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Mainstreaming Gender in Pakistan's Carbon Markets: A Policy Roadmap for Equity and Climate Action

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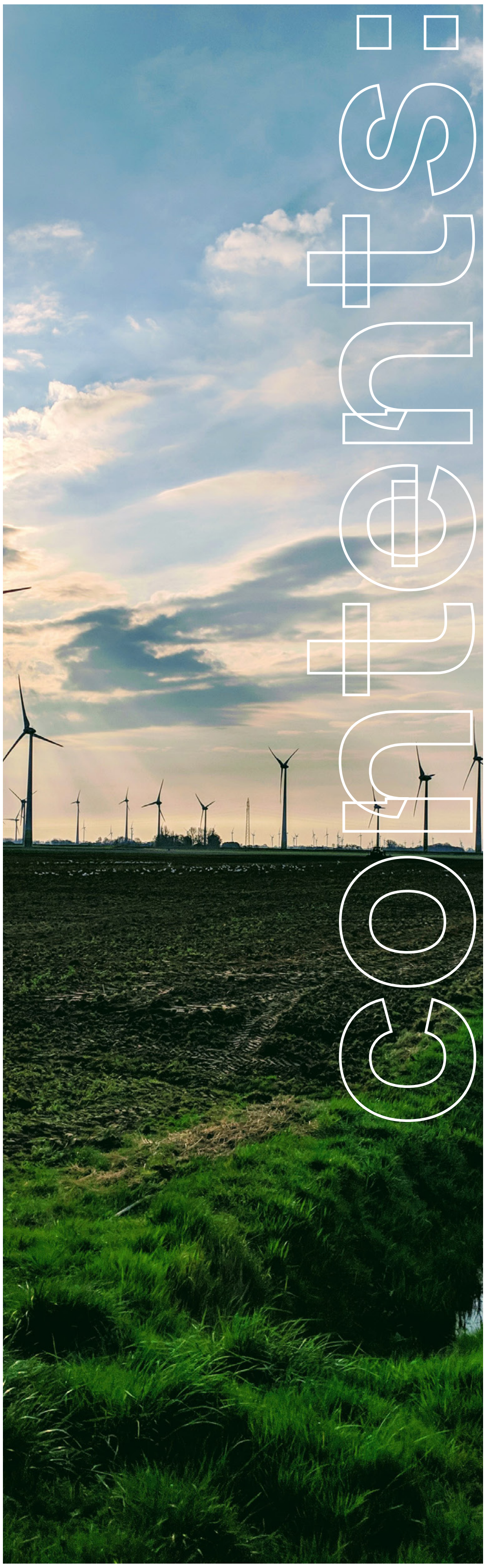
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Executive Summary

The gradual erosion of international climate finance, especially after the withdrawal of the USA from the Paris Agreement, has put prominent focus back on carbon markets as vital tools to enable countries and non-state entities to reduce emissions while supporting sustainable development.

By assigning monetary value to carbon reductions, these markets incentivize green investments in projects such as reforestation and renewable energy. As key mechanisms under the Paris Agreement's Article 6, carbon markets mobilize resources for climate action, contributing to sustainable development goals like poverty alleviation and environmental integrity. However, their effectiveness is hindered by inequities, particularly gender disparities. especially Women, who are disproportionate victims of climate change, representing 80% of those displaced by climate-related disasters[1]. Yet receiving only a fraction i.e. less than 10% of global climate finance. Therefore, pertinent questions around the carbon market mechanism as an equitable, integral tool remain.

The benefits of having a gender equitable carbon markets, one that enhances both their impact and profitability are immense. Gender-inclusive approaches empower women as leaders and beneficiaries in climate projects, improving adaptive capacities and creating economic opportunities. Evidence shows that carbon credits with gender equity certifications sell at a premium, demonstrating the economic value of inclusion. For South Asia, adopting gender-responsive strategies, such as clean cooking initiatives, micro-loans for sustainable livelihoods, and digital payment systems, can unlock co-benefits that strengthen community resilience and accelerate progress toward climate goals.

This policy paper is written with a focus on Pakistan. However, its key recommendations are valid for all South Asian policymakers. They should include mandating gender quotas in project staffing and benefit-sharing mechanisms, developing SDG-aligned pricing models to reward co-benefits, and investing in mobile-friendly carbon literacy programs for rural women. They should also incorporate a dedicated gender lens in their carbon market policies to harness the transformative potential of gender-inclusive carbon markets.

Introduction

In times of constrained climate finance, the role of market-based approaches such as carbon credits is quintessential. Carbon markets have become a pivotal mechanism in global climate action, as COP29 enshrined consensus on Article 6 of the Paris Agreement. However, the principles of climate justice require carbon markets to align with high integrity, high quality, greater equitability, and with multiple Sustainable Development Goals (SDGs) as co-benefits. These markets can potentially channel billions of dollars in climate finance annually. Yet, they expose a troubling paradox: women, who bear 80% of climate displacement impacts (UNEP, 2022)[2] and constitute 43% of the agricultural workforce in developing countries (FAO, 2021)[3], receive less than 10% of global climate finance (OECD, 2023)[4]. This disparity is perpetuated in carbon markets through gender-blind project designs that systematically exclude women from decision-making and benefit-sharing processes. In Pakistan, ranked as the 5th most vulnerable country (and 1st most vulnerable since 2022) to climate change (Germanwatch, 2025)[5], equitable climate finance is not just a necessity but a moral imperative. The country's new carbon market policy, unveiled at COP28, provides a framework for emissions reduction but fails to address critical gender gaps. While focusing on sectors such as energy and forestry, it overlooks the vital roles women play in managing resources and driving local solutions.

Women in Pakistan manage 70% of household water and fuel collection (Pakistan Social and Living Standards Measurement Survey) and demonstrate higher productivity on farms when provided equal resources—female-headed farms are 20% more productive (World Bank, 2020)[6]. Furthermore, existing carbon projects in Sindh's mangrove restoration show that outcomes improve by 35% when women lead monitoring efforts (IUCN Pakistan case study). However, structural barriers continue to exclude women. For instance, only 4% of women in Pakistan own land titles (Pakistan Bureau of Statistics)[7], disqualifying them from agroforestry carbon contracts. Additionally, women's loan rejection rates are 58% higher than men's (State Bank of Pakistan, 2022)[8], and a 34% gender gap in mobile phone ownership (GSMA, 2023)[9] limits their access to digital carbon payment platforms. These exclusions carry significant costs: they underutilize women's traditional ecological knowledge in forest conservation, reduce project effectiveness—gender-inclusive projects deliver two to four times higher returns on investment (UNDP, 2023)[10]—and miss synergies between SDG 5 (gender equality) and SDG 13 (climate action).

Regional examples highlight what Pakistan stands to gain by addressing these gaps. India's carbon credit-sharing model increased women's incomes by 30% (WRI, 2022)[11], while Kenya's blockchain-based payment system raised women's benefit share from 18% to 52%. As Pakistan prepares to submit the third iteration of its Nationally Determined Contributions (NDCs), integrating gender-responsive design into carbon markets could unlock an estimated $120 million in premium gender-certified credits (Climate Focus projection), empower 15 million rural women in climate-vulnerable regions, and accelerate progress on nine SDGs simultaneously.

Methodology

This policy brief employs a mixed-methods approach combining a comprehensive desk review and consultation discussions. The desk review synthesizes a wide range of peer-reviewed studies, institutional reports, and carbon market datasets from recent years, with a focus on verified gender co-benefits in South Asian contexts. Consultation discussions, organized by Sustainable Development Policy Institute (SDPI), involved engaging with experts and practitioners working in carbon markets and gender inclusion to gather practical insights and perspectives. This integrated methodology provides a solid foundation of evidence to support gender-responsive carbon market policies in Pakistan.

The Case for Gender-Inclusive Carbon Markets

Why gender matters

Women are pivotal environmental stewards, yet systemic barriers—such as limited land rights, financial exclusion, and unequal decision-making power—often lock them out of carbon market benefits. Closing this gap is not just a moral imperative but a strategic one, as evidence shows that gender-inclusive climate projects deliver superior environmental, social, and economic outcomes.

Research demonstrates that projects with active women's participation have a 64% higher success rate compared to those without (IUCN, 2020)[12]. This success is attributed to women's unique knowledge, community engagement skills, and commitment to sustainable resource management. Moreover, carbon credits certified with a gender focus command a premium price, selling for 78% higher than conventional credits (W+ Standard, 2021)[13]. This price differential reflects growing market recognition of the additional social and environmental value generated by gender-responsive projects.

Incorporating gender considerations is therefore not only a matter of social justice but also enhances project outcomes and economic returns. By empowering women and ensuring their equitable involvement, carbon credit initiatives become more sustainable, resilient, and impactful.

South Asian models

Across South Asia, diverse models are advancing women's empowerment in climate resilience and carbon-related projects by combining financial tools, technology, and leadership development.

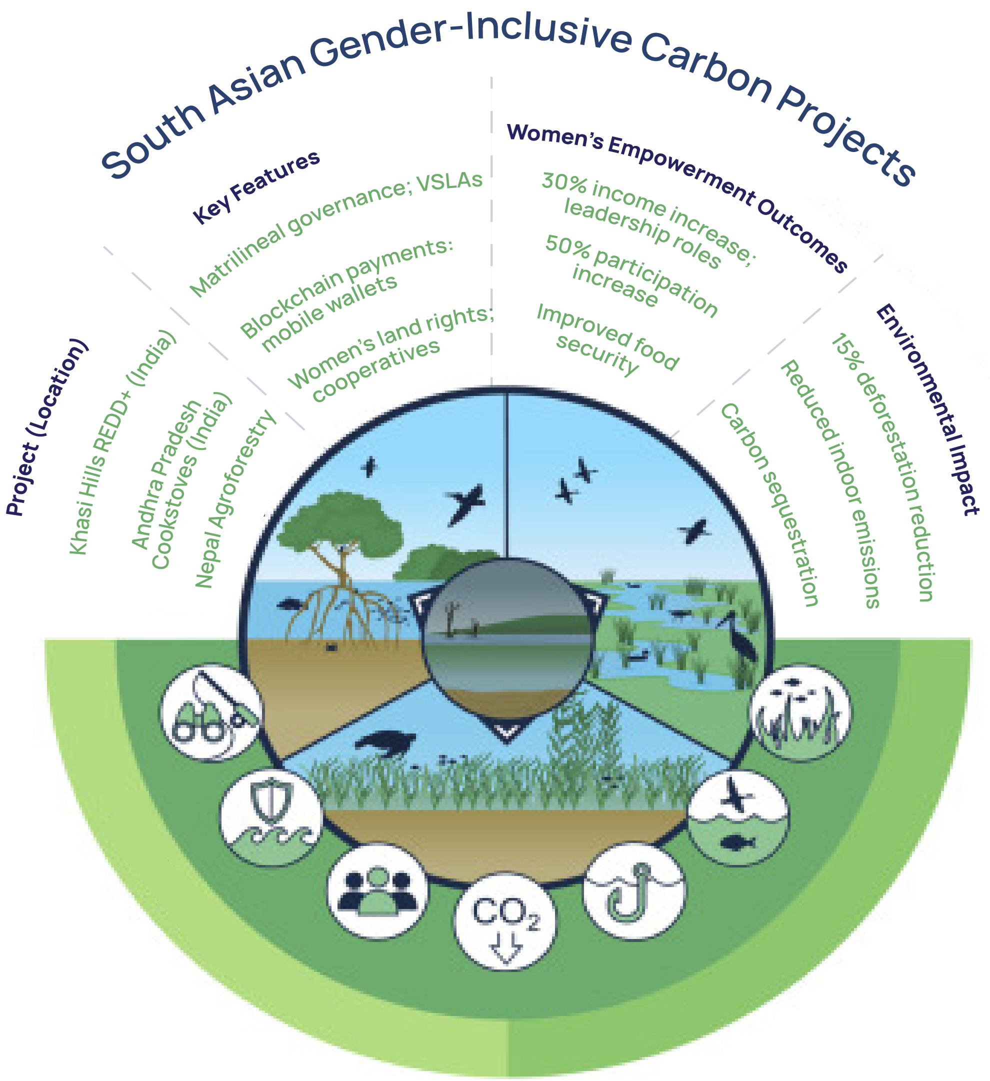
The Khasi Hills Community REDD+ Project in Meghalaya (India) is a pioneering example of a gender-responsive carbon credit initiative. Covering over 27,000 hectares of temperate forest, this project is managed by indigenous Khasi governance institutions, which operate under a matrilineal system where property rights pass through the mother's line. This cultural context supports women's leadership and economic empowerment within the project[14].

The project actively supports women-run microfinance institutions, such as Village Savings and Loan Associations (VSLAs), enabling women to pool small savings and access microloans for sustainable livelihoods like agroforestry and organic farming. This financial empowerment has contributed to a 30% increase in women's incomes while simultaneously reducing deforestation rates by approximately 15% (Plan Vivo Foundation, 2022)[15]. The project also distributes community development grants to villages—many managed by women's groups—funding health clinics, schools, and emergency funds that benefit entire communities[16].

Beyond financial benefits, women's participation in forest governance and decision-making has been linked to improved forest regeneration and watershed protection, reinforcing the project's environmental goals. The Khasi Hills project has become a model for integrating gender equality into REDD+ activities, influencing national and state-level policies in India (UNDP, 2020)[17].

In addition to traditional financial mechanisms, innovative technologies such as blockchain-based payment systems have been piloted in South Asia. Another prominent example is the clean cookstove projects in Andhra Pradesh (India). These systems ensure transparent and timely transfer of carbon revenues directly to women's mobile wallets, increasing women's participation by 50% and reducing payment delays by 90%, thereby enhancing financial inclusion and empowerment (Tanager, 2023)[18].

In Pakistan and other South Asian countries like Nepal, Sri Lanka, and Bangladesh, gender-responsive climate finance is emerging through policies and projects that prioritize women's participation in clean energy, agroforestry, and water management. Although fewer formal carbon credit projects exist in these countries, these initiatives provide important models for embedding gender equity in climate finance mechanisms and improving both social and environmental outcomes (ICIMOD, 2024)[19].



Carbon Market Projects with the Biggest Potential for Women's Empowerment

Carbon market projects can be designed to actively empower women by recognizing their roles, addressing barriers, and ensuring equitable participation and benefits. The following table summarizes key project types with high potential for advancing gender equality and women's empowerment:

Table : High-Potential Carbon Market Project Types for Women's

Project Type	Women's Roles & Contributions	Empowerment Potential	Recommendations
Forestry (REDD+, Reforestation, Afforestation)	Women engage in silviculture, gathering non-timber forest products, and other forest management tasks often overlooked.	Formal recognition and inclusion can increase women's employment, leadership, and benefit-sharing.	Support land rights for women; include women in governance; recognize women's unpaid forest work.
Agriculture (Agroforestry, Regenerative Farming)	Women make up ~40% of agricultural labor but face limited land ownership and resource access.	Projects can enhance women's access to land, training, and inputs, improving productivity and income.	Promote women's land tenure; provide gender-responsive training; reduce unpaid care burdens.
Blue Carbon (Mangrove Restoration)	Women lead mangrove planting and protection due to proximity and caregiving roles.	Engaging women strengthens ecosystem restoration and community resilience.	Facilitate women's leadership roles and equitable benefit-sharing in coastal projects.
Clean Cooking and Efficient Cookstoves	Women are primarily responsible for cooking and fuel collection, often facing health and time burdens.	Efficient stoves reduce time poverty and indoor pollution, enabling economic and educational opportunities.	Enable women's access to financing, digital payments, and training for clean cooking technologies.

Empowerment Barriers to Women's Participation in Pakistan

Barriers to women's participation in climate and carbon market initiatives in Pakistan are deeply rooted in structural inequalities, financial and informational gaps, and policy shortcomings.

Structural inequalities

Structural inequalities significantly limit women's ability to engage fully. Despite legal provisions, women's land ownership remains very low—studies show that only about 12% of women in South Asia own land, and in Pakistan the situation is even more constrained. For example, a survey in rural Punjab revealed that out of 1,000 women, only 36 possessed property rights, and a mere 9 could sell or trade property without male consent. This limited land ownership restricts women's access to a key productive asset essential for participating in agroforestry and carbon projects. Additionally, time poverty is a major barrier, with women spending 5 to 8 hours daily on unpaid care and domestic work, leaving little time for economic activities or participation in climate initiatives (UN Women Pakistan, 2023)[20].

Financial & informational gaps

Financial and informational gaps further hinder women's engagement. Women have 28% less access to credit compared to men, limiting their ability to invest in sustainable livelihoods or clean energy technologies (IFC, 2024)[21]. Moreover, awareness about carbon markets and opportunities is extremely low—a survey in Bangladesh found that 80% of women were unaware of carbon credits, a figure likely reflective of similar gaps in Pakistan and the region (ICIMOD, 2024)[19]. This lack of information and financial inclusion prevents women from benefiting from emerging carbon finance mechanisms.

Policy gaps

Policy gaps also undermine gender-responsive climate action. Pakistan's 2023 carbon market framework notably lacks a gender lens, with no explicit mandates or mechanisms to ensure women's participation or equitable benefit-sharing in carbon finance programs. This absence of gender integration in policy limits the potential for scaling women's involvement in climate mitigation and adaptation projects.

Addressing these barriers requires legal reforms to enforce women's land rights, targeted financial inclusion strategies, awareness campaigns on carbon markets, and mainstreaming gender in climate policies to create an enabling environment for women's meaningful participation.

Policy Recommendations for Gender-Inclusive Carbon Markets in Pakistan

A. Integrate Gender into Carbon Market Design

To ensure that carbon markets in Pakistan promote gender equality, policymakers should implement three key measures. First, mandating a minimum 30% women's participation in project staffing and benefit-sharing mechanisms would align with Pakistan's Climate Change Gender Action Plan (2022)[22]. This quota system would help overcome systemic exclusion while ensuring equitable access to opportunities.

Moreover, adopting gender-sensitive standards like the W+ Standard could effectively quantify women's empowerment co-benefits. This framework measures tangible outcomes such as time savings from clean cooking technologies and income growth from sustainable livelihoods, translating them into economic value within carbon credit pricing. Consequently, this approach would incentivize developers to prioritize gender inclusion while enabling buyers to support credits with verified social benefits.

For instance, evidence from South Asia demonstrates that gender-certified credits command prices up to 78% higher than conventional credits. This premium reflects their added social and environmental value, creating stronger market incentives for inclusive climate action.

B. Strengthen Financial and Digital Inclusion

Enhancing women's participation requires addressing financial and technological barriers through targeted interventions. Launching micro-loan schemes specifically for women-led clean energy and agroforestry projects would enable investments in renewable technologies and sustainable land use. In Pakistan, Access to loans or seed capital for women is often constrained by a lack of collateral assets, which is rooted in gender inequalities. Integrating gender-inclusive approaches into carbon markets can help overcome these barriers by providing accessible credit alongside capacity-building support, thereby fostering women's economic empowerment.

Furthermore, adopting blockchain and mobile wallet technologies could transform benefit distribution systems. Ethiopia's Fair Climate Fund demonstrates how direct digital transfers to women's mobile wallets increase financial inclusion while reducing intermediary costs. Similar models could be adapted for Pakistan's rural communities, where growing digital (smartphone) access creates opportunities for transparent revenue sharing in carbon projects.

C. Secure Land Rights and Labor Protections

Women's meaningful participation in carbon markets depends fundamentally on land tenure security. Policies must ensure equal rights to acquire, control, and transfer land, particularly in the forestry and agriculture sectors. For example, gender-inclusive land reforms have proven effective in increasing women's participation in forest conservation programs in similar contexts.

Institutionalizing women's participation in project governance structures is another critical step. By ensuring representation in community forest groups and project committees, women's perspectives can shape more equitable and effective interventions. This governance inclusion leads to fairer benefit-sharing arrangements and enhanced community resilience.

Additionally, recognizing women's unpaid labor in resource management remains essential. Formal valuation methodologies should account for activities like non-timber forest product collection to prevent economic exclusion. Simultaneously, Pakistan must develop gender-responsive labor laws to protect women working in carbon market sectors, ensuring equal pay and safe working conditions.

D. Build Capacity Through Targeted Education

Developing mobile-friendly carbon literacy programs would address critical knowledge gaps among rural women. These initiatives should deliver accessible, culturally appropriate content on carbon markets and climate action through digital platforms. Pakistan's successful Green Clubs model demonstrates how technology-enabled environmental education can empower women and girls in underserved areas.

Training women as carbon project auditors and managers would further strengthen their technical and leadership capacities. Recent initiatives in Sindh illustrate how climate literacy programs enable women to lead local resilience efforts while improving project transparency through enhanced monitoring skills.

E. Incentivize Gender-Responsive Investments

Creating financial incentives for gender-inclusive projects represents a powerful market mechanism. Research confirms that gender-responsive credits command significant price premiums, valued at approximately twelve dollars per tonne compared to seven dollars for standard credits. This market differential naturally encourages developers to integrate gender considerations more deeply.

Implementing robust gender impact verification through frameworks like the W+ Standard would provide the transparency needed to sustain investor confidence. By systematically documenting women's empowerment outcomes, Pakistan can attract greater private capital while advancing both climate goals and gender equality objectives.

Conclusion & Call to Action

Gender-inclusive carbon markets offer a win-win solution by simultaneously resolving three problems by strengthening climate resilience, reducing poverty, and promoting gender equity. By integrating women's leadership and equitable benefit-sharing into carbon finance mechanisms, these markets not only enhance environmental outcomes but also empower marginalized communities—particularly rural women who are disproportionately affected by climate change.

To fully harness the benefits of gender-inclusive carbon markets, Pakistan must urgently revise its carbon market policy to include explicit gender quotas, mandating at least 30% women's participation in project staffing and benefit-sharing, in line with the Climate Change Gender Action Plan (CCGAP, 2022)[22]. This will ensure women have meaningful roles in decision-making and equitable access to economic opportunities within the carbon market. Additionally, Pakistan should pilot women-led carbon projects in high-impact sectors such as clean energy and forestry, where women's involvement can drive both climate mitigation and socioeconomic empowerment, creating scalable models that attract premium investment.

Finally, forging partnerships with international certifiers like the Gold Standard and W+ Standard is crucial to validate gender co-benefits and attract green investment, as these certifications provide credible frameworks to measure and monetize women's empowerment outcomes, thereby increasing the market value of gender-inclusive carbon credits and drawing private sector capital. By adopting these measures, Pakistan can transform its emerging carbon market into a vehicle for sustainable development that uplifts women, strengthens communities, and accelerates climate action.

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