded social protection. National climate commitments should include measurable labor indicators, and carbon revenues should be leveraged to fund inclusive development and social protection systems.

INTRODUCTION



Credit: Jonathan Torgovnik_Getty Images_Images of Empowerment

BACKGROUND

Carbon markets monetize climate action by allowing project developers, private entities, landowners, carbon brokers, environmental organizations, and non-governmental organizations (NGOs) to sell credits (carbon credits) that correspond to reductions or removals of greenhouse gas emissions. These credits are then purchased by actors like corporations and governments that are motivated or obligated by laws or commitments to "offset" their own emissions. Projects spanning activities such as reforestation, renewable energy installations, clean cooking programs, or soil conservation initiatives can generate credits that are then sold or traded in national, regional, or international markets. These markets are increasingly leveraged to support the implementation of climate policies and global commitments and, in theory, to support the achievement of the **Paris Agreement** goals.

THE PARIS AGREEMENT under the United Nations Framework Convention on Climate Change (UNFCCC) was adopted in December 2015 at the 21st session of the Conference of the Parties (COP) to the UNFCCC. One of the goals of the Paris Agreement is "Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels," recognizing that this would significantly reduce the risks and impacts of climate change. In 2021 at COP26, the Paris Agreement's rulebook on carbon markets was conceived with the approval of Article 6, which introduced voluntary cooperation between countries to reduce emissions through market-based approaches (i.e., carbon markets, through Articles 6.2 and 6.4) and non-market approaches (NMAs) (Article 6.8).

Since its development, the carbon markets system has depended strongly on building credibility and technical verification, and certification bodies have developed as key actors in these markets. Implementation and governance varies at the national level and can be fragmented in ways that result in varying outcomes for impacted workers and communities.

THE KYOTO PROTOCOL (1997) was the first international treaty that operationalized the UNFCCC and committed industrialized nationals to legally binding targets for reducing greenhouse gas emissions. Under Kyoto, developed countries were mandated to reduce their emissions to six percent below 1990 levels by 2012. The treaty created three carbon market-based mechanisms for countries to meet their emission reduction objectives. They included: (1) the Clean Development Mechanism (CDM), the primary avenue for reductions via carbon markets, which allowed developed countries to purchase emission reduction credits from projects in developing countries; (2) the Joint Implementation mechanism, similar to the CDM but for trade between rich countries instead of between developing to developed countries; and (3) International Emissions Trading, which involved the trading of emission allowances between countries.

While carbon markets continue to grow, their benefits and utility have been debated since they first came to be as part of the **Kyoto Protocol** in 1997. Critics question the effectiveness of this model to actually reduce emissions: both the extent to which measurements of credits truly correspond with equivalent emissions reductions and whether the ability to "offset" emissions disincentivizes necessary system transformations.[1] Rights advocates have also raised concerns from a democratic governance and human rights perspective. Systemic critiques highlight how, by commodifying climate action, carbon markets prioritize financial transactions over community participation and the realization of rights. Concerns include the lack of transparency in decision-making and revenue flows, inequitable benefit-sharing with local communities, Indigenous Peoples, and workers, and inadequate protection of human rights in certification and governance frameworks. Opponents have also raised concerns that carbon markets can perpetuate "carbon colonialism," where projects worldwide, especially in the Global South and in Africa, generate credits that allow polluters in wealthy countries to continue emitting, while African workers and communities bear the social and environmental costs.[2] As more carbon market projects are implemented, evidence has emerged to support these concerns, including cases of rights violations in project implementation, and concerns about projects that support problematic land use and environmental practices in the

[1] This report recognizes that there are legitimate debates about the effectiveness of carbon markets in reducing greenhouse gas emissions. The efficacy of carbon markets are beyond the scope of this study.

[2] Mulenga, Richard, "Contemporary issues confronting international carbon markets: Critical reviews," International Journal of Research and Innovation in Social Science, 7, no. 9 (2023): 345–360.

name of emissions reductions.[3]

Nevertheless, in Africa, carbon markets are often presented as a pathway to attract international capital, generate jobs in low emissions sectors, and expand access to sustainable energy and livelihoods. Globally, carbon offset projects and markets continue to evolve as mechanisms to channel investment into emissions reduction, with Article 6 of the Paris Agreement and voluntary markets providing frameworks for credit generation and trade. In Africa, these markets and their offset projects are rapidly gaining traction, driven in part by the increase of international finance flows around climate projects and policies and the continent's vast potential for mitigation projects bestowed in such natural capital as land, forests, solar and agriculture. In fact, the African Carbon Markets Initiative (ACMI) projects that the continent could generate hundreds of millions of credits annually, positioning African countries as central actors in global climate investments.[4]

Today, more than 500 African carbon offset projects are registered under international standards such as Verra's Verified Carbon Standard (VCS), the Gold Standard, Plan Vivo and legacy CDM frameworks.[5] Countries including Kenya, Nigeria, Ghana, South Africa, Malawi, Mozambique, Rwanda, and the Democratic Republic of Congo (DRC) have become focal points. These projects span diverse sectors including forestry and land use, renewable energy, agriculture and soil management, ecological preservation and regeneration, water and waste management, clean cooking, and transport.

Carbon markets are highly technical and often opaque policy instruments. While debates around their environmental integrity and economic effectiveness have intensified, far less attention has been paid to their implications for workers and labor rights. The absence of accessible, worker-focused analysis makes it difficult for trade unions and other workers' organizations to evaluate these mechanisms or engage meaningfully in carbon market governance. As a result, workers remain largely absent from policy discussions that may significantly shape the future of labor in climate mitigation efforts.

REPORT OBJECTIVES AND ROADMAP

This report focuses on what is often missing from carbon market discussions: how workers experience these systems and to what extent they can participate in their governance. The report aims to fill an important analysis gap by assessing the implications of carbon markets for the workers who provide the labor that is critical to operations of carbon projects, and are a stakeholder group central to, and impacted by, the carbon markets system —yet often are absent from project agreements, safeguards, and governance structures. By framing the political economy of carbon markets, this report aims to make visible the crucial labor underpinning of this growing source of production in the economy. Digging deeper, while carbon markets are promoted as development mechanisms that create jobs, this report assesses whether these jobs promote access to decent work, adhere to international core labor standards, and enable meaningful worker participation. This report further investigates carbon markets not only as climate-related investment mechanisms but as systems that directly shape the future of work and governance in Africa.
Specifically, the study aims to provide trade unions and labor advocates with evidence-based insights into how carbon markets affect workers across sectors, identify gaps in policy and institutional accountability, and explore pathways through which unions and other workers' organizations can assert the collective agency of workers in shaping carbon

[3] For examples of such violations, see the following reports: "Exposing the human rights and wrongs of carbon market projects, "Carbon Market Watch, October 9, 2025," https://carbonmarketwatch.org/2025/10/09/exposing-the-human-rights-and-wrongs-of-carbon-market-projects/, Carbon offsetting's casualties: Violations of the Chong Indigenous People's rights in Cambodia's Southern Cardamom REDD+ Project," Human Rights Watch, February 28, 2024, https://www.hrw.org/report/2024/02/29/carbon-offsettings-casualties/violations-chong-indigenous-peoples-rights, Greenfield, Patrick, "Allegations of extensive sexual abuse at Kenyan offsetting project used by Shell and Netflix," *The Guardian*, November 7, 2023, https://www.theguardian.com/environment/2023/nov/07/accusations-of-widespread-sexual-abuse-at-offsetting-project-used-by-netflix-and-shell-aoe, Takacsova, Diana and Anthony Langat, "Carbon credit projects threaten human rights of Kenya's Indigenous communities," Pulitzer Center, July 2, 2025. https://pulitzercenter.org/projects/carbon-credit-projects-threaten-human-rights-kenyas-indigenous-communities

[4] Africa Carbon Markets Initiative (ACMI), Status and Outlook Report (2024-2025), https://africacarbonmarkets.org/wp-content/uploads/2024/07/ACMI_Status-and-Outlook-Report-2024.pdf The ACMI is a collaborative effort among African governments, project developers, communities and other stakeholders within the African carbon market ecosystem to scale the supply of, and demand for, high-integrity African-sourced carbon credits. The ACMI works across both compliance and voluntary markets.

[5] These independent, private standards/certification bodies use various methodologies to validate and verify carbon market projects' performance in terms that define each credit as "real, additional, and measurable reduction in greenhouse gases." They are also largely the bodies that govern voluntary carbon markets in the absence of binding legislation.

market governance through enshrined mechanisms for **social dialogue**, collective bargaining, and accountability. Ultimately, the study seeks to inform strategies that safeguard labor rights, promote equitable participation, and embed dignity and **decent work** with social protection within Africa's evolving carbon market landscape. Pertinent particularly to workers, unions, and actors working toward democratic governance and community benefits in Africa, the findings of this report may also be relevant to those engaging in carbon markets and their value chains in other regions of the world.

SOCIAL DIALOGUE refers to the negotiations and consultations among workers' organizations, employers, and governments about common interests in economic and social policies, and is defined as a "cornerstone of good governance" by the International Labor Organization (ILO), see: https://www.ilo.org/topics-and-sectors/social-dialogue-and-tripartism. The most effective form of social dialogue is collective bargaining that leads to binding, enforceable agreements.

The four pillars of **DECENT WORK**, as defined by the ILO

JOB CREATION:	RIGHTS AT WORK:	SOCIAL PROTECTION:	SOCIAL DIALOGUE:
Access to productive work opportunities that deliver a fair income.	Respect for international labor standards, freedom from exploitation, and fair treatment.	Safeguarding worker well-being, through safe conditions, health coverage, and pension security.	The ability for workers to participate in the decisions that affect their lives.

The report has the following objectives, which also structure the roadmap of the report.

1. Mapping the Political and Economic Landscape of Carbon Market Initiatives

By documenting the range of carbon mechanisms on the African continent with a political economic analysis, the study situates Africa within the global carbon finance architecture, highlighting the diversity of approaches, governance arrangements, and institutional models across the continent. The political economy analysis—understanding how political and social institutions affect the economy and how, in turn, the economy and market forces affect politics—also highlights where carbon markets and their evolving governance structures both reflect and diverge from the structural opportunities and constraints that workers and their communities face in other sectors in Africa. With this understanding, workers and their organizations can more critically engage and strategically develop their responses to carbon market initiatives.

2. Analyzing Carbon Market Mechanisms Through a Labor Lens

The second objective of the study is to analyze carbon market mechanisms through a labor lens, grounded in international core labor standards.[6] This involves examining how carbon markets intersect with labor law, decent work principles, democratic participation, employment creation, contract quality, wage structures, occupational safety, and union representation. The study also assesses risks associated with carbon markets, including precarious work arrangements, exclusion of unions and workers' organizations from governance structures, and inequitable benefit-sharing across project value chains. By assessing carbon markets to ILO conventions and recommendations and the fundamental rights and principles at work—freedom of association and protection of the right to organize and bargain collectively, the elimination of forced labor, the abolition of child labor, non-discrimination, and the promotion of safe and healthy working conditions—the study evaluates whether carbon market operations advance or undermine decent work and social protection in African contexts.

3. Highlighting Country-Based Examples

The third objective is to ground analysis in examples from selected African countries to highlight the practical labor impacts and implications of carbon market initiatives or offset projects. Countries such as Kenya, Ghana, Nigeria, and South Africa provide diverse examples of projects across water, forestry, transport, renewable energy, and agriculture, offering a rich lens through which to examine labor dynamics. These examples illustrate how workers may experience carbon markets on the ground, including aspects such as wage structures, occupational health and safety, and access to social protection. They also help assess whether workers are included in benefit-sharing arrangements and whether their rights and interests are represented in governance structures—both at the project and national levels.

[6] The ILO International Labor Standards can be found at: https://www.ilo.org/international-labour-standards#standards

4.Identifying Opportunities for Union Engagement

The final objective of the study is to map existing and potential entry points for unions and other workers' organizations to engage across national legislation, project governance, continental frameworks, and international negotiations, including multilateral climate forums and voluntary carbon market standard-setting processes. The objective emphasizes strategies for integrating labor rights into carbon market reporting, certification, and compliance mechanisms; strengthening union agency in negotiations with governments, project developers, and international stakeholders; and promoting **worker voice** and the meaningful participation of workers in benefit-sharing and governance structures.

"**WORKER VOICE** entails the capacity of workers to speak up, articulate, and manifest collective agency to improve the terms and conditions of work and livelihoods and contribute to more equitable and democratic societies. Trade unions and collective bargaining most clearly fit this definition of voice." [7]

This report recognizes that many workers, particularly in the informal economy, are denied their right to join or form formally-recognized trade unions and takes an intentionally broad approach to include all democratic, representative, membership-based workers' organizations.

SCOPE OF THE STUDY

While many of the dynamics of carbon markets are recreated globally, this report examines the specific implications across the African continent, with a focus on Kenya, South Africa, Ghana, and Nigeria. These countries were chosen for their active engagement in voluntary, compliance-based, bilateral, and multilateral carbon market initiatives, as well as for intraregional comparison. The analysis considers project-level operations across sectors such as water, forestry, renewable energy, transport, and agriculture. The study situates its analysis within the contemporary expansion of carbon markets following the adoption of the Paris Agreement in 2015 and the finalization of the **Article 6** rulebook at COP26 in 2021. Main drafting of the report took place in January and February 2026, reflecting the state of policies at that time, recognizing that the dynamic nature of carbon markets' infrastructure and policy-making mean frequent changes at all levels.

ARTICLE 6 -The Paris Agreement's rulebook on carbon markets was conceived with the approval of Article 6, which introduced voluntary cooperation between countries to reduce emissions through market-based approaches (i.e., carbon markets, through Articles 6.2 and 6.4) and non-market approaches (Article 6.8). Under Article 6, countries can transfer carbon credits, earned from reducing emissions, to support other countries to achieve their Nationally Determined Contributions (NDCs). Significantly, no substantial safeguarding nor labor or worker rights measures were agreed to address the potential negative labor, worker, social and/or environmental impacts of Article 6, including risks to Indigenous Peoples and local communities, human and labor and/or worker rights.

In addition to a broad literature review and review of standards, project, and policy documents, the study relied on key informant interviews (KIIs) with a range of stakeholders to capture insights on carbon market operations and labor dynamics. Interviews were conducted with representatives from national unions, sectoral affiliates, global union federations, government officials, project developers, representatives of carbon standards, and representatives of civil society organizations to obtain perspectives on policy frameworks, governance structures, worker protections, and labor inclusion in carbon market initiatives.

While the study initially sought to conduct direct field-based consultations with workers to capture firsthand experiences of carbon market-linked employment, these efforts were not feasible. Many workers operate under precarious employment arrangements, informal contracts, or dependencies on project developers, creating a legitimate fear of reprisal or job loss if they spoke openly about working conditions. Given these constraints, direct consultations were deemed ethically and practically unviable. To ensure the safety and protection of workers, the study relied on KIIs, which provided reliable insights into broader labor dynamics, governance arrangements, occupational safety, and benefit-sharing concerns, while allowing the research to maintain strict ethical safeguards, including confidentiality, anonymity, and adherence to the do-no-harm principle. For more about the research approach and limitations, see the Annex. The report findings were further validated by labor experts.

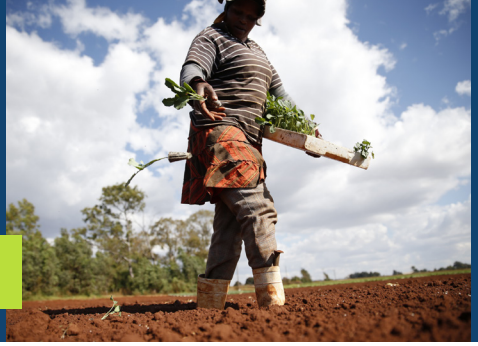
Carbon markets have been widely contested, with significant and valid criticism regarding their design, implementation,

[7] Anner, Mark and Fischer-Daly, Matthew, Worker Voice: What it is, what it is not, and why it matters, Center for Global Workers' Rights, The Pennsylvania State University, 2023, https://www.dol.gov/sites/dolgov/files/ILAB/Worker-Voice-Report-Final-3-6-24.pdf

accountability, and distributional impacts. While these broader debates are important and ongoing, this report does not seek to evaluate carbon markets as a whole. Instead, it undertakes a focused analysis of the labor implications of carbon markets in Africa. Nonetheless, this analysis recognizes that workers' experiences are not isolated from other social, economic, environmental, and governance dynamics. Workers are also integral members of diverse communities, including Indigenous and rural communities, and may be affected by related and compounding issues linked to carbon market projects, such as land tenure insecurity, resource access, or governance challenges. However, for the purposes of analytical clarity and methodological precision, this report concentrates exclusively on labor dimensions, specifically the rights, protections, conditions, representation, and economic impacts affecting workers within carbon market activities.

THE POLITICAL ECONOMY

OF CARBON MARKETS AND LABOR IN AFRICA



Credit: Jemal Countess

The rapid expansion of carbon markets in Africa represents a growing environmental tool, but also a profound restructuring of systems of production that organize labor, determine employment relations, and redistribute risks and rewards across value chains and across the continent. **African workers are being drawn into new and reconfigured forms of employment that are directly shaped by global carbon market rules, investor priorities, and certification standards** as carbon offset and trading schemes increasingly enroll forests, rangelands, agricultural systems, water infrastructure, and renewable energy projects.

Africa is now positioned as a frontier for global carbon market expansion, with more than 500 registered carbon offset projects projected to generate hundreds of millions of carbon credits annually, further accelerating rapid expansion. For workers, this expansion is deeply consequential. Carbon offset projects are inherently labor-intensive across their full value chain, including roles like land preparation, planting and restoration, monitoring and verification, community mobilization, data collection, equipment fabrication, installation, maintenance, and project administration. Workers are therefore central to transforming Africa's land, ecosystems, and infrastructure into tradable carbon commodities. Yet, despite this centrality, workers and labor rights remain largely invisible in carbon market governance frameworks, certification systems, and benefit-sharing arrangements.[8] In simple terms, carbon markets are expanding quickly, but many of the jobs they create today are precarious and lack basic protections.

The existing portfolio of registered projects reflects only a small fraction of Africa's total carbon asset base and mitigation potential. By contrast, the ACMI estimates that Africa could potentially generate approximately 300 million carbon credits annually by 2030, and more than 1.5 billion credits per year by 2050 if its land-use, forestry, renewable energy, and other mitigation opportunities are fully developed. At prevailing and projected market prices, **this scale of credit generation could translate to approximately $6 billion in annual revenues by 2030 and over $100 billion annually by 2050 if the full potential is realized.**[9] Such high-level credit generation positions African countries not merely as suppliers of carbon offsets but as key players in the global climate investments ecosystem, with the ability to leverage carbon markets for economic growth, domestic employment, and sustainable development. How these shifts are governed will determine whether African workers and their communities benefit or pay the price.

Beyond existing projects, Africa's ecological endowment positions the continent as a central pillar of global nature-based climate mitigation. The Congo Basin alone is estimated to store approximately eight percent of the world's forest-based carbon and to absorb up to 1.2 billion tons of carbon dioxide annually, highlighting the scale of sequestration potential embedded in African forests, rangelands, peat lands, mangroves, and agricultural systems.[10] If fully mobilized through carbon markets and related mechanisms, regional estimates suggest that Africa's nature-based carbon assets could represent tens of billions of dollars per year in potential market value, particularly under higher integrity and compliance-linked credit regimes.[11]

However, the scale of projected financial flows stands in sharp contrast to the limited and often precarious employment outcomes currently associated with carbon market projects. While ACMI projections suggest that carbon market expansion could be associated with up to 30 million jobs by 2030 and over 110 million jobs by 2050, these figures are aspirational and assume substantial scaling, domestic value capture, and supportive policy environments. In practice,

[8] Newell, Peter and Matthew Paterson, M, *Climate capitalism: Global warming and the transformation of the global economy* (Cambridge University Press), 2010.

[9] *African Carbon Markets Initiative (ACMI),* Roadmap report: Harnessing carbon markets for Africa, Africa Carbon Markets Initiative, November 2022, https://www.seforall.org/system/files/2022-11/acmi_roadmap_report_2022.pdf

[10] Sills, Erin and Atmadja, S., et al., eds., REDD+ on the ground: A case book of subnational initiatives across the globe, Center for International Forestry Research

[11] *African Economic Outlook 2022: Supporting climate resilience and a just energy transition in Africa*, African Development Bank, 2022, https://www.afdb.org/sites/default/files/documents/publications/african_economic_outlook_2022_web.pdf

A HISTORY OF MARKET-BASED APPROACHES TO CLIMATE ACTION

The foundations of carbon markets can be traced to the 1990s, when international concern over climate change began to crystallize into formal agreements. In 1992, the United Nations Conference on Environment and Development (also known as the Earth Summit) was held in Rio de Janeiro. Led by Secretary-General Maurice Strong (a gas and energy entrepreneur and an adviser to the World Bank at a time when the Bank was pushing austerity measures in the Global South), the Rio process emphasized the need for sustainability to be achieved through market-based mechanisms. As part of this, the Summit promoted "sustainable development through trade liberalization" and the "positive" role of corporations in addressing development and environmental issues, as enshrined in Agenda 21, a key Declaration agreed at Rio. Agenda 21 suggests "to include, wherever appropriate, the use of market principles in the framing of economic instruments and policies to pursue sustainable development."

The landmark Kyoto Protocol of 1997 established the first global framework for emissions trading. Negotiations resulted in aligning the Kyoto Protocol with a market-based approach in the negotiation process, with a focus on "flexibility" and market-based flexible mechanisms as a condition of agreement. Energy multinationals were influential proponents of emissions trading under the Kyoto Protocol, particularly as an alternative to environmental regulation. Their influence, alongside that of other market-oriented stakeholders, helped embed trading into the treaty's architecture. This marked the birth of carbon offset projects as a recognized tool for channeling finance into mitigation, while creating tradable carbon credits that could be exchanged on emerging carbon markets.

Yet, as a voluntary and market-based mechanism, technological and financial transfers under the early Clean Development Mechanism were contingent on private interest—as evidenced by the skewed distribution of projects to countries with prior institutional and technical capabilities. For example, India, China, and Brazil together constituted 479 (or 62.9 percent) of all 762 CDM projects registered by 2007.

These early systems laid the groundwork for today's complex landscape of compliance and voluntary carbon markets, and set the precedent for linking climate ambition with financial instruments, particularly with private funding and market-based mechanisms.

evidence from existing projects indicates that current employment levels, job quality, and income security remain modest relative to the value of the carbon assets being mobilized. This gap highlights a critical political economy issue for the labor movement. As the overall "carbon market pie" expands, there is no guarantee that rising carbon revenues will result in the creation of secure, well-paid, and unionized jobs.

The projected 2030 $6 billion in annual revenues from Africa's 300 million carbon credits is likely to accrue to a range of actors within the carbon market ecosystem, rather than flowing directly to local communities. Primary beneficiaries include project developers who design and oversee emission-reduction initiatives, investors financing the projects, and intermediaries such as carbon brokers, verifiers, and certifying agencies that facilitate credit issuance and trading. National governments may also capture a portion through regulatory fees, taxes, or state-owned enterprises involved in carbon projects. While these flows generate significant economic activity at the macro level, community-level benefits are more diffuse and often indirect, materializing through employment, capacity-building programs, improved infrastructure, or enhanced access to clean energy.

As a market-driven system, pricing of carbon credits is dependent on factors including perceived credit quality, project type (e.g., nature-based solutions like mangroves often attract premiums), certification standard, market demand, and reputational considerations. No one actor singularly determines the price, but actors such as certification bodies can heavily influence the determining factors. The result is that credit prices—and thus the revenues from each project—are highly variable and can range widely. Both market dynamics and the structures for how revenues are governed and distributed within each project thus shape outcomes like wages and community benefits.

Without deliberate mechanisms for equitable benefit-sharing, a large share of the financial value can remain concentrated among private and institutional actors, leaving workers and local communities with limited access to the economic gains from carbon market participation. Indeed, without deliberate labor-centered regulation and industrial policy, a significant share of the economic value derived from Africa's carbon assets is likely to accrue to international developers, verification firms, financial intermediaries, and carbon market platforms.

This trajectory risks reproducing a "green" variant of extractive development—a type of "carbon colonialism"—in which Africa supplies land, ecosystems, and labor to global decarbonization efforts, while capturing a disproportionately small share of long-term economic and employment benefits. The central challenge is therefore not only how many carbon credits Africa can generate, but how expanding carbon asset utilization is translated into domestic value creation, decent work, and community benefits. Whether carbon markets contribute to decent work and worker rights in Africa will ultimately depend on whether rising carbon revenues are matched by enforceable labor standards, strong social dialogue, and institutionalized worker participation in shaping this emerging green economy.

CARBON MARKETS AND WORKERS' POWER: A GOVERNANCE QUESTION

A central issue for workers and the realization of their rights is governance: Who sets the rules, who controls the revenues, who bears the risks, and who benefits from the system? Compliance systems and voluntary markets reflect two different power structures shaping the future of work in a decarbonizing economy.

Compliance carbon markets are established through national, regional, or international legislation, and regulations are often aligned with commitments under the Paris Agreement. In theory, this provides a framework of democratic accountability. Emissions caps (or limits) are legislated, tradeable permits that are allocated or auctioned to emitters. Regulatory authorities oversee monitoring and enforcement, and penalties are imposed for non-compliance. This structure creates formal entry points for social dialogue. Trade unions can demand consultation on climate laws, advocate for just transition provisions, and push for carbon revenues to be reinvested in public goods, skills development, and decent job creation.

Yet, governance on paper does not always translate into pro-worker outcomes. The setting of emission caps, the allocation of permits, and the design of transition timelines are deeply political processes. Corporate lobbying and influence can dilute ambition or secure exemptions that protect profits while workers face job restructuring and uncertainty.[12] Without binding mechanisms and protections (such as retraining funds, sectoral bargaining frameworks, etc.), compliance markets risk becoming technocratic tools that manage emissions while neglecting social consequences. For the realization of worker rights, carbon regulation must be tied to enforceable labor standards and participatory governance.

CARBON MARKET COMPARISON: COMPLIANCE VS. VOLUNTARY

While compliance and voluntary carbon markets are distinct in purpose and governance, interactions between them can occur where regulatory frameworks allow voluntary credits to be used for compliance.

	COMPLIANCE CARBON MARKETS (CCM)		VOLUNTARY CARBON MARKETS (VCM)
GOVERNANCE	Binding: Need to comply with national, regional, or international regulatory framework		Corporate Climate Targets, e.g. Pledges, Corporate Policy, ESG
APPLICABLE STANDARDS *All are bound to follow domestic law and binding international labor and human rights standards*	Paris Agreement: Article 6	Legally binding, national, regional or international legislation, and regulations with penalties attached	Certified through Certification Standard Bodies e.g. Verra's Verified Carbon Standard
KEY ACTORS	Countries Global Sector Compliance Markets *(e.g., airlines and shipping)*	Companies Emission Tax Emission Cap Offset Obligation	Companies Individuals Net Zero Climate Contribution
MECHANISMS	Bilateral trade between countries *(to contribute to NDCs or comply with regulations)* or tax or emissions trading		Companies/individuals purchase credits that finance projects
COMMON SECTORS	High-emitting industries such as power, industry, and transportation		Programs such as renewable energy, agriculture, forestry, wetlands, and transport

[12] For more, see Stabinsky, Doreen, "Fossil futures built on a house of cards," Friends of the Earth International , 2022. https://www.foei.org/wp-content/uploads/2022/06/Fossil-futures-built-on-a-house-of-cards_report-2022.pdf

Voluntary carbon markets present an even sharper governance challenge. Unlike compliance markets, they are not created through legislation, nor are they overseen by a centralized framework. Instead, they are governed largely by voluntary standards developed by private standards bodies, such as Verra, Plan Vivo, and Gold Standard. In this model, authority rests with technical committees and market actors rather than democratic institutions. Governance is applied on a case by case basis, with oversight structures that can vary significantly based on variable factors like the size of the project. Credits are issued, verified, and traded under contractual arrangements rather than pursuant to binding legislation or a mandatory regulatory regime. While this flexibility can accelerate project development, it often sidelines democratic oversight and structured worker representation.

The private commodification of forests, farms, and community lands into carbon assets may potentially generate new income streams, but it also risks deepening asymmetries in power and value capture. This dynamic positions workers and local communities as service providers within carbon value chains rather than as rights-holding participants. Accordingly, this privatized governance model raises critical concerns for impacted workers, communities, and democratic decision-making around resource use. In this regard, carbon markets incentivize private investment in carbon projects (e.g., forestry, technology) and fuel a multibillion dollar voluntary market driven by corporate net-zero and social responsibility commitments. Without mandatory labor safeguards and binding labor protections embedded in standards and enforced by public authorities, voluntary markets risk prioritizing carbon accounting at the expense of decent work.

Both systems also reflect global power imbalances. Capital for carbon projects frequently originates in financially wealthy countries, while implementation often occurs in countries with natural resources in the Global South. Governance frameworks are shaped by actors who may be far removed from the workers and communities directly affected. This asymmetry reinforces the urgency of worker participation at every level—national carbon authorities, project approval processes, and international negotiations under Article 6 of the Paris Agreement. If carbon markets are to operate across borders, labor rights must travel with them.

LABOR REPRESENTATION IN CARBON MARKET GOVERNANCE IN AFRICA

Across Africa, the rapid institutionalization of carbon markets has been driven primarily by the need to align national regulatory systems with evolving global climate investment architectures, particularly under Article 6 of the Paris Agreement and initiatives such as the ACMI.[13] Countries including Kenya, Ghana, Nigeria, South Africa, The Gambia, and Mozambique have established policy frameworks, legislation, and institutional arrangements to facilitate carbon offset project development and credit transactions.[14] However, while these frameworks are presented as mechanisms to unlock climate-related investment and promote sustainable development, they also reflect deeper political economy dynamics in which state institutions are recalibrated to accommodate external market logics, investor requirements, and donor priorities.[15] These dynamics often exacerbate the sidelining or deprioritizing of worker voice.

In **Kenya**, for instance, the Climate Change Act (2016), amended in 2023, establishes the National Climate Change Council (NCCC), chaired by the president, with representation drawn largely from line ministries (Treasury, Environment, Energy, Agriculture, Devolution), regulatory agencies, and selected private sector and civil society actors.[16] However, organized labor (trade unions and other representative workers' organizations) do not hold a formal, institutionalized seat within the Council's core decision-making structure. This governance design has significant implications for carbon market development, as it means that decisions shaping land use, project approval, benefit-sharing rules, and market participation are largely negotiated among political elites, technocrats, investors, and development partners without worker input, let alone formal social dialogue and collective bargaining. As a result, the millions of workers—particularly in informal, rural, and land-based livelihoods—who supply the labor and bear the opportunity costs of conservation, restoration, and land-use restrictions are structurally under-represented in carbon governance.

[13] Africa Carbon Markets Initiative. (2022). Roadmap report: Harnessing carbon markets for Africa.

[14] United Nations Economic Commission for Africa. (2023). Economic Report on Africa 2023: Building Africa's Resilience to Global Economic Shocks. UNECA.

[15] Newell, Peter, "The political economy of carbon markets and climate finance in Africa," Review of African Political Economy, 48, no. 169 (2021): 1–18, provides analysis on this.

[16] Republic of Kenya, *Climate Change Act (No. 11 of 2016)*, (2023, amended).

A similar pattern is evident in **Nigeria**, where the Climate Change Act (2021) established the National Council on Climate Change (also abbreviated NCCC), chaired by the president and composed of key federal ministers, subnational government representatives, and appointed experts. The Council is mandated to coordinate climate policy and integrate carbon market mechanisms into national development planning.[17] Yet, as in Kenya, workers and their unions are not systematically embedded within the statutory governance architecture—the composition of the NCCC allows only for a representative of an "environmental related' civil society organization.[18] This reflects a broader political economic reality in which carbon markets are treated primarily as investment and fiscal instruments, rather than as labor-intensive development pathways requiring worker protections, skills development frameworks, or collective bargaining mechanisms. Consequently, carbon projects in Nigeria tend to rely on subcontracted labor, informal work arrangements, and community-based labor contributions, with limited institutional leverage for workers to influence terms of engagement or benefit distribution.

South Africa presents a distinct but equally revealing case through its Carbon Tax Act (2019), which established a compliance-based carbon pricing regime.[19] Under this system, large emitters are required to pay a tax per ton of carbon dioxide equivalent, but are allowed to offset a portion of their tax liability by purchasing certified carbon credits. In practice, this creates a regulatory architecture in which firms can legally continue emitting above certain thresholds, provided they either pay the tax or acquire offsets. While this mechanism is designed to internalize the cost of carbon and incentivize emissions reductions, it also raises critical political, economy, and labor questions. The ability to substitute direct emissions reductions with purchased offsets can, in effect, delay structural decarbonization within carbon-intensive sectors, preserving existing industrial employment patterns while shifting mitigation responsibilities onto land-based and rural economies where offset projects are located. Revenues from South Africa's carbon tax are largely absorbed into the general fiscus rather than being fully ring-fenced for just transition, worker reskilling, or community-level climate and employment programs. This has implications for the redistributive and labor-protective potential of the tax. While carbon pricing formally seeks to discipline corporate emissions, it does not automatically translate into strengthened labor protections, expanded and improved employment, or systematic reinvestment in affected worker communities.[20]

Across these national contexts, the governance of carbon markets reveals a common structural pattern: labor is positioned as an input into project implementation rather than recognizing workers as stakeholders in carbon market rule-making and governance. Workers, whether forest guards, community monitors, tree planters, rangeland managers, renewable energy technicians, or land stewards, generate the physical and ecological labor that underpins credit generation.[21] Yet institutional authority over carbon value chains remains concentrated among states, private developers, international standards bodies, financial intermediaries, and donor agencies. This asymmetry reinforces a lack of democratic governance in which Africa's labor and land absorb the burdens of mitigation, while much of the financial value, intellectual property, and market control is retained by external actors and domestic elites.

This governance configuration risks reproducing extractive dynamics and calcifying undemocratic decision-making structures. Carbon markets can function as mechanisms for commodifying African land, labor, and ecological systems without embedding robust labor standards, collective representation, or pathways for workers to move into higher-value segments of the carbon economy. **Without explicit institutional reforms to integrate labor into climate councils, carbon authorities, and benefit-sharing frameworks, carbon markets are likely to deepen informalization, externalize risk to workers and communities, and limit the extent to which carbon finance contributes to inclusive, democratic, and worker-oriented growth.**

At the continental level, the African Union Commission (AUC) has increasingly sought to articulate a collective African position on carbon markets, climate finance and investments, and natural capital, reflecting growing concern that

[17] Federal Republic of Nigeria, Climate Change Act 2021, 2021.

[18] Federal Republic of Nigeria, Climate Change Act 2021, Part II, section 5, 2021.

[19] Republic of South Africa, Carbon Tax Act No. 15 of 2019, 2019.

[20] Lane, Richard and Newell, Peter, "The political economy of carbon markets," *The Palgrave Handbook of the International Political Economy of Energy*, 247-267, 2016.

[21] Bumpus, Adam and Diana Liverman, "Accumulation by decarbonization and the governance of carbon offsets," *Economic Geography*, 84, no. 2 (2008): 127–155.

fragmented national approaches risk locking African countries into subordinate positions within global carbon value chains. Through initiatives linked to the African Union Climate Change and Resilient Development Strategy and Action Plan, as well as policy engagement around the ACMI, the AUC and associated regional bodies have advanced principles emphasizing African ownership, fair value capture, integrity, and alignment with development priorities.[22] The African Union Commission's Africa Action Plan on Carbon Markets (AAPCM), endorsed in 2025, explicitly incorporates principles of domestic value creation, benefit sharing, participatory governance, and integration of social and economic co-benefits into carbon market frameworks.[23] These principles reflect an emerging continental effort to challenge models in which African landscapes and communities function primarily as low-cost mitigation sites for external actors.

However, while continental strategies articulate important normative commitments, their translation into binding national regulatory requirements, particularly those embedding labor representation local content rules, and domestic accreditation of carbon market professionals, remains uneven. As a result, a persistent gap exists between continental-level aspirations for African agency in carbon markets and the on-the-ground governance arrangements that continue to marginalize labor and constrain domestic capture of higher-value carbon market functions. Carbon market governance in Africa is not merely a technical regulatory exercise; it is a political economic choice that shapes who captures value, who bears adjustment costs, and whose labor is rendered visible or invisible in the emerging green economy.

CARBON STANDARDS AS SITES OF POWER: WORKERS AS INPUTS NOT STAKEHOLDERS

Global carbon standards such as Verra, Gold Standard, Plan Vivo, and the legacy CDM under the UNFCCC do far more than provide technical methodologies for measuring and certifying emissions reductions. They function as powerful institutional gatekeepers that define what counts as climate action, who is authorized to certify it, and which actors are permitted to participate in high-value segments of the carbon economy. In this sense, standards bodies are not neutral technical entities, but central sites of governance that shape the political economy of carbon markets by structuring access to accreditation, knowledge, legitimacy, and ultimately, revenue.[24] Through their methodologies, accreditation rules, and validation and verification systems, these institutions influence how labor is organized, valued, and distributed across the global carbon market value chain.

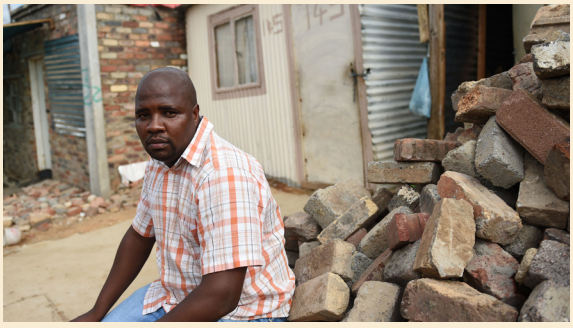
At the core of this governance architecture is the concentration of technical authority in a relatively small number of internationally recognized standards bodies and accredited verification firms based in the Global North.[26] **As a result, the highest-value functions in carbon markets are controlled by a narrow transnational professional class, while systematically excluding or marginalizing workers**

UNITED NATIONS GUIDING PRINCIPLES ON BUSINESS AND HUMAN RIGHTS

Beyond the voluntary standards created by third-party verification bodies, private actors in carbon markets must also adhere to the United Nations Guiding Principles on Business and Human Rights (UNGPs). The UNGPs set out the duties of countries and the responsibilities of companies to ensure that businesses operate with respect for human rights, including labour rights. The Guiding Principles are founded on three pillars:

- **The State duty to protect human rights** against abuse by third parties, including business, through appropriate policies, legislation, regulations, and adjudication;
- **The corporate responsibility to respect human rights**, meaning to act with due diligence to avoid infringing on the rights of others and address adverse impacts with which they are involved;
- **The need for greater access to effective remedy**, both judicial and non-judicial, for those harmed by business-related human rights abuse.

Businesses have a duty to respect human rights—an obligation independent of States' duties to fulfil their own human rights obligations—"over and above legal compliance, constituting a global standard of expected conduct applicable to all businesses in all situations," as set out in Commentary to UNGP principle 11. [25]



[22] African Union climate change and resilient development strategy and action plan 2022–2032, African Union Commission, 2022.

[23] Africa Action Plan on Carbon Markets (AAPCM). African Union Commission, 2025.

[24] Discussed in Bumpus and Liverman, "Accumulation by decarbonization," 2008.

[25] United Nations Guiding Principles on Business and Human Rights, Implementing the United Nations "Protect, Respect and Remedy" Framework, https://www.ohchr.org/sites/default/files/documents/publications/guidingprinciplesbusinesshr_en.pdf

[26] Newell P. T., 2021 discuss this dynamic.

and institutions in African countries. Labor is therefore hierarchically stratified, with African workers and professionals concentrated in lower-paid roles, while external actors dominate rule-setting and certification functions where decision-making power is concentrated.

Standards such as Verra and Gold Standard have expanded rapidly in Africa, particularly in land-use, forestry, clean cooking, and renewable energy projects. While these standards increasingly reference sustainable development co-benefits, community engagement, social safeguards, and increasingly explicit labor standards, their operational logic remains anchored in emissions accounting and market integrity as defined by global buyers and financiers. Plan Vivo, which has stronger community-based and livelihood-oriented roots and is touted for its comprehensive risk management structure[27] and human rights-based approach, represents only a partial alternative by foregrounding smallholder participation and benefit sharing. However, even in this case, projects remain embedded within a broader ecosystem of external verification, registry control, and buyer-driven standards that constrain local autonomy. The legacy of the CDM further illustrates this pattern: while it institutionalized carbon markets within the UN system, it also entrenched a technocratic, expert-driven model in which project validation and verification were dominated by a small number of large international firms, with limited transfer of core competencies to host country institutions.[28]

Certification standards demonstrate a range of approaches to inclusion of workers and labor standards—from complete omission to greater recognition of workers and requirements for ILO standards, for example. Yet even as labor standards and protections have increasingly made their way into certification standards, the institutional arrangements anchoring carbon markets treat the social dimensions of work, livelihoods, workers' participation and rights as peripheral without adequate attention to compliance and enforcement.[29] **Although carbon projects are deeply labor-intensive and reshape land-based livelihoods at scale, standards architectures implicitly or explicitly discourage the recognition of workers as necessary and ongoing stakeholders, weakening their potential for meaningfully influencing the conditions and outcomes of offset projects.**

At the time of writing, the Gold Standard principle on labor rights and working conditions provides comparatively stronger safeguards that mandate adherence to both national labor laws and ILO fundamental conventions, with explicit consideration to ensure that workers are able to establish and join trade unions and that migrant workers are protected from discrimination, among other labor protections and requirements.[30] While strong on paper, these standards are only meaningful if they are actively and consistently enforced. This requires the active inclusion of workers and their organizations as central stakeholders in project design, monitoring, and verification to be fully realized.

In the case of Plan Vivo, project requirements provide that: "Projects must provide safe and healthy working conditions aligned with national labor laws or the International Labour Organization's (ILO) Declaration on the Fundamental Principles and Rights at Work."[31] Additionally, Plan Vivo's environmental and social risk assessment methodology appropriately includes risks related to labor and working conditions.[32] However, despite this commitment to ILO standards on paper and limited language on labor in the assessment, Plan Vivo's methodology and tools are otherwise starkly sparse on labor rights, effectively relegating the treatment of labor issues as discretionary, thus sidelining workers. For example, workers and their organization are omitted as explicit stakeholders and users of grievance mechanisms. Plan Vivo's assessments and consultations tools provide only a superficial recognition of workers—reduced to passing and inconsistent mentions (e.g., a reference to "laborers" in the Institutional Mapping tool and

[27] Oyola, Sebastian, M. J. Iraola, and Monika Bertzky, Gap Analysis of Voluntary Carbon Market Standards against Safeguards Requirements and Good Practice, Asesoramiento Ambiental Estratégico, 2025,https://s3.eu-west-2.amazonaws.com/assets.planvivo.org/documents/Reports/AAE-KfW-Safeguards-Gap-Analysis-Report-2025.pdf

[28] Bumpus and Liverman, "Accumulation by decarbonization and the governance of carbon offsets," 2009, https://onlinelibrary.wiley.com/doi/10.1111/j.1944-8287.2008.tb00401.x

[29] Gold Standard, Safeguarding Principles and Requirements, 2023, https://globalgoals.goldstandard.org/standards/103_V2.1_PAR_Safeguarding-Principles-Requirements.pdf

[30] Principle 6.1 includes requirements that worker accommodations do not restrict freedom of movement or association; incorporate specific measures to protect and assist vulnerable groups, including women, persons with disabilities, and young workers; and require a grievance mechanism be established to address workplace concerns or violations of rights granted by legislation, collective agreements, or employment contracts. The safeguards extend to supply chain management and the implementation of health and safety protocols, alongside prohibitions on forced and child labor. https://globalgoals.goldstandard.org/standards/103_V2.1_PAR_Safeguarding-Principles-Requirements.pdf

[31] Plan Vivo, PV Climate Project Requirements (version 5.6), https://s3.eu-west-2.amazonaws.com/assets.planvivo.org/documents/PV-Climate-Documents/PV-Climate_Project-Requirements_V5.6-3.pdf

[32] Plan Vivo, Safeguarding Procedures, Environmental and Social Risk Management, https://s3.eu-west-2.amazonaws.com/assets.planvivo.org/documents/ESRiskManagement_PlanVivoProjects_V1.0.pdf

Social Mapping tool; "landless laborers" in the Stakeholder Analysis; "ordinary working people" in the Community Meeting tool; "migrant workers, laborers" in the Focus Group Discussion tool; or as recipients of "food/snacks" when planning meetings in the Engaging with Disadvantaged Groups tool).[33] None of these references explicitly include workers' representative organizations, such as unions. Workers and labor rights are notably absent from core evaluative framework tools, such as Participatory Resource Mapping, Visioning, Well-Being Assessment, and Climate Vulnerability Assessment, among others.[34] This cursory treatment represents a structural failure to translate Plan Vivo's high-level commitment with ILO standards into functional, on-the ground protection.

Additionally, though its standards for community ownership and engagement are comparatively strong, Plan Vivo requires that project producers, as a condition of eligibility, "should [] not be structurally dependent on permanently hired labor, and should manage their land mainly with their own and their family's force,"[35] a requirement that can inadvertently support the generation of informal and precarious work.

In Verra's updated standards from late 2025, labor standards were strengthened with the addition of language requiring project proponents to uphold the ILO Declaration on Fundamental Principles and Rights at Work, comply with all national labor laws, and ensure all workers are fully informed of their legal rights,[36] representing a welcome improvement. However, contrary to the spirit of this requirement, employee wages are said to be distinct from benefit-sharing, further creating a distinction separating workers and the value that they create from the social and political economy of carbon projects.[37]

Additionally, Verra standards do not operationalize worker voice throughout the project cycle. When asked whether, under Verra's updated standards, workers and their unions are explicitly identified as stakeholders, Verra responded that: "[w]orkers are considered stakeholders. Their classification depends on the project type (e.g., some workers might be directly affected if employed by the project, whereas others might be enablers or interested parties)."[38] Verra clarified further that "[a] labor rights scoping and assessment of projects is not required, even though the safeguards, risk assessment, and mitigation measures will address some elements to ensure the project does not negatively impact workers."

Similarly, other international standards and rule-making bodies fail to adequately reflect labor rights in carbon markets or omit them entirely. Importantly, the UNFCCC decisions and rulesbook on Article 6 carbon do not include any language on workers as central stakeholders, or on labor safeguards.

The omission of workers as explicit stakeholders effectively ensures that their participation is discretionary, leaving project implementers with little practical guidance on how to operationalize core labor rights and worker voice throughout the entire project cycle. Meaningful worker engagement is necessary at the earliest stages of project development and assessment to ensure that the full scope of environmental and social impacts are captured, mitigated, and if possible, avoided. Their input is further required to ensure that grievance mechanisms are accessible and legitimate and complement, rather than undermine, collective bargaining and social dialogue. To ensure that labor protections are mandatory, comprehensive, auditable and enforceable, these standards must be explicit, rather than optional or implicit. Wholly relying on national laws is not adequate, particularly where national laws may be weakly enforced or labor protections are circumvented through misclassification or sub-contracts.

The research also indicates that some workers may hesitate to form unions due to fear of losing income opportunities, particularly in rural or economically marginalized contexts. Evidence from comparable carbon market interventions in Kenya indicates that community members and project workers may be reluctant to raise concerns or engage critically

[33] Plan Vivo tools can be accessed at: https://www.planvivo.org/participatory-toolkit

[34] Oyola et al., "Gap Analysis of Voluntary Carbon Market," p. 30.

[35] Plan Vivo, Early-stage financing for community-led forest carbon projects: The barriers and solutions, https://www.planvivo.org/projects/certify-a-project/pvclimate/pv-climate-eligibility-costs-fees

[36] VCS Standard, Verified Carbon Standard: A Verra Standard, 5.0, December 16, 2025, `, https://verra.org/wp-content/uploads/2025/12/VCS-Standard-v5.0.pdf

[37] VCS Standard, Verified Carbon Standard: A Verra Standard, 5.0, section 3.18, p. 54, December 16, 2025, https://verra.org/wp-content/uploads/2025/12/VCS-Standard-v5.0.pdf

[38] Verra version 5 launch report, February, 4, 2026, https://verra.org/wp-content/uploads/2026/03/V5-Launch-Webinar-QA-Report-Final.xlsx

with project governance due to fears of losing access to employment or project-related benefits. This highlights how assessments and consultation processes must recognize inherent employment-related power dynamics and engage workers and their organizations to fully capture and include worker voice.

A typical carbon project starts by an expression of intent in the form of a memorandum of understanding (MoU) typically signed between project developers and state or intermediary actors, with limited transparency and little to no direct involvement of workers whose labor underpins project implementation. As the project progresses into feasibility assessments, validation, and eventual registration, labor considerations tend to remain peripheral, unless explicitly required by standards or national regulations. Even where stakeholder consultations are conducted, these are frequently one-off, procedural engagements rather than continuous, iterative processes that allow workers to shape project design, benefit-sharing mechanisms, or grievance redress systems. This creates a gap between formal compliance and substantive participation.

Most hiring occurs after initial project design and feasibility assessments, and often after or alongside community consultations, rather than before formal project approval. In many cases, project developers or implementing partners establish agreements, such as MoUs, with community institutions (e.g. community forest associations or local groups), which then serve as intermediaries for hiring workers. Workers may be contracted either directly by implementing organizations, through community-based organizations, or via informal arrangements, especially for activities like seedling collection, planting, monitoring, and site protection. Importantly, this means that workers often enter the process after key project parameters (e.g. benefit-sharing structures and financing arrangements) have already been defined, limiting their influence over core economic and governance decisions.

By treating workers (and their labor) as inputs, rather than as stakeholders, standards bodies effectively disenfranchise workers from systems of accountability and governance. Without deliberate reforms to integrate labor standards, worker representation, and domestic accreditation pathways into carbon standards, the expansion of carbon markets in the African continent may deepen asymmetries between those who control rules and those who perform the work. Embedding labor considerations into carbon standards is therefore not simply a social safeguard issue; it is a question of economic governance and structural transformation. Integrating international core labor standards and worker participation into standards frameworks would fundamentally alter who controls carbon market profits and how value is distributed.

CARBON MARKETS

IN THE CONTEXT OF AFRICA'S LABOR LANDSCAPE

Credit: Liberia Firestone, USW

SKILL SEGMENTATION AND EMPLOYMENT STATUS

The African continent's employment systems are characterized by rapid labor force growth, high levels of informality, limited integration of skilled labor into high-productivity sectors, and deep segmentation among workers with varying degrees of formally recognized skills, otherwise referred to as skilled, semi-skilled, and unskilled labor. These dynamics fundamentally shape how climate interventions like carbon markets translate into employment outcomes, income security, and labor rights in practice. In 2023, Africa's labor force reached approximately 576 million workers, making it the second largest in the world and the fastest growing globally.[39] While Africa has a young and expanding workforce, the pace of structural transformation has not kept up with workers' availability and capacity. As a result, employment growth has been concentrated in low-wage and informal sectors, limiting the creation of stable, high-quality jobs and reinforcing patterns of precarious employment.

Credit: Jonathan Torgovnik: Getty Images, Images of Empowerment

ALL LABOR HAS VALUE. ALL WORKERS ARE SKILLED.

The terms "unskilled" and "skilled" labor create a false hierarchy that devalues the essential, often physically and emotionally demanding work performed by those without formal credentials. By labeling this labor as "unskilled," employment practices minimize the social value of the work and the specific capabilities, resilience, and experience these workers possess, often using the label to justify poverty wages and poor working conditions. Ultimately, this terminology obscures the inherent dignity of workers, reducing their contributions to a lack of academic degrees, rather than recognizing the vital value of their labor to the economy and to society.

Nevertheless, these categorizations are used by economic and labor market analysts, and skills training is an important demand of workers advocating for a just transition to decent work in a low-emissions economy. In this report, the categories "unskilled, semi-skilled, and skilled" are used limitedly and when used, they reflect the broader economic labor market discourse or a level of formal education considered required to do a job.

Africa's workforce is heavily represented in informalized, low-wage employment. **Estimates indicate that approximately 85–89 percent of total employment in Africa is in the informal economy, far above the global average.**[40] In Sub-Saharan Africa, informality reaches even higher levels, particularly among youth, women, and older workers, where up to 90–95 percent are engaged in informal employment.[41] This employment structure constrains access to written contracts, social protection, collective bargaining, and effective enforcement of labor standards. These workers labor in agriculture, forestry, fisheries, construction, domestic work, informal commerce, extractive-related activities, and more. Their jobs are disproportionately represented in seasonal, casual, and unpaid family labor.[42]

Reflecting labor dynamics across the continent more broadly, the operational backbone of most carbon offset projects is provided by Africa's large informal workforce.[43] Community forest monitors, tree planters, nursery operators, rangeland stewards, waste pickers, clean cooking technology distributors, and smallholder farmers engaged in climate-smart and regenerative practices deliver the physical and ecological outcomes upon which credit generation depends. Although many of these roles are classified as informal or "casual," their aggregate economic contribution is substantial. When project developers enlist workers into carbon projects, even if they refer to them as "community participants," as in some example projects discussed below, they enter into employment relationships with workers but continue to rely on the underlying structure of informality.

[39] Cilliers, Jakkie & Blessing Chipanda, B. (2023). Work/Jobs: Thematic Futures, African Futures, Institute for Security Studies, 2023, https://futures.issafrica.org/thematic/13-work-jobs/

[40] Background report on the sub-theme of decent work and economic growth, United Nations Economic Commission for Africa, 2025. (ECA/RFSD/2025/7). https://papersmart.uneca.org/download/5389

[41] Cilliers, Jakkie & Blessing Chipanda, Work/Jobs: Thematic Futures, 2023.

[42] International Labour Organization, 2022.

[43] Newell Peter and Matthew Paterson, Climate Capitalism: Global Warming and the Transformation of the Global Economy, Cambridge University Press, 2010.

Additionally, low-wage labor remains central to the physical delivery of land-use and nature-based solutions, which dominate Africa's current and projected carbon project portfolio. Activities such as land preparation, tree planting, grassland restoration, forest maintenance, soil and water conservation, and basic infrastructure work absorb large volumes of rural labor. The scale of employment means that these workers collectively underpin the expansion of carbon-linked land-use sectors that are already major contributors to GDP in many countries. These workers thus become linked to international climate investments as carbon markets monetize their environmental stewardship.

"Semi-skilled" workers occupy an intermediate position within the African labor market more broadly and are commonly found in construction, transport, manufacturing, agro-processing, renewable energy installation, and selected service sectors. These workers often possess vocational or secondary education and play a critical role in infrastructure development and emerging green economy sectors. However, many workers remain informally employed or engaged through short-term contracting, limiting employment stability and access to social insurance.

Likewise, "semi-skilled" workers occupy a critical intermediary position within carbon market value chains. Technicians installing renewable energy systems, agroforestry and rangeland extension workers, community project coordinators, data collection officers, and waste management supervisors enhance operational efficiency, project credibility, and scalability. Their contribution is essential for maintaining project performance, ensuring permanence and additionality, and reducing delivery and reputational risks. Contributions of workers in these roles increase the share of carbon market revenues that is retained within domestic economies and reflected in GDP.[44]

In Africa more broadly, workers with higher levels of education and specialized job training represent a relatively small share of total employment and are concentrated in professional services, public administration, education, health, finance, ICT (information, communication, and technology), engineering, and higher-end energy and infrastructure projects. Workers in these roles also face underemployment and skills mismatch due to limited expansion of these sectors. Only around 16–20 percent of African workers are in formal wage employment, reflecting the narrow base of formal labor markets and the limited absorption of skilled labor into stable, long-term positions.[45]

The position of Africa's workers in the global carbon market value chain is reflective of other industries as well. While formal, "skilled" functions in carbon markets capture a disproportionate share of value added, these roles are predominated by international firms and consultants, limiting domestic value capture and reducing the net GDP and development impact of carbon offset projects and markets for the continent. Without deliberate investment in local technical capacity, regulatory institutions, and African-led project development, carbon markets risk reproducing extractive economic patterns, in which African land and labor generate credits while high-margin professional services and market power remain offshore.

Education and skills are strongly correlated with employment quality, yet the limited expansion of formal and high-productivity sectors means that even workers with secondary and tertiary education frequently experience underemployment and skills mismatch. Estimates suggest that only around 40–45 percent of African employees are in jobs that match their education level.[46] This structure limits the capacity of climate and carbon market initiatives to function as engines of skills upgrading and occupational mobility. Instead, workers are drawn into short-term, project-based employment that does not provide stable career pathways or long-term employment security.

SECTORAL CONCENTRATION AND ECONOMIC CONTRIBUTION

Agriculture, forestry, and fishing continue to employ between 50–60 percent of workers in many African countries, particularly in rural areas. These sectors are characterized by high levels of informality, seasonality, and exposure to both climate variability and commodity price volatility.[47] Within the context of this study, this concentration is especially

[44] Sills, Erin and Atmadja, S., et al., eds., REDD+ on the ground, 2014.

[45] United Nations Economic Commission for Africa, 2023.

[46] International Labour Organization, 2022.

[47] International Labour Organization, 2022.

significant because many African countries have explicitly prioritized land-use, forestry, agriculture, and nature-based solutions as core mitigation strategies. As a result, low-wage sectors with limited labor protections are increasingly being positioned as primary sites for the generation of tradable carbon assets, monetizing subsistence and traditional practices without offering stable social protection, rights, and benefits.[48]

NATIONALLY DETERMINED CONTRIBUTIONS (NDCs) are at the heart of the Paris Agreement and the achievement of these long-term goals. Every five years, the Paris Agreement requires each country to prepare, communicate and maintain increasingly ambitious commitments and plans for reducing emissions, taking into account its domestic circumstances and capabilities. NDCs include mitigation and adaptation goals and are often a basis for designing climate policies and practices. Unless NDCs are explicitly benchmarked against international labor standards and designed and implemented with workers' organizations, they are likely to fall short of protecting labor rights.

Conditional **Nationally Determined Contributions (NDC)** targets—those portions of national climate commitments that are contingent on international finance, technology transfer, and carbon market participation—embed these land-based sectors into global carbon value chains. In practice, this means that the achievement of climate targets becomes structurally linked to the mobilization of large numbers of workers in sectors who are already characterized by high levels of informal, precarious, and unprotected employment.[49]

The service sector accounts for approximately 35–45 percent of employment. Much of this employment is informal and low-wage, with limited opportunities for skills upgrading or formalization. Many carbon market and related value chains such as clean cooking distribution, community mobilization, data collection, monitoring activities, and project logistics are embedded within these informal service economies. Jobs in these sectors are thus mediated through weakly-regulated labor markets, where employment relationships are short-term, grievance mechanisms are limited, and access to collective bargaining and occupational health and safety protections is constrained. This further deepens the risk that carbon development pathways reproduce informalization, rather than advance decent work.[50]

By contrast, industry and manufacturing employ a relatively small proportion of Africa's workforce, generally below 10 percent in most economies.[51] This limited domestic industrial base, including manufacturing of renewable energy technologies, energy efficient equipment, and climate-resilient infrastructure, means that Africa's transition risks both extracting and transforming subsistence and traditional land practices while also not gaining the benefits that can come from industrial development that is absorbed outside of the continent.[52]

This sectoral structure contributes to a persistent working poverty challenge. Despite high levels of labor force participation, an estimated 29–30 percent of employed Africans are classified as working poor, living on less than $2.15 per day in purchasing power parity terms.[53] This highlights a central insight: **Employment generation alone is not a sufficient indicator of worker and community-benefiting outcomes. Carbon markets and conditional NDC pathways may increase participation in climate-related activities, yet still fail to deliver adequate incomes, employment stability, or pathways out of poverty. This underscores the importance of evaluating carbon market impacts not only in terms of job counts, but in relation to wages, employment security, social protection coverage, and workers' ability to exercise labor rights.**

The interaction between Africa's labor structure and conditional NDC implementation reveals how climate ambition is being translated into carbon development strategies that position land, ecosystems, and low-cost labor as comparative advantages within global climate governance.[54] Conditional NDC targets function not only as climate policy instruments, but also as mechanisms that integrate African economies into transnational carbon markets as providers of emissions reductions and removals. In this process, carbon is constructed as a new development asset class, while African

[48] International Labour Organization, 2022.

[49] International Labour Organization, 2015.

[50] International Labour Organization, 2022.

[51] International Labour Organization, 2022

[52] Richard Lane and Peter Newell, "The political economy of carbon markets," 2016.

[53] International Labour Organization, 2022.

[54] ActionAid, 2025.

workers and rural communities become central to the production of carbon value without adequate access to decision-making and carbon markets governance spaces.[55]

Crucially, this configuration raises significant labor rights concerns. While conditional NDC targets are often framed as opportunities to mobilize climate investments and finance and support rural livelihoods, evidence suggests that, in the absence of binding labor standards and strong domestic governance, these pathways may entrench rather than disrupt existing regimes of informal and precarious work.[56] The commodification of forests, farms, and community lands into carbon assets may potentially generate new income streams, but it can also deepen asymmetries in power and value capture, positioning workers and local communities as service providers within carbon value chains rather than as rights-holding participants in a transformative development process.[57]

In this sense, conditional NDC targets shape not only which sectors are prioritized for mitigation, but also which categories of workers are mobilized, under what employment conditions, and with what degree of protection and voice. Embedding just transition principles and ILO labor standards into the design and implementation of conditional NDCs is therefore not an ancillary concern, but a structural requirement. Without such integration, carbon development pathways risk institutionalizing a model in which Africa's labor is instrumentalized in the service of global mitigation goals, while long-standing deficits in employment quality, social protection, and worker representation remain largely unaddressed.

WORKER VOICE IN "GREEN" JOBS?

Africa's carbon market pathways are unfolding within a context where informality is the dominant employment modality, and social protection coverage remains limited. Union density and collective bargaining coverage are also relatively low in many countries, further constraining workers' capacity to influence employment conditions in emerging sectors. This institutional landscape weakens workers' collective voice in shaping how climate-related financial flows and investments and carbon markets translate into concrete labor outcomes.[58]

Projections indicate that Africa's "green" transition—including through carbon markets—could generate approximately 3.3 million new jobs by 2030, particularly in renewable energy, construction, manufacturing, e-mobility, and climate-smart agriculture.[59] A significant share of these jobs is expected to require technical and professional skills, creating potential opportunities for workers. However, in the absence of targeted skills development strategies, effective labor standards enforcement, and deliberate formalization policies, workers risk being confined to low-wage, insecure employment. Further, without formalized mechanisms for worker participation, targeted skills development strategies, effective labor standards enforcement, and deliberate policies to expand labor protections for all workers, these jobs will not automatically translate to decent work.

Measured against international labor standards, much of Africa's current employment structure falls short of core decent work benchmarks. Limited formal job creation, regulatory gaps, and exclusionary policy environments have created a prevalence of informal and precarious employment, limiting the effective realization of freedom of association, collective bargaining, adequate occupational health and safety, income security, and access to social protection. These deficits are systemic, shaping the baseline conditions into which climate-related investments and finance, conditional NDC pathways, and carbon market interventions are introduced.

[55] For more, see: *Upsetting the Offset: The Political Economy of Carbon Markets*, eds. Steffen Böhm & Siddhartha Dabhi, 2009.

[56] Richard Lane and Peter Newell, "The political economy of carbon markets," 2016.

[57] International Labour Organization, 2015.

[58] International Labour Organization, 2015.

[59] International Labour Organization, 2022.

CARBON MARKETS

IN FOUR AFRICAN COUNTRIES

Credit: Jemal Countess

The structure and labor implications of carbon markets vary significantly across African countries, reflecting differences in sectoral composition, regulatory frameworks, and degrees of market maturity. However, across Kenya, Ghana, Nigeria, and South Africa—countries chosen for regional representation and their active engagement in voluntary, compliance-based, bilateral, and multilateral carbon market initiatives—a consistent pattern emerges: rapid growth in carbon market activity and projected revenue is not matched by commensurate growth in secure, decent, and protected employment. This section provides a comparative, sector-based analysis of carbon offset markets in these four countries, drawing attention to labor dynamics, employment quality, and governance gaps in relation to core labor standards and decent work frameworks. This section also highlights case studies and examples of projects in each country that illustrate dynamics at play for workers.[60]

KENYA

REDD+ (REDUCING EMISSIONS FROM DEFORESTATION AND FOREST DEGRADATION) is a financial mechanism under the United Nations Framework Convention on Climate Change (UNFCCC) to facilitate payments for emissions reductions by providing incentives to developing countries to stop or reverse the loss of forests, including also conservation, sustainable forest management, and enhancement of forest carbon stocks. This can take the form of direct payments or can be in exchange for "carbon credits," which represent reductions in greenhouse gas emissions to compensate for emissions made somewhere else. REDD+ is not technically a carbon market, but it is used by some standards to generate carbon offsets from forestry projects. This type of carbon offset project has been particularly criticized based on human rights issues, as well as ecological and emissions reduction integrity questions. REDD+ projects tend to be located in the Global South. REDD+ credits in Sub-Saharan Africa account for 29 percent of all projects globally.

Kenya represents the largest and most mature carbon offset market in Africa, accounting for approximately 20-24 percent of all carbon credits issued on the continent, and a top carbon market partner globally. Between 2016 and 2021, Kenya issued approximately 26 million tCO_2e (tons of carbon dioxide equivalent) in carbon credits, with cumulative issuance exceeding 50 million credits by 2024-2025 across voluntary and CDM mechanisms. The country hosts more than thirty to forty active carbon projects, dominated by forestry, **REDD+**, rangeland management, and clean cook stove initiatives. Kenya's government estimates that the country could generate twenty to twenty-five million credits annually by 2030, corresponding to approximately $500-600 million per year in carbon revenues under prevailing market prices.[61]

Though employment numbers are largely unavailable, labor dynamics in Kenya's carbon market projects are heavily shaped by land-based and household-level projects. Forestry, rangeland, and REDD+ projects employ large numbers of community-based workers for planting, patrols, monitoring, and restoration (several thousand community scouts, restoration workers, and monitoring personnel annually, with additional seasonal labor for planting and ecosystem restoration).[62] Clean cooking-related projects registered under Gold Standard, Verra, and Plan Vivo rely on extensive networks of informal distributors, community agents, and sales workers. While some renewable energy projects generate more formal technical jobs, the majority of workers remain engaged through short-term, informal, or commission-based arrangements.

[60] Case studies and examples are anonymized.

[61] Eastern Africa Alliance, 2025Eastern Africa Alliance, Carbon market profile: Kenya, 2022, https://easternafricaalliance.org/publication/carbon-market-profile-kenya/

[62] Forest Carbon Partnership Facility, "United Nations Development Programme Kenya FCPF REDD+ Readiness Project," December 2022, https://www.forestcarbonpartnership.org/system/files/documents/kenya_final_project_report_-_fcpf_redd_readiness_project_31_12_2022.pdf

Kenya's carbon market exhibits significant deficits in decent work—with limited employment security, collective bargaining coverage, occupational safety, and formal recognition of workers. Despite the scale of projected revenues, labor remains weakly institutionalized within carbon market governance. Trade unions and labor ministries are not systematically embedded in national carbon market frameworks—nor do they have a seat in the country's National Climate Change Council, limiting social dialogue and worker voice. This creates a structural gap between Kenya's high carbon asset value and the quality and stability of employment outcomes. **Additionally, workers are frequently classified as "community participants" rather than as employees, excluding them from labor protections such as minimum wage guarantees, health insurance, or pension schemes.** This mirrors Kenya's broader labor market, where informal employment accounts for over 80 percent of total employment nationally, leaving the majority of carbon market workers outside formal labor protections. The result is a structural gap: Kenya's carbon market generates hundreds of millions of dollars annually, yet the quality and stability of employment outcomes lag far behind the asset value.[63]

Kenya's economy remains heavily reliant on rain-fed agriculture, livestock production, fisheries, tourism, and informal services. Scientific assessments and economic analyses underline that prolonged droughts, erratic rainfall, and heat have already resulted in contractions in agricultural output and decreased productivity, made worse during severe climate events.[64] Such climate shocks impact workers on the job, disrupt seasonal employment patterns, and undermine income stability for millions of workers. Rural workers, pastoralists, informal urban laborers, women, and youth are made particularly vulnerable because they often lack access to social protection, alternative livelihoods, adaptive resources, or financial safety nets, which compounds existing structural employment challenges in Kenya, including under-employment and a large informal sector that accounts for the bulk of new job creation.[65]

Kenya's policy framework has gradually acknowledged the need to link climate action with employment creation and a transition to sustainable jobs. The Climate Change Act (2016) and successive National Climate Change Action Plans set a legal foundation for climate governance.[66] More recent regulatory amendments aimed at governing carbon markets explicitly seek to unlock climate-related investments and channel them into locally beneficial outcomes, including skills development and job opportunities aligned with low-carbon pathways. However, institutional coordination remains limited, weakening the integration of labor considerations into climate project design, implementation, and monitoring and governance frameworks. As a result, many initiatives fall short of systematically embedding social protection and labor rights into their operational modalities, potentially leaving workers exposed to irregular work, seasonal volatility, and income insecurity.

CARBON OFFSET PROJECTS AND LABOR DYNAMICS IN KENYA

Kenya has emerged as a front runner of carbon markets in Africa and also globally, leveraging both voluntary carbon credits and REDD+ initiatives to generate finance for conservation and climate mitigation. In February 2026, the country's Ministry of Environment and National Environment Management Authority announced a national carbon registry, continuing to position the country as a global hub and source of "high-integrity" carbon credits.[67]

Without national-level numbers to rely on, documentation of carbon offset projects in the country suggest they have created tangible employment for local communities, albeit on a modest scale relative to national labor needs.[68] One Verra-approved REDD+ rangeland management project, for example, reports employing approximately 300–400 workers as rangers, monitors, and administrative staff, while also providing indirect income to over 1,200 women artisans through sales linked to the project, according to the project documents. Similarly, a mangrove conservation project reports generating around 200 direct and indirect jobs, engaging an additional 500 workers in mangrove

[63] International Labour Organization, 2022.

[64] International Food Policy Research Institute (IFPRI), 2023.

[65] Ministry of Agriculture, Livestock and Fisheries, 2017.

[66] Climate Change Act, No. 11 of 2016 (Kenya), http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/ClimateChangeActNo11of2016.pdf and Ministry of Environment and Forestry. (2018). National Climate Change Action Plan (Kenya): 2018–2022. Republic of Kenya. https://www.environment.go.ke/wp-content/uploads/2018/11/NCCAP-2018-2022-Online-Copy.pdf

[67] Ollingo, Allan, "K*enya launches a carbon registry to boost climate finance and credibility,*" AP News, February 17, 2026, https://apnews.com/article/carbon-registry-climate-kenya-aad670f79c-992c61422d2384c75bdbb4

[68] "Carbon credit market in Kenya: Opportunities, legal compliance & recent case law, Muhoro and Gitonga Associates, October 9, 2025.

protection, restoration, and monitoring activities. These examples illustrate how workers engage in carbon initiatives formally and informally, particularly in rural areas where climate-sensitive sectors dominate employment. Emerging technologies, including pilot programs in direct air carbon capture (DACC), are beginning to introduce higher-skilled roles, broadening opportunities for technically trained Kenyan workers.

Even so, conversations with unions and labor support organizations in the country reveal that impacts of carbon offset projects in Kenya have been uneven and, in some cases, problematic, both in terms of labor and community impacts. **Many of the jobs created are temporary, project-based, or informal, offering limited job security, inconsistent wages, and weak labor protections that are misaligned with international labor standards.** Land-based offset projects cover 5.4 million hectares, almost the amount of all of the country's arable land.[69]. According to a Kenyan trade union, while capable of mobilizing substantial investment, these projects have sometimes altered land-use patterns in ways that disrupt existing livelihoods, particularly pastoralism and small-scale farming. Restrictions on access to land and natural resources have equally displaced traditional forms of work, leading to labor precarity and social tension rather than net employment gains.

Informants shared that the complexity of the carbon market value chain contributes to challenges for worker organizing and union representation. Frequent job changes, short-term contracts, unclear employment relationships, and limited access to resources or education on labor rights all undermine efforts to exercise freedom of association rights. **Informants noted that to advance representation for these workers requires not just legal recognition, but unions' sustained capacity building, political education and cross-sector alliances so that unions can meaningfully include workers in emerging and informal sectors of Kenya's economy.**

According to labor and other civil society informants, governance challenges have further shaped labor outcomes within Kenya's carbon offset landscape. Inadequate community consultation, weak application of Free, Prior, and Informed Consent (FPIC) principles, and limited transparency in benefit-sharing arrangements have contributed to disputes and mistrust. Labor participation also tends to be limited to low-wage, short-term roles, reducing opportunities for skills upgrading, long-term employment, and the ability to organize and bargain collectively.

Market dynamics also play a critical role in shaping employment sustainability. Kenya's carbon offset projects are heavily exposed to the volatility of voluntary carbon markets, where fluctuations in demand and pricing can quickly translate into funding shortfalls. When carbon revenues decline, employment—seen as an input rather than a relationship with impacted stakeholders—is often among the first areas affected, with projects scaling back operations or suspending activities altogether. This volatility highlights the risks of linking labor outcomes too closely to unstable global markets and underscores the need for diversified financing models that provide greater employment stability.

KENYA CASE STUDY 1: MANGROVE CONSERVATION PROJECT

The study's review of a large mangrove conservation carbon project certified by Plan Vivo revealed that while it is cited as a model for integrating ecosystem protection, climate mitigation, and community development, the project also has important structural and governance gaps in relation to labor rights, worker representation, and social dialogue.

The project includes ecosystem conservation work—such as mangrove restoration, nursery management, forest monitoring, and data collection—which generate carbon credits that are meant to be reinvested in local development initiatives. The project is located in an area where many workers are employed in the informal economy, with seasonal incomes and growing climate stress on fisheries and small-scale agriculture. The project proposes income diversification and risk reduction for workers and community members as part of this context; workers are remunerated with task-based or time-bound payments according to local wage benchmarks, as opposed to living wage standards.

Project documents reveal that activities related to mangrove restoration, monitoring, and project governance are

[69] Hartlief, Ilona and Joanna Cabello, "Carbon: The new frontier in the scramble for land in Kenya," SOMO, December 8, 2025, https://www.somo.nl/carbon-the-new-frontier-in-the-scramble-for-land-in-kenya/

typically framed as community engagement rather than formal employment relationships. This framing fails to recognize workers as workers with rights to labor protections related to employment contracts, wages, working time, occupational safety and health, and access to redress and labor inspections systems. Further, the diversity of actors involved in the project—including community members, non-governmental organizations, conservation institutions, technical experts, certification bodies, and international buyers—contributes to fragmented accountability and limits opportunities for worker participation and the exercise of labor rights. As suggested by study informants, this type of project structure typically works as a barrier to worker organizing in emerging climate-related sectors.

From a community rights perspective, the project also reflects broader asymmetries in power and control within carbon finance and conservation governance. **While the project is framed as community-led, key decisions related to certification, market access, revenue flows, and project design are largely shaped by external institutional and market actors. This governance structure limits meaningful local control over the carbon value chain and reinforces unequal relationships between global carbon markets and local communities. Workers in these communities are therefore denied rights at work and additionally distanced from decision-making as members of impacted communities.**

Though the project may be delivering some important environmental and community-level outcomes, it highlights a fundamental tension within market-based climate interventions. Environmental objectives are pursued through labor arrangements that are characterized by informality, dependency, and weak worker representation and participation. The project also illustrates a broader governance disconnect. While carbon market mechanisms are rapidly institutionalized and supported through regulatory, donor, and market-based systems, labor rights frameworks (national and international), trade union engagement, and social protection mechanisms remain peripheral to project design and implementation.

KENYA CASE STUDY 2: RANGELAND MANAGEMENT PROJECT

This case study focuses on a project operating in pastoralist lands that is designed to generate carbon credits through improved rangeland management practices. The project is based on the premise that changes in grazing management—including planned grazing, resting of rangelands, and altered livestock movement patterns—can increase soil organic carbon sequestration. These changes are measured and verified using soil sampling, remote sensing, and modelling methodologies aligned with voluntary carbon market standards. The project is implemented through a network of community conservancies. As such, community members, conservancy staff, and local structures such as village chiefs are involved in activities like grazing planning, rangeland monitoring, data collection, and project coordination. Carbon credits generated through verified increases in soil carbon are sold on international voluntary carbon markets, with revenues intended to support conservancy operations and community development initiatives.

The project is framed as community-based and participatory, with pastoralist communities positioned as stewards of rangelands. The project implementer plays a central intermediary role in project design, technical coordination, engagement with verification bodies, and access to international carbon credit buyers. In this model, communities provide land, labor, and local governance structures, while technical, financial, and market interfaces are largely managed by external and intermediary institutions. Unlike smaller community-led initiatives such as in Case Study 1, which are certified under the Plan Vivo standard, this project is registered with Verra's Verified Carbon Standard (VCS) and has earned the Climate, Community & Biodiversity (CCB) Triple Gold Distinction. While the CCB framework requires projects to demonstrate "net positive community benefits" and to avoid harmful social impacts, its scope does not include enforcing international labor standards or formal employment protections. Indeed, according to informants, no workers involved in the project have a formal contract beyond a grazing plan shared with them by a community mobilizer.

While this project is presented as a community-led climate mitigation and livelihood support initiative, labor and

community rights groups shared significant labor and governance challenges within the project's operational model.

The project is embedded in a carbon market architecture that prioritizes measurement, reporting and verification (MRV), certification, and carbon revenue generation, while labor governance and worker representation remain weakly institutionalized. Community members engaged in grazing management, monitoring, and project-related activities are not clearly recognized as workers with formal employment relationships. Instead, their participation is framed as community stewardship or project participation, limiting their access to labor protections related to employment contracts, wages, working hours, occupational safety and health, and access to grievance and dispute resolution mechanisms.

This precarious employment structure means that community members' livelihoods become increasingly tied to carbon finance, without corresponding guarantees of stable employment, social protection, or collective representation. Moreover, the diversity of actors involved (including community conservancies, the project implementer acting as an intermediary institution, technical service providers, verification bodies, and international carbon buyers), results in fragmented accountability. This institutional complexity creates obscurity for workers who would attempt to report grievances, organize themselves, or bargain collectively.

The governance structure of the project also raises concerns regarding power, participation, and control over land and climate investments. Key decisions regarding project design, certification, data ownership, revenue flows, and market engagement are largely shaped by external institutional and technical actors. This limits meaningful community control over the carbon value chain and reinforces asymmetrical relationships between global carbon markets and pastoralist communities.

Like in the mangrove conservation project (Case 1), the deficit in worker and community voice and representation is observable in practice. Indeed, during the research for this study, calls for workers and other community participants to provide feedback on project implementation and governance were met with limited engagement, as some individuals expressed fear that raising concerns or participating critically could jeopardize their continued access to work opportunities, project-related benefits, or their standing within conservancy and project structures. This dynamic reflects the extent to which economic dependence and employment precarity constrain the exercise of worker voice and is inconsistent with worker participation and effective social dialogue.

KENYA CASE STUDY 3: WATER TREATMENT PROJECT

The third example represents an integrated public health and climate mitigation intervention implemented in rural and peri-urban areas of Kenya. The project is designed to address unsafe drinking water and household-level greenhouse gas emissions by installing chlorine dispensers at communal water sources. This enables point-of-collection water treatment, reducing reliance on boiling water using firewood. Through this mechanism, the project simultaneously targets reductions in waterborne disease, deforestation, indoor air pollution, and carbon emissions. Verified emissions reductions are monetized through voluntary carbon markets, generating revenue to finance project operations and expansion. The project thus exemplifies the use of market-based climate investments to support essential public health infrastructure in low-income contexts.

The project's stated objectives extend beyond climate mitigation to include measurable public health improvements, particularly in reducing morbidity and mortality associated with unsafe drinking water. Additional intended outcomes include environmental protection through reduced biomass fuel consumption and gender-related benefits arising from reduced time burdens on women and girls responsible for fuel wood collection and water management. The project also aims to establish a sustainable financing model by leveraging carbon revenues to support long-term maintenance and scaling. While these objectives are well aligned with sustainable development and climate policy priorities, the project's formal design positions workers and community agents largely as contributing to delivery rather than as rights-bearing stakeholders, weakening any potential labor and employment outcomes.

Governance of the project is centralized within the project implementer, which retains responsibility for project design, monitoring and evaluation, verification of emissions reductions, and engagement with carbon market standards and buyers. This governance structure prioritizes technical accountability, environmental integrity, and financial transparency. **Decision-making authority remains largely concentrated within the implementing organization and external verification entities, with limited evidence of institutionalized mechanisms for worker or community representation in governance, oversight, or benefit-sharing processes.**

The project generates local employment through the engagement of community agents and local staff responsible for installation, maintenance, monitoring, data collection, and community sensitization. While the scale of employment varies by county and project phase, the project is estimated to engage dozens to hundreds of community-based workers across operational areas. These positions are typically characterized by limited job security, modest remuneration, and minimal access to formal social protection, reflecting a broader pattern of labor informality within climate and development project delivery models.

Wage levels, while providing supplemental income to local community members, are not systematically benchmarked against living wage standards and lack transparency in determination. Social protection coverage, including health insurance, pensions, and unemployment protection, is largely absent, exposing workers to heightened vulnerability. There is limited evidence of formal occupational safety and health systems aligned with international standards, and there are no clear mechanisms for ensuring freedom of association or collective bargaining rights.

The project demonstrates the potential for carbon finance to deliver integrated climate, health, and gender-related benefits. However, it also highlights structural weaknesses in the integration of labor standards within voluntary carbon market governance. The project's emphasis on environmental performance and financial sustainability has not been matched by a commensurate institutionalization of labor rights, employment security, or social protection, which can have the unintended consequences of countering efforts to support women's participation. As a result, the project risks contributing to precarity, whereby local livelihoods become tied to climate-related investment mechanisms without adequate guarantees of rights-based employment. Strengthening the operationalization of labor safeguards, formalizing employment arrangements, embedding worker representation, and aligning project labor practices with labor standards would be necessary to ensure that the project contributes to a genuinely just and inclusive low-carbon transition.

GHANA

Ghana's carbon market, though smaller than Kenya's, has expanded tremendously in recent years. According to Ghana's Carbon Market Office, investments could exceed $1 billion by 2030, primarily through forestry (REDD+), clean cooking, and renewable energy-linked offset projects. Revenues are to be estimated in the tens of millions to hundreds of millions of dollars annually under scaled-up scenarios (based on current pricing), reflecting significant national value despite modest global scale. While precise project counts vary, Ghana hosts dozens of active and planned projects, predominantly in land-use and household energy sectors.[70]

Forestry projects dominate, with REDD+ initiatives covering large tracts of forest reserves. Notable examples include a forest restoration project, which directly engages over 100,000 participants in forest restoration, shea collection, and value-chain activities, indirectly engaging more than 500,000 community members; and a mangrove restoration project, that employs approximately 350 local workers in mangrove restoration and ecosystem management, with a strong emphasis on women's participation.[71] These projects generate carbon credits while creating seasonal and community-based forestry employment.

Similarly, Ghana has a stream of clean cooking interventions targeting the 78 percent of households still reliant on firewood or charcoal across the country. Key initiatives include three cookstove projects which respectively support roughly 300 jobs across production, distribution, and carbon monitoring; distribute approximately 100,000 high-efficiency stoves; and employ over 700 workers in manufacturing, sales, and maintenance.[72] In economic terms, the sector's contributions remain meaningful relative to Ghana's GDP. Although the carbon market does not yet represent a transformative share of national output (roughly 0.1–0.3 percent), the associated revenues and employment opportunities are significant for rural communities and project-level stakeholders.[73]

While these projects generate notable local employment, most work is informal or community-based, often lacking formal contracts, minimum wage guarantees, or social protection coverage. Like in Kenya, many workers are classified as "community participants" rather than as employees, limiting or denying the exercise of labor rights and access to pensions, health insurance, or unemployment benefits.

Carbon market governance in Ghana remains primarily environmentally oriented, meaning that the rules, oversight mechanisms, and decision-making processes are focused almost exclusively on achieving climate and environmental objectives, such as reducing deforestation, restoring degraded forests, or promoting clean energy—and therefore headed or oversighted through these direct ministries and departments.[74] **This environmental focus has resulted in limited integration of labor ministries, trade unions, or worker representatives into project design, implementation, or monitoring. As a consequence, opportunities for social dialogue, sectoral bargaining, and systematic enforcement of labor standards are lacking.** Workers and community participants have few channels to voice concerns, negotiate wages, access social protection, or secure safe and stable employment.

Consequently, while the carbon sector employs people in Ghana, the quality, security, and formal recognition of work fall short of decent work standards. Many positions are informal or seasonal, contracts are rare, and benefits are

[70] Albert Oppong-Ansah, "Ghana's carbon market to generate over $1 billion by 2030," Ghana News Agency, March 28, 2025, https://gna.org.gh/2025/03/ghanas-carbon-market-to-generate-over-1-billion-by-2030/

[71] Ghana Shea Landscape Emissions Reduction Project (GSLERP) Nears Completion of Environmental and Social Management Plan (ESMP), United Nations Development Programme (UNDP), March 26, 2025, https://www.undp.org/ghana/news/ghana-shea-landscape-emissions-reduction-project-gslerp-nears-completion-environmental-and-social-management-plan-esmp

[72] Spark+ | Envirofit Ghana Project ; Article 6.2 Clean Cookstove Project in Ghana Receives Gold Standard Certification ; Gyapa™ Cooking Stoves Project | Climate Impact and Socio-Economic Benefits | Relief International

[73] *Ghana's progress report on engagements in international carbon markets*: 2024 annual report, Environmental Protection Agency of Ghana, Ghana Carbon Market Office, March 2025, https://cmo.epa.gov.gh/wp-content/uploads/2025/03/2024-Annual-Progress-Report_final-version_21325.pdf

[74] Ministries and departments involved include the Ministry of Environment, Science, Technology and Innovation (MESTI) for policy and international climate negotiations; Forestry Commission for forest carbon project implementation; and EPA Ghana for environmental compliance and safeguards.

generally unavailable. Gender inclusion is sometimes promoted, especially in projects targeting women participants, but enforcement of labor rights and equitable pay remains inconsistent. In effect, even though Ghana's carbon projects may generate economic opportunities and environmental benefits, the governance framework prioritizes carbon outcomes over worker protections, limiting the sector's broader contribution to sustainable, inclusive development that aligns climate action with the realization of rights.

Ghana's labor market is characterized by a diverse yet structurally segmented employment landscape, reflecting both formal and informal economic activity. According to recent estimates, the country has a labor force of approximately 13–14 million individuals, with unemployment hovering around 4–5 percent at the national level, though underemployment and informal work are significantly higher. The workforce is heavily dominated by the services sector, which accounts for roughly 45 percent of employment and over 50 percent of national GDP, followed by agriculture at around 33 percent (20-25 percent of GDP), and industry at approximately 22 percent (around 25-30 percent of GDP).[75] Agriculture, largely subsistence and smallholder-based, remains a critical source of livelihoods, national food security, export revenue, and upstream industries, particularly in rural areas. Industry and services concentrate in urban centers such as Accra, Kumasi, and Takoradi. The economic contributions of all sectors are increasingly intertwined with environmental stability and labor resilience, as climate change disrupts productivity, alters seasonal employment patterns, and drives migration from rural to urban areas in search of alternative livelihoods. The resultant labor insecurity disproportionately affects women, youth, and workers in informal or precarious employment, highlighting gendered and generational vulnerabilities.

CARBON OFFSET PROJECTS AND LABOR DYNAMICS IN GHANA

According to the Ghana Carbon Markets Office and Designated National Authority, Ghana has progressively positioned carbon markets as a strategic instrument to address climate impacts while fostering socio-economic development.[76] Through policy frameworks, institutional arrangements, and legislative measures led by the Carbon Market Office under the Ministry of Environment, Science, Technology and Innovation (MESTI), the country has developed mechanisms to monetize greenhouse gas (GHG) reductions via forestry restoration, renewable energy deployment, clean cookstoves, and water purification initiatives. These markets are labor-intensive programs that generate employment across skill levels, integrating climate mitigation with local livelihoods.

In interviews, the Carbon Market Office described the view that carbon offset projects in Ghana impact the country's labor dynamics by creating diverse employment pathways. In forestry-based projects, for example, workers are engaged in tree planting, maintenance of reforested areas, agroforestry management, and carbon monitoring. Renewable energy and clean cookstove initiatives employ technicians, installers, and community mobilizers, while safe water projects create roles for field operatives, quality monitors, and local facilitators. These engagements range in quality and formality, providing income generation and pathways for skills development in climate-resilient sectors. Importantly, these opportunities often reach rural and marginalized populations with the aim of integrating climate action with local economic resilience.

However, while Ghana's carbon market landscape is among the most developed on the continent, informants described how it nonetheless falls short in ensuring comprehensive labor and worker rights. **Challenges include the prevalence of informal and temporary employment contracts, limited adherence to occupational safety standards, inadequate social protection coverage, and a lack of mechanisms for meaningful worker participation in project design and governance. These gaps risk undermining the potential socio-economic benefits of carbon market projects, particularly for rural and marginalized communities that are most reliant on climate-resilient employment opportunities.** Many carbon offset projects operate under short-term funding cycles or performance-based payment structures, which can exacerbate labor precarity. Field workers engaged in tree planting, stove distribution, or water infrastructure maintenance often lack formalized contracts, health insurance, or consistent income streams, making

[75] Ghana Statistical Service (GSS), 2024.

[76] A designated national authority (DNA) is the organization that a state designates to authorize and approve participation in carbon markets under Paris Agreement Article 6.4. DNAs assess potential Article 6.4 projects according to their ability to assist the host country in achieving its sustainable development goals, and provide approvals to project participants. https://unfccc.int/process-and-meetings/the-paris-agreement/article-64-mechanism/national-authorities

them vulnerable to economic shocks and occupational hazards. Moreover, gender disparities persist: Women, who form a significant portion of labor in agriculture and community-based climate interventions, often occupy informal, lower-paid roles, with limited access to training, leadership positions, or decision-making spaces.

GHANA CASE STUDY 1: A PALM OIL PROCESSING PROJECT

The first case study is a project which aims to modernize artisanal and small-scale palm oil processing centers by introducing cleaner, more energy-efficient technologies that capture methane from palm oil mill effluent, replace harmful fuel sources such as firewood and tires with biomass-based steam, and improve efficiency and workplace conditions. Carbon project developers see this initiative as aligning climate mitigation with productivity gains, reduced emissions, and improved health outcomes for workers and community members. Based on the project documents, the project designers expect the modernization of processing centers to reduce greenhouse gas emissions significantly, improve oil extraction rates, and generate co-benefits such as organic fertilizer production and reduced smoke exposure for workers.

A core aim of the program, according to the Carbon Market Office, is to modernize about 85 artisanal processing centers out of more than 1,000 across Ghana, addressing the significant inefficiencies and environmental harms associated with traditional methods. One carbon market expert explained how traditional mills often burn biomass and waste tires, generating excessive smoke and health hazards, especially for women workers, who comprise the majority of workers in these centers. The upgraded systems provided by the project are designed to reduce emissions, lower health risks, and raise extraction rates by over 18 percent, and in doing so would increase incomes for processors. While modernizing processing centers has clear technological and environmental advantages, the project's explicit documentation of employment outcomes is limited. The available literature does not specify exact figures for how many workers are directly employed within the modernized facilities, nor does it provide disaggregated data on job types, employment durations, wages, or formal employment status. Testimonials from renovated mills do suggest, however, improved working conditions with reduced smoke exposure and enhanced safety, reflecting a shift toward a healthier workplace environment.[77]

The project's governance structure combines international, national, and local actors. An international NGO provides coordination, a UN agency provides technical and financial oversight, and local processors manage day-to-day operations. A project report notes, "The governance model integrates technical expertise with local knowledge, ensuring that modernization efforts are tailored to the realities of Ghana's artisanal palm oil sector." Despite this, the project does not explicitly provide formal mechanisms for worker representation or participation in project governance, limiting opportunities for workers to influence decisions that affect their working conditions.

Women comprise the majority of workers in artisanal processing, and while improved working conditions benefit them directly, there is limited data on gender-disaggregated access to leadership and technical positions.

Community members have occasionally expressed reluctance to engage in modernization initiatives due to concerns about potential displacement of traditional livelihoods. As one community leader noted, "we fear that new technologies may replace traditional jobs, leaving some of us without income," underscoring the need for participatory engagement and livelihood-sensitive planning.[78]

While the project has reported compelling environmental and health benefits, broader structural challenges persist in Ghana's palm oil sector. Many artisanal processors work in informal, precarious arrangements, with limited access to finance or formal labor protections. As a project evaluation highlighted, efficiency gains without access to decent work and secure livelihoods were not sufficient benefits.

[77] Ghana Carbon Market Office, https://cmo.epa.gov.gh/

[78] Raymond Denteh, *"Modernising artisanal palm oil mills: A strategic imperative for economic stability and rural prosperity,"* Business & Financial Times Limited, November 10, 2025,https://thebftonline.com/2025/11/10/modernising-artisanal-palm-oil-mills-a-strategic-imperative-for-economic-stability-and-rural-prosperity/

GHANA CASE STUDY 2: ELECTRIFIED TRANSPORTATION

Ghana's transport sector is a critical driver of economic activity, yet it is also one of the largest contributors to greenhouse gas emissions and urban air pollution. Road transport accounts for more than 90 percent of passenger and freight movement, and the heavy reliance on imported second-hand vehicles has resulted in a fleet that is both inefficient and highly polluting. Congestion in Accra, Kumasi, and other urban centers compounds these challenges, leading to longer travel times, higher fuel consumption, and deteriorating air quality. The sector's dependence on fossil fuel imports further exposes the economy to global oil price volatility, straining both household budgets and national fiscal stability.

Against this backdrop, electrified transport projects seek to offer access to cleaner transport. One such project designs, locally assembles, and operates electric motorcycles, tricycles, and mini-cars for ride-hailing, courier, and delivery services. The project aims to accelerate the adoption of renewable energy in transport, reduce greenhouse gas emissions, and generate economic opportunities through job creation and skills development. Notably, the project has been developed as a carbon offset initiative in partnership with South Pole, a major Zurich-based global carbon finance consultancy and carbon project developer that designs, finances, and sells carbon offset projects and advisory services across voluntary and compliance carbon markets, and supported by a European energy agency under Article 6 of the Paris Agreement, positioning the project as both a climate mitigation effort and a platform for advancing sustainable economic development.

According to recent reports, the project employs approximately 52–64 staff across multiple cities, with over 60 percent of positions held by women, many in technical roles such as vehicle assembly, maintenance, and operations. Structured training initiatives, including partnerships with an internship program and a women in STEM training program, have provided young graduates with practical skills in electric vehicle (EV) maintenance, battery management, and fleet operations, supporting workforce development and local capacity building.

However, publicly available information does not provide full transparency on employment conditions, including wage levels, contract security, occupational health and safety, or social protection coverage. While the project's design emphasizes training and inclusion, there is no documented evidence of formal mechanisms for worker representation, collective bargaining, or structured social dialogue. The lack of required labor reporting increases the difficulty of monitoring carbon market projects that rely on workers to succeed.

According to local civil society organizations, while the project's governance structure facilitates scaling, innovation, and carbon finance credibility, it does not automatically ensure worker participation in decision-making. This pattern reflects a broader challenge in emerging sectors, where rapid progress on climate and technology objectives often outpaces the institutionalization of labor protections and social dialogue mechanisms.

GHANA CASE STUDY 3: REDD+ FOREST PROJECT

The third case study is a market-based carbon finance project focusing on addressing deforestation and forest degradation. The project is a public-private partnership aligned with Ghana's national REDD+ strategy. The project targets large forest landscapes in high-deforestation regions, with the stated objective of generating verified emissions reductions that can be monetized through carbon markets while simultaneously supporting sustainable livelihoods and forest governance reforms.

The direct and indirect impacts of deforestation disproportionately affect rural and forest-dependent populations, including loss of income, reduced access to medicinal plants and forest-based foods, the erosion of safety-net livelihoods for households that rely on forest resources during periods of agricultural stress, reduced water quality and availability, and heightened vulnerability to climate variability. These ecological changes translate into reduced agricultural productivity, food insecurity, and increased poverty risks. A substantial share of rural households in forest zones depend either partially or fully on forest-related activities for income and subsistence, meaning that forest loss directly undermines employment, household resilience, and community well-being.

Through the REDD+ carbon pathway, the project's stated goal is to bridge environmental and development gaps by creating financial incentives for forest protection and to transform forests into long-term economic assets rather than short-term sources of extractive income. The governance structure of the project reflects a multi-actor model characteristic of large-scale REDD+ initiatives. The Forestry Commission provides regulatory authority, forest management oversight, and alignment with national REDD+ frameworks. A multi-national company contributes financial resources, technical support, and integration into its corporate net-zero and nature-based solutions strategy. Additional actors include district assemblies, traditional authorities, civil society organizations, and community-based groups involved in local implementation, monitoring, and benefit-sharing arrangements. While this governance architecture enables coordination across scales, there remain concerns that decision-making power is often concentrated at institutional and corporate levels, rather than within forest-dependent communities themselves.

From a labor and decent work perspective, the project intersects deeply with rural employment systems that are predominantly informal and precarious. REDD+-related activities such as forest monitoring, nursery operations, tree planting, patrols, and sustainable agroforestry can generate local work opportunities. However, these roles are typically framed as community participation or project-based engagement rather than as formal employment relationships. As a result, many individuals are not seen as workers with enforceable labor rights and do not benefit from formal employment contracts, minimum wage protections, social security coverage, or occupational health and safety standards. **Workers are generally treated as beneficiaries with limited decisionmaking power.** There is limited evidence of formal mechanisms for freedom of association, collective bargaining, or structured social dialogue. This weak institutionalization of worker voice constrains the ability of forest workers and community participants to collectively negotiate working conditions, benefit-sharing arrangements, or grievance resolution processes.

The project also raises community land use and transition concerns without true community engagement and FPIC. Restrictions on deforestation and forest access, while environmentally necessary, can affect traditional livelihood strategies that depend on land clearing, fuel wood collection, or small-scale logging. Without robust transition planning, skills development, and alternative income pathways, such restrictions risk displacing informal rural labor without guaranteeing secure, decent, and mutually agreed-upon alternatives.

Overall, this project illustrates a broader governance disconnect. **While the project is well integrated into national and international climate frameworks and carbon market systems, labor standards, worker representation, and social protection mechanisms remain peripheral to project design and implementation. This separation enables emissions reductions and forest protection to proceed without systematically embedding labor rights and decent work principles.**

NIGERIA

Nigeria represents one of the largest projected carbon markets in Africa due to its population size, energy sector profile, and participation in the Africa Carbon Markets Initiative (ACMI).[79] Under ACMI and national carbon strategies, Nigeria aims to produce up to 30 million carbon credits annually by 2030, with projected revenues of approximately $500 million per year under favorable market conditions. This scale reflects both the country's potential emissions reduction opportunities and its broader economic ambitions in carbon finance.[80]

Nigeria's labor market is characterized by a large, rapidly expanding, and structurally segmented employment landscape, reflecting deep divisions between formal and informal economic activity. The country's labor force is estimated at over 80–90 million individuals—the largest in Africa—with workers concentrated in sectors like energy, manufacturing, construction, agriculture, and in the service sector.[81] Climate change has increasingly reshaped Nigeria's labor dynamics by altering seasonal employment patterns, reducing productivity in climate-sensitive sectors, and accelerating rural–urban migration in search of alternative livelihoods. These shifts have intensified labor insecurity, disproportionately affecting women, youth, and workers in precarious, low-wage employment.

As a response to the escalating impacts of climate change, Nigeria has increasingly engaged carbon markets and climate finance mechanisms through renewable energy, gas-flaring reduction, energy efficiency, clean cooking, and emerging nature-based solutions such as agroforestry and reforestation projects. Flagship programs such as the Nigerian Gas Flare Commercialization Program, afforestation and reforestation initiatives, and emerging agroforestry and carbon credit schemes have positioned carbon markets as instruments for both emissions reduction and socio-economic development.

Plans linking carbon and energy policy with gas-flaring commercialization—the capturing and selling of natural gas that would otherwise be burned off (flared) during oil production—have been projected to generate 100,000 jobs across engineering, construction, operations, and clean-fuel supply chains while supplying liquefied petroleum gas (LPG) to more than 1.4 million households.[82] Similarly, solar and other renewables present the potential for thousands of new jobs in installation and maintenance if deployment scales up. Because of this energy and technology orientation, employment in Nigeria's carbon market tends to be more skilled and semi-skilled, especially in areas such as renewable systems installation, grid integration, gas utilization infrastructure, and project management, compared with predominantly agroforestry or community-based models seen elsewhere.[83] **This creates greater potential for formal work arrangements and skills transfer, particularly when projects are structured as part of broader energy or infrastructure programs.** However, a large share of downstream labor remains informalized, especially in clean cooking distribution, cookstove assembly, local energy services and distribution networks of small-scale renewables, often operating on commission-based or casual employment models. Thus, many workers in Nigeria's evolving carbon value chains still lack formal employment contracts, social protection coverage, and access to labor rights such as unionization or collective bargaining.[84]

Nigeria's carbon market landscape is currently in an exploratory and nesting phase, reflecting a cautious yet deliberate effort to develop domestic carbon finance mechanisms. Pilot projects, capacity-building programs, and stakeholder consultations are underway to establish frameworks for measuring, reporting, and verifying GHG reductions. These initiatives are aligned with Nigeria's NDCs under the Paris Agreement and the country's broader climate policy

[79] Africa Carbon Markets Initiative *Roadmap report: Harnessing Africa's carbon markets potential,* 2022.

[80] Africa Carbon Markets Initiative, *Roadmap report: Harnessing Africa's carbon markets potential*, 2022.

[81] National Bureau of Statistics (NBS), 2024.

[82] Akpan, Udeme and Esiedesa, Obas, "NUPRC issues permit to 28 companies for flare gas utilization," December 12, 2025, https://www.vanguardngr.com/2025/12/nuprc-issues-permit-to-28-companies-for-flare-gas-utilization/

[83] Decentralized renewable energy: A jobs engine for Africa, Power for All.

[84] International Labour Organization, 2022.

framework, that emphasize sustainable land management, renewable energy deployment, and emissions reduction across key economic sectors.

At the policy and governance level, Nigeria has established multiple anchors to guide carbon market development, clarifying institutional responsibilities under the legal framework. The Ministry of Environment provides overarching climate policy direction and coordination, ensuring alignment with NDC targets and sustainable development goals. The National Council on Climate Change (NCCC) oversees policy implementation, sets carbon credit priorities, and approves large-scale climate initiatives. The National Environmental Standards and Regulations Enforcement Agency (NESREA) enforces environmental compliance and validates project eligibility under existing environmental and forestry legislation. The Nigerian Gas Flare Commercialization Program (NGFCP) Office, under the Department of Petroleum Resources, regulates flaring reduction projects, ensuring legal and technical compliance while enabling carbon credit monetization. Additionally, emerging Carbon Market Units or Designated National Authorities are tasked with MRV, carbon registry management, and accreditation of offset projects, providing a formal institutional mechanism for transparency and accountability. This governance structure defines clear roles: policy guidance and oversight by the Ministry of Environment and NCCC, compliance enforcement by NESREA, technical implementation and market facilitation by NGFCP, and registry and monitoring functions by the Designated National Authorities.

Nigeria recently passed policies and established administrative structures for a national MRV system and carbon registry focused almost entirely on environmental outcomes and investment facilitation. Nigeria's carbon market framework provides for the establishment of a carbon market oversight body designated as the Intergovernmental Committee on Carbon Market Activism, which will provide guidance and supervision for Nigeria's participation in international carbon markets. To date, there is no evidence that the oversight body will include a labor representative, though trade unions are recognized in the framework as part of the "carbon market ecosystem," while creation of jobs is part of the core vision.[85] **Importantly, weak integration of labor ministries, worker representatives, and trade unions into carbon project design, certification, or monitoring processes means limited opportunities for social dialogue, labor standards enforcement, and structured grievance mechanisms.**[86] For example, Nigeria's NCCC currently lacks a seat for organized labor, adding to barriers for worker participation. This evolving governance landscape, however, presents an opportunity for labor organizations and trade unions to engage early, helping to ensure that as the carbon market expands, jobs are formalized, workers' rights are protected, and employment outcomes align with ILO standards for decent work.

To realize the full potential of Nigeria's carbon market, strengthening labor governance is essential. This includes formalizing employment arrangements, embedding social protections, ensuring freedom of association and collective bargaining, creating mechanisms for monitoring and reporting labor outcomes alongside environmental metrics, and formally including organized labor in the NCCC structure. By proactively involving labor ministries, trade unions, and other workers' organization representatives in policy and project development, Nigeria can transform its emerging carbon market into a model where economic growth, climate action, and decent work are mutually reinforcing.

NIGERIA CASE STUDY: RENEWABLE ENERGY MINI-GRIDS (SOLAR PV IN RURAL AREAS)

This section focuses on a type of voluntary offset project increasingly utilized in Nigeria. Nigeria has steadily deployed solar photovoltaic (PV) mini-grids in rural communities as part of a broader strategy to expand electricity access, reduce reliance on fossil fuels, and meet climate mitigation targets under the Paris Agreement as part of Nigeria's emission reductions in their conditional NDC target in energy. These projects fall under voluntary carbon markets governance with support through a combination of government programs, development finance institutions, and private-sector actors. The projects target off-grid areas where extending the national electricity grid is economically unfeasible. These initiatives create short- and medium-term employment opportunities, while contributing to skills development in Nigeria's emerging renewable energy sector.

[85] Nigeria: Carbon market framework, National Council on Climate Change, October 2025, https://csdevnet.org/wp-content/uploads/1-Nigerias-Carbon-Market-Framework_print-version_251031_031718.pdf

[86] International Labour Organization, 2015.

The construction and installation phases of solar PV mini-grids generate employment across multiple skill levels—from site preparation and foundation laying, to engineering and installation, electrical wiring, and grid integration. Upon completion, operational and maintenance activities provide employment opportunities in system monitoring, troubleshooting, billing, and customer service. Community-based roles, including local facilitators and administrative support, also emerge, particularly where mini-grid operators partner with local cooperatives or community organizations. Although there are longer-term operational positions, temporary and informal employment such as construction roles remain prevalent, limiting social protection and job security for many workers.

These projects can contribute to skills development and technical capacity building within rural communities. Training programs are frequently provided to operators, technicians, and community energy champions, equipping them with expertise in PV technology, system diagnostics, maintenance procedures, and energy management. Targeted efforts to include women and youth can help address vulnerabilities related to energy poverty and limited access to economic opportunities, providing pathways into the formal renewable energy labor market and enhancing the overall resilience of rural livelihoods.

Labor dynamics within mini-grid projects also reflect gendered patterns of participation. Women are often concentrated in administrative, billing, and community engagement roles, while they are underrepresented in technical positions requiring specialized training. Youth participation is notable in semi-skilled technical roles, offering the potential for longer-term career trajectories in Nigeria's growing renewable energy sector. Addressing these disparities through inclusive hiring practices, training, and certification programs is essential to maximize the social and economic impact of these projects.

Mini-grid projects provide a testing ground for embedding principles of decent work within climate interventions. While training, certification, and simple contracts are often provided, gaps remain in occupational health and safety, formalization of temporary labor, equitable remuneration, and structured avenues for worker participation. Strengthening labor governance through formal employment arrangements, occupational safety compliance, inclusive hiring policies, and structured skills development would significantly enhance the socio-economic impact of mini-grid projects. Incorporating local labor in decision-making processes also fosters community ownership, acceptance, and long-term sustainability of energy systems.

In sum, Nigeria's rural solar PV mini-grid projects illustrate the potential to integrate climate mitigation with socio-economic development. By generating employment across skill levels, promoting technical capacity, and supporting local livelihoods, these projects can contribute to both energy access and climate resilience. Realizing their full potential, however, requires systematic adherence to international core labor standards, formalization of employment, and inclusive practices. Through such measures, renewable energy interventions would be able to deliver sustainable electricity access while fostering equitable, resilient, and skills-enhancing employment opportunities in rural Nigeria.

SOUTH AFRICA

South Africa's carbon market operates within a distinct policy environment, shaped by the national carbon tax and compliance offset mechanisms. While the country hosts a smaller number of offset projects compared with Kenya, Nigeria, and Ghana, these initiatives are embedded in a more formalized industrial and regulatory context, reflecting South Africa's advanced energy sector and stronger labor institutions. Carbon market activity is concentrated in renewable energy, landfill gas, waste management, and industrial energy efficiency, with demand driven by compliance provisions under the carbon tax rather than predominantly voluntary markets.

South Africa demonstrates comparatively stronger alignment with freedom of association and collective bargaining in formal employment, but faces ongoing challenges in extending decent work standards to workers in informal and outsourced employment. South Africa's labor market is defined by exceptionally high unemployment and low employment absorption relative to comparable middle-income economies. As of early 2025, the official unemployment rate stood at approximately 32.9 percent, representing about 8.2 million unemployed people, while the expanded unemployment rate, which includes discouraged work-seekers, reached over 43 percent. The employment-to-population ratio remains in the range of 40–42 percent, highlighting the limited capacity of the economy to generate sufficient employment opportunities for the working-age population.[87] Youth unemployment among those aged 15–24 exceeds 58 percent, and unemployment among those aged 25–34 is estimated at around 38 percent.[88]

Formal sector employment has weakened in recent years. Between mid-2024 and mid-2025, the economy is estimated to have lost approximately 229,000 formal jobs, with notable declines in community and social services, manufacturing, trade, and construction. These trends reinforce the dual structure of South Africa's political economy, in which a relatively protected formal sector coexists with large-scale unemployment, informality, and precarious employment. This dualism entrenches inequality and limits upward mobility for youth, women, and historically marginalized communities, making labor market adjustment to climate change and climate policy particularly uneven and socially sensitive.[89]

Employment in South Africa is concentrated in the services sector, which accounts for the majority of formal employment and has been the main source of incremental job creation. Manufacturing, once a central pillar of industrial employment, has experienced long-term decline as a result of deindustrialization, global competition, infrastructure bottlenecks, and high energy costs. This erosion of industrial employment has weakened the economy's capacity to generate large-scale, labor-absorbing growth and has increased dependence on service-sector activities that are often less productive and more fragmented.[90] Agriculture, while declining in relative employment share, remains critical for rural livelihoods and food security and is characterized by high levels of seasonal, low-wage, and vulnerable employment. Construction employs approximately 1.2 million workers, equivalent to about 7–8 percent of total employment, and is marked by widespread subcontracting and informal arrangements that contribute to employment volatility and weaker labor protections.[91]

Mining and energy remain politically and economically significant despite employing a relatively small share of the total workforce. The coal value chain is estimated to employ between 120,000–200,000 workers, including approximately 80,000–82,000 in coal mining and a further 50,000 in coal-fired power generation.[92] Although coal-related activities

[87] Statistics South Africa, Republic of South Africa, 2025.

[88] Statistics South Africa, Republic of South Africa, 2025.

[89] Mawson, Nicola, "South Africa's job market crisis: 95,000 jobs lost," Independent Online (IOL), , 2025, https://iol.co.za/business/2025-06-24-south-africas-job-market-crisis-95000-jobs-lost/

[90] Bhorat, Haroon et al., "Understanding and Characterizing the Services Sector in South Africa: An Overview," DPRU Working Paper, Development Policy Research Unit, 2018, https://commerce.uct.ac.za/sites/default/files/content_migration/commerce_uct_ac_za/1093/files/DPRU%2520WP201803.pdf

[91] "The future of food and agriculture – Trends and challenges," Food and Agriculture Organization of the United Nations, 2017, https://openknowledge.fao.org/server/api/core/bitstreams/2e90c833-8e84-46f2-a675-ea2d7afa4e24/content

[92] Statistics South Africa, Republic of South Africa, 2025.

account for roughly 1 percent of formal employment nationally, **each coal job is estimated to support three to four additional jobs indirectly in local economies, meaning that mine and power plant closures can have substantial multiplier effects on regional employment and income, 93 creating high dependence on carbon-intensive activities**.[94] The transition to a low-carbon economy represents a major structural transformation for South Africa, with significant implications for employment and regional development. It is projected that around half of South Africa's coal-fired power plants will close over the next 10–15 years, implying significant displacement risks unless offset by proactive labor market and regional development policies.

Within this context, South Africa's carbon market governance is consequential to how impacted workers and communities experience shifts in energy generation and use. Projected revenues from South Africa's carbon market are modest relative to larger voluntary-market countries, but employment impacts are shaped by stronger labor institutions and higher baseline unionization rates than in other African contexts, though numbers still remain largely unavailable for each project. Higher-wage and specialized jobs in renewable energy implementation, landfill gas infrastructure, and industrial efficiency are generally formal, contract-based, and often covered by collective agreements, providing workers with regulated wages, workplace protections, and avenues for social dialogue.

Carbon market governance in South Africa benefits from established regulatory oversight, structured MRV processes, and compliance frameworks linked to the carbon tax, which help ensure environmental integrity and formal employment structures in many projects. Further contributing to carbon market governance, South Africa's Presidential Climate Commission (PCC) is a "tripartite plus" body that provides oversight and policy advice on how carbon pricing, trading, and offset mechanisms can be integrated into national climate strategies. Governance has been less effective at systematically addressing labor conditions in informal segments of the carbon value chain, highlighting the need for targeted policy interventions that integrate labor standards into carbon project design, monitoring, and benefit-sharing mechanisms. As such, **South Africa's carbon market, despite its smaller scale relative to peers, reflects a higher degree of institutionalization and formal labor protection, particularly in renewable and industrial sectors. Yet informal and contracted workers remain structurally excluded, indicating that additional efforts will be required to ensure that carbon market growth translates into inclusive, decent work outcomes across all segments of employment.**

SOUTH AFRICA CASE STUDY: WASTE MANAGEMENT PROJECT UNDER THE CLEAN DEVELOPMENT MECHANISM

The South Africa case study represents an important early example of municipal engagement with international carbon markets in South Africa and provides a useful case for assessing the labor implications of carbon offset mechanisms. This is the only project example in this study which is a compliance market project. Implemented by a municipal government under the CDM, the project combined waste management, methane capture, and renewable electricity generation across several major landfill sites. From a climate governance perspective, the project is regarded as innovative and institutionally significant. However, when assessed through a labor and decent work lens, the project reveals structural limitations typical of market-based climate interventions in delivering large-scale, inclusive, and secure employment outcomes.

The project was governed through a hybrid institutional arrangement, with the municipality as the project owner and proponent, operating under national oversight by South Africa's Designated National Authority and international oversight by the UNFCCC CDM Executive Board. Technical implementation relied heavily on private engineering firms and contractors responsible for gas extraction systems, electricity generation equipment, and ongoing technical services. Employment was heavily concentrated in the construction and installation phase, during which dozens of workers were employed in civil works, drilling, pipe installation, and mechanical and electrical installation. The outsourcing of key functions meant that employment relationships were fragmented across municipal employees and private contractors.

[93] Statistics South Africa, Republic of South Africa, 2025.

[94] "Facts and figures 2024: South Africa's mining industry," Minerals Council South Africa, 2024, https://www.mineralscouncil.org.za/all-categories?catid=18&id=2310%3Acomprehensive-facts-and-figures-2024&task=download.send&utm

Contracted jobs were predominantly temporary, fixed-term positions, offering limited employment security and no long-term career pathways. This pattern reflects a form of "project-based employment" that delivers short-term job creation but does not contribute to sustained labor benefits. This dual employment structure with significant subcontracted labor is characteristic of public–private climate infrastructure projects and tends to weaken labor protections, reduce union density and workers' representation, and create differentiated employment conditions within a single project. As a result, **while some workers, particularly those directly employed by the municipality, benefited from public-sector labor frameworks and stronger job security, many workers engaged through subcontracting were subject to temporary, project-based contracts with limited access to collective bargaining and employment benefits.** Publicly available information does not provide detailed data on unionization specific to the project. However, workers directly employed by the municipality were covered by established labor relations frameworks, where unions have significant presence. In contrast, contractor-employed workers, particularly in construction and technical installation, were likely subject to private-sector labor arrangements, where union coverage is typically lower and employment is more fragmented.

In the operational phase, the project supported a smaller, more stable workforce composed of technicians, engineers, plant operators, and environmental monitoring staff. These roles were more aligned with skills development objectives and offered relatively better employment conditions, including ongoing training in renewable energy systems, environmental compliance, and industrial safety. Nevertheless, the total number of long-term operational jobs was small, meaning that the project's contribution to stable, decent employment was limited in scale. This reinforces a key labor critique of carbon offset projects: while they may create high-quality technical jobs, they tend to do so for a relatively small, skilled segment of the labor force, leaving broader structural unemployment largely unaddressed.

Economically, the project represented a substantial municipal investment, with capital expenditure estimated at around R100 million (approximately USD $6.3 million at the time of publication) and ongoing revenue generated through electricity and carbon credit sales. At its peak, combined revenues were estimated at several million rand per month, and the project delivered electricity valued more than R170 million (USD $10.7 million) over its operational life. These financial flows constituted a meaningful injection into municipal finances and contributed to strengthening local waste management and energy service delivery capacity.

However, the translation of these financial benefits into sustained employment creation was limited. While the project improved municipal revenue streams and reduced emissions, the employment multiplier effects were relatively modest. This reflects a broader structural characteristic of many carbon offset and clean technology projects: they are capital-intensive and technologically sophisticated but not highly labor-absorbing. Consequently, although the project contributed to local economic activity and may have offered positive community impacts that could improve the lives of workers, it did not significantly alter local labor market dynamics or meaningfully address high levels of unemployment and labor market exclusion.

COMPARATIVE LABOR IMPLICATIONS ACROSS THE FOUR COUNTRIES

Across Kenya, Ghana, Nigeria, and South Africa, projected carbon revenues and asset values far exceed the scale, quality, and formalization of current employment outcomes. ACMI projections suggest that carbon market expansion could support up to 30 million jobs by 2030 and more than 110 million by 2050, assuming substantial domestic value capture, skills development, and alignment with national policies. In practice, however, these jobs are not on track to deliver decent work. Employment remains highly uneven, concentrated in low-wage, informal, and project-based roles. Even in projects that deliver additional non-employment benefits, such as clean water or improved access to electricity, the projects are often dependent on community labor contributions or generate local employment which is informal, often lacking formal contracts, minimum wage guarantees, or social protection coverage. South Africa demonstrates stronger institutionalization and formal employment in renewable energy, waste management, and industrial efficiency, yet workers in informal and subcontracted work remain unprotected.

The critical gap between carbon market growth and labor governance means that key pillars of decent work are not systematically embedded in carbon project design, MRV systems, or national carbon market frameworks. Much of the workforce operates without formal contracts, social protections, or meaningful avenues for collective bargaining. Even where formal jobs exist, such as in renewable energy or industrial efficiency projects, labor participation in project governance, MRV processes, and benefit-sharing decisions is often limited. The lack of coordination with labor ministries is common, and most countries lack formal engagement with unions and worker associations. While South Africa's PCC offers a good example of a formalized governance structure for social dialogue, it remains an outlier. Positive outcomes for impacted workers cannot be achieved without the intentional and meaningful inclusion of workers' organizations in carbon market governance.

Without deliberate interventions—including embedding labor standards into projects and MRV governance, formalizing employment arrangements, and actively integrating union representation, the rapid expansion of carbon markets risks reproducing a "green" variant of extractive development or carbon colonialism: significant financial flows and asset mobilization, but limited worker power, insecure livelihoods, and inadequate social protections. **To address this trajectory of extractivism, labor institutions must be integrated into carbon market planning and implementation, ensuring that employment growth is inclusive, rights-based, and aligned with decent work principles.**

KEY TAKEAWAYS

AND DISCUSSION OF FINDINGS

Credit: Jemal Countess

TAKEAWAY 1: WORKERS REMAIN EXCLUDED FROM CARBON MARKET GOVERNANCE, EVEN THOUGH THEIR LABOR IS CENTRAL TO CARBON CREDIT GENERATION.

Carbon market governance is frequently technocratic and shaped by interactions among governments, international standards bodies, and private investors. In particular, these governance deficits are situated within certification bodies, in national climate policymaking structures, and subsequently, in global policy negotiation spaces. While workers in Africa are critical to the production of the credits traded in carbon markets, they remain excluded from dominant carbon market architecture at all levels of carbon market governance—from international standards to project-level implementation.

National climate policymaking and governance lack adequate worker representation

Ministries of labor, trade unions, and other workers' organizations are often treated as marginal actors in carbon policy design and implementation. With the exception of South Africa, this study found a consistent lack of worker participation in national climate governance structures. In Kenya and Nigeria, for example, national climate multi-stakeholder bodies excluded workers' organizations from their composition, even though workers are directly impacted by climate policies.

This institutional exclusion weakens the capacity of workers to influence labor rights compliance, including wage structures, benefit-sharing arrangements, occupational safety standards, and grievance mechanisms within carbon projects. Despite the tripartite actors involved and the centrality of workers to carbon markets, there are no tripartite mechanisms for social dialogue embedded in their governance.

Nationally Determined Contributions (NDCs), particularly conditional NDCs reliant on carbon finance, function simultaneously as climate policy frameworks and labor market structuring instruments. When NDCs prioritize land use mitigation, renewable energy deployment, or conservation-based sequestration, they shape sectoral labor demand and influence the categories of workers incorporated into mitigation pathways. However, where NDC implementation strategies lack explicit integration of international labor standards and just transition principles, they may reinforce existing labor segmentation rather than promote decent work transformation. The ILO Guidelines for a Just Transition[95] underscore that climate policies must create decent jobs, ensure respect for fundamental rights at work, provide social protection, and promote social dialogue. Carbon-linked mitigation strategies that generate employment without securing these elements fall short of just transition benchmarks.

Workers' organizations are absent from global carbon market governance structures, including certification bodies

Certification standards function as *de facto* regulators of carbon market legitimacy, yet labor protections are not fully and consistently embedded as core, enforceable criteria within their approval frameworks. Certification bodies such as Verra, Gold Standard, and other voluntary standards institutions define the methodologies through which carbon credits are calculated, validated, and issued. These standards bodies effectively shape the conditions under which projects in Africa can access international buyers and define the rules of participation.

Workers are directly impacted by decisions made within these global structures, yet they have limited, if any, representation within governance structures. As one government negotiator shared, "Article 6 mechanisms prioritize emissions accounting and avoidance of double counting; labor rights are not explicitly embedded in Article 6 rules."

[95] Guidelines for a just transition towards environmentally sustainable economies and societies for all, ILO, 2015, https://www.ilo.org/sites/default/files/wcmsp5/groups/public/%40ed_emp/%40emp_ent/documents/publication/wcms_432859.pdf

Without the formal inclusion of representative workers' organizations in certification bodies' governance structures, workers will continue to be sidelined and exploited within carbon market systems.

TAKEAWAY 2: CARBON MARKET STRUCTURES, INSTITUTIONS, AND VERIFICATION AND MONITORING SYSTEMS CONTRIBUTE TO WEAKENING LABOR RIGHTS IN AFRICA.

Labor rights are weak, sidelined, and poorly enforced within carbon markets

The marginalization of labor reflects structural priorities embedded in market design. Carbon markets prioritize principles of environmental integrity and financial accountability. These principles are operationalized through standardized methodologies, third-party verification systems, and centralized registries. The architecture does not adequately embed binding obligations aligned with decent work principles, which encompass employment creation, rights at work, social protection, and social dialogue. As a result, there is a fundamental asymmetry: environmental integrity is institutionalized through detailed compliance systems, while compliance with international labor standards is largely neglected or deferred to national legal frameworks that may be unevenly enforced or under-resourced.

While domestic labor laws formally apply and some certification standards require compliance with ILO standards on paper, a critical gap in implementation and enforcement remains—specifically whether workers are seen as mandatory stakeholders in the project cycle, labor risks are fully assessed and mitigated, labor impacts are audited and enforceable, and ultimately, whether workers harmed by carbon projects have access to effective redress. As noted by Verra, "Labor rights scoping and assessment of projects is not required, even though the safeguards, risk assessment, and mitigation measures will address some elements to ensure the project does not negatively impact workers."[96] The lack of required labor reporting creates barriers for transparency and makes monitoring more difficult. Labor safeguards are often framed as co-benefits, social contributions, or optional safeguards, rather than as binding structural requirements. Enforcement is further hindered by the lack of labor expertise in verification processes and the lack of labor representation in governance structures. This creates a hierarchy of compliance: environmental criteria are mandatory and auditable; labor criteria are frequently discretionary or implicit and therefore variably enforced. Indeed, none of the case studies explicitly and fully embedded labor rights or standards in practice and reporting.

The structural omission of labor compliance within carbon market governance represents more than a regulatory gap; It reflects a deeper hierarchy of priorities in which financial flows are facilitated and environmental accounting is formalized, while labor protections are overlooked.

Fragmentation and misclassification at the project level obscures worker voice, weakens protections, and compounds marginalization

Many African economies are already characterized by high levels of precarious and informal employment. The fragmentation of employment relationships within carbon market projects further compounds and exploits this challenge. The study found that work was frequently mediated through contractors and subcontractors, diffusing employer responsibility. The layering of contractual relationships obscures accountability for compliance with national labor law. Subcontracting structures function as risk distribution mechanisms: they allow project developers to insulate themselves from direct employment obligations while preserving flexibility in response to market fluctuations. However, this flexibility often comes at the expense of workers' rights, security, and bargaining power.

Carbon projects frequently operate within these contexts without transforming underlying employment relations. Informal or short-term employment arrangements weaken union density and enable employers to avoid structured collective bargaining. The temporary and decentralized nature of employment in several carbon projects limits the practical realization of freedom of association. Workers may hesitate to organize due to fear of losing income opportunities, particularly in rural or economically marginalized contexts. Evidence from comparable carbon market interventions in Kenya indicates that community members and project workers may be reluctant to raise concerns or engage critically with project governance due to fears of losing access to employment or project-related benefits.

[96] VCS Program Details, 5.0, Verra, 2025.https://verra.org/programs/verified-carbon-standard/vcs-program-details/

This dynamic reflects structural power imbalances inherent in project-based labor arrangements, in which economic dependence constrains the ability to exercise voice. Even where national legal frameworks protect organizing rights, the structural conditions of employment may inhibit their exercise in practice.

Furthermore, some projects—especially in forestry and land-use initiatives mis-classify workers as "community participants" rather than formal employees, limiting the applicability of labor law protections relating to written contracts, minimum wage standards, occupational safety and health protections, and social security coverage. In several forestry and conservation initiatives, workers were compensated through stipends, allowances, or performance-based payments rather than formal wage contracts. This structure often excluded workers from contributory social security schemes and unemployment insurance systems.

Occupational safety and health conditions further illustrate this tension. Land-based carbon projects frequently involve physically demanding activities, including tree planting, firebreak construction, biomass handling, and forest patrol. Waste-to-energy and landfill methane projects expose workers to hazardous materials and unsafe environmental conditions. The absence of formal employment status constrains workers' access to social protection and reduces the enforceability of labor standards.

The study also indicates that women's participation is often concentrated in lower-paid, labor-intensive roles, particularly within clean cooking distribution networks and community-based conservation activities. Gender inclusion targets do not automatically translate into equitable wage structures or leadership representation. Where women are incorporated into carbon value chains primarily in precarious or low-remuneration roles, climate interventions risk reinforcing existing gendered labor segmentation.

The insights from this study's examination of carbon market projects in Africa underscore a critical tension: while the sector presents an opportunity to link climate mitigation with labor rights and economic development, the currently insufficient integration of labor standards and worker participation in governance limits its transformative potential. Addressing these challenges requires embedding decent work principles into carbon project design and implementation, and formalizing the participation of workers and their organizations in governance structures. This includes formalizing employment contracts, ensuring fair and equitable compensation, providing occupational safety and health protections, promoting gender equity, and establishing channels for social dialogue between project developers, workers, and communities. Ultimately, the effectiveness and sustainability of African carbon markets depend not only on the magnitude of greenhouse gas reductions achieved, but also on their ability to generate equitable, secure, and resilient employment.

TAKEAWAY 3: AS MARKET-BASED SYSTEMS, CARBON MARKETS REPRODUCE GLOBAL SUPPLY CHAIN INEQUALITIES.

Carbon markets must be understood as global value chains characterized by unequal value capture. High-value segments of the carbon economy—including standards-setting, accreditation, verification, registry management, and financial trading—are predominantly controlled by transnational institutions and firms. By contrast, labor-intensive segments—the work required to produce carbon credits, such as tree planting, conservation enforcement, waste sorting, and renewable energy installation—are localized within African economies. This segmentation reflects patterns commonly observed in global commodity chains, where intellectual property, rule-setting authority, and financial intermediation are concentrated at the top of the chain, while labor-intensive production occurs at its base. Within this structure, African workers contribute materially to carbon credit generation but exercise limited influence over price formation, governance standards, or revenue allocation. When certification regimes focus narrowly on quantifying emissions without parallel enforcement of labor standards, economic integration through carbon markets may deepen structural asymmetries. Environmental credibility becomes the passport to international markets, while labor conditions remain an afterthought. This dynamic could be likened to supply chain codes of conduct—while suppliers may be told to comply with labor laws, enforcement is deprioritized and weak.

Moreover, the competitive dynamics of carbon markets create structural incentives that can exert downward pressure on labor costs. Carbon credits, particularly within voluntary markets, compete on price. In contexts where labor constitutes a significant share of production costs, there may be implicit incentives to minimize wage expenditures, rely on short-term contracts, or externalize employment risks, treating workers as inputs, rather than as key stakeholders. This transfer of market risk downward to workers increases precarity. The political economy of carbon markets thus distributes risk asymmetrically: financial actors retain governance authority and portfolio diversification capacity, while workers absorb income volatility.

If current trajectories persist, carbon markets risk consolidating a model of carbon colonialism, in which African economies supply land, ecosystems, and labor as inputs into global mitigation value chains while higher-value functions and governance authority remain externalized. Such a configuration may reproduce dependency patterns within climate governance, limiting domestic value capture and the exercise of rights.

TAKEAWAY 4: CARBON MARKETS ARE OPAQUE, LIMITING INCLUSIVE DECISION-MAKING AND OVERSIGHT, AND LEAD TO A LACK OF TRANSPARENCY AND QUESTIONABLE BENEFITS.

The study identifies transparency deficits within carbon registries that reinforce imbalances in power and benefits. While registries provide detailed information on credit issuance, methodology application, and emissions reductions, they rarely disclose standardized data on wage structures, employment types, social protection coverage, or collective bargaining arrangements. Workers remain statistically invisible within carbon accounting systems. This invisibility has political consequences. Investors and buyers can claim climate responsibility through credit purchases without being required to demonstrate alignment with decent work benchmarks. The general absence of social reporting indicators reduces accountability and constrains the capacity of trade unions and other workers' organizations, labor ministries, and civil society groups to monitor compliance with labor and other human rights standards.

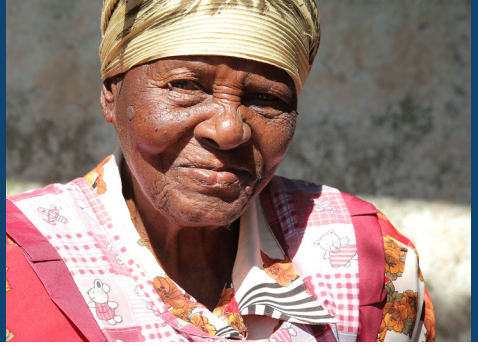
Moreover, the concentration of verification and accreditation expertise outside domestic institutions reinforces reliance on external verification actors. This reliance perpetuates a model in which technical authority and financial intermediation are externalized, while local actors perform implementation functions. This configuration consolidates control over knowledge production and validation within transnational institutions. It also restricts opportunities for domestic labor inspection bodies or trade unions to engage meaningfully in monitoring processes.

The implications for labor are significant. When rule-setting authority is externalized and labor standards are often not adequately embedded in certification criteria, workers have limited leverage to influence the conditions under which credits are generated. Even where national labor laws provide protections consistent with international labor standards, enforcement may be constrained by limited inspection resources, fragmented contractual arrangements, and worker misclassification. Certification bodies could, in theory, reinforce domestic labor standards by requiring demonstrable compliance as part of project validation and crediting verification. However, the study finds that such requirements are not systematically institutionalized.

This asymmetrical governance structure also shapes revenue distribution. Carbon credits generate financial flows, but the allocation of these revenues depends on contractual arrangements between project developers, intermediaries, communities, and governments. In several cases examined, benefit-sharing mechanisms lacked standardized transparency requirements. Where labor is compensated primarily through fixed stipends or short-term wages rather than profit-sharing or revenue-linked models, workers remain insulated from upward price movements in carbon markets while remaining exposed to downward volatility. This further entrenches unequal value distribution within the carbon chain.

Some evidence from the examples investigated points to stronger potential for revenue-sharing within compliance markets, such as the example of a municipality-led waste management project in South Africa. Under such a model, the public funding was more transparent and subject to accountability.

RECOMMENDATIONS



Credit: Jemal Countess

Based on the study findings and validated by labor leaders and experts, the following recommendations outline opportunities for improving governance and labor rights compliance in Africa's carbon markets.

RECOMMENDATION 1: EMBED ILO CORE CONVENTIONS INTO NATIONAL CARBON MARKET LEGISLATION AND REGIONAL AND INTERNATIONAL GOVERNANCE

National governments should integrate explicit reference to labor rights—specifically the ILO Core Conventions and the Decent Work Agenda—into domestic carbon market regulations, Article 6 implementation frameworks, and climate legislation.

The study demonstrates that labor protections are often assumed to fall under domestic labor law without being operationalized within carbon governance structures, including national carbon market regulations.[97] Voluntary carbon markets do not have a central regulator; nor do they have an international legal framework, resulting in a fragmented approach that has led to variations in methodologies and standards. This fragmentation weakens enforcement, creates ambiguity in project oversight, and can allow project implementers to circumvent labor protections. **Governments should therefore require that carbon project approval processes include documented evidence of compliance with national labor laws, which in turn must be aligned with international labor standards.** Labor inspection authorities should be formally integrated into carbon project accreditation procedures, ensuring that environmental validation is accompanied by labor compliance verification. Where labor inspection systems lack sufficient staffing and capacity, revenues from carbon credit sales could be directed to address capacity needs.

Furthermore, governments should align carbon project development with international standards for workers in the informal economy, such as ILO Recommendation No. 204 on the Transition from the Informal to the Formal Economy[98] by mandating formal employment contracts, social security registration, and occupational safety and health compliance for all workers engaged in carbon-related activities. Where community-based models are used, labor contributions that meet the legal definition of employment should be formally recognized as such to prevent the dilution of rights.

Regional bodies such as the African Union and the AU's regional groupings of African states, (Regional Economic Communities) should develop continental guidelines linking carbon markets explicitly to the ILO Decent Work Agenda and Just Transition frameworks. Such coordination would prevent regulatory fragmentation and strengthen Africa's bargaining position within global climate governance forums.

RECOMMENDATION 2: INSTITUTIONALIZE SOCIAL DIALOGUE WITHIN CARBON GOVERNANCE

National carbon governance frameworks should institutionalize structured social dialogue mechanisms involving governments, employers (project developers), and worker representatives in accordance with ILO Convention No. 144 on Tripartite Consultation.[99] Carbon market advisory boards and Article 6 implementation committees should formally include representation from trade unions and labor ministries as standing members, rather than treat them as ad hoc consultees.

The study identifies a governance gap in which environmental ministries dominate carbon oversight, while labor

[97] See, for example, The Climate Change (Carbon Markets) Regulations, 2024, Legal Notice 84 of 2024, (Kenya), https://new.kenyalaw.org/akn/ke/act/ln/2024/84/eng@2024-06-07

[98] Recommendation No. 204 concerning the transition from the informal to the formal economy, ILO, June 12, 2015, https://www.ilo.org/resource/other/ilc/104/recommendation-no-204-concerning-transition-informal-formal-economy

[99] Convention on Tripartite consultation (International Labour Standards, No. 144, ILO, 1976, https://normlex.ilo.org/dyn/nrmlx_en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C144

institutions remain peripheral. This technocratic configuration limits worker voice in decisions affecting critical issues, such as wages, benefit-sharing mechanisms, grievance procedures, and occupational safety standards. Institutionalized tripartite engagement would strengthen democratic legitimacy, improve policy coherence, and ensure that labor implications are systematically assessed during project design and approval. Additionally, carbon revenue allocation mechanisms should incorporate social dialogue, of which collective bargaining and negotiation are the strongest forms.

RECOMMENDATION 3: INTEGRATE DECENT WORK CRITERIA AND MEANINGFUL WORKER REPRESENTATION INTO ALL CERTIFICATION STANDARDS

Certification bodies and standards institutions play a decisive role in shaping carbon market governance and incentives. To address the structural asymmetry identified in this study, labor standards aligned with ILO conventions must be elevated from optional co-benefits to core certification requirements. Additionally, certification frameworks should, as a condition of credit verification, explicitly require meaningful consultation with workers and their representative organizations in stakeholder engagement processes and in the design of grievance mechanisms, labor assessments as part of the larger environmental and social assessment and risk management process, and an assessment of the enabling environment for labor rights compliance consistent with ILO fundamental principles and rights at work.

Just as with national governance systems, carbon market certification bodies should include the formal and meaningful participation of workers' organizations in their governance structures.

RECOMMENDATION 4: DEVELOP TRANSPARENT CARBON REGISTRIES WITH LABOR INDICATORS AND EFFECTIVE GRIEVANCE MECHANISMS

Project actors should support and advance national labor inspections, mandatory transparency and binding remediation commitments, and human rights due diligence, comparable in rigor to environmental and verification processes.[100] At a minimum, transparency and inspections should include information about: number of workers and employment type (permanent, temporary, subcontracted); social protection coverage; occupational safety and health systems; freedom of association and collective bargaining access; and non-discrimination policies and gender equity measures.

As the Commentary to principle 29 of the United Nations Guiding Principles on Business and Human Rights (UNGPs) emphasizes: "Operational-level grievance mechanisms can be important complements to wider stakeholder engagement and collective bargaining processes, but cannot substitute for either. They should not be used to undermine the role of legitimate trade unions in addressing labor-related disputes, nor to preclude access to judicial or other non-judicial grievance mechanisms."[101] To provide effective and accessible remedy to workers who may be harmed by carbon market projects, project-level grievance mechanisms should be informed by workers and explicitly benchmarked to UNGP, principle 31 *(see text box on next page)*.

Carbon registries should expand disclosure requirements to include standardized social indicators alongside emissions data. This transparency would enable investors, regulators, and civil society actors to evaluate whether credits align with decent work benchmarks. Embedding labor integrity within certification systems would address the imbalance in which environmental compliance is mandatory while labor compliance is discretionary.

[100] It is not recommended to tie certification compliance to social audits, which have a history of "social-washing" and harming workers' efforts to improve their workplaces. See for example https://www.somo.nl/audited-ethical-how-fashion-brands-mislead-consumers/

[101] Commentary to UNGP principle 29; United Nations, Guiding principles on business and human rights: Implementing the United Nations 'Protect, Respect and Remedy' Framework, United Nations Human Rights Office of the High Commissioner (OHCHR), 2011, https://www.ohchr.org/sites/default/files/documents/publications/guidingprinciplesbusinesshr_en.pdf

EFFECTIVENESS CRITERIA FOR NON-JUDICIAL GRIEVANCE MECHANISMS to ensure they provide access to remedy from the UN Guiding Principles on Business and Human Rights Principle 31.

LEGITIMACY (it should enable the trust of stakeholders and requires independence from political influence and internal conflicts of interest);

ACCESSIBILITY (the mechanism should be known to all stakeholder groups and provides assistance to those who may face barriers to access, such as language, literacy, cost);

PREDICTABILITY (it should have clear and known procedures, indicative timeframes for each stage of the process, and a means of monitoring implementation);

EQUITABILITY/FAIRNESS (ensure that aggrieved parties can engage in a process on fair and equitable terms);

TRANSPARENCY (it must keep parties informed about its progress, and provide sufficient information about the mechanism's performance to build confidence in its effectiveness);

RIGHTS-COMPATIBILITY (it must ensure the outcomes and remedies with ILO core labor standards and internationally recognized human rights standards);

SOURCE OF CONTINUOUS LEARNING (it draws on relevant measures to identify lessons to improve the mechanism and prevent future grievances and harms); and

BASED ON ENGAGEMENT AND DIALOGUE (consults the stakeholder groups for whose use it is intended - e.g., workers - on its design and performance and focuses on dialogue as the means to address and resolve grievances).[102]

JUST TRANSITION
The International Trade Union Confederation (ITUC) outlines the following demands for a Just Transition:
"Just Transition plans should be co-created and negotiated with workers and their trade unions to provide and guarantee decent work, job security, training and skills development, and social protection for all workers affected by global warming and climate change policies. Adequate, informed, and ongoing consultation should take place with all relevant stakeholders. Plans must be fully financed and underpinned by the fundamental labor rights of freedom of association and collective bargaining, and facilitated through social dialogue between workers and their unions, employers and governments as established by the ILO 'Declaration on Fundamental Principles and Rights at Work'. Just Transition applies to all economic sectors, at all levels (company, sector, national and global) and to all workers (formal and informal, in existing and emerging sectors, marginalized and non-marginalized, including documented or undocumented migrants or refugees), in the Global North and South."

RECOMMENDATION 5: STRENGTHEN DOMESTIC INSTITUTIONAL CAPACITY

Labor ministries and inspection authorities require targeted capacity strengthening to oversee carbon-related sectors effectively. The study demonstrates that labor monitoring mechanisms are less systematized than environmental compliance structures within carbon market compliance systems, and the lack of enforcement means that even where certifications have labor standards they are not consistently realized. Dedicated funding streams from carbon revenues could support enhanced labor inspection capacity, occupational safety training programs, and union engagement initiatives. Labor ministries may require additional support to build the technical capacity to engage in carbon market governance and facilitate robust social dialogue.

In addition to formal labor inspection systems, workers are ultimately the best workplace monitors. When workers can freely join or form unions and raise concerns without fear of retaliation, workplaces are safer, and violations can be more quickly identified and remedied.

RECOMMENDATION 6: LINK CARBON MARKETS TO JUST TRANSITION STRATEGIES

Recognizing that a **just transition** must center the rights, needs, and participation of workers, carbon market expansion should be embedded within, and informed by, comprehensive just transition strategies aligned with the ILO Guidelines for a Just Transition towards Environmentally Sustainable Economies and Societies for All. Especially as carbon markets grow and overlap with economic and social transition and diversification plans, countries in Africa could stand to benefit from the significant financial flows, but without attention to just transition, they could exacerbate inequalities and create obstacles to broader achievement of just transition goals. This requires embedding workers' organizations as key social partners and moving beyond employment generation metrics to include qualitative labor indicators, and utilizing carbon markets revenues to support publicly-funded transitions and planning. Revenues can be earmarked for broader just transition initiatives.

Where carbon projects are integrated into broader industrial and employment policies, they should prioritize skills upgrading, long-term employment pathways, sectoral formalization, and the full exercise of freedom of association and collective bargaining rights. Training programs linked to carbon initiatives should emphasize transferable

[102] For additional information see ITUC, The United Nations "Protect, Respect, Remedy" Framework for Business and Human Rights and the United Nations Guiding Principles for Business and Human Rights: A Guide for Trade Unionists: https://www.ituc-csi.org/IMG/pdf/12-04-23_ruggie_background_fd.pdf; ITUC and IndustriALL, The UN Guiding Principles on Business and Human Rights and the human rights of workers to form or join trade unions and to bargain collectively, https://www.ituc-csi.org/IMG/pdf/12-11-22_ituc-industriall-ccc-uni_paper_on_due_diligence_and_foa.pdf#:~:text=Remedy%20is%20also%20the%20subject,bargaining%20is%20applied%2C%20there%20are

skills development, enabling workers to transition into higher-value roles within renewable energy, environmental management, and climate services sectors.

Social protection mechanisms must also be strengthened to buffer workers against carbon market volatility. Unemployment insurance programs, income stabilization funds, and portable social protection benefits would reduce the downward transfer of market risk identified in the study. Where carbon revenues are significant, a portion should be earmarked for social protection extension in affected communities as well as for just transition funds as determined through social dialogue.

RECOMMENDATION 7: ESTABLISH MEASURABLE LABOR INDICATORS WITHIN NDC IMPLEMENTATION

Nationally Determined Contributions (NDCs), particularly those relying on carbon finance, should incorporate measurable labor indicators aligned with the Decent Work framework, such as:

- Number and quality of jobs created, where "quality" of jobs is benchmarked against the pillars of the ILO Decent Work Agenda
- Rights-based formalization rates (with access to social protection and written contracts where applicable)
- Occupational safety and health compliance
- Gender equality in employment and wages
- Collective bargaining coverage

Embedding labor metrics within NDC reporting structures should be paired with formalizing the participation of organized labor into climate policymaking spaces, such as national climate change councils.

RECOMMENDATION 8: DEVELOP LABOR-SPECIFIC GUIDANCE AND PRINCIPLES FOR CARBON OFFSET PROJECTS

Standards bodies and governments should engage unions and other workers' organizations to develop labor-specific guidance and principles to protect workers in the carbon value chain. Guidance should apply to the full carbon project cycle—from design to monitoring and verification, and offer specific, required steps for project developers and implementers to adequately engage workers and their organizations as stakeholders in carbon offset projects.

IDEAS FOR FUTURE RESEARCH AND ACTION-ORIENTED SUPPORT

The limitation of data and research on workers in carbon markets reflects their limited visibility as actors in these mechanisms. This study is one step toward growing a robust understanding of the intersection of carbon markets, labor governance, and political economy in Africa. The identified structural labor rights and governance gaps within carbon market architecture can inform labor advocacy and action. To refine policy interventions, improve governance, and enhance the ability of workers' organizations to improve outcomes for impacted workers and communities, the following research and support will be crucial:

- **Strategic Research for Collective Bargaining:** Financial analysis to identify which actors or entities profit from carbon market supply chains, where the profits are directed, and how they are used.
- **Participatory Action Research:** Grassroots, sector-based research to better understand how workers experience carbon market projects from project design to the sale of credits. Research should provide insights into gender dimensions of carbon markets and support organizing, collective bargaining, and advocacy strategies.
- **Support for Worker Education and Organizing:** Capacity building support for unions and other workers' organizations to engage in carbon market processes, organize and represent impacted workers, and build relationships with other civil society groups advocating for improved governance and respect for rights within carbon markets.
- **Broader Comparative Analysis** to better understand which elements of carbon credit projects can be beneficial to workers and their communities, and how carbon markets can be utilized to create broad access to decent work, particularly for workers in the informal economy.

The study demonstrates that carbon markets are at a critical institutional juncture. They can evolve as mechanisms of narrow environmental accounting, or they can be reshaped into instruments of inclusive and equitable development. Embedding labor standards and robust labor rights and inclusion within carbon governance is not an auxiliary reform, it is a structural necessity. The impacts of carbon markets in Africa will ultimately depend on whether environmental integrity and labor integrity are treated as co-equal pillars of sustainable development. Only through deliberate institutional integration of decent work principles can carbon markets support a genuinely just transition.

ABOUT THIS RESEARCH

ANALYTIC FRAMEWORK, METHODOLOGY AND LIMITATIONS

Credit: USW

ANALYTIC FRAMEWORK

The methodology of this study was guided by its dual thematic focus on carbon offset projects and market governance, and the integration of labor and worker rights. The analytical framework was designed to capture both quantitative and qualitative dimensions of carbon markets, while foregrounding worker experiences, labor inclusion, and rights-based considerations.

The study includes descriptions and examples in four focus countries: Kenya, South Africa, Ghana, and Nigeria, selected for regional representation and their active engagement in voluntary, compliance-based, bilateral, and multilateral carbon market initiatives.

The study employed a rights-based and labor-centered analytical framework. The rights-based dimension drew explicitly from international labor standards, including the ILO Core Conventions on freedom of association, collective bargaining, elimination of forced and child labor, non-discrimination, and occupational safety. This was complemented by regional and national frameworks such as the African Charter on Human and Peoples' Rights (1981), the Paris Agreement (2015), and national legislation in Kenya, Nigeria, Ghana, and South Africa. Collectively, these instruments affirm principles of participation, accountability, transparency, equity, and non-discrimination in governance.

RESEARCH DESIGN

This study adopted a mixed-methods research design to capture the multifaceted relationship between carbon markets and labor rights in Africa. Through the integration of qualitative methods and case study development, the design enabled a broad understanding of how carbon offset projects and market governance intersect with workers' livelihoods and rights. The mixed-methods approach was particularly suited to the study's dual thematic focus.

On the qualitative side, the study relied exclusively on key informant interviews (KIIs) with a range of stakeholders to capture insights on carbon market operations and labor dynamics. Interviews were conducted with representatives from national unions, sectoral affiliates, global union federations, government officials, project developers, representatives of carbon standards, and representatives of civil society organizations to obtain perspectives on policy frameworks, governance structures, worker protections, and labor inclusion in carbon market initiatives.

While the study initially sought to conduct direct field-based consultations with workers to capture firsthand experiences of carbon market-linked employment, these efforts were not feasible. Many workers operate under precarious employment arrangements, informal contracts, or dependencies on project developers, creating a legitimate fear of reprisal or job loss if they spoke openly about working conditions. Given these constraints, direct consultations were deemed ethically and practically unviable. To ensure the safety and protection of workers, the study relied on KIIs with representatives from trade unions and other civil society organizations. These KIIs provided reliable insights into labor dynamics, governance arrangements, occupational safety, and benefit-sharing, while allowing the research to maintain strict ethical safeguards, including confidentiality, anonymity, and adherence to the do-no-harm principle. Union representatives offered collective perspectives on labor conditions, access to benefits and of worker representation, and inclusion in governance structures, while government and regulatory actors provided insights into policy implementation, compliance, and oversight of carbon market initiatives. Project developers and certifying bodies contributed knowledge on operational practices and employment arrangements. Through these interviews, the study was able to analyze how carbon markets shape employment conditions, the exercise of labor rights, and workers' participation in governance structures.

A comparative case study approach was central to the research design. The four countries were selected to reflect diverse carbon market contexts and labor regimes, ranging from forestry and REDD+ initiatives to renewable energy and agricultural offset schemes. This approach enabled cross-country and regional analysis, examining how national labor laws, union strength, and climate policies mediate the impacts of carbon markets on workers. By situating each case within its broader socio-economic and governance environment, the study was able to generate insights that are both context-specific and regionally relevant, offering lessons that can inform advocacy across Africa.

To ensure rigor and validity, the study employed triangulation and participatory validation. Findings from interviews, policy reviews, and secondary data sources were cross-verified for consistency, while a validation workshop with labor leaders and experts allowed interpretations to be tested against lived experiences. Ethical safeguards, including informed consent, confidentiality, and adherence to the do-no-harm principle, were embedded throughout the research process, ensuring the protection of participants and the integrity of the study.

The study employed a purposive and stratified sampling strategy designed to ensure that the perspectives of stakeholders with direct knowledge of labor dynamics in carbon market projects were adequately represented. Sampling was stratified by country and sector to ensure coverage of diverse carbon market contexts. The study focused on Kenya, Ghana, South Africa, and Nigeria, selected for their varying carbon market modalities, regulatory regimes, and labor governance frameworks. Within these countries, sectors such as forestry and REDD+ projects, renewable energy installations, e-mobility (electric cars), water projects, and agricultural carbon offset schemes were included to capture the breadth of labor arrangements across both large-scale, capital-intensive projects and smaller, community-based initiatives. To enhance inclusivity and representativeness, the sampling strategy incorporated intersectional considerations, deliberately including perspectives that reflect gender, youth, and marginalized groups. Collaboration with unions and relevant local organizations helped ensure that insights from workers in informal or precarious roles were reflected in the interviews with key informants. Finally, the sampling approach was iterative, allowing adjustments based on emerging insights to explore themes such as precarious employment, exclusion from governance structures, wage disparities, and opportunities for skill development in greater depth. This strategic and adaptive design strengthened the robustness of the evidence base while maintaining a focus on labor rights, worker agency, and equitable participation in Africa's carbon markets.

STUDY LIMITATIONS AND CONSIDERATIONS

While the study was designed to be rigorous and inclusive, several limitations must be acknowledged. First, the study faced constraints related to the availability and quality of labor data within carbon market projects. Employment statistics, wage records, and contract details are not consistently collected or disclosed by project developers and certifying bodies. This unevenness limited the scope for quantitative analysis and necessitated a heavier reliance on qualitative insights drawn from KIIs. Access to workers posed additional challenges. Many individuals employed under precarious or informal arrangements were reluctant to participate due to fears of reprisal or job insecurity. Despite the application of confidentiality safeguards, this hesitancy may have led to the under-representation of the most vulnerable groups, particularly women, youth, and workers in the informal economy whose experiences are often the most critical to understanding labor risks.

In addition, the dynamic nature of carbon market governance introduced significant temporal limitations for the study. International negotiations under Article 6 of the Paris Agreement, alongside evolving national climate change acts, continue to reshape the regulatory landscape in ways that directly affect both market operations and labor protections. As a result, the findings presented here reflect the state of governance at the time of research and may require updating as new rules, standards, and mechanisms are introduced. This challenge is particularly evident in light of the recent outcome at COP30 in Belém, where Parties agreed to develop a Just Transition Mechanism. Such developments underscore the fluidity of the policy environment and highlight the need for ongoing monitoring to ensure that labor rights remain embedded within emerging carbon market frameworks.

Equally important, while the comparative case study approach provided valuable insights, it cannot capture the full diversity of African carbon market experiences. The selection of Kenya, Ghana, South Africa, and Nigeria was strategic, yet other countries with emerging carbon initiatives such as Burkina Faso, Mozambique, and Sierra Leone may present distinct labor dynamics that fall outside the scope of this study. As such, the findings should be interpreted as illustrative rather than exhaustive.

Finally, a further limitation relates to varying levels of technical and institutional capacity outside of specialized experts to fully engage with the complex architecture of carbon markets. Carbon pricing mechanisms, offset methodologies, Article 6 frameworks, and certification standards involve highly technical concepts that remain relatively opaque outside of experts engaged in this work. In some contexts, limited access to specialized training and information constrained the depth of union engagement with carbon market governance processes. This may have affected the extent to which labor implications were fully articulated in KIIs, particularly in relation to project-level methodologies, financial flows, and monitoring, reporting, and verification systems.

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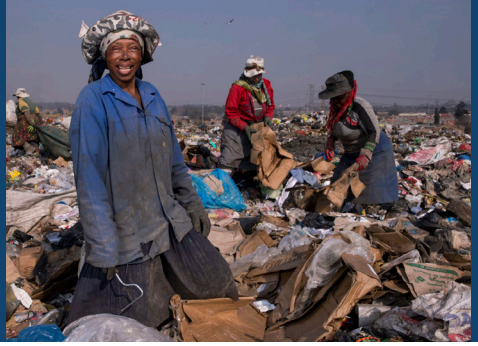

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