

INTERSECTING VULNERABILITIES: CLIMATE JUSTICE, GENDER INEQUALITY, AND COVID-19'S IMPACT ON RURAL WOMEN IN EGYPT

Mennatullah Salah^{1*}, Mona Maze², and Kareem Tonbol³

^{1*} Maritime Post Graduate Studies Institute, Arab Academy for Science Technology and Maritime Transport (AASTMT), Alexandria, Agricultural Research Center (ARC), Giza, Egypt.

² Central Laboratory for Agricultural Climate (CLAC), Agricultural Research Center (ARC), Giza, Egypt.

³ College of Maritime Transport and Technology, Arab Academy for Science Technology and Maritime Transport (AASTMT), Alexandria, Egypt.

mennasalah238@gmail.com, mona.maze@arc.sci.eg, ktonbol@aast.edu

Received on, 30 September 2024

Accepted on, 06 November 2024

Published on, 04 December 2024

ABSTRACT:

This review explores the intricate interactions between climate justice, gender inequality, and COVID-19 pandemic, with a particular focus on rural women in Egypt. As a result of integrating findings from several literature, it examines how rural women face increased vulnerabilities as a result of these intersecting issues, compounding their socio-economic disadvantages and limiting their ability to participate in climate adaptation. As a result of systemic gender inequality, as well as the effects of climate change and the pandemic, rural women have been marginalized significantly, exposing critical gaps in current policies and interventions. Research and policies fall short in addressing context-specific needs and applying intersectional approaches. In order to empower rural women, the review emphasizes the importance of education, skill development, and access to resources. In addition, it makes policy recommendations for promoting gender-sensitive climate and pandemic responses, enhancing rural women's economic participation, and empowering them. Overall, the review emphasizes the importance of developing inclusive and equitable policies that address the unique challenges faced by rural women in Egypt. These policies include simplifying land registration processes, offering microfinance and credit tailored to rural women's needs, and integrating gender-sensitive training programs for climate-resilient agriculture. These measures aim to improve women's economic participation and resilience. This review seeks to promote a more nuanced understanding of climate justice, gender inequality, and pandemics to improve rural women's resilience, equality, and sustainability.

KEY-WORDS: Climate justice, Gender, COVID-19, Rural women, Vulnerability, Resilience.

1. INTRODUCTION

Climate change presents a pressing global challenge, with a broad scientific consensus recognizing human activities as primary contributors to its progression. The impacts of climate change, however, are not uniformly experienced across different social groups; instead, they are intricately linked to existing social structures, particularly gender dynamics. In many contexts, including rural Egypt, gender significantly influences vulnerability to climate impacts, disaster risk, and the effectiveness of adaptation and policy responses. COVID-19 pandemic has further illuminated and exacerbated pre-existing social vulnerabilities, inequities, and injustices, underscoring that these crises are not gender-neutral but are profoundly shaped by patriarchal and socio-cultural frameworks (Glazebrook et al., 2020; Campbell, 2020; Coll et al., 2020).

Rural women globally face numerous inequalities that severely limit their access to social, economic, and political opportunities. In Egypt, these disparities are intensified by climate change and health crises, which disproportionately undermine their livelihoods and well-being (Brown et al., 2020; Botreau & Cohen, 2020; Gressel et al., 2020). Case studies from various regions, particularly within the Nile Delta coastal areas, illustrate how climate change disrupts rural women's livelihoods—who often play crucial roles in agriculture and resource management—while the added pressures of COVID-19 pandemic further compound these challenges (Dokhan, 2021; Monshipouri & Ramaswamy, 2024).

This review aims to investigate the intersections of climate justice, gender inequality, and COVID-19 pandemic and their collective impacts on rural women in Egypt. Recognizing the significant reliance of rural women on natural resources for their livelihoods, the research highlights the importance of addressing these intersecting vulnerabilities through targeted policy recommendations. The methodology employed in this review involves a systematic literature analysis over 30 peer-reviewed articles, books, and reports. The selected studies span the past two decades and are gathered using academic databases with search terms such as "climate justice," "gender inequality," "COVID-19," "rural women in Egypt," and "intersectionality."

This analysis aims to elucidate the specific challenges faced by rural women in Egypt and identify gaps in current research. The review is grounded in three theoretical frameworks: climate justice, which advocates for addressing the unequal distribution of climate impacts; gender inequality, which examines socio-economic disparities that exacerbate women's vulnerabilities; and intersectionality, which explores how overlapping forms of discrimination interact to create unique challenges for rural women. Collectively, these concepts offer a comprehensive understanding of the compounded effects of climate change, gender inequality, and global health crises, guiding the formulation of effective policy recommendations and future research directions.

2. UNDERSTANDING CLIMATE JUSTICE, GENDER INEQUALITY, AND THEIR IMPACTS ON RURAL WOMEN IN EGYPT

The interwoven concepts of climate justice and gender inequality offer a critical lens through which to examine the experiences of rural women in developing nations like Egypt. Climate justice underscores the imperative for equitable solutions to the climate crisis, focusing on the disproportionate impact climate change has on those who contribute minimally to its causes. In Egypt, rural women exemplify this vulnerable group, facing compounded challenges due to both environmental impacts and gender-based structural inequalities. Their limited access to resources, decision-making power, and opportunities heightens these challenges, particularly as global health crises, such as COVID-19 pandemic, intensify pre-existing vulnerabilities. This section outlines the frameworks of climate justice and gender inequality, including their intersectionality, to provide a nuanced understanding of how these issues converge to affect rural women in Egypt.

2.1. Gender Inequality in Egypt

Gender inequality in Egypt is embedded within structural and socio-cultural frameworks that restrict rural women's access to economic, political, and social participation. Legal frameworks and national policies, such as the Egyptian National Action Plan for Women (2001) and the National Strategy for the Empowerment of Egyptian Women (2017), demonstrate Egypt's commitment to gender

equality, aligning with international standards like the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW). However, these initiatives have not translated into consistent, effective changes, particularly in rural areas where the impact of legislation is often limited (Takieldin, 2023; ElMorally, 2024).

Legal measures aimed at gender equality, such as Egypt's Family Law of 2000, have advanced women's rights in certain areas, like family and divorce matters. Nonetheless, these measures remain inadequate in addressing economic disparities that limit rural women's access to land, income, and other assets essential for resilience in the face of climate change (El-Harazi, 2023; Siddiqui, 2023). COVID-19 pandemic highlighted these gaps, with rural women disproportionately affected due to their exclusion from social safety nets and reliance on informal labor (Farrag, 2021). This exclusion underscores the limitations of existing gender-sensitive policies in addressing the specific vulnerabilities rural women face in crisis contexts.

2.2. Climate Justice

Climate justice integrates principles of human rights and environmental stewardship, advocating for the fair distribution of both the burdens and benefits associated with climate change. It is especially pertinent to marginalized communities, including rural women in developing countries, who often contribute minimally to climate change but endure its most severe impacts (Boom et al., 2016). In rural Egypt, women's livelihoods heavily depend on natural resources, making them particularly susceptible to climate-induced challenges such as droughts and floods, which threaten agricultural productivity and increase economic instability (Hafez, 2020).

Given their role in managing household resources, these women bear additional burdens during climate crises, yet remain largely excluded from

climate policy and decision-making processes. This exclusion is compounded by limited access to education, a key factor that restricts their ability to influence policy. Although there is potential for rural women to contribute insights into localized climate adaptation, their low levels of formal education and restricted access to knowledge-sharing platforms make meaningful participation challenging (Eastin, 2018). Ensuring that climate justice initiatives include rural women would require structural adjustments, such as enhancing educational and economic resources to enable their informed participation (Schlosberg & Collins, 2014).

2.3. Economic Participation and Decision-Making

Economic participation for women in Egypt remains constrained by several structural barriers, particularly in rural areas where unpaid labor, such as caregiving and subsistence agricultural work, predominates. This labor is often undervalued and unrecognized in formal economic statistics, exacerbating economic inequalities faced by women (El-Baz, 2020; Altuzarra et al., 2021). Rural women's limited access to critical resources, including land, credit, and education, further hinders their economic empowerment and restricts their decision-making power within households and communities.

Traditional gender norms that prioritize male economic roles compound these challenges, creating a persistent gender wage gap and limiting opportunities for rural women (Aggestam & True, 2020). Empirical data suggest that rural Egyptian women are largely confined to low-status occupations, while men continue to dominate higher-paying roles and decision-making positions (Krafft et al., 2021; Assaad et al., 2020). This disparity reflects a trend of de-feminization in Egypt's labor force, despite improvements in women's educational attainment.

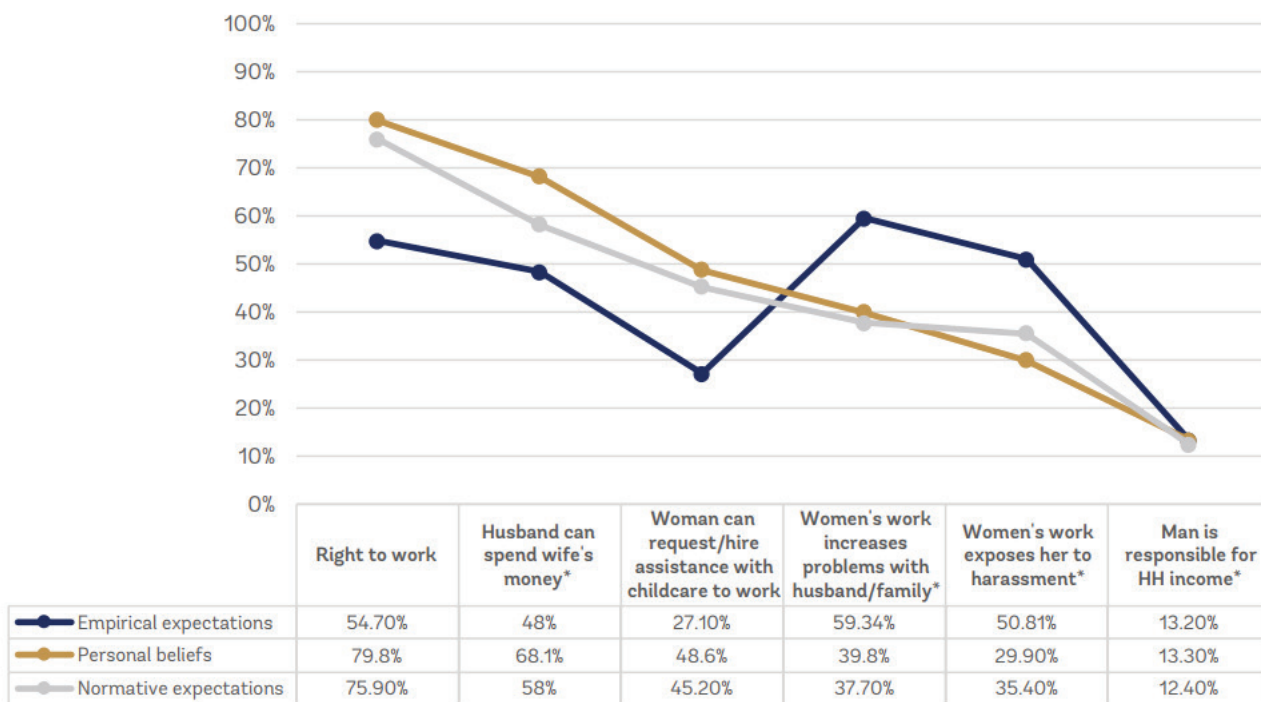


Fig. 1. Comparison of personal beliefs and social expectations on female labor force participation (World Bank, 2023).

Figure 1 compares personal beliefs, empirical expectations, and normative expectations concerning female labor force participation among male and female respondents in Egypt. It highlights disparities between individual beliefs and perceived societal expectations, illustrating support for Female Labor Force Participation along with the enduring societal concerns about the implications of women’s employment. It aligns with the analysis of how societal expectations influence rural women’s economic opportunities and decision-making power, highlighting the need for targeted interventions to reconcile personal beliefs with social expectations. This approach would help foster an environment that not only supports FLFP in principle but also mitigates the social and cultural barriers that currently limit women’s economic empowerment in Egypt.

2.4. Intersectionality

Intersectionality, a concept introduced by Kimberlé Crenshaw (1989), provides a critical framework for understanding how overlapping social identities—such as gender, socioeconomic status, and geographical location—compound the vulnerabilities experienced by marginalized groups. For rural women in Egypt, these intersecting identities intensify their exposure to climate impacts

and limit their adaptive capacities. Women from lower-income, marginalized communities face distinct challenges, as they are often excluded from social safety nets and last to receive aid during crises like COVID-19 (Fletcher & Reed, 2022).

Intersectionality also highlights the need for policies that address the specific needs of diverse groups of women, as a one-size-fits-all approach may overlook the unique challenges faced by the most vulnerable. By designing climate adaptation policies that account for factors such as socioeconomic status and geographical location, policymakers can better ensure that no group of rural women is disproportionately disadvantaged (Singh et al., 2022).

2.5. Linking Gender Inequality to Climate and COVID-19 Impacts

The structural gender inequalities faced by rural women in Egypt are intrinsically linked to the broader impacts of climate change and COVID-19 pandemic. Dependent on natural resources for their livelihoods, these women are disproportionately affected by climate variability, which threatens agricultural productivity and heightens economic exclusion (UN Women Watch, 2009; Hafez, 2020). The added caregiving responsibilities during

climate and health crises further intensify these burdens, often exposing women to health risks and exacerbating their economic vulnerabilities.

During COVID-19 pandemic, rural women faced amplified challenges, including job losses in the informal sector and increased caregiving responsibilities (Singh et al., 2022). These compounded vulnerabilities reveal how climate change, gender inequality, and economic exclusion converge, with rural women bearing the brunt of these overlapping crises. Addressing these issues within a climate justice framework, particularly through targeted interventions and structural reforms, could provide rural women with the resources and decision-making power necessary to enhance their resilience in the face of environmental and socioeconomic challenges.

As established, rural women in Egypt face distinct social, economic, and health challenges due to longstanding gender inequalities and resource limitations. These inequities have been further strained by recent crises, such as COVID-19 pandemic, which exacerbated vulnerabilities already present in their lives. Analyzing these impacts, particularly in the domains of healthcare, economic stability, and caregiving roles, provides a deeper understanding of the compounded challenges rural women face and highlights the need for targeted, gender-sensitive interventions.

3. CHALLENGES FACED BY RURAL WOMEN IN EGYPT

Rural women in Egypt shoulder responsibilities across household and agricultural domains, yet they lack equal access to the resources, protections, and opportunities needed to thrive. These roles became increasingly demanding during COVID-19 pandemic, which amplified disparities in healthcare access, economic stability, and caregiving obligations. In contrast, the pandemic impact on rural men, while significant, often did not entail the same dual burdens of unpaid caregiving and limited access to critical services. This section discusses the specific ways in which rural women's experiences during the pandemic diverged from those of men, emphasizing the intersecting challenges they continue to confront.

3.1. Socio-Economic and Caregiving Challenges

Rural women in Egypt have long faced barriers due to deep-seated gender inequalities, insufficient policies, and limited access to essential services. They often manage a dual workload of domestic tasks and agricultural labor, a situation intensified during the pandemic. As schools closed and healthcare became less accessible, rural women faced an increased caregiving load while also contending with reduced agricultural output and income (Altuzarra et al., 2021; El-Baz, 2020). Unlike men, whose primary roles typically focus on wage-earning activities, rural women found themselves responsible for both household management—such as childcare, collecting water, and maintaining livestock—and diminished economic opportunities (Boca et al., 2020; Mubenga-Tshitaka et al., 2023).

The ongoing shift from traditional agriculture to light industry in rural Egypt further restricts economic opportunities for women, whose skill sets are often not aligned with available industrial jobs (Jabeen et al., 2020). While rural men are more likely to find employment in these sectors, women remain economically marginalized and continue to rely on undervalued contributions to the rural economy, including unpaid or informal work that remains unrecognized (Ariffin et al., 2020).

3.2. Healthcare Disparities

While COVID-19 pandemic underscored healthcare disparities in rural Egypt, access to adequate healthcare has long been a challenge, particularly for rural women. Gender and geographic inequalities mean that rural women often lack access to maternal and reproductive healthcare, essential services that are more readily available in urban centers. During the pandemic, accessing skilled medical care became even more difficult, compromising maternal health outcomes and further limiting access to reproductive health services (Adatara et al., 2020).

Rural women in underserved regions, particularly in southern Egypt, were especially affected, with limited access to midwifery and family planning services compared to their urban counterparts. In contrast, rural men, while also affected by

healthcare access issues, did not face the same level of gender-specific health needs or barriers (Adatara et al., 2021). The pandemic compounded these disparities, as rising healthcare costs forced many women to rely on inadequate public services, further endangering their health and increasing their vulnerability (Hulsbergen & van der Kwak, 2020).

3.3. Economic Impacts

The economic fallout of COVID-19 pandemic disproportionately impacted rural women in Egypt, particularly those employed in informal sectors with limited protections. As economic activity slowed, rural women in agriculture, hospitality, and retail—sectors heavily affected by the crisis—faced significant reductions in income and job security, in addition to increased caregiving responsibilities (Botreau & Cohen, 2020).

While rural men also experienced economic challenges, their roles generally remained within more stable, traditionally male-dominated sectors. In contrast, rural women, who are frequently responsible for household food provision, experienced heightened stress and insecurity, managing both the financial and physical needs of their families (Shibata, 2021). Additionally, the closure of schools and overwhelmed healthcare systems meant that caregiving roles expanded, with rural women balancing homeschooling, increased household tasks, and care for sick family members. This added burden increased risks for mental health issues, domestic violence, and poverty, underscoring the necessity of gender-sensitive interventions to address these compounded inequalities (Khamis et al., 2021).

Building on the previous discussion, it is evident that rural women in Egypt face a unique set of compounded challenges rooted in both gender-based inequities and systemic neglect. As these challenges intersect with the impacts of climate change and COVID-19 pandemic, they exacerbate existing vulnerabilities and reinforce economic and social marginalization. This next section provides a deeper analysis of how climate justice, gender inequality, and pandemic recovery interrelate, underscoring the importance of integrated, intersectional approaches for supporting rural women in Egypt.

4. INTERSECTIONAL ANALYSIS: CLIMATE JUSTICE, GENDER INEQUALITY, AND COVID-19

This section examines the compounded impact of climate justice, gender inequality, and COVID-19 pandemic on rural women in Egypt. By exploring how these factors intersect, it highlights the long-term consequences for women's health, economic opportunities, and socio-political inclusion in rural communities. Understanding these layered vulnerabilities is essential for crafting holistic and sustainable policy interventions.

4.1. Climate Change: A Gendered Impact

Rural women in Egypt disproportionately experience the adverse effects of climate change due to their reliance on natural resources and limited adaptive capacity. Climate-related challenges such as erratic rainfall, rising temperatures, and water scarcity have immediate repercussions for food security and household responsibilities, which are traditionally managed by women (Hafez, 2020). These pressures further restrict women's participation in economic activities and decision-making, as caregiving and household management demand more time during environmental crises.

The structural gender inequalities that limit women's access to resources, such as land ownership and financial credit, exacerbate the impact of climate change on their livelihoods. These entrenched disparities, combined with their vital roles in agriculture and family care, heighten rural women's vulnerability to climate stressors in ways that differ markedly from men's experiences (Aggestam & True, 2020).

4.2. Gender Inequality and COVID-19 Pandemic

COVID-19 pandemic has underscored and intensified gender-based economic and social disparities among rural women in Egypt. While rural women contribute extensively to agricultural work, their roles often remain informal and unrecognized, preventing them from accessing the financial and social protections needed during economic crises (Tonbol, 2024). This gendered division of labor, combined with structural inequalities in access to credit, education, and technology, limits women's productivity and economic security compared to their male counterparts.

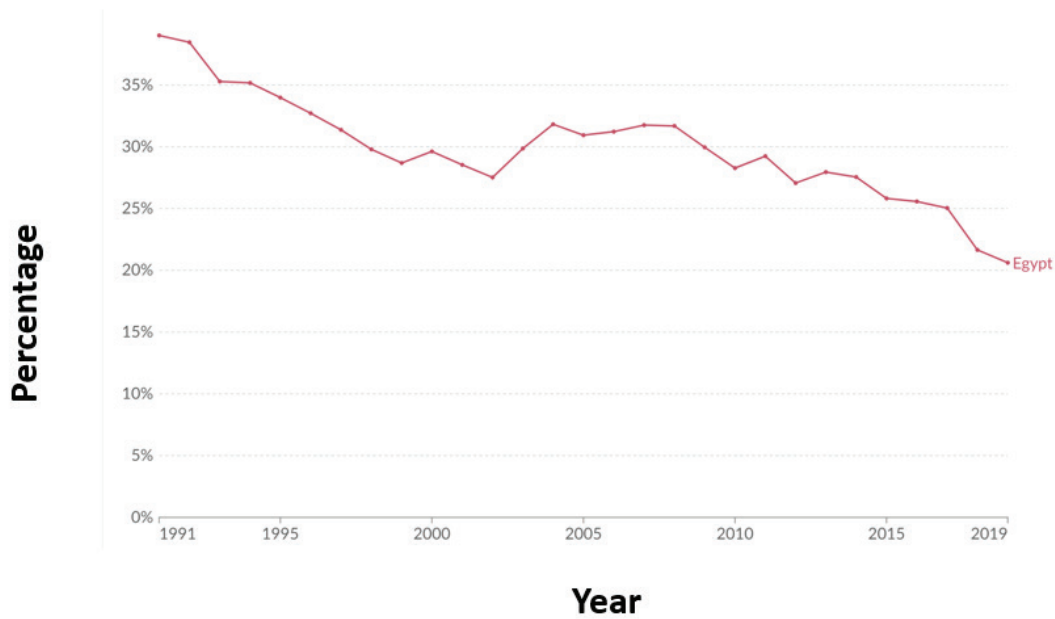


Fig. 2. Agriculture Value Added Per Worker (World Bank).

Figure 2 captioned “Agriculture Value Added Per Worker” illustrates the disparity in productivity levels within the agricultural sector. Although rural women play a critical role in agriculture, their contributions often yield lower productivity compared to men, not due to lack of skill, but because of systemic barriers. Limited access to modern farming technology, irrigation systems, and training curtails their productivity and restricts their income potential (El Baz, 2018). These constraints contrast with the resources more readily available to men, who often have formal land ownership and better access to credit and technology.

Figure 2 also underscores the need for policies that bridge these productivity gaps by addressing gendered barriers in resource access. Enhancing rural women’s access to land titles, technology, and financial services can significantly improve agricultural productivity and support gender equality. Such policy reforms not only empower rural women economically but also contribute to national agricultural output and poverty alleviation goals (Fletcher & Reed, 2022).

4.3. Compounded Vulnerabilities and Long-term Impacts

The intersection of climate change, gender inequality, and COVID-19 pandemic has created a unique set of compounded vulnerabilities for rural women in Egypt (Ibrahim, 2021). These crises reinforce each other, forming a cycle of

disadvantage that further constrains rural women’s economic independence and social standing. For instance, the caregiving burdens exacerbated by the pandemic reduced women’s capacity to cope with climate-related losses in agriculture, such as decreased yields and water shortages (Byers et al., 2020).

Moreover, rural women’s limited access to healthcare, social protection, and education compounds these challenges, leaving them with fewer resources to manage or recover from crises. The long-term impacts include heightened poverty, food insecurity, and adverse health outcomes for women and their families, further entrenching gender inequality within households and communities (Ibrahim, 2021). The pandemic also amplified existing limitations on women’s decision-making power, reducing their capacity to seek support or advocate for their rights, deepening their socio-economic exclusion.

Addressing these intersecting challenges requires a holistic approach that integrates gender equality, climate adaptation, and pandemic recovery. Policies focusing solely on one dimension, such as climate resilience or economic empowerment, may yield only partial solutions. A more comprehensive, intersectional strategy is crucial to fostering sustainable development, improving livelihoods, and promoting resilience for rural women in Egypt’s agricultural sector.

5. ECONOMIC PARTICIPATION AND DECISION-MAKING FOR RURAL WOMEN

The structural barriers limiting rural women’s participation in Egypt’s labor market are deeply entrenched in both legal frameworks and socio-

cultural norms that restrict equal access to economic opportunities. Although Egypt has ratified international agreements such as the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), the enforcement of these laws is often inconsistent, particularly in rural areas.

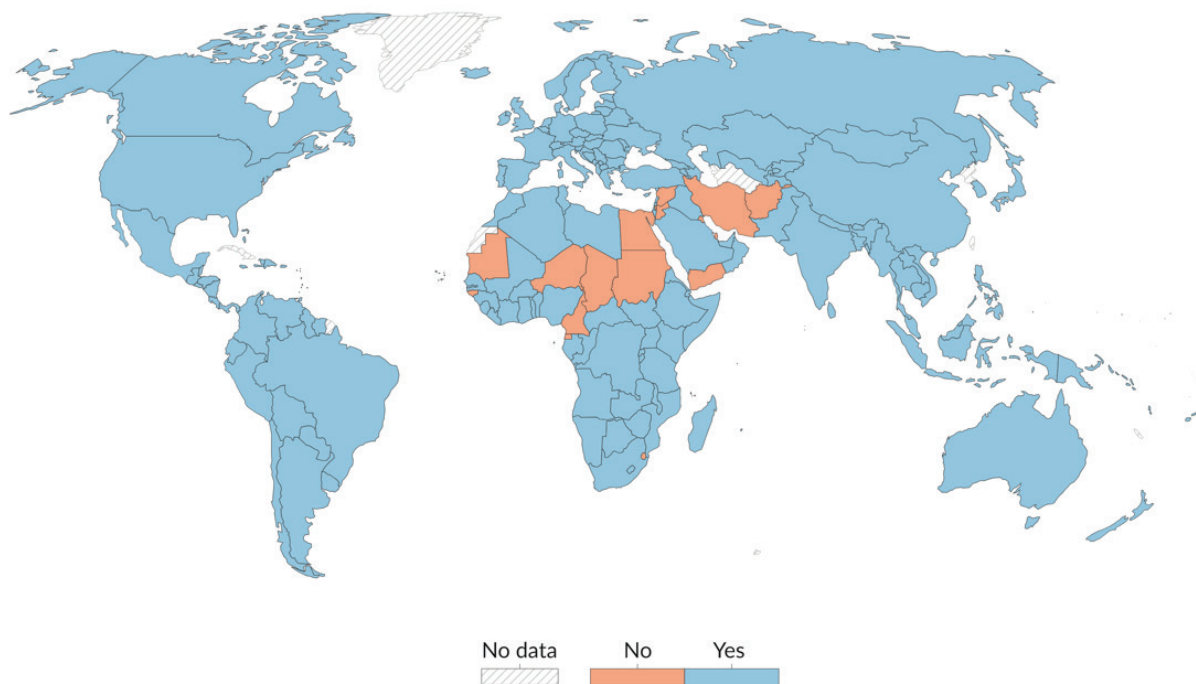


Fig. 3. Law Mandate for Equal Opportunities (World Bank, 2024).

Figure 3 titled “Women Can Take the Same Jobs as Men (Law Mandate for Equal Opportunities)” from *Our World in Data* illustrates the discrepancy between legal mandates for gender equality and their practical implementation within the workforce. This visual representation reveals persistent inequalities in employment sectors, emphasizing the limitations on women’s access to various occupations, particularly in rural Egypt (*Our World in Data*, 2024).

As a result, many rural women remain confined to unpaid agricultural labor, which reflects their undervalued contribution to the economy. El-Baz (2020) notes that this economic marginalization is perpetuated by inadequate legal protections and cultural norms that reinforce traditional gender roles. Such barriers impede women’s access to vital resources and limit their participation in decision-making processes related to climate adaptation efforts. Addressing these disparities is crucial for enhancing rural women’s economic agency

and promoting equitable development in Egypt’s agricultural sector.

5.1. Education and Skill Development

Education is one of the most powerful tools for rural women’s empowerment, serving as a foundation for greater socio-economic participation and resilience to climate-related challenges (Malwade, 2020). Investing in rural women’s education helps break the cycle of poverty and enhances their ability to participate in decision-making processes related to climate adaptation and community development. This not only improves their livelihoods but also positions them as key contributors to local and national development (Shaikh & Ramchandra, 2020).

Research has shown that women with higher levels of education are better equipped to cope with environmental crises, manage agricultural resources sustainably, and advocate for their

rights (Ibrahim, 2021). In the Egyptian context, the educational divide between urban and rural women remains stark, with rural women facing additional barriers such as early marriage, gender-based discrimination, and limited access to schools. Empowering rural women through education must therefore include tailored programs that consider their specific circumstances, including adult literacy programs, vocational training, and climate-resilient agricultural skills (Farrag, 2021).

Beyond formal education, skill development initiatives are essential for building rural women's economic independence and enabling them to participate in climate adaptation efforts. These initiatives should focus on equipping women with skills in sustainable agriculture, renewable energy technologies, and small-scale entrepreneurship, sectors that are critical for climate resilience and economic recovery in rural areas (Mapanje et al., 2023). By providing women with access to knowledge and technologies that promote environmentally sustainable practices, these programs can empower them to take active roles in mitigating climate change impact on their communities.

5.2. Access to Resources and Technology

One of the primary barriers preventing rural women from becoming agents of change is their limited access to essential resources such as land, credit, and technology. Addressing this requires a concerted effort to reform land ownership laws and credit systems that disproportionately favor men. Ensuring rural women have equal access to these resources is fundamental to enhancing their capacity to contribute to both household and community climate adaptation strategies (Hafez, 2020).

For example, rural women's exclusion from land ownership prevents them from making critical decisions related to agricultural productivity and resource management. In Egypt, where agriculture remains a key source of livelihood for rural families, this exclusion limits women's ability to adopt climate-resilient farming practices or diversify their income sources (Daoud, 2021). Providing rural women with equal access to land not only boosts their economic standing but also fosters a sense of agency in environmental stewardship.

Technology also plays a pivotal role in empowering

rural women, particularly in the context of climate adaptation. Access to climate-smart technologies—such as drought-resistant crops, solar-powered irrigation systems, and mobile weather forecasting tools—can significantly enhance rural women's ability to manage climate risks. Coupling these technological advancements with targeted training and support ensures that women can fully utilize them to improve agricultural productivity and safeguard their livelihoods in the face of climate volatility (Singh et al., 2022).

5.3. Enhancing Decision-Making Power

Rural women's empowerment cannot be fully realized without addressing their exclusion from decision-making processes at both household and community levels. Traditional gender roles and patriarchal structures often marginalize women's voices, preventing them from contributing to critical discussions on climate adaptation, resource allocation, and development planning (Aggestam & True, 2020). However, research indicates that when women are involved in decision-making, communities are more likely to adopt sustainable practices and prioritize social well-being (Ibrahim, 2021).

To enhance rural women's decision-making power, empowerment strategies must include legal and institutional reforms that ensure women have an equal voice in governance structures. Community-based organizations, women's cooperatives, and rural councils should be supported to include women in leadership roles, giving them a platform to influence local climate adaptation strategies and resource management decisions. Additionally, national policies should prioritize women's participation in climate-related decision-making at higher levels, ensuring that their perspectives are integrated into broader environmental and socio-economic policies (Altuzarra et al., 2021).

5.4. Building Resilience Through Social Protection

Social protection programs tailored to the specific needs of rural women are critical for enhancing their resilience to climate shocks, economic crises, and health emergencies like COVID-19. These programs should offer financial assistance, healthcare access, and employment support, with focus on women in the most vulnerable communities. Cash transfer programs, for example, can help alleviate

the immediate economic impacts of climate-related disasters, while healthcare subsidies ensure that rural women have access to essential medical services, particularly in times of crisis (Takieldin, 2023).

Moreover, social protection mechanisms that integrate climate risk management can provide a safety net for rural women, reducing their vulnerability to environmental and economic shocks. For example, crop insurance schemes, disaster relief funds, and climate-adaptive infrastructure investments can mitigate the risks associated with climate change, empowering women to rebuild their lives and continue contributing to their communities even in the face of adversity (UNDP, 2016).

6. RECOMMENDATIONS AND CONCLUSION

6.1. Recommendations

Addressing the complex challenges faced by rural women in Egypt necessitates targeted, scientifically informed policy interventions. To integrate gender-sensitive approaches into climate adaptation strategies effectively, policies should ensure the inclusion of rural women in community-level adaptation programs and provide equitable access to climate-smart technologies. Expanding their access to land, financial services, and technology, while promoting the adoption of climate-resilient agricultural practices, is critical for enhancing their adaptive capacity.

Educational initiatives must prioritize literacy, vocational training, and STEM programs for rural girls to equip them for roles in climate innovation and sustainable development. Concurrently, strengthening social protection systems with gender-sensitive safety nets will mitigate the adverse effects of climate change and health crises.

Promoting women's leadership within climate governance structures and ensuring their representation in local decision-making processes are vital for effective policy outcomes. Furthermore, implementing robust monitoring and evaluation frameworks, including gender-specific indicators, is essential for assessing the impact of interventions and ensuring they effectively support rural women's empowerment and resilience.

6.2. Conclusion

This review highlights the urgent need for intersectional policies that tackle the challenges of climate justice, gender inequality, and health crises, particularly in rural Egypt. The compounded effects of these issues on rural women demand targeted interventions that enhance their access to resources, education, and leadership opportunities. Implementing these gender-sensitive strategies is crucial for building the resilience of rural women, positioning them as key agents in sustainable development and climate adaptation efforts in Egypt.

REFERENCES:

01. Achcar, G. (2020). On the 'Arab Inequality Puzzle': The Case of Egypt. *Development and Change*, 51(3), 746–770. <https://doi.org/10.1111/dech.12585>
02. Adatara, P., Amooba, P. A., Afaya, A., Salia, S. M., Avane, M. A., Kuug, A., Maalman, R. S.-E., Atakro, C. A., Attachie, I. T., & Atachie, C. (2021). Challenges experienced by midwives working in rural communities in the Upper East Region of Ghana: a qualitative study. *BMC Pregnancy and Childbirth*, 21(1), 287. <https://doi.org/10.1186/s12884-021-03762-0>
03. Adatara, P., Strumpher, J., & Ricks, E. (2020). Exploring the reasons why women prefer to give birth at home in rural northern Ghana: a qualitative study. *BMC Pregnancy and Childbirth*, 20(1), 500. <https://doi.org/10.1186/s12884-020-03198-y>
04. Adenutsi, D. E. (2023). Entrepreneurship, Job Creation, Income Empowerment and Poverty Reduction in Low-Income Economies. *Theoretical Economics Letters*, 13(06). <https://doi.org/10.4236/tel.2023.136089>
05. Agarwal, B. (1992). The Gender and Environment Debate: Lessons from India. *Feminist Studies*, 18(1). <https://doi.org/10.2307/3178217>
06. Aggestam, K., & True, J. (2020). Gendering foreign policy: A comparative framework for analysis. *Foreign Policy Analysis*, 16(2). <https://doi.org/10.1093/fpa/orz026>

07. Altuzarra, A., Gálvez-Gálvez, C., & González-Flores, A. (2021a). Is gender inequality a barrier to economic growth? A panel data analysis of developing countries. *Sustainability (Switzerland)*, 13(1). <https://doi.org/10.3390/su13010367>
08. Altuzarra, A., Gálvez-Gálvez, C., & González-Flores, A. (2021b). Is Gender Inequality a Barrier to Economic Growth? A Panel Data Analysis of Developing Countries. *Sustainability*, 13(1), 367. <https://doi.org/10.3390/su13010367>
09. Ampaire, E. L., Acosta, M., Huyer, S., Kigonya, R., Muchunguzi, P., Muna, R., & Jassogne, L. (2020). Gender in climate change, agriculture, and natural resource policies: insights from East Africa. *Climatic Change*, 158(1). <https://doi.org/10.1007/s10584-019-02447-0>
10. Arezki, R., Lederman, D., El-Mallakh, N., Islam, A. M., Harb, A. A., Fan, R. Y., Nguyen, H. M., & Zouaidi, M. (2020). *Where Missing Data Hurts the Most: Low Growth, Macroeconomic Vulnerability, and Labor Market Outcomes in Middle East and North Africa*. World Bank Publications.
11. Ariffin, A. S., Baqutayan, S. M. S., & Mahdzir, A. M. (n.d.). Enhancing women entrepreneurship development framework: Policy & institution gap and challenges in the case of Malaysia. *Journal of Science, Technology and Innovation Policy*, 6(2), 22–33.
12. Assaad, R., Hendy, R., Lassassi, M., & Yassin, S. (2020). Explaining the MENA paradox: Rising educational attainment yet stagnant female labor force participation. *Demographic Research*, 43. <https://doi.org/10.4054/DEMRES.2020.43.28>
13. Atukunda, E. C., Mugenyi, G. R., Obua, C., Musiimenta, A., Najjuma, J. N., Agaba, E., Ware, N. C., & Matthews, L. T. (2020). When women deliver at home without a skilled birth attendant: A qualitative study on the role of health care systems in the increasing home births among rural women in southwestern uganda. *International Journal of Women's Health*, 12. <https://doi.org/10.2147/IJWH.S248240>
14. Auer, D. (2022). Firing discrimination: Selective labor market responses of firms during the COVID-19 economic crisis. *PLoS ONE*, 17(1 January). <https://doi.org/10.1371/journal.pone.0262337>
15. Birkmann, J., Jamshed, A., McMillan, J. M., Feldmeyer, D., Totin, E., Solecki, W., Ibrahim, Z. Z., Roberts, D., Kerr, R. B., Poertner, H. O., Pelling, M., Djalante, R., Garschagen, M., Leal Filho, W., Guha-Sapir, D., & Alegría, A. (2022). Understanding human vulnerability to climate change: A global perspective on index validation for adaptation planning. *Science of the Total Environment*, 803. <https://doi.org/10.1016/j.scitotenv.2021.150065>
16. Boom, K., Richards, J.-A., & Leonard, S. (2016). Climate Justice: The International Momentum Towards Climate Litigation. *Climate Change and Social Justice*, 2(4).
17. Botreau, H., & Cohen, M. J. (2020a). *Gender inequality and food insecurity: A dozen years after the food price crisis, rural women still bear the brunt of poverty and hunger* (pp. 53–117). <https://doi.org/10.1016/bs.af2s.2020.09.001>
18. Botreau, H., & Cohen, M. J. (2020b). *Gender inequality and food insecurity: A dozen years after the food price crisis, rural women still bear the brunt of poverty and hunger* (pp. 53–117). <https://doi.org/10.1016/bs.af2s.2020.09.001>
19. Brown, K., Ellis, K., & Smith, K. (2020). *Vulnerability as lived experience: Marginalised women and girls in the UK*. Routledge.
20. Bullard, R. D. (1990). *Dumping in Dixie: Race, Class, and Environmental Quality*. Boulder, CO: Westview Press.
21. Buyukkececi, Z., & Engelhardt, H. (2021). On the relationship between fertility, development and gender equality: A comparison of western and mena countries. *Comparative Population Studies*, 46. <https://doi.org/10.12765/CPoS-2021-09>
22. Byers, E. A., Coxon, G., Freer, J., & Hall, J. W. (2020). Drought and climate change impacts on cooling water shortages and electricity prices in Great Britain. *Nature Communications*, 11(1). <https://doi.org/10.1038/s41467-020-16012-2>

23. Campbell, C. (2020). Social capital, social movements and global public health: Fighting for health-enabling contexts in marginalised settings. *Social Science and Medicine*, 257. <https://doi.org/10.1016/j.socscimed.2019.02.004>
24. Chiwona-Karltun, L., Amuakwa-Mensah, F., Wamala-Larsson, C., Amuakwa-Mensah, S., Abu Hatab, A., Made, N., Taremwa, N. K., Melyoki, L., Rutashobya, L. K., Madonsela, T., Lourens, M., Stone, W., & Bizoza, A. R. (2021). COVID-19: From health crises to food security anxiety and policy implications. *Ambio*, 50(4), 794–811. <https://doi.org/10.1007/s13280-020-01481-y>
25. Coll, C. V. N., Ewerling, F., García-Moreno, C., Hellwig, F., & Barros, A. J. D. (2020). Intimate partner violence in 46 low-income and middle-income countries: An appraisal of the most vulnerable groups of women using national health surveys. In *BMJ Global Health* (Vol. 5, Issue 1). <https://doi.org/10.1136/bmjgh-2019-002208>
26. Crenshaw, K. (1989). Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Anti-Discrimination Doctrine, Feminist Theory and Antiracist Politics. *University of Chicago Legal Forum*, 139–167.
27. Dang, H. A. H., & Viet Nguyen, C. (2021). Gender inequality during the COVID-19 pandemic: Income, expenditure, savings, and job loss. *World Development*, 140. <https://doi.org/10.1016/j.worlddev.2020.105296>
28. Daoud, M. (2021). Is vulnerability to climate change gendered? And how? Insights from Egypt. *Regional Environmental Change*, 21(2). <https://doi.org/10.1007/s10113-021-01785-z>
29. Del Boca, D., Oggero, N., Profeta, P., & Rossi, M. (2020). Women's and men's work, housework and childcare, before and during COVID-19. *Review of Economics of the Household*, 18(4). <https://doi.org/10.1007/s11150-020-09502-1>
30. Dokhan, N. (2021). The Impact of Global Crises on Women: The Case of Covid-19 in Egypt. *Theses and Dissertations*.
31. Eastin, J. (2018). Climate change and gender equality in developing states. *World Development*, 107, 289–305. <https://doi.org/10.1016/j.worlddev.2018.02.021>
32. El Bari, H., Habchi, S., Morchid, M., & Cherqaoui, M. (2024). *Climate Change Vulnerability and Sustainable Tools for Mitigation and Adaptation Achievement in MENA Region* (pp. 1–18). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-030-91260-4_33-1
33. El Khorazaty, N. (2021). Egyptian Women's Agriculture Contribution; Assessment of the Gender Gap for Sustainable Development. *Aucegypt.Edu*.
34. El-Baz, S. (2020a). The Impact of Social and Economic Factors on Women's Group Formation in Egypt. In *Organizing Women* (pp. 147–171). Routledge. <https://doi.org/10.4324/9781003136026-7>
35. El-Baz, S. (2020b). The Impact of Social and Economic Factors on Women's Group Formation in Egypt. In *Organizing Women* (pp. 147–171). Routledge. <https://doi.org/10.4324/9781003136026-7>
36. El-Fiky, S. (n.d.). *Gendered Entrepreneurship Contextualization in Egypt: An Empirical Study on Policies for Women Entrepreneurship Empowerment*.
37. El-Harazi, M. (2023). Navigating a Human Rights Roadblock: Making the Case for the Women's Equality Act. *U. Pa. J. Int'l L.*
38. ElMorally, R. (2024). *Recovering Women's Voices: Islam, Citizenship, and Patriarchy in Egypt*. Emerald Publishing Limited. <https://doi.org/10.1108/9781836082484>
39. El-Saharty, S., Nassar, H., Shawky, S., Elshalakani, A., Hamza, M., Zhang, Y., & Zeltoun, N. (2022). *Achieving the Demographic Dividend in the Arab Republic of Egypt: Choice, Not Destiny* (S. El-Saharty, H. Nassar, S. Shawky, A. Elshalakani, M. Hamza, Y. Zhang, & N. Zeltoun, Eds.). The World Bank. <https://doi.org/10.1596/978-1-4648-1811-0>

40. Enarson, E., & Fordham, M. (2001). From women's needs to women's rights in disasters. *Environmental Hazards*, 3(3), 133–136. <https://doi.org/10.3763/ehaz.2001.0314>
41. Farrag, S. A. S. (2021). Policies of Women Empowerment in Decision Making Positions: The Case of Egypt 2014– 2020. *Journal of Law, Policy and Globalization*. <https://doi.org/10.7176/JLPG/112-12>
42. Fletcher, A. J., & Reed, M. G. (2022). Different Experiences, Diverse Knowledges: Gender, Intersectionality, and Climate Change in Rural and Resource Contexts. In *Gender and the Social Dimensions of Climate Change: Rural and Resource Contexts of the Global North*. <https://doi.org/10.4324/9781003089209-1>
43. Gill, D. A., Blythe, J., Bennett, N., Evans, L., Brown, K., Turner, R. A., Baggio, J. A., Baker, D., Ban, N. C., Brun, V., Claudet, J., Darling, E., Di Franco, A., Epstein, G., Estradivari, Gray, N. J., Gurney, G. G., Horan, R. P., Jupiter, S. D., ... Muthiga, N. A. (2023). Triple exposure: Reducing negative impacts of climate change, blue growth, and conservation on coastal communities. In *One Earth* (Vol. 6, Issue 2). <https://doi.org/10.1016/j.oneear.2023.01.010>
44. Glazebrook, T., Noll, S., & Opoku, E. (2020). Gender matters: Climate change, gender bias, and women's farming in the global south and north. *Agriculture (Switzerland)*, 10(7). <https://doi.org/10.3390/agriculture10070267>
45. Gressel, C. M., Rashed, T., Maciuika, L. A., Sheshadri, S., Coley, C., Kongeseri, S., & Bhavani, R. R. (2020). Vulnerability mapping: A conceptual framework towards a context-based approach to women's empowerment. *World Development Perspectives*, 20. <https://doi.org/10.1016/j.wdp.2020.100245>
46. Hafez, M. R. (2020). Impacts of Climate Change on Agriculture, Livelihoods, and Women in Nile Delta, Egypt. In *Handbook of Climate Change Resilience* (pp. 765–784). Springer International Publishing.
47. Hassan, M. (2024). Islamic Feminism and Gender Equality in Modern Egypt. *Journal of Philosophy, Culture and Religion*, 7(2), 13–23. <https://doi.org/10.47604/jpcr.2605>
48. Hulsbergen, M., & van der Kwak, A. (2020). The influence of quality and respectful care on the uptake of skilled birth attendance in Tanzania. *BMC Pregnancy and Childbirth*, 20(1), 681. <https://doi.org/10.1186/s12884-020-03278-z>
49. Ibrahim, S. (2021). The dynamics of the Egyptian social contract: How the political changes affected the poor. *World Development*, 138. <https://doi.org/10.1016/j.worlddev.2020.105254>
50. ICJN. (2002). Bali Principles of Climate Justice. *World, August*.
51. Jabeen, S., Haq, S., Jameel, A., Hussain, A., Asif, M., Hwang, J., & Jabeen, A. (2020a). Impacts of rural women's traditional economic activities on household economy: Changing economic contributions through empowered women in rural Pakistan. *Sustainability (Switzerland)*, 12(7). <https://doi.org/10.3390/su12072731>
52. Jabeen, S., Haq, S., Jameel, A., Hussain, A., Asif, M., Hwang, J., & Jabeen, A. (2020b). Impacts of Rural Women's Traditional Economic Activities on Household Economy: Changing Economic Contributions through Empowered Women in Rural Pakistan. *Sustainability*, 12(7), 2731. <https://doi.org/10.3390/su12072731>
53. Jackson, M. O. (2021). Inequality's Economic and Social Roots: The Role of Social Networks and Homophily. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3795626>
54. Khamis, M., Prinz, D., Newhouse, D., Palacios-Lopez, A., Pape, U., & Weber, M. (2021). The Early Labor Market Impacts of COVID-19 in Developing Countries: Evidence from High-Frequency Phone Surveys. *Jobs Working Paper*, 58.
55. Kleven, H., Landais, C., Posch, J., Steinhauer, A., & Zweimüller, J. (2021). Do Family Policies Reduce Gender Inequality? Evidence from 60 Years of Policy Experimentation. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3731251>

56. Krafft, C., Assaad, R., & Rahman, K. W. (2021). Introducing the Egypt Labor Market Panel Survey 2018. In *IZA Journal of Development and Migration* (Vol. 12, Issue 1). <https://doi.org/10.2478/izajodm-2021-0012>
57. Lee, S., Schmidt-Klau, D., & Verick, S. (2020). The Labour Market Impacts of the COVID-19: A Global Perspective. *Indian Journal of Labour Economics*, 63. <https://doi.org/10.1007/s41027-020-00249-y>
58. Mahfouz, E. M., Mohamed, E. S., Alkilany, S. F., & Rahman, A. A. (2021). Food Insecurity and Intimate Partner Violence among Rural Women, Minia, Egypt. *The Egyptian Journal of Community Medicine*, 39(3), 82–92. <https://doi.org/10.21608/ejcm.2021.187679>
59. Malwade, V. A. (2020). Rural Women's Education in India. *Journal of Emerging Technologies and Innovative Research*.
60. Mapanje, O., Karuaihe, S., Machelo, C., & Amis, M. (2023). Financing Sustainable Agriculture in Sub-Saharan Africa: A Review of the Role of Financial Technologies. In *Sustainability (Switzerland)* (Vol. 15, Issue 5). <https://doi.org/10.3390/su15054587>
61. Monshipouri, M., & Ramaswamy, K. (2024). The COVID-19 pandemic, climate change, and internally displaced persons: constraints and opportunities. In *Public Policy in the Arab World* (pp. 45–66). Edward Elgar Publishing. <https://doi.org/10.4337/9781035312696.00012>
62. Mubenga-Tshitaka, J. L., Dikgang, J., Muteba Mwamba, J. W., & Gelo, D. (2023). Climate variability impacts on agricultural output in East Africa. *Cogent Economics and Finance*, 11(1). <https://doi.org/10.1080/23322039.2023.2181281>
63. Neumayer, E., & Plümper, T. (2007). The gendered nature of natural disasters: The impact of catastrophic events on the gender gap in life Expectancy, 1981–2002. *Annals of the Association of American Geographers*, 97(3). <https://doi.org/10.1111/j.1467-8306.2007.00563.x>
64. Schlosberg, D., & Collins, L. B. (2014). From environmental to climate justice: Climate change and the discourse of environmental justice. In *Wiley Interdisciplinary Reviews: Climate Change* (Vol. 5, Issue 3). <https://doi.org/10.1002/wcc.275>
65. Shaikh, R. B., & Ramchandra, P. (2020). Obstacles in rural women's education from Gosavi community. *Journal of Emerging Technologies and Innovative Research*.
66. Shibata, I. (2021). The distributional impact of recessions: The global financial crisis and the COVID-19 pandemic recession. *Journal of Economics and Business*, 115. <https://doi.org/10.1016/j.jeconbus.2020.105971>
67. Siddiqui, S. (2023). Status of Muslim women in modern family and personal law. In *The Oxford Handbook of Islam and Women*. <https://doi.org/10.1093/oxfordhb/9780190638771.013.26>
68. Singh, P., Tabe, T., & Martin, T. (2022). The role of women in community resilience to climate change: A case study of an Indigenous Fijian community. *Women's Studies International Forum*, 90. <https://doi.org/10.1016/j.wsif.2021.102550>
69. Takieldin, R. (2023). Political Empowerment of Egyptian Women (2005–2022). *American Journal of Youth and Women Empowerment*, 2(2). <https://doi.org/10.54536/ajywe.v2i2.2183>
70. Tonbol, K. (2024). Climate change: interdisciplinary solutions for a global challenge. *Multidisciplinary Adaptive Climate Insights*, 1(1), 1. <https://doi.org/10.21622/MACI.2024.01.1.907>
71. Tóth, G., Wachs, J., Di Clemente, R., Jakobi, Á., Ságvári, B., Kertész, J., & Lengyel, B. (2021). Inequality is rising where social network segregation interacts with urban topology. *Nature Communications*, 12(1). <https://doi.org/10.1038/s41467-021-21465-0>
72. UN, W. (2020). *Issue brief: COVID-19 and ending violence against women and girls | Digital library: Publications*. <https://www.unwomen.org/en/digital-library/publications/2020/04/issue-brief-covid-19-and-ending-violence-against-women-and-girls>

73. *UN Women Watch Women, Gender Equality, and Climate Change.* (2009).
74. *UNDP Overview of linkages between gender and climate change.* New York, USA: United Nations Development Programme. (2016).
75. *World Bank. Social norms and female labor force participation in Egypt. International Bank for Reconstruction and Development / The World Bank.* . (2023).
76. *World Bank. (2024). Women, Business and the Law. Retrieved from . (2020).* <https://ourworldindata.org/grapher/women-can-take-the-same-jobs-as-men?tab=chart&country=~EGY>
77. *World Bank. Our World in Data based on International Labor Organization (via the WorldBank) and historical sources. Retrieved from. (2024).* <https://ourworldindata.org/grapher/share-of-the-labor-force-employed-in-agriculture?tab=chart&country=~EGY>