

Gendered Vulnerabilities and Resilience: Exploring the Intersection of Climate Change and Women's Empowerment in the MENA Region

Sihem Benrahou*

Abu Bakr Belkaid Tlemcen University- Algeria

Submission date: 21-03-2025

Acceptance date: 20-07-2025

Publication date: 01-09-2025

Abstract:

This study examines the gendered impacts of climate change in the MENA region, focusing on women's unique vulnerabilities and capacities for resilience. Drawing on qualitative analysis of interviews and focus groups with women across diverse communities, the research identifies three key findings: (1) structural inequalities significantly amplify women's climate risks; (2) traditional knowledge systems provide crucial adaptive resources; and (3) existing policy frameworks systematically underutilize women's leadership potential in climate adaptation. The methodology combines participatory research with policy analysis to bridge academic and practical perspectives. Results demonstrate that while restrictive gender norms heighten vulnerability, women consistently develop innovative coping strategies at both household and community levels. These findings challenge the passive-victim narratives prevalent in much of the existing literature. The study concludes by proposing a three-part policy framework: (1) gender-sensitive vulnerability assessments, (2) institutional channels for women's participation in climate governance, and (3) targeted investment in women-led adaptation initiatives. These recommendations are grounded in empirical evidence from the region and designed for practical implementation.

Keywords: *Gender; Climate change; Women's Empowerment; Policies; Strategies.*

* Corresponding author (sihem.benrahou@univ-tlemcen.dz); (strategic research and security studies laboratory).

© Sihem Benrahou - Creative Commons - Attribution-Non Commercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0)

Introduction:

Climate change and the empowerment of women represent two of the most pressing challenges on a global scale in the 21st century, occupying a prominent position on both development and sustainability agendas. The Middle East and North Africa (MENA) region is projected to be particularly susceptible to the adverse effects of climate change. The intricate and multifaceted nature of gender influences various vulnerabilities and resilience capabilities, which are significantly shaped by the socio-cultural, economic, and political contexts that characterize women's experiences throughout the MENA region¹.

Anticipated average increases in temperature across this area are likely to heighten the frequency and intensity of temperatures that frequently exceed 50 degrees Celsius during the summer months in many locales. Moreover, the region exhibits a notably uneven ecological distribution of water resources, housing some of the most water-scarce countries globally. It has been posited that one of the potential repercussions of climate change will be to exacerbate the existing water scarcity stress faced by numerous countries in the region, pushing them toward a considerably more acute scarcity crisis. The main research question of the paper is: How do gendered vulnerabilities and resilience capabilities in the MENA region shape women's ability to adapt to the impacts of climate change, particularly in the context of water scarcity and agricultural sustainability? key questions include:

- What role do socio-cultural norms and patriarchal structures play in exacerbating women's vulnerability to climate change in the MENA region?
- How do participatory approaches in policy-making and resilience-building programs enhance women's empowerment in the face of climate change?
- What are the key policy gaps in addressing the intersection of gender, climate change, and resource scarcity in the MENA region?

¹-Djoudi, H., Locatelli, B., Vaast, C., Asher, K., Brockhaus, M., and Basnett Sijapati, B. "Beyond dichotomies: Gender and intersecting inequalities in climate change studies." (2016). ncbi.nlm.nih.gov. Accessed January 12, 2025.

- How do successful case studies of women's empowerment programs in the MENA region provide scalable models for resilience-building in other contexts?

Several hypotheses guide this study; the principal one is:

Women in the MENA region experience disproportionate vulnerability to climate change due to socio-cultural norms and gendered roles, but participatory approaches in policy-making and resilience-building programs can significantly enhance their adaptive capacity and empowerment. The Secondary Hypotheses are :

- Socio-cultural norms and patriarchal structures in the MENA region limit women's access to resources and decision-making power, thereby increasing their vulnerability to climate change impacts.
- Programs that incorporate women's voices and participatory approaches in resilience-building efforts are more effective in addressing gendered vulnerabilities and promoting long-term adaptation.
- Policy frameworks in the MENA region currently lack sufficient gender-sensitive strategies, particularly in addressing water scarcity and agricultural sustainability, which disproportionately affect women.
- Case studies of successful women's empowerment programs in the MENA region demonstrate that scalable, gender-inclusive policies can improve resilience to climate change across similar contexts.

A thorough analysis will be conducted through the review of various documents, reports, and scholarly articles to establish the historical backdrop, social norms, and patriarchal structures that hinder women's empowerment. This investigation will not only arise from academic interests but will also aim to illuminate the ongoing challenges and struggles that women within the region confront. In light of these pressing issues, this study will highlight the deficiencies in current research and policy frameworks, accompanied by a forward-looking hypothesis designed to enhance women's participation and roles within resilience-building practices. Ultimately, a conceptual framework will be presented, offering a structured overview relevant to the discourse on gender, environmental challenges, and empowerment.

The research paper first gives an overview of gender roles in agriculture in the MENA region particularly with respect to agro-ecological determinants. Necessarily, water use is treated within a larger framework of the various constraints to the sustainability of agriculture, the dominant economic activity in the over 50% of MENA's population who are rural. Subsequently, a diversity of methodological approaches is taken from the seven countries, such as experts from intergovernmental organizations, local academia, officials, and policy makers, create a comprehensive the Middle Eastern views. Subsequently, the review analyses the most pressing policy implications that will affect women in the future. Six areas of policy and action are discussed: development policy, agricultural policy, energy policy, water policy, rural-urban migration, and the potential health effects of increasing herder's female livestock activities.

Section I: Climate Change Impacts in the MENA Region

Climate change is one of the major challenges facing the world in the twenty-first century, exerting a significant impact on the environment and societies. Within the MENA region, there are multiple environmental and socio-economic issues caused by climate change¹.

As the climate continues to change, the MENA region is affected by rising temperatures, which form a cycle of species extinction and environmental destruction; it is experiencing rising sea levels, a phenomenon that brings water scarcity to the riverine countries; extreme and ever-changing weather events are difficult to predict and prevent, leading to disasters for some communities. These and other such problems are the realities faced by communities in the region. These serious challenges induced by climate change have aggravated the vulnerabilities of the people who are already suffering from the consequences of socio-economic issues and wars².

¹-Wodon, Q. and Liverani, A. "Climate Change and Migration in the MENA Region: An Overview." (2014).

²-CARE. 2020. Evicted by Climate Change: Confronting the Gendered Impacts of Climate- Induced Displacement. Retrieved from: <https://careclimatechange.org/wp-content/uploads/2020/07/CARE-Climate-Migration-Report-v0.4.pdf>

The existing societal issues may derive from, or have increasing effects under climate change; gender inequalities in the political and economic spheres and in access to resources and information create gendered vulnerabilities in the face of climate change. Multiple empirical studies have shown that gender differences in terms of economic resources, access to information, and decision-making power have exposed women to a considerable disadvantage in preparing for, coping with, and recovering from the consequences of climate hazards. In terms of resources, women generally own fewer assets than men.

The situation is complicated by the gendered division of labor, which has confined women mainly to unpaid agricultural work in many rural communities. In terms of political participation and decision-making, women's representation in many MENA countries is very limited. It is difficult for women to access and manage state resources, as well as to adapt to changing climate conditions in local communities. For any of these reasons, the socio-economic consequences of climate change are expected to be severe for the women of the MENA region in comparison to their male counterparts. Women are particularly vulnerable in agriculture, health, and other sectors significantly affected by the changing climate.

Moreover, women experience the consequences of climate risks differently and seek different and often inappropriate coping strategies compared to men. Finally, women's gendered vulnerabilities to the consequences of climate change can force them to adopt extreme survival strategies, such as leaving their homes and families, which could have serious social stability implications.

Climate change is likely to have major consequences for gender relations in the MENA region. However, the social, economic, and political contexts embedded in local gender relations create adaptive capacities and strategies that differ between male and female populations and across various localities. As such, female vulnerability to changing climate conditions largely depends on highly contrasting local climate impacts. Understanding the local context of gender relations, as well as the characteristics of local impacts, is essential in designing appropriate interventions that strengthen the resilience of MENA communities to climate change.

1-Overview of Climate Change in the MENA Region

Since the 1970s, numerous countries throughout the Middle East and North Africa (MENA) region have been confronted with a worrying trend of declining precipitation rates alongside rising temperatures. This alarming situation is often exacerbated by the occurrence of heat waves, severe storms, or occurrences of excessive rainfall during specific seasons. The cumulative effects of these climatic changes have led to substantial desertification and significant degradation of crucial land and water resources across the region. In the last two decades, the frequency and intensity of drought events have notably increased, lengthening the durations of such conditions, which in turn have had severe implications for livelihoods, food security, community resilience, and overall economic sustainability in these areas.

In 2009, the region experienced particularly severe droughts affecting countries such as Syria, Iraq, and Iran, further illustrating the dire state of environmental changes. With continued population growth and rapid urbanization in these nations, predictions indicate an average rise in temperature of around 1.2°C already expected to occur by 2030.

The challenges facing this region are compounded by an existing status marked by acute water scarcity and mismanagement issues; according to the United Nations Environment Programme (UNEP), an astonishing 90% of the territory in the MENA region is classified as semi-arid. Furthermore, it is crucial to note that around three percent of the total global refugee population is currently hosted in MENA countries, including Turkey, Lebanon, and Jordan. Cumulatively, it is estimated that natural disasters have inflicted significant economic losses on the region, amounting to approximately 123 billion USD between the years 1970 and 2008, highlighting the urgent need for adaptive measures and sustainable management practices moving forward¹.

2-Specific Vulnerabilities Faced by Women

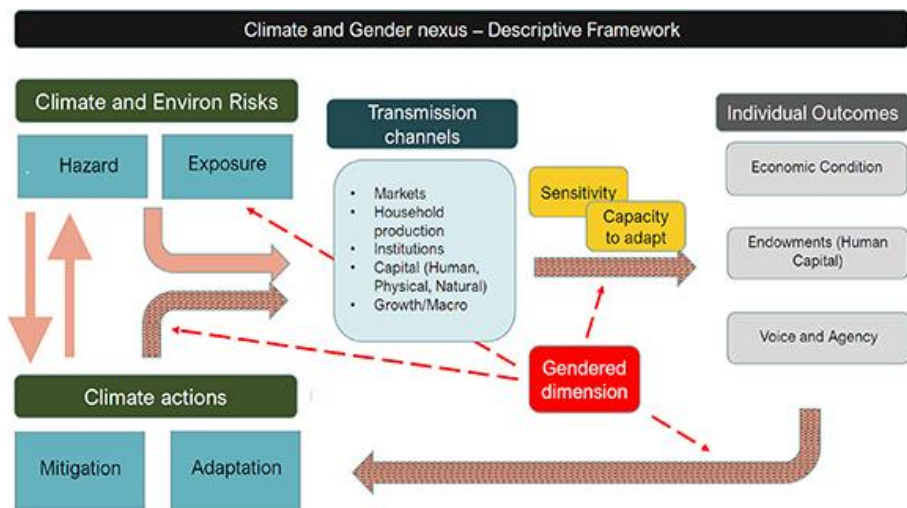
Gender is increasingly acknowledged as a critical variable influencing the spatial and temporal characteristics of vulnerability to the impacts of climate change. Individuals exhibit varying degrees of susceptibility to climate-related stressors across both local and global contexts; however, research indicates that marginalized and

¹-Wodon, Q. and Liverani, A. op; cit.

disadvantaged populations bear a disproportionate burden due to their diminished ability to anticipate, cope with, and withstand stress. Women, in particular, are recognized as one of the most vulnerable demographics, encountering heightened exposure to climate-related risks. On a global scale, within many cultures, the phenomenon of time poverty results in women dedicating excessive time to the collection of water and fuel, thereby experiencing significant repercussions as these resources grow scarcer. Furthermore, women historically possess limited access to education and financial resources, which undermines their ability to respond effectively when faced with emerging threats to their families¹.

Women are more susceptible to the effects of climate change than men because they have less access to resources and rehabilitation². Roles, responsibilities, decision-making processes, and opportunities also vary between men and women.

Figure 1 Climate and gender Nexus³



¹- Ngcamu, B. S. "Climate change effects on vulnerable populations in the Global South: a systematic review." *Natural Hazards* (2023). [springer.com](https://www.springer.com) accessed January 16, 2025

²- Dimitrov, B. G. (2019). Effects of climate change on women. *Res. Rev. Int. J. Multidis*, 4(5), pp 201-215.

³ - Anna Fruttero *et al.* (2024) *Environ. Res.: Climate* 3 045018 DOI 10.1088/2752-5295/ad8025

It is underscored that while efforts to enhance the well-being and status of women throughout the Arab region are underway, few adaptations have taken into account the disparate effects of environmental change on different genders. In order to devise an effective response, it is essential to investigate the gender-specific pathways through which the environment of affected areas responds and how these vulnerabilities may evolve over time.

This subsection will direct its attention to the MENA region, which has largely been overlooked, although certain areas, including Egypt, are confronting significant environmental threats, such as water scarcity, which may incite violent conflicts due to gendered responses resulting from climate change. While such gender norms can vary markedly from one nation, community, or household to another, it is vital to consider how these entrenched norms influence access to resources, decision-making processes, and environment-related information. Existing social and agricultural practices limit the adaptive flexibility of female farmers and present specific challenges attributable to gendered time allocation. Reports indicate that climate change modeling studies conducted in Egypt and Lebanon consistently reveal a decline in yields for major crops. Female farmers are particularly susceptible to these changes, as the division of labor within the agricultural sector imposes a substantial workload that is intensified by limited mechanization. The responsibility for harvesting crops primarily falls on women, who are fulfilling their traditional roles. In rural areas, women are particularly dependent on open-pollinated crops due to the practice of seed saving. Fluctuations in temperature and precipitation threaten the viability of these traditional landraces and, consequently, the availability of future planting materials. When women do gain access to improved varieties, these crops are vulnerable to pest infestations and cannot be retained for future planting, as doing so would breach patent ownership agreements¹.

¹- Sharma, Akriti, "Climate Change Instability and Gender Vulnerability in Nepal: A Case Study on the Himalayan Region" (2016). International Development, Community and Environment (IDCE). https://commons.clarku.edu/idce_masters_papers/37. accessed January 17, 2025

Section II: Women's Empowerment in the MENA Region

This section initially investigates the status of women's empowerment in the MENA region, highlighting both challenges and emergent opportunities. It critically assesses the socio-political landscapes that shape the rights and access to resources available to women, advocating for comprehensive policy reforms. A pronounced gender gap persists in the MENA region, where legal restrictions, cultural conventions, and economic inequalities hinder women's ability to attain equality with their male counterparts. Conversely, a diverse group of women also emerge as pivotal contributors to micro, transnational, and economic transformations that can unexpectedly facilitate advancements in policies often regarded as overly rigid for effective implementation¹.

1- Challenges and Opportunities

The empowerment of women is widely regarded as a crucial component in the development of resilience, particularly in light of women's pivotal roles in the management of natural resources across the Global South. Consequently, this paper elucidates the interplay between gender-specific vulnerabilities and resilience to the adversities induced by climate change, specifically focusing on women's empowerment within the Middle East and North Africa (MENA) region.

Through the examination of case studies relating to climatic disturbances and the associated social, political, and economic responses shaped by gender and socio-political contexts in four MENA countries, the research paper aims to illuminate the intricate relationships between vulnerability and resilience. The predominance of contexts marked by vulnerability, as well as instances of resilience in the face of socio-political challenges, is thoroughly illustrated. Moreover, a distinctive cycle of dis/empowerment appears to be emerging within the MENA region, underscoring the necessity of fostering resilience.

International frameworks and regional initiatives aimed at addressing gender and climate change could serve as viable foundations for empowerment initiatives. The discussion concludes with an

¹-Rao, N., Mishra, A., Prakash, A., Singh, C., Qaisrani, A., Poonacha, P., Vincent, K., and Bedelian, C. "A qualitative comparative analysis of women's agency and adaptive capacity in climate change hotspots in Asia and Africa." (2019) <https://core.ac.uk/download/237179143.pdf> accessed January 17, 2025.

exemplary case of effective women's empowerment programs that have been tailored to navigate such intricate and demanding environments¹.

2-Policy and Legal Frameworks

This subsection analyses the policy and legal frameworks governing gendered rights and empowerment in the MENA region. National and regional laws and frameworks geared towards enforcing and advancing gender equality are elaborated on, and a critique is devised based on the effectiveness of such agreements and gaps in implementation. It is noted that such frameworks and policies within the region have often been established based on societal and cultural norms

As well as ratified bylaw to uphold a level of commitment to women's protection².

However, de jure legislation does not always mean de facto conditions or results. Thus, aligning existing policies so that they adhere more closely to an international human rights standpoint is needed. Furthermore, in order for policy to hold more effectively on the ground as well as to be reflective of the real needs of women, ongoing advocacy and action from governmental and nongovernmental organization is required. It is with this intent that reforms can be advocated for and initiated to advance the legal guardianship and protection of women regarding climate matters³.

At present, little legal safeguarding from the perspective of climate change has been effectuated and the wider hopes are that reform will engulf broader climatic events as a result of this gap in legal

¹- Djoudi, H., Locatelli, B., Vaast, C., Asher, K., Brockhaus, M., and Basnett Sijapati, B. "Beyond dichotomies: Gender and intersecting inequalities in climate change studies." (2016). ncbi.nlm.nih.gov. Accessed January 12. 2025.

²-Blaydes, Lisa, Justin Gengler, and Noora Ahmed Lari. "Understanding cultural constraints to female labor force participation: How family dynamics influence women's employment in Qatar and the Arab Gulf states." *Association for Analytic Learning about Islam and Muslim societies*, available at: <https://aalims.org/wp-content/uploads/2021/04/Blaydes-Qatar-Women-Labor-Force-Participation-v5>. Pdf (2021). aalims.org accessed january 12. 2025.

³-Rao et al., op.cit.

processing¹. It is noted that presently, there are a limited number of countries within the MENA region that have established legislation or policies designed to strengthen the defense and resilience of women concerning climate-related issues. Subsequently, a comparative analysis is conducted on the legal frameworks and governmental support available in Morocco, Tunisia, and Jordan, serving as representative examples of the current legal landscape in this region. In conclusion, the necessity for a more cohesive approach to the protection of women is recommended, while ensuring that initiatives retain the flexibility to adapt to the particular regional and local circumstances, informed by ongoing research.

Section III: Intersectionality of Gender, Climate Change, and Women's Empowerment

Climate change is increasingly recognized as a phenomenon with severe and far-reaching social implications, while its intersection with gender and gender-based vulnerabilities has started to gain attention from researchers and policymakers over recent years. Particularly in the Middle East and North Africa (MENA) region, a wide range of intersecting societal transformations like rapid population growth, political and economic reforms, ongoing structural changes in employment patterns, and extremely scarce water resources, create a rather complex context in which gender-based vulnerabilities are in many cases exacerbated. Acknowledging that, gender-based vulnerabilities need to be investigated, especially in the context of female empowerment and related empowerment practices aimed at promoting resilience in the face of external stressors - here, climate change.

There is a growing body of literature that attends to the consideration of gender as an analytical category in climate change studies, offering a considerable range of perspectives and approaches. The current empirical evidence base on the gendered consequences of climate change mostly consists of multidisciplinary studies between natural and social sciences embracing diverse research contexts. These studies analyze local perceptions and experiences of climatic change and

¹-Giliberto, F. and Labadi, S. "Harnessing cultural heritage for sustainable development: an analysis of three internationally funded projects in MENA Countries." *International journal of heritage studies* (2022). [tandfonline.com](https://doi.org/10.1080/15393045.2022.2088888). Accessed January 18. 2025.

its impact; and subsequently develop methodical strategies and gender-sensitive policies or action plans to decrease climate-related risks. This phenomenon is commonly adopted under two dedicated theoretical frameworks: vulnerability analysis focusing on social differentiation and feminist political ecology. Despite a number of empirical studies that identify severe gender-differentiated vulnerabilities as well as adaptive strategies in a context-specific manner, there is a lack of understanding about the complex and dynamic nature of the vulnerability and adaptive capacity of diverse subgroups of women in the wider MENA region and, therefore the need for further research is apparent.

To deal with the lack of a nuanced understanding of the intersection of gendered vulnerabilities and resilience activities in the context of climate change, empirical insights are needed. Such consideration requires theoretical and methodological extension and innovation, in particular a stronger consideration of the wider social, economic, and political milieu of climate-induced change.

1- Theoretical Frameworks

There is a pressing need to examine the gendered vulnerabilities faced by women in the MENA region as a result of climate change, as well as their capacity to adapt and build resilience in a context of broader feminist, socio-economic, political, cultural, and religious transformations. Women across the MENA region are at the frontline of climate change and will experience its impacts differently from men. While the existing literature has examined climate change vulnerability and adaptation through the lenses of numerous theoretical frameworks, including feminist theories, notions of intersectionality, of resilience and vulnerability, and social justice paradigms, ecological and postcolonial perspectives, there remains a critical gap in the knowledge of the differential implications of climate change on women empowerment and disenfranchisement in the MENA region. The proposed article aims to contribute to filling this gap by exploring the ways in which the intersection of climate change and women's empowerment sheds critical

insights into the broader dynamics of resilience and vulnerability in the MENA region¹.

In feminist and ecological analyses, the focus is on social inequalities, while in feminist analyses social justice, structural changes, and the recognition of multiple voices in gender relations play a crucial role in exploring women's findings in relation to climate change². Concern about the potential impacts of anthropogenic climate change on both the society and natural world has grown dramatically in the past decade. Agro-pastoralists' traditional systems of knowledge have exposed them to extreme weather conditions, and for generations they have utilized this knowledge to adapt to emerging challenges. However, some factors are highlighted which serve to constrain the development of mechanisms to adapt to the changing climate variable in ways traditionally employed. This research paper advocates that policy and programs aiming to enhance adaptive capacity in agro-pastoralist communities should support the continued use and adaptation of locally based knowledge under the burgeoning challenges presented by climate change³.

2- Empirical Evidence

The intersectionality of gender, climate change and women's empowerment are illustrated by both quantitative data and qualitative evidence. Alarming figures reflect not only the overall higher likelihood of women to be affected by the consequences of a changing climate, but also their specific roles and potentials as agents of change. Yet the vulnerability of women is highly heterogeneous and deeply shaped by specific socio-economic and political determinants, such that experiences of vulnerability and coping strategies are likely to differ not only from men but also from women in other contexts. The following empirical evidence underlines the negotiated and strategic ways in which women

¹-Duenwald, Christoph, Yasser Abdih, Kerstin Gerling, Vahram Stepanyan, Abdullah Al-Hassan, Gareth Anderson, Anja Baum et al. *Feeling the heat: Adapting to climate change in the Middle East and Central Asia*. International Monetary Fund, 2022

²-Djoudi, H. et al., op.cit.

³-Sharifian, Abolfazl, Álvaro Fernández-Llamazares, Hussein T. Wario, Zsolt Molnár, and Mar Cabeza. "Dynamics of pastoral traditional ecological knowledge: a global state-of-the-art review." *Ecology and Society* 27, no. 1 (2022): 14. <https://doi.org/10.5751/ES-12918-270114>. accessed January 18. 2025.

navigate risks, often creating new forms of agency, while outlining the necessary steps to strengthen their resilience and adaptive capacities, as well as suggesting avenues for further research.

The quantitative data on non-monetary indicators of poverty highlight not only the greater vulnerability of women, which is confirmed across all countries in terms of almost all livelihood categories, but also the substantial inter-country differences, pointing to the unequal distribution of climate-related impacts among different groups of women. Qualitative insights from case studies conducted across several MENA countries provide a more nuanced picture of the lived experiences of women directly affected by climate variability and change. These show that local meanings of risks and vulnerabilities and adaptation options are deeply associated with the local social, political and biophysical context. In a mountainous area, for instance, women are perceived as being more vulnerable than men due to their disproportionately higher poverty rates, linked to a range of socio-economic and cultural factors and location in clearly more vulnerable areas across all domains, including physical, social, human and financial capital assets. In rural Palestine, on the other hand, women from farming backgrounds are not necessarily seen as more vulnerable because other factors associated with vulnerability are at least as strong among men, or may even be stronger¹.

Section IV: Case Studies and Best Practices

In the face of climate change, the existing vulnerabilities for many women are intensified, but they are not passive victims. Responses to climate change must be based on an understanding of the multiple contexts and what enables and constrains individual women and men, and their communities, to adapt. Building on a growing evidence base and the increased policy emphasis on women's empowerment and gender equality, these issues are explored in relation to political and economic exclusion, identity and culture in the Middle East and North Africa (MENA) region. Additionally, a collection of case studies showcases some of the best practices that are emerging regarding women's agency

¹ Daoud, M. "Is vulnerability to climate change gendered? And how? Insights from Egypt." *Regional Environmental Change* (2021). [springer.com](https://www.springer.com) accessed January 19, 2025.

and empowerment in the context of climate change in different parts of the MENA region.

All of these best practices are successful responses to the Multidisciplinary and Interdisciplinary Review of Existing Literature on Gendered Vulnerabilities and Resilience that was conducted as a Scoping Project for CARE in the MENA region, with particular reference to the themes and research gaps identified in the regional scoping exercise. This includes community-driven initiatives in Morocco and Egypt drawing on local knowledge and leadership that is building long-term resilience by addressing broader social and environmental challenges, as well as projects that are enhancing access to markets and income generation for vulnerable groups while ensuring that benefits from these actions are equitably distributed. These examples illustrate good practices emerging from the region and are considered both by the impacts of the projects and actions themselves, and with regards to the potential for scaling these up and out elsewhere in the region and beyond. On the leadership dimension, much of the most effective community-based adaptation, community resilience, and related development and social protection work has been seen to be most successful due to the proactive and rights-based leadership of women¹. Some of the best examples include the empowerment of young women's leadership, often mediated by mentoring relationships with more senior women, anticipating future social and environmental changes and adapting accordingly.

1-Success Stories

In the arid regions of Tunisia, drought is exacerbated by overgrazing which also accelerates land degradation. Many men have migrated to cities and women now need to walk considerable distances (5 to 7 km daily) to collect water. This situation called for the introduction of a systematic approach aimed at enabling women to acquire a degree of autonomy in addressing the various forms of physical violence as well as in responding to environmental and climatic challenges. The programme encompassed training and support for the establishment of women's income-generating activities. Agricultural fields were also allocated to these groups of women under the proviso the regionally pit would be

¹-McOmber, C., Audia, C., and Crowley, F. "Building resilience by challenging social norms: integrating a transformative approach within the BRACED consortia." (2019). ncbi.nlm.nih.gov

used for fruit tree planting in order to improve the microclimate. Participating women say that they first felt empowered after becoming involved in planning and managing the construction of a new cistern for rainwater. This was followed by the renovation of old cisterns for drizzle water. Upon realizing they could actually make a difference in their lives, and to the surprise of most of their husbands, these women then initiated tree planting in the villages for fruit trees. They also established alfalfa pastures to replace extensive grazing. Fences towards which men contributed their labor were constructed to avoid extensive grazing of these new plantations. A moderate degree of satisfaction among villagers was noted with the latter attribute training and tangible results as the foundations of the programme¹.

In the Nile Delta, salination is a common concern due to seawater intrusions into the groundwater caused by the rising sea level. The intrusion is expected to intensify with climate change. Women's groups have initiated a project that promotes sustainable agriculture in salinized areas. Trees bred to thrive in saline water were planted and women continue to take care of their growth. The groups also dug networks of channels and dikes to reuse treated wastewater and prevent its percolation into the underground. Women have assumed a leading role in organization and coordination related to these projects. Fields show a significant increase in vegetation greenness as a result of these actions.

2-Lessons Learned

Women's agency, voice and leadership are increasingly recognized as important in climate change and disaster risk reduction policies², yet women in the Middle East and North Africa are often overlooked in this regard. Dutch NGO Hivos has been working with local partners in the Middle East and North Africa region to empower women in climate action, through building on and scaling up successful strategies and methodologies. The partnership approach offers the opportunity to explore pathways, as well as challenges, which are highly relevant when the effectiveness of community-based adaptation as one of the three main responses to climate change is reviewed. Four case studies in the region (in Jordan, Egypt, Tunisia and Morocco) show that women's empowerment in climate action can bring about, or exacerbate,

¹ -Ibid.

² -McOmber, C., Audia, C., and Crowley, F. op.cit.

unintended consequences. An analysis reveals that while in most cases women contribute constructively to their communities' resilience, they may in some cases strengthen existing power asymmetries. The case studies also highlight the critical impact of the institutional and socio-political environment on the gendered outcomes of women's participation in climate action. In response to the analysis, Hivos piloted a power analysis, gender equality and women's empowerment assessment (PGEPA) in the Middle East and North Africa. The participatory tool helps assess the potential and recorded outcomes of women's participation in climate change projects and improve the overall understanding of the local context in terms of cultural, political and social structures. As is highlighted in the case studies, women's empowerment in climate action is complex and requires an in-depth understanding of multiple conditions and effects. Piloting PGEPA demonstrated that the results and recommendations generated by the tool can guide better the design of women's socio-environmental interventions and prevent potential negative or non-sustainable impacts. In the ongoing gender and women's rights debates around climate change, the outcomes of the case studies and the pilot of PGEPA may enrich understandings and policies on the intersections between gender, climate change, and disasters with a focus on collective action¹.

Section V: Building Resilience and Adaptation Strategies

Developing resilience and adaptation strategies is imperative for mitigating the threats posed by climate change to women, as well as the potential intensification of gender-specific vulnerabilities that may ensue. These strategies must adopt a comprehensive approach, integrating initiatives at both community and policy levels. While policy-level interventions are vital and advantageous for fostering a more gender-equitable society throughout the MENA region, it is equally essential to harmonize community-level efforts that empower both women and men to take ownership of their surroundings, thereby crafting a cohesive and more effective solution. Such efforts must aim to confront and ultimately reform the fundamental gender power dynamics to establish more empowering roles for women, setting the stage for gender-equitable responses to climate change. In addressing these gendered vulnerabilities,

¹ - Hivos Policy Document Gender, Women And Development on <https://genderandenvironment.org/wpcontent/uploads/dropbox/Policy/Gender.%20Women%20and%20Development.pdf> accessed January 20, 2025

the implementation of community-based programs is essential. Such programs should focus on empowering women by equipping them with the knowledge and tools necessary for adaptive change when it occurs. Additionally, these initiatives should seek to enhance women's skill sets, enabling them to generate new sources of income and resources, thereby augmenting their standing within both the household and the community. Moreover, it would be advantageous to introduce programs that provide women with access to technologies that can enhance their current responsibilities, as well as transform and expand their roles in innovative ways. The application of such technology can have a profound impact on increasing their productivity and broadening their participation beyond traditional household and gender-specific roles.

At the policy level, efforts should be directed towards fostering partnerships among diverse stakeholders, including local governments, non-governmental organizations, and community leaders, to ensure equitable access to knowledge, resources, and information. Furthermore, collaboratively developed intervention strategies will serve as a means to exchange experiences and insights across various programs and contexts, thereby facilitating the broader application and scaling of successful initiatives. Through the examination of effective interventions in Africa and South and Southeast Asia, pathways emerge that demonstrate how targeted actions can enhance women's agency and involvement in community-oriented resilience initiatives. Conversely, the analysis of unsuccessful programs highlights how neglecting to incorporate gender-sensitive strategies may hinder effective resilience-building endeavors. Accordingly, the formulation of these strategies should progress from extensive policy reforms to focus on community-level intervention initiatives, ultimately addressing the household and individual dimensions. Recognizing the extensive long-term socioeconomic impacts of climate change, it is critical that these policies are crafted with consideration for cross-sectoral implications, rather than solely addressing immediate agricultural challenges. Sustainable adaptation resource management must also encompass considerations related to water availability and the potential for income diversification, upon which women and their families depend¹.

¹-Desai, B. H. and Mandal, M. "Role of climate change in exacerbating sexual and gender-based violence against women: A new challenge for international law.

1- Community-Based Approaches

Climate change is increasingly contributing to water scarcity, loss of resources, and agricultural failures within the Middle East and North Africa. The vulnerabilities experienced by different genders exacerbate the effects of climate-related hazards and deepen intersectional vulnerabilities, as women often encounter unequal access to adaptive capacities and resilience strategies. However, gender disparities can also foster social norms, networks, and resources that play a critical role in sustaining women's empowerment. Consequently, prioritizing social change and augmenting women's empowerment capacities will significantly enhance the resilience of socio-ecological systems to climate change within designated communities in the region. In addition to financial capital and contemporary insights, local knowledge and perceptions of the environment are essential for the societal adaptive capacity to climate fluctuations, such as droughts and floods. Women's integral roles in household subsistence practices provide them with vital environmental insights. Nevertheless, they are particularly vulnerable to income losses and time constraints in the face of a changing climate. Alongside the development of inclusive and representative adaptation policies, the environmental practices of women can significantly bolster the emotional resilience of the entire community. This research aims to explore the participation of women in community-based adaptation strategies in the context of climate change by examining the intersectionality of environmental vulnerabilities in marginalized developing regions, with specific case studies from Egypt and Tunisia¹.

2. Technological Innovations

Since the establishment of the UNFCCC in 1992, the role of gender has been acknowledged as a significant factor contributing to vulnerability to climate change, which, in turn, profoundly affects adaptation and mitigation strategies. The adverse impacts of climate change, along with other environmental and social pressures, disproportionately affect women due to their socially defined roles,

«Environmental Policy and Law 51 (2021) 137–157. [sagepub.com](https://www.sagepub.com) accessed January 20, 2025.

¹- Salah, Mennatullah, Mona Maze, and Kareem Tonbol. "Intersecting vulnerabilities: climate justice, gender inequality, and covid-19's impact on rural women in Egypt." *Multidisciplinary Adaptive Climate Insights* 1, no. 2 (2024): 85-99. [researchgate.net](https://www.researchgate.net)

responsibilities, and the inequalities they face in terms of power and resource access. In response to this reality, various international frameworks have been developed to incorporate gender considerations, and initiatives have been undertaken at local, national, regional, and international levels to enhance the participation and engagement of women in policies, strategies, and projects related to climate action. In this regard, several stakeholders have emphasized the importance of leveraging technological innovations and empowering women as fundamental approaches to fostering resilience against climate-related risks. Building upon the foundational work accomplished thus far, this section will discuss several notable tools and technologies that have been effectively employed to connect women's empowerment with climate resilience, as well as the critical elements that have facilitated women's successful adaptation in utilizing these resources. Nonetheless, despite the progress made, women in certain areas—particularly in less developed nations—continue to encounter obstacles to accessing these tools and technologies. This situation is particularly concerning given the substantial transformative potential inherent in harnessing technological advancements to mitigate gender disparities and enhance resilience to climate change. Ultimately, in light of the emergence and expansion of technological solutions to climate-related issues, this section advocates for sustained investments in research and development aimed explicitly at gender-responsive technologies. A future wherein technological innovations serve as a catalyst empowering women to take a leading role in combating climate change is envisioned¹.

Conclusion:

In response to climate change, women in the MENA region are seen through a multi-faceted lens of oppression. They are seen as subjects and bearers of rights, as targets of exploitation and violence, as agents of concern and empowerment, and as bearers of traditional cultures and wisdom. All of these categorizations are fundamental, but have not translated into an argument that underpins an understanding of why it is necessary to empower women. It has not been demonstrated that women's empowerment can actually pave the way towards effective

¹- Gumucio, T., Hansen, J., Huyer, S., van Huysen, T., and Schwager, S. "Strategies for achieving gender-responsive climate services." (2018).

climate action and resilience in terms of not just its being a matter of rights, but as stability parameter.

There is an urgent need to present the empirical evidence that projects and practices targeting women's rights and status can effectively produce community resilience to climate change. The two bottom-up analysis of cases of success illustrating when and how the strategies of the uprooting injustice in the face of men and women's climate dependence, exposure and vulnerabilities in a gender-sensitive manner, can ensure stable resilience outcomes of superiority, in terms of enhancing women's capabilities to access resources, control assets and participate in decision-making. This superior stability translates into long-lasting and balanced social and cultural benefits, without external intervention, as may result from well-designed gender-focused. Theoretical considerations below and derived analytical models are not taken into consideration, so that focusing only on the role and transforming potential of women, the questions its ability to induce improvement resilience to climate of the project in terms of gender neutrality are avoided. Finally, the lessons transform framework is considered in the aftermath of a narrative supporting the substantive role of women and empowerment in climate change.

Key Findings and Recommendations

Gender-sensitive frameworks are found to be absent in climate policies across the countries studied, regardless of varying levels of exposure and hazard. A gender-just climate action cannot be realized nor should be expected through the exclusive labeling of women as "most vulnerable" as this masks the diversity in vulnerabilities and access to power and resources within and among men and women. Women's vulnerabilities and adaptive capacities operate at the intersection of socio-economic, political, and ecological factors, with the ability to respond to climate-induced impacts resting on agency as shaped by these local contexts. Countries of the Middle East and North African (MENA) region have often been considered homogeneous in terms of climate change impacts.

Investing in women-led community-based adaptation and clean-tech initiatives is vital in enhancing local resilience and adaptive capacities, as women are situated as the primary actors addressing climate change in the context of their communities. In comparison to national averages, women have significantly lower representation in

workforce regardless of the country in question. To address and tackle structural and systemic barriers and challenges in the context of women's empowerment and climate change action, cross-sectoral efforts of governments, NGOs, civil societies, and local bodies are required. Gendered vulnerabilities to climate change must be understood as embedded in broader gender-based barriers and discriminations present in the economic, social and policy sectors, and interventions must be designed accordingly and meet the specific needs and capacities of women. Nevertheless, the analysis of the broader empirical context points to the need in designing more systems-sensitive and gender-aware climate change interventions adapted to the specificities and potentialities of each region. Continuing evaluations and reassessments on the actuality and efficiency of existing programs and policies are required to accommodate the fluctuating and evolving climate-related challenges and changes in domestic political and demographic landscape.