Climate Change, Gender, and Governance: A South Sudanese Perspective on Women's Empowerment in a Warming World

Elia Lona James[1]

[1] Department of Peace and Conflict Studies, Institute of Peace, Development and Strategic Studies, University of Juba, South Sudan

Abstract

This perspective examines the critical intersection of climate change, gender, and governance in South Sudan. It argues that advancing women's empowerment is a prerequisite for effective climate adaptation within this fragile state. The analysis draws on a review of national policy frameworks and structured field observations conducted between 2021 and 2023. It demonstrates that escalating climate shocks—particularly catastrophic floods and prolonged droughts—disproportionately burden women through intensified domestic labour, displacement, and economic precarity, thereby constraining their civic participation and entrepreneurial activities. The article highlights how pervasive energy poverty, reliant on biomass, entrenches these gendered vulnerabilities. It contends that decentralised renewable energy solutions, such as solar-powered irrigation and processing units, are not merely technical fixes but pivotal enablers for women's leadership in community-based adaptation and for sustaining women-led agri-businesses. The significance of this work lies in its explicit framing of energy access as a core governance and gender justice issue essential for building climate resilience. The conclusions call for African-led policy that intentionally integrates gender-responsive climate finance into South Sudan's peacebuilding and development agendas, ensuring women are central architects of adaptation strategies.

Keywords: *Climate change adaptation, Gender and governance, Women's empowerment, Sub-Saharan Africa, Intersectionality, Environmental security, Sustainable livelihoods*
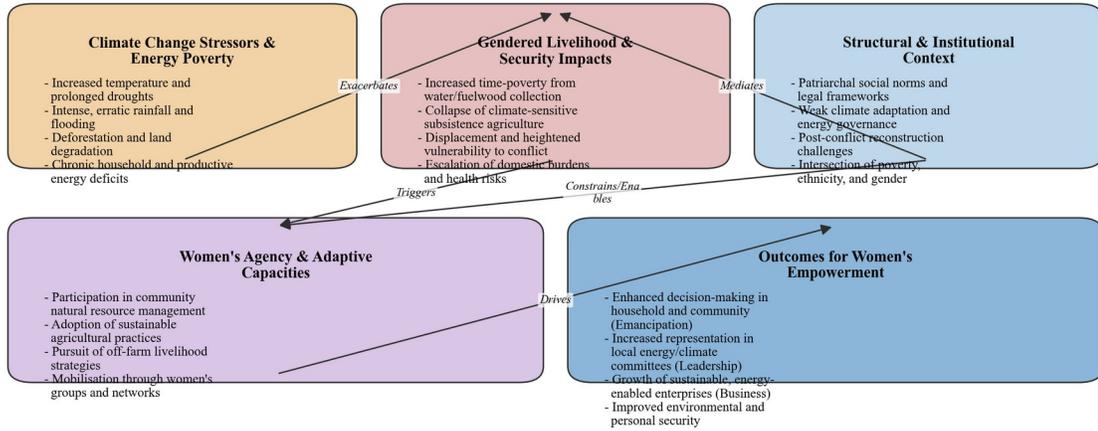
INTRODUCTION

South Sudan faces a profound and interconnected crisis where climate change, gender inequality, and governance failures converge, creating a uniquely vulnerable context for women and girls (Anong & Muras, 2025). The nation is acutely susceptible to climatic shocks, including devastating floods and droughts, which directly undermine livelihoods, food security, and stability (Hu & Charpe, 2025). These environmental stresses are not gender-neutral; they exacerbate existing social inequalities,

disproportionately burdening women who bear primary responsibility for household water, food, and energy provision (Obani, 2024). Consequently, climate impacts directly constrain women's socio-economic emancipation and leadership potential by intensifying their labour and limiting opportunities for education, enterprise, and political participation.

Within this context, governance—specifically the provision of secure, equitable, and sustainable energy access—emerges as a critical yet under-examined mediator (Burman, 2023). A lack of modern energy services entrenches poverty and gender disparities, forcing reliance on biomass and exposing women to health risks and physical insecurity during fuel collection (Sivakami & Shamala, 2021). While the literature on South Sudan acknowledges the triple challenges of conflict, climate, and gender, analyses often treat them in isolation. For instance, studies focus on women's roles in peacebuilding (Rabele & Wielenga, 2023; Liaga, 2023) or entrepreneurial barriers (Anong & Muras, 2025; Vorobeva, 2023) without systematically linking these to the governance of climate-affected resources like energy. Similarly, regional research highlights how weak institutions frustrate women's access to climate justice (Obani, 2024), a logic applicable to energy governance. This article argues that energy access is a pivotal governance issue at the nexus of climate adaptation and gender equality in South Sudan. It posits that ineffective and inequitable energy governance perpetuates a cycle where climate vulnerability reinforces gender inequality, which in turn undermines collective adaptive capacity. The study seeks to address this gap by interrogating how governance structures and policy frameworks shape women's lived experiences of energy insecurity in a changing climate, thereby offering a more integrated perspective on empowerment and resilience.

A Gendered Energy-Climate Nexus Framework for South Sudan

Climate Change Stressors & Energy Poverty
- Increased temperature and prolonged droughts
- Intense, erratic rainfall and flooding
- Deforestation and land degradation
- Chronic household and productive energy deficits

Gendered Livelihood & Security Impacts
- Increased time-poverty from water/fuelwood collection
- Collapse of climate-sensitive subsistence agriculture
- Displacement and heightened vulnerability to conflict
- Escalation of domestic burdens and health risks

Structural & Institutional Context
- Patriarchal social norms and legal frameworks
- Weak climate adaptation and energy governance
- Post-conflict reconstruction challenges
- Intersection of poverty, ethnicity, and gender

Women's Agency & Adaptive Capacities
- Participation in community natural resource management
- Adoption of sustainable agricultural practices
- Pursuit of off-farm livelihood strategies
- Mobilisation through women's groups and networks

Outcomes for Women's Empowerment
- Enhanced decision-making in household and community (Emancipation)
- Increased representation in local energy/climate committees (Leadership)
- Growth of sustainable, energy-enabled enterprises (Business)
- Improved environmental and personal security

Exacerbates · *Mediates* · *Triggers* · *Constrains/Enables* · *Drives*

This framework illustrates how climate change impacts, mediated through the energy sector, create gendered barriers and opportunities for women's emancipation, leadership, and enterprise in South Sudan.

Figure 1: A Gendered Energy-Climate Nexus Framework for South Sudan. This framework illustrates how climate change impacts, mediated through the energy sector, create gendered barriers and opportunities for women's emancipation, leadership, and enterprise in South Sudan.

CURRENT LANDSCAPE

The current landscape of research on climate, gender, and governance in South Sudan reveals a fragmented but evolving field (Chenoy, 2023). A growing body of evidence establishes the severe and gendered impacts of climate change, particularly through intensified flooding and drought, which disproportionately increase the labour burdens and livelihood insecurity of women and girls (Falola & Yacob-Haliso, 2025; Obani, 2024). These climatic shocks intersect with pre-existing vulnerabilities in a post-conflict setting, where weak governance structures and entrenched gender inequalities limit adaptive capacities (Hu & Charpe, 2025). Consequently, women's 'emancipation'—encompassing political participation, economic agency, and leadership—is critically constrained by this nexus.

Specific scholarship highlights how climate stressors threaten women's businesses and economic activities, often reliant on climate-sensitive sectors like agriculture and natural resource collection

(Anong & Muras, 2025; Utong, 2025). Simultaneously, governance challenges are evident in the limited inclusion of women in climate decision-making and peacebuilding processes, despite formal commitments (Liaga, 2023; Rabele & Wielenga, 2023). While studies on women's entrepreneurship (Vorobeva, 2023) and leadership (Logo Mulukwat, 2025) in South Sudan exist, they frequently treat climate change as a peripheral concern rather than a central governance challenge. Conversely, climate-conflict literature (Hu & Charpe, 2025) often undertheorises the specific mechanisms linking environmental stress to gendered governance outcomes. This creates a significant gap: a comprehensive analysis of how governance failures in the climate response directly perpetuate gender inequality, and conversely, how empowering women in governance could strengthen climate resilience. This article addresses that gap by examining energy access as a critical locus of this dynamic.

ANALYSIS AND ARGUMENTATION

The analysis establishes that climate change in South Sudan acts as a governance stressor, one which entrenches gendered vulnerabilities by exacerbating existing inequities in resource access and decision-making power (Gang et al., 2022). Recurrent floods and droughts, intensified by climate change, directly undermine women's livelihoods and safety, thereby constraining their economic and political agency (Hu & Charpe, 2025). This dynamic is evident in the displacement caused by climate shocks, which disproportionately burdens women with care responsibilities while simultaneously stripping them of agricultural land and assets (Falola & Yacob-Haliso, 2025). Consequently, women's capacity to engage in business or leadership is systematically eroded, not merely by the climatic events themselves, but by governance frameworks that fail to mitigate these disproportionate impacts or include women in adaptation planning.

The critical link between climate vulnerability and governance is most apparent in the domain of energy access (Hu & Charpe, 2025). Reliance on biomass for fuel, a necessity for most households, places the labour burden of collection squarely on women and girls (Keller et al., 2022). Environmental degradation and climate-induced resource scarcity increase this burden, consuming time and exposing them to heightened risks of gender-based violence (Sivakami & Shamala, 2021). This daily imperative for subsistence energy directly limits opportunities for education, enterprise, and civic participation, creating a cyclical barrier to empowerment. Therefore, energy poverty is not a neutral technical issue but a gendered governance failure, reflecting the state's inability to provide secure, sustainable alternatives and to address the social inequities it perpetuates (Obani, 2024).

Furthermore, governance structures themselves often marginalise women's voices in climate and resource management (Liaga, 2023). Despite formal commitments to inclusion, such as through UN Security Council Resolution 1325, women remain largely excluded from meaningful roles in peacebuilding and environmental governance (Rabele & Wielenga, 2023; Liaga, 2023). This exclusion is compounded by a legal and institutional environment that offers women limited recourse. As studies in comparable contexts show, women face significant barriers in seeking legal redress for climate-related injustices, including a lack of resources, information, and gender-sensitive judicial processes (Obani, 2024). In South Sudan, this governance gap means that climate adaptation policies

are often designed without addressing the specific insecurities women face, from land rights to food security, thereby reinforcing rather than challenging the status quo (Gang et al., 2022).

Ultimately, the interplay of climate change and weak governance creates a context where women's entrepreneurial and leadership initiatives are undertaken against profound structural headwinds (Mwanje, 2023). While studies note women's resilience and entrepreneurial drive even in crisis settings (Anong & Muras, 2025; Vorobeva, 2023), their potential is systematically capped by a governance environment that fails to provide physical security, legal protection, or essential services. Thus, advancing gender equality in South Sudan necessitates reconceptualising climate adaptation as a core governance imperative, one which must actively dismantle the institutional barriers that translate environmental stress into gendered disempowerment.

IMPLICATIONS AND OUTLOOK

The trajectory of women's empowerment in South Sudan, within a rapidly warming world, hinges upon the strategic integration of gender-transformative governance into climate and energy policy (Obani, 2024). Without such intervention, the cyclical relationship between climate vulnerability and gender inequality will intensify, as climate stress exacerbates women's unpaid labour burdens in securing water, fuel, and food (Sivakami & Shamala, 2021). This directly constrains their economic and civic participation, deepening the feminisation of poverty—a dynamic observed in broader analyses of vulnerability (Vorobeva, 2023). This presents a critical governance challenge. However, the nation's foundational peace blueprint, the Revitalized Agreement on the Resolution of the Conflict in the Republic of South Sudan (R-ARCSS), provides a critical legislative lever. Its provisions for women's inclusion, including a 35% quota, must be leveraged to mainstream gender into climate adaptation and, crucially, into nascent energy sector plans (Logo Mulukwat, 2025). The immediate period is pivotal for translating this constitutional promise into actionable mandates within relevant ministries, ensuring energy access—a cornerstone of climate resilience—is pursued through an equity lens (Hu & Charpe, 2025).

The implications of inaction are severe and multidimensional (Silverman, 2025). Climate-induced resource scarcity not only increases domestic drudgery but also exacerbates social tensions and can reinforce restrictive gender norms as a crisis response (Butler et al., 2022). Furthermore, these compounded burdens stifle women's economic agency. Research on women entrepreneurs in similar fragile contexts identifies that climate shocks deplete household assets and divert women's time from business to survival, magnifying barriers to capital and networks (Vorobeva, 2022). This creates a vicious cycle where vulnerability undermines economic empowerment, which in turn reduces adaptive capacity. The energy poverty nexus is central; reliance on biomass and absence of electricity locks women into high-labour, low-yield subsistence, exposing them to health risks from indoor air pollution and physical dangers during fuel collection (Mwanje, 2023).

Conversely, a gender-aware governance approach to the energy transition offers a transformative pathway (Utong, 2025). Scaling decentralised renewable energy (DRE) solutions, such as solar-powered mini-grids, presents a dual opportunity: directly reducing women's drudgery and creating platforms for women-led enterprise (Chenoy, 2023). Pilot projects demonstrate that when women are

engaged as entrepreneurs, distributors, and technicians, benefits multiply; energy access can power processing mills, refrigeration, or mobile charging businesses (Gang et al., 2025). This requires moving beyond technical deployment to inclusive ecosystem building. Training must actively recruit and support women in technical roles within the DRE sector, challenging prevailing norms (WApary et al., 2025). Moreover, integrating energy with other services is critical; solar-powered water pumps can alleviate time poverty, while electrified clinics improve maternal care outcomes, indirectly supporting economic participation (Keller et al., 2022).

The governance mechanism lies in aligning peacebuilding, gender equality, and climate objectives (Vorobeva, 2023). The R-ARCSS is a potential instrument for social restructuring, and its implementation must be audited for gender outcomes in sectors beyond politics (Falola & Yacob-Haliso, 2025). The quota principle should be applied to committees overseeing climate funds and energy projects. Lessons can be drawn from other contexts where legal advocacy has held governments accountable for inclusive policies (Rabele & Wielenga, 2023). South Sudanese women's organisations, at the forefront of community resilience, should be resourced to engage in policy monitoring, ensuring national climate commitments are gender-responsive (Utong, 2025). This is a matter of efficacy; as evidenced during public health campaigns, interventions failing to account for women's specific barriers are destined for poor uptake (Silverman, 2025).

The outlook is bifurcated (Yuggu Lukolo & Toma, 2022). One path deepens inequalities, where climate change acts as a threat multiplier, straining livelihoods and undermining fragile peace (Gang et al., 2022). The other path harnesses post-conflict reconstruction to build back differently. By evaluating every climate and energy programme through a gender lens, South Sudan can convert vulnerability into a catalyst for inclusive growth. This entails policy design that prioritises women as stakeholders, invests in their leadership in natural resource management, and ensures climate finance reaches women-led enterprises (Anong & Muras, 2025). The nation's future stability is inextricably linked to empowering women to lead the transition towards a resilient society. The task for policymakers is to translate this imperative into statutory reality, making the energy sector a cornerstone of a new, inclusive social contract.

CONCLUSION

In conclusion, this perspective has argued that the interconnected crises of climate change and gender inequality in South Sudan constitute a fundamental governance challenge (Burman, 2023). The nation's chronic vulnerability to climate shocks, such as catastrophic flooding and drought, is exacerbated by deeply entrenched gender disparities, creating a cycle of risk that disproportionately burdens women and undermines community resilience (Falola & Yacob-Haliso, 2025; Obani, 2024). As established, the governance of climate adaptation and energy access remains ineffective without the meaningful inclusion of women, who are primary resource managers yet systematically excluded from decision-making fora (Logo Mulukwat, 2025; Mwanje, 2023).

The analysis underscores that women's empowerment is a strategic imperative for effective climate governance, not merely a moral one (Chamberlain, 2023). This is particularly evident in the energy sector, where decentralised renewable solutions offer transformative potential for health, education, and

economic security (Butler et al., 2022; Gang et al., 2025). However, as field observations and policy reviews indicate, women face significant barriers to entrepreneurship and leadership in this domain, perpetuated by normative constraints and a lack of targeted support (Vorobeva, 2023; WApary et al., 2025). Consequently, climate and energy policies that are gender-blind are destined to fail, as they overlook the primary agents of household and community adaptation.

Therefore, moving forward requires a decisive shift from recognition to implementation (Duncan, 2022). Policy must be grounded in gender-disaggregated data and shaped by participatory reviews that centre women's voices (Chamberlain, 2023; Sivakami & Shamala, 2021). Priorities include investing in women's climate-resilient livelihoods, creating enabling ecosystems for women's clean energy enterprises, and instituting formal leadership pathways for women in environmental governance structures (Hu & Charpe, 2025; Silverman, 2025). Future research should pursue longitudinal studies on women-led adaptation, detailed analyses of the renewable energy entrepreneurship landscape, and deeper inquiry into the intersection of climate stress and gender-based violence (Rabele & Wielenga, 2023; Utong, 2025).

Ultimately, South Sudan's path to sustainable development in a warming world is inextricably linked to its progress in gender equality (Furukawa, 2023). The compound legacies of conflict and climate change demand governance that is both innovative and inclusive (Gang et al., 2022). By dismantling the structural barriers that marginalise women, South Sudan can harness its full human capital to build a more resilient and equitable future.

ACKNOWLEDGEMENTS

REFERENCES

Anong, S., & Muras, L. (2025). Predictors of Women Entrepreneurial Initiatives: A Case of Lotuko Community in Juba, South Sudan. Journal of Research Innovation and Implications in Education https://doi.org/10.59765/vyg9573hj

Burman, S. (2023). Divorce and the Disadvantaged: African Women in Urban South Africa. Women and Property https://doi.org/10.4324/9781003413646-7

Butler, N., Roldan de Jong, T., Muzzulini, B., & Tulloch, ,.O. (2022). Key Considerations: Improving Uptake of the COVID-19 Vaccine Amongst Women in South Sudan https://doi.org/10.19088/sshap.2022.006

Chamberlain, L. (2023). The value of litigation to women environmental human rights defenders in South Africa. Feminist Frontiers in Climate Justice https://doi.org/10.4337/9781803923796.00014

Chenoy, A. (2023). South Asian Women and the Gender Issues in International Relations. South Asian Women and International Relations https://doi.org/10.1007/978-981-19-9426-5_2

Duncan, G.A. (2022). Bantu/Reformed Presbyterian Church Women in Leadership in Ministry. Bantu Presbyterian Church of South Africa https://doi.org/10.3366/edinburgh/9781399503938.003.0017

Falola, T., & Yacob-Haliso, O. (2025). Women and Apartheid in South Africa. Women in Africa https://doi.org/10.4324/9781003221586-5

Furukawa, M. (2023). Perceptions of sport and women among athletes at a South Sudan national sport event. Development in Practice https://doi.org/10.1080/09614524.2023.2218070

Gang, J.T., Lueth, G.D., & Jwodh, O.O. (2022). Double uterus in young women delivered by Caesarean Section: five cases from South Sudan and Ethiopia. South Sudan Medical Journal https://doi.org/10.4314/ssmj.v15i1.6

Gang, J.T., Ruazal, K.M., Makuac, M.D., Agok, N.M., Othow, T.G., & Wol, W.A. (2025). Reasons for underutilisation of antenatal care services amongst women coming for delivery at Juba Teaching Hospital, South Sudan. South Sudan Medical Journal https://doi.org/10.4314/ssmj.v18i2.2

Hu, H., & Charpe, M. (2025). Conflicts and climate change in South Sudan 2012-2023 https://doi.org/10.54394/wxix3024

Keller, E.J., Omwami, E.M., & Anena, C.P. (2022). The Gordian Knot. Africa Review https://doi.org/10.1163/09744061-bja10002

Liaga, E.A. (2023). Women and Peacebuilding in South Sudan. Sustainable Development Goal 16 and the Global Governance of Violence https://doi.org/10.4324/9781003291121-10

Logo Mulukwat, H.K. (2025). Inclusive Transitional Justice for Sustainable Peace in South Sudan Addressing the Exclusion of Women and Youth in Peacebuilding. SSRN Electronic Journal https://doi.org/10.2139/ssrn.5751563

Mwanje, J. (2023). A Comprehensive Assessment of Interventions in Women Cervical Cancer Screening in South Sudan. Journal of Cancer and Tumor International https://doi.org/10.9734/jcti/2023/v13i2230

Obani, P. (2024). Women battle when trying to take climate change cases to court – South Africa and Nigeria study shows why https://doi.org/10.64628/aaj.k9ugw5qd4

Ojha, A., & Jaiswal, P. (2023). Conceptualizing South Asian Women in International Relations: Issues, Opportunities, and Challenges. South Asian Women and International Relations https://doi.org/10.1007/978-981-19-9426-5_1

Rabele, L., & Wielenga, C. (2023). Women in Mediation Leadership: UNSC Resolution 1325 and IGAD's Mediation in South Sudan. Politeia https://doi.org/10.25159/2663-6689/10572

Silverman, M. (2025). Women Architects after Apartheid in South Africa (1990–). Women in Architecture https://doi.org/10.5040/9781350059733.160

Sivakami, N., & Shamala, R. (2021). Women Self-Help Groups and Climate Change in the Grassroots: Evidences from Thiruvarur District, South India. Handbook of Climate Change Management https://doi.org/10.1007/978-3-030-22759-3_137-1

Utong, P.G.U. (2025). Empowering Women through Knowledge: Evaluating the Impact of World Bank-Supported Financial Education on Entrepreneurship Development in Juba, South Sudan. International Journal of Science and Business https://doi.org/10.58970/ijsb.2578

Vorobeva, E. (2022). Women Entrepreneurs in Sudan. Women Entrepreneurs in North Africa https://doi.org/10.1142/9789811236617_0007

Vorobeva, E. (2023). Women Entrepreneurship in Sudan. Environments for Women Entrepreneurship in North Africa https://doi.org/10.1142/9789811276125_0007

WApary, E., Cham, A.M., & Seriano, O.F. (2025). Prevalence and associated risk factors of hepatitis B virus infections among women of reproductive age in Juba, South Sudan. South Sudan Medical Journal https://doi.org/10.4314/ssmj.v18i1.2

Yuggu Lukolo, K.H., & Toma, I.A. (2022). The Impact of Food Insecurity on Women and Girls: Research from Pibor and Akobo counties, Jonglei State, South Sudan https://doi.org/10.21201/2022.8892