BURLEIGH DODDS SERIES IN AGRICULTURAL SCIENCE

Women and smallholder farming

Addressing global inequities in agriculture

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E-CHAPTER FROM THIS BOOK

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The impact of sociocultural factors on women smallholder farmers: Middle East and North Africa

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1 Introduction

Gender inequality persists in the Middle East and North Africa (MENA) region because of an entrenched patriarchy from within the private domain of households to communities, to a more systemic patriarchy sustained by

http://dx.doi.org/10.19103/AS.2024.0148.08

Chapter taken from: Sachs, C. E. and Castellanos, P. (ed.), Women and smallholder farming: Addressing global inequities in agriculture, Burleigh Dodds Science Publishing, Cambridge, UK, 2025, (ISBN: 978 1 80146 805 3; www.bdspublishing.com)

the state and other key political and economic institutions. In agriculture, the largest employer is women in the MENA region, this is manifested in many ways, including:

- women's marginalization from land rights, and subsequently access to credit, information;
- seeing themselves and being labeled as helpers instead of farmers, including as housewives on their national IDs;
- gender wage gaps and discrimination for paid work; and
- having to contend with sexual harassment.

Although women exercise their agency to transgress these harmful norms, often by accentuating other norms, enforcing existing legislation and targeted gender transformative approaches to challenge these norms is a necessary first step to enable women to benefit from their engagement in agriculture.

2 Visible and invisible contributions of women to agriculture in the Middle East and North Africa region

Women's contributions to agriculture in the MENA region have grown dramatically in recent decades because migration – as a coping strategy in response to climate change, globalization, political instability, and other influences upon agriculture – is much more widely available to men than to women. Entrenched familial and societal gender norms ensure that women remain almost solely responsible for homemaking and caregiving even as they are increasingly participating out of choice and necessity in the paid economy. These multifaceted economic and domestic responsibilities render women less mobile than the men in their families and communities.

In dry areas, which characterizes the majority of the Arab World, a combination of climatic change and population growth has led to increased male and youth outmigration to cities and towns among rural populations who depend on rainfed agriculture (Abdelali-Martini and Hamza 2014; Afifi et al. 2016; Kristensen and Birch-Thomsen 2013; FAO 2011; Läderach et al. 2022). A report published by the International Centre for Agricultural Research in Dry Areas (ICARDA) of the proceedings from the International Conference on Food Security in Dry Lands held in Qatar in 2012 emphasized that populations that inhabit deserts and dry rural areas of the world are most likely to experience male outmigration to urban areas and to subsequently witness the 'feminization of agriculture,' a rise in the participation of women in agriculture, often borne of necessity (Pedrick et al. 2012; Baada and Najjar 2020). Other recent research affirms these trends (Abdelali-Martini and Hamza 2014; Gaurtala et al. 2010;

Pattnaik et al. 2018; de Brauw et al. 2008). Male outmigration strongly influences women's roles in agriculture, with associated implications for agricultural productivity and gender equity.

Although agriculture is the largest employer of women in the MENA region, women's contribution to the sector remains largely undervalued, if not invisible. Some estimates suggest that about 50% of women engaged in agrarian labour are either not counted at all in national surveys or classified as economically inactive (Kabeer et al. 2019; Hoodfar 1997; Jensen 1994; Larson 1991). This is especially true for women who provide unpaid labour on family farms and are assumed to be (and may even see themselves as) economically inactive or, at most, as helpers to male farmers instead of farmers. In some settings (see, for example, Najjar et al. 2017a for findings from rural Egypt), even female wage workers in the agricultural sector are listed as 'housewives' on their national IDs while their male counterparts are listed as agricultural workers. This prevents women from being recognized, and often even from recognizing themselves, as workers who make significant contributions to their households, communities and the national economy.

Established patriarchal gender hierarchies play a powerful role in how women see themselves and are seen by others. There is an extensive literature on gender and agriculture in the MENA region that emphasizes the tendency for women to be classified as 'helpers' rather than as farmers regardless of their contributions, and this is identified as a major barrier to women's optimal participation in agriculture (Barnes 2013; Galie et al. 2013; Gouda 2013; Najjar et al. 2017a). There is both legal and social failure to recognize women as workers. Being categorized as 'helpers' to male workers instead of as workers has negative implications for women's rights, entitlements, well-being and agency.

3 Lack of land rights for women in the Middle East and North Africa region

The gap between women's and men's education and income levels is narrowing gradually all over the world, but the disparity in land and property ownership is stark and seemingly intransigent. Even in countries where women consistently outperform men in educational attainment, they remain extremely marginalized in land and property ownership (Baruah 2010). Consequently, there is growing acknowledgement that women are particularly discriminated against in their right to land and property (UNDP 1995; UNIFEM 2000; World Bank 2001). Women are disadvantaged in land ownership almost everywhere in the world.

At 5%, the MENA region has one of the lowest documented rates of women's land ownership in the world (FAO 1999). In 2007, the United Nations Economic Commission for Africa (UNECA) described women's access to land in Egypt as

'alarmingly low' and 'lagging behind'. More recent surveys conducted in Egypt in 2014 reveal an even lower rate of 2% (Ministry of Health and Population [Egypt], El-Zanaty and Associates [Egypt], and ICF International 2015). As in several other MENA countries, by law, women in Egypt are entitled to inherit only half of the natal property as their brothers, but ultimately most women do not receive even this limited share. Deep-seated cultural norms ensure that brothers control the shares of their sisters; thus, in practice, women's ownership is just notional (Najjar et al. 2020). The inability to access land rights at par with men renders unmarried, divorced and widowed women particularly vulnerable to poverty and climate insecurity.

If threats to a family's well-being and security are external to the household, it may be less important whether a woman has independent ownership of and control over an asset – be it land, houses, livestock, or jewellery. The entire household may be protected if someone within it owns and controls the asset. However, a very different scenario may present itself upon internal threats to family security such as death, divorce, separation or abandonment. In the latter scenario, a woman's well-being is likely to depend much more significantly on whether she can exercise ownership and control over assets. Thus, inability to access land and other asset rights at par with men renders widowed and divorced women particularly vulnerable.

Since women rarely own land, they face more challenges than men do in accessing loans and credit due to their inability to offer individual land titles as collateral. Women also had weaker access than men to extension services and training in skills deemed masculine, such as irrigation and other drought-mitigation strategies (Najjar et al. 2019a; Najjar and Baruah 2023). Women also have weaker access than men to markets for the goods they produce because of their lack of income and collateral and the higher burden of domestic responsibilities and higher time poverty.

4 Lack of decent and safe paid work for women in agriculture

Although women increasingly perform most of the agricultural work in the Global South, including in the MENA region, they are almost always paid less than men, experience more precarious working conditions and have limited bargaining power (Abdelali-Martini 2011; Abdelali-Martini and de Pryck 2015; de Pryck and Termine 2014; Mills 2003; Razavi 2009). Alongside women's growing participation in agriculture in MENA countries, there is widespread evidence of gender-based wage inequity in agricultural labour. The literature reveals that women systematically perform lower paid and manual tasks that are precarious and seasonal, while men perform more permanent, technologically sophisticated, and higher paying jobs although

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these stereotypes tend to break in conditions when the supply of male work, for example due to migration, is limited (Deere 2005; de Pryck and Termine 2014; Najjar et al. 2018).

Wages and working conditions are also reported to vary depending on migration dynamics, type of crops, farm and market (traditional versus more cash-generating crops). For example, export-oriented crops such as fruits and vegetables and large farms tend to have lower gender wage gaps and less precarious working conditions than smaller family-owned farms (Barrientos et al. 2003; de Pryck and Termine 2014; Maertens and Swinnen 2012). Although commercial farms tend to pay women better wages than family farms, the expansion of agricultural commercialization in many contexts in the Global South, including MENA countries, has simultaneously been found to be very dependent on the availability of cheap and easily replaceable female labour (Razavi 2009). Very little is known about longer-term economic and social effects and outcomes upon women's lives from their growing participation in commercial farming in MENA. For example, there is virtually no research available to help us understand how women in MENA countries who participate actively in commercial agriculture in their youth fare as they get older and become less productive as agricultural workers. There is no existing research on their needs, priorities, or their ability to transition into less physically demanding sectors of employment or into retirement.

Almost all countries in the MENA region have framed national legislation against wage discrimination based on gender. Most countries in the region are also signatories to international treaties and guidelines (such as the International Labour Orgnanization's decent work agenda) that stipulate equal pay for equal work, but major gaps remain in the implementation, enforcement and monitoring of such laws and policies, explaining the persistent gender wage gaps in many sectors of employment (ILO 2014). Enforcing existing legislation to ensure equal pay for women is an essential first step toward enabling women to benefit equitably with men from their agricultural labour contributions.

Most female agricultural wage workers in MENA countries come from families that are landless or from families that own plots of land that are too small to sustain their needs (Najjar et al. 2017a, 2018). Thus, while land ownership and inheritance practices remain extremely male-biased in this region, large numbers of men from poor families are also landless or otherwise disadvantaged in land ownership. Since their labour is the most important asset, the landless poor, in general, and women, in particular, have to offer, it is critical that due emphasis is given to improving wages and working conditions (Razavi 2007; de Pryck and Termine 2014).

The concept of decent work, which stipulates fair pay, equal opportunities and treatment, security, social protection, social dialogue, as well as rights at

work, offers a valuable opportunity to improve the working conditions of wage workers (ILO 2014) even as decent work principles remain largely unenforced, especially for informal workers in the rural agricultural sector in the MENA context. The enforcement of existing gender equity wage legislation is crucial as is raising awareness among employers to ensure equal pay and better working conditions for women.

There have been significant advancements in strengthening social protection floors in many countries in Asia and Latin America recently, including both conditional and unconditional cash transfer programs that enable poor women to make priority decisions for themselves and their dependents (for example, Bolsa Familia in Brazil and Oportunidades/Prospera in Mexico). Structural inequality constrains individual ability to exercise rights and demand entitlements. The benefits women derive from wage employment in agriculture can only find optimal traction within the context of a wider and more comprehensive social security infrastructure.

Countries in the MENA region are well-advised to try to introduce and expand the types of social protection programs (pensions, maternity, basic income) that are already in place in other countries. It is difficult to improve wages and working conditions in agriculture when labour supply is abundant and when social security is weak. These considerations are particularly important in the context of land fragmentation and climate change rendering rainfed agriculture less reliable, and paid wage work in irrigated agriculture on larger commercial farms becoming a more important source of income, especially for women. In rural Morocco, male and female workers in rural areas, which are drought-prone but rainfed, migrate for agricultural wage work opportunities on irrigated commercial farms in large numbers (Najjar et al. 2017a).

4.1 Widespread evidence of sexual harassment in paid agricultural work

Sexual harassment has been systematically reported as a problem faced by women in the agricultural wage sector in MENA countries, often made worse by the seasonal and informal nature of much agricultural labour in the region and the lack of unionization (Maertens and Swinnen 2012; de Pryck and Termine 2014). Women were overwhelmingly the victims of sexual harassment in the agricultural sector (Najjar et al. 2017a; Najjar et al. 2018). Young unmarried women were particularly vulnerable to sexual harassment from labour supervisors or fellow male labourers. Because women's access to work often depended on their tolerance of sexual harassment, they were rarely able to resist unwanted advances or to demand respect at work (Najjar et al. 2017a, 2018). Women may also self-select into lesser paid prospects to avoid

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gender-based harassment (Najjar et al. 2018). Sexual harassment diminishes women's ability to participate optimally in the agricultural sector, which has implications for women's ability to build resilience to climate change via agricultural productivity and food and income security.

Women agricultural workers in Morocco often self-select to work in women-only groups to avoid harassment, despite that meaning that they would get lower pay (Najjar et al. 2018). Patriarchal gender norms are a key barrier to women taking advantage of opportunities arising from rural transformation (Kosec et al. 2020). Even when women provide most of the labour in milk processing and livestock rearing, they may not own livestock and may have limited decision-making power such as in South Jordan (Najjar et al. 2019b). Breaking down norms that allow such imbalances to persist is critical for empowering women.

5 Opportunities for women to organize and access to policy and decision-making structures

Many of the challenges and inequities women face in working in agriculture in MENA countries may have been addressed if women had opportunities to organize and mobilize for fairer wages and better working conditions. Farmers' unions are rare in the MENA context, and where they exist, their primary focus appears to be on improving access to subsidized fertilizer and water rights not on workers' rights, fair wages or decent working conditions (Najjar et al. 2017a). Male agricultural workers in MENA also fare quite poorly at bargaining collectively to improve their working conditions, but women were mostly unable to access any opportunities to bargain formally for better wages and working conditions.

Women in agricultural labour in MENA countries contend with erratic incomes, insecure work, lean seasons, work-related injuries, lack of health insurance and unaffordable or unavailable childcare. Increased mechanization of harvesting in both areas is leading to job losses for women (Najjar et al. 2017a; Abdelali-Martini and de Pryck 2015). 'Many women asked the interviewer to discourage efforts to mechanize their work, particularly the well-paid lentil harvesting' (Abdelali-Martini and de Pryck 2015, p. 13). In the absence of adequate social security nets, in most MENA settings, women must work well into old age to support themselves and their families.

Although there is some evidence of women organizing and mobilizing informally for better wages and working conditions in agriculture (Najjar et al. 2017a, 2018), there are presently very few opportunities for women to organize formally as workers via collectives such as unions, producer groups or cooperatives.

5.1 Access by women to policy and decision-making structures

The lack of opportunities for women in the MENA region to organize and mobilize as workers also translates into women having much weaker access than men to governance, policy and decision-making spaces. It is important to create more visibility and social acceptance for women in these spaces. The limited existing research on the topic points to some of what might be needed to enable women to participate effectively in decision-making spaces (for example, institutional support from non-governmental organizations (NGOs) and international or intergovernmental agricultural organizations, gender-based quotas or targets, and closer attention and responsiveness to women's domestic responsibilities). More research aimed at understanding how to enable women to participate optimally in public institutions in agriculture in the context of specific countries in the MENA region should be a priority.

6 Ways forward: legal recognition and land ownership

6.1 How best to enable women to gain legal and social recognition as farmers

Despite women's growing contribution to agriculture, sex-disaggregated data on wages and working conditions is extremely scarce in MENA countries. The lack of empirical evidence about the opportunities and constraints faced by women in agricultural labour make it difficult to design policy responses to improve their situation, including enabling them to be legally recognized as workers. The fact that women's contributions to agriculture in the MENA region are undervalued or invisibilized due to patriarchal laws and regressive social norms is well-established (Galie et al. 2013; Geha and Karam 2021; Najjar 2015; Najjar et al., 2017a, 2018; Ragetlie et al. 2021) as are the negative implications women's marginalization in agriculture have for their ability to adapt and build resilience toward worsening climate effects in the region (Najjar 2015; Najjar and Baruah 2023).

What is less well known is how best to go about enabling women to gain both legal and social recognition as farmers. In addition to advancing legal recognition via gender-disaggregated data collection and inclusion and analysis of formal and informal work, governments and donors may be able to play an important role in enabling women to gain social recognition as workers by supporting efforts to raise public awareness about the contribution female agricultural workers make to national economies, food security, the fight against climate change and to society at large.

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6.2 How to advocate for reform of male-biased inheritance practices and for gender equality in land ownership

The MENA region has the lowest level of women's land ownership in the world, yet very little research has explored the specific barriers women face in land ownership in different countries in the region and how to go about addressing them in each specific context. Doss et al. (2015) found that gender land statistics were available in only 9 of 53 African countries, and they emphasize that there is virtually no data on gender and land ownership available for North African countries such as Morocco, Algeria and Tunisia.

The question of how best to advocate for gender equality in land ownership in MENA is complicated by findings from other regions, notably from South Asia and sub-Saharan Africa and emerging research in Egypt (see Najjar et al. 2020) which suggest that policy interventions such as advocating for titling land in women's names can only play a limited role in altering gender norms and social hierarchies in the absence of wider political consciousness and awareness about gender equality (Baruah 2010; Gammage et al. 2016). Even when women are potentially able to acquire land and property through either inheritance, purchase in the market or distribution by the state, they are unwilling or hesitant to assert the equal inheritance rights of sons and daughters. The simple targeting of resources to women does not always ensure equitable outcomes, since resources may then be allocated in biased ways to children under conditions of strong son preference. Therefore, legal literacy and initiatives that raise awareness among women as well as men about the benefits of greater equity and that address fears about undoing customary male privileges may be as crucial as policy reforms and state actions that protect women's interests and facilitate their agency. Gender equity goals can only be partially accomplished through legal measures and economic interventions, regardless of how well-intentioned and progressive they may be. Since inheritance practices remain so male-biased (and since women are themselves often complicit in making them so), it is also important to ask from a more practical perspective if assets other than land (houses, livestock, jewellery, savings and investments, for example) can also enable women in agriculture to build economic security and resilience to the effects of climate change.

7 Ways forward: asset ownership and access to training

7.1 Research on women's ownership of non-land assets

Though there have been a few studies addressing women's ownership of land assets, there has been very little research on non-land assets owned by women in the MENA region, including assets such as livestock, jewellery,

private enterprises, cellphones, computers, guaranteed investment certificates, agricultural and irrigation equipment.

The existing research on gender and asset ownership points to land and homes as the most economically and socially valuable assets for women. Livestock and gold are also certainly useful assets for women, especially because they can be sold easily for cash (Moors 2013; Najjar et al. 2020). Because these latter assets are highly liquefiable, it is important for women to have control over their sales and use. Therefore, the existing research highlights the importance of implementing specific policies to enable and optimize land and property ownership by women even if they own other non-land assets such as gold, poultry and livestock.

Future research on gender and asset ownership should also consider various forms of sole and joint ownership (with, for example, spouses, family members and friends) through which women and men may own and control assets. However, researchers should be cognizant that joint ownership does not necessarily imply equal ownership (Doss et al. 2014; Jacobs and Kes 2015). In addition to enabling women to access and own land and non-land assets, it is important to visibilize, strengthen and validate women's roles in agriculture. This is critical since women often saw themselves and were seen by others in the community as 'helpers' rather than farmers.

7.2 How to enable women to access training in irrigation and other skills deemed 'masculine'

Parts of the MENA region that are dependent on rainfed agriculture are more vulnerable to climate effects of reduced precipitation (Schilling et al. 2012; Waha et al. 2017). Water scarcity has motivated various irrigation initiatives in this region, ranging from drawing water from aquifers, lakes and rivers to desalination of seawater (Waterbury 2013; Sowers et al. 2011). In irrigated areas, the expansion of commercial labour has led to a growing demand for hired agricultural labour. Women find themselves employed in such contexts in growing numbers, often because they are cheaper to hire than men labourers and because they are more willing than men to accept temporary, seasonal or otherwise precarious work. Large numbers of women migrate out of necessity from rural areas with rainfed family farms to other areas in the country with irrigated commercial farming due to the prospect of paid wage work (see Najjar et al. 2021 for findings from Morocco).

The existing scholarly and practitioner literature on women's participation in irrigation in MENA countries suggest that although women participate quite actively in irrigation and water management, their contributions are poorly understood and undervalued by landowners (typically men in their own families and communities) as well as by irrigation engineers and extension agents

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(Barnes 2014; Ibrahim 2006; Najjar et al. 2019a). Research aimed at identifying and describing women's contributions to the irrigation sector and making recommendations for improving women's access to irrigation technologies and participation in water governance is critical. Detailed and comparative research in specific countries and local contexts in MENA is important for ensuring equitable participation of women in irrigation especially since control of water resources is increasingly being transferred from centralized entities such as water boards and utilities to community institutions such as local Water Users Associations.

Gender norms also play an important role in determining the adoption of irrigation technologies. For example, while pedal pumps were deemed beneficial for men in sub-Saharan Africa, they were deemed inappropriate or even shameful for women to use in the same contexts (Theis et al. 2018). The literature on this topic suggests that the role played by gender norms in enabling or disabling women's ability to adopt irrigation technologies is under-researched and so are the benefits and constraints following the adoption of specific irrigation technologies.

Very few studies explore gendered patterns of irrigation technology adoption and women's ability to benefit from them. The existing research on gender and technology adoption is based in South Asia and sub-Saharan Africa (see, for example, Njuki et al. 2014; Theis et al. 2018). There is very little published research on this topic in the context of the MENA region.

Although gender norms play an important role in technology adoption, it is important to simultaneously emphasize that gender norms are never static. They are constantly being reproduced, adapted, contested and negotiated as part of everyday social interactions (Jackson 1998). Migration and resettlement, for example, may play an important role in changing gender norms. These are also important considerations for future research on gender and irrigation.

The existing evidence suggests that women are far more actively engaged in irrigation roles in the MENA region than is generally assumed and documented in the literature on the topic (Najjar et al. 2019a). Women transgress norms related to their participation in irrigation by calling peer men brothers and younger men sons, while also circumscribing to other norms related to propriety by taking their young sons with them to the field. Although women's invisibility in irrigation may be a consequence of their lower levels of land ownership and social status and stronger association with the domestic sphere, it may also be a consequence of the continuing association of irrigation with masculinity (Bossenbroek and Zwarteveen 2014; Carreta 2015; Cole et al. 2015). The limited existing research on gender and irrigation in MENA identify land ownership; educational attainment; institutional support from government, donors and NGOs; and access to training in irrigational technologies as factors that enable women to optimally undertake irrigation.

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8 Ways forward: climate-smart practices and mechanization in crop and livestock production

8.1 Identifying opportunities for climate-resistant 'green' agriculture and rangeland cultivation

In addition to improving women's access to irrigation and other skills and training in agriculture that are still largely only offered to male farmers, it is important to explore and identify opportunities for climate-responsive or 'green' agriculture via drought-resistant crops such as barley and cactus and livestock such as hardier breeds of poultry, goats, sheep, camels and cattle (Najjar 2015; Najjar and Baruah 2023). Most of the existing training in MENA about drought management focuses on supplementary and alternative irrigation techniques and practices (Sowers et al. 2011). Other complementary drought mitigation and management strategies such as the introduction of cacti, including as livestock feed, and other drought-tolerant crops and animal breeds were not presently being explored by the agricultural extension and training programs in MENA countries (Haddad and Shideed 2013; Haddad et al. 2011). These are worth exploring in the future.

Because women are known to be more vulnerable to the effects of climate change, they also benefit more from access to risk mitigation strategies and tools (Bageant and Barrett 2017; Chanamuto and Hall 2015). Findings from rural Tunisia suggest that women are often unable to access innovations which may mitigate the effects of climate change at par with men (Najjar and Baruah 2021). Skills and training related to drought and irrigation, for example, were targeted almost exclusively to men. It is crucial that women gain access to drought management and adaptation training at par with men. Alongside increasing women's access to such training, it is important to create more visibility and social acceptance for women in roles such as irrigation, grazing and marketing that are deemed masculine. This will enable more women to participate in agriculture (including rangeland cultivation) and livestock rearing on a more equal footing with men and to voice their concerns and priorities in policy dialogues.

8.2 How to mechanize the agricultural sector responsibly

Broadly speaking, agriculture in MENA countries is still heavily reliant on human labour because the cost of large-scale mechanization presently far exceeds the cost of human labour, especially given the high levels of rural unemployment and the high availability of cheap migrant labour in the region (ILO 2014; ILO 2017). The existing research on the mechanization of agriculture in other regional contexts in the Global South suggests that the introduction of mechanization in agriculture will be gradual and incremental rather

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than sudden and absolute (Lewis et al. 2022). Mechanization will be heavily influenced by economic and social realities of the local context and will initially affect medium- and low-skilled workers, among whom women are the majority, the most (Kawarazuka et al. 2018). In some contexts, mechanization may also be driven by environmental, health and safety concerns.

The limited existing evidence on mechanization of agriculture from MENA countries confirms these broader trends. The mechanization of commercial agricultural enterprises in Egypt and Morocco has raised concerns because women typically have much weaker access to training and machinery and are more likely than men to lose work because of mechanization (Najjar et al. 2018, Najjar and Baruah 2020). Research and public policy should anticipate mechanization displacing wage work and train those affected in other skills.

Mechanization of commercial fruit, vegetable and flower farming in the MENA has also enabled more widespread use of chemical fertilizers and pesticides in agriculture. Research is needed to explore the health implications for workers of heavy chemical use in the agri-export industry (Bain 2010). The fact that agricultural labourers in many MENA contexts do not have health insurance makes this an especially urgent issue.

8.3 Women, rangeland management and livestock farming

Pastoralism, which is practiced by close to 200–500 million people and in more than 75% of countries, is projected to become more vulnerable to climate change (McGahey et al. 2014). Coupled with non-climate-related stressors, climate change is projected to affect pastoralism by lowering pasture and animal productivity, damaging reproductive function, reducing litter size and survival rates, and leading to biodiversity loss (IPCC 2019).

Livestock rearing is an important livelihood strategy for rural communities all over the world. Particularly in developing countries, livestock often serve as assets, capital and 'insurance policies' of rural people with poor access to formal financial institutions and high vulnerability to crop failures (Njuki and Sanginga 2013). Livestock rearing can be an important component of building household and community resilience (Dumas et al. 2018). Livestock rearing tends to be a significant (if not the primary) livelihood activity for rural households and communities located in areas of the MENA region that are dry or that have more extreme climates where crop cultivation is not as reliable (Archambault, 2016; Turner and Williams, 2002). Livestock may also be integral to crop production in some contexts and therefore to livelihood security (Debela 2016; Fisher et al. 2000).

Existing ecological issues such as overgrazing and desertification that are associated with livestock production have been exacerbated by climate change. An increasing number of dryland areas will be subjected to drought conditions

in the future (Fraser et al. 2011). Dryland areas are particularly vulnerable to the effects of climate change because of their low adaptive capacity and higher sensitivity to changes in temperature and precipitation (ibid.). By rendering grasslands and rangelands less productive, climate change will adversely affect dairy, meat and wool production. Thus, the livelihoods of the 2.5 billion people who inhabit dryland areas are particularly vulnerable to climate change (ibid.). Since the effects and outcomes of climate change have been demonstrated to be borne more heavily by women, often as a result of the household and societal division of labour, improving their ability to adapt to changing environmental conditions is critical (Alexander et al. 2011; Carr and Thompson 2014). Climate change also interacts with structural barriers such as tenure insecurity, credit inaccessibility, limited access to agricultural inputs and improved technologies to the disadvantage of women (Carr and Thompson 2014).

Women's roles in and contributions to rangeland cultivation and the effects of climate change on their livelihoods are both under-researched topics (Nelson et al. 2002; Huyer 2016; Chanana-Nag and Aggarwal 2018; The CGIAR Impact Platform 2022). There is very little research on gender and pastoral livelihoods in the MENA. Almost all the existing research on the topic was conducted in sub-Saharan Africa. In order to enable women in pastoral communities and rangeland cultivation in MENA countries to adapt and build resilience towards climate change, we need more empirical research aimed at understanding the roles they play in their communities, and the challenges and opportunities they face.

9 Ways forward: empowering rental farmers and income diversification

9.1 How to empower renter farmers

Due to land fragmentation in all MENA countries, growing number of people must rent land in order to be able to farm. Renter farmers are a disadvantaged group regardless of gender, but women were more vulnerable because of the lower social status attributed to them because of their gender. Landowners, who are almost always men, prefer to rent their lands to men: 'Even if the woman [the wife] will be the one farming, I prefer to rent the land to a man', explained a landowner in Kafr Sheikh, Egypt (Najjar et al. 2020). Women had very weak bargaining positions with farm owners and often faced conflicting priorities between growing food crops (which renters preferred) and cash crops (which farm owners preferred) with very important implications for the ability to optimize returns from agriculture while preventing further soil erosion and degradation, and water overuse, thereby building resilience towards climate effects. Reframing and regulating renter–owner relationships to ensure more equity for renters should be a priority (see, for example, Bush 2019 for Egypt).

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Because female renters have even lower bargaining power than male renters, they will benefit tremendously from the reframing of renter–owner relations in MENA countries.

9.2 How to create and optimize livelihoods complementary with agriculture

It is increasingly rare for smallholder farming families in the MENA region to sustain themselves solely through agriculture. Members of farming families are compelled to diversify their livelihoods to respond not just to climate-induced stresses but also to other influences such as political conflict, globalization, urbanization, migration and return migration. It is not uncommon for different members of the same family, or even the same individual, to carry out a range of farming and non-farm-related economic activities. Since men are more mobile than women in the MENA region, they typically have more opportunities to participate in off-farm activities. More research is needed to understand how women might optimize incomes from agriculture (via activities such as agro-processing, meat, milk, manure, livestock sales) as well as non-agricultural economic activities such as producing handicrafts and other marketable goods and services such as carpets, leather goods, essential oils, and soaps. NGOs and other civil society organizations may be well placed to assist women in business training and marketing their goods physically and virtually.

10 Ways forward: organization and access to extension services

10.1 How best to organize and mobilize for rights, resources, entitlements (cooperatives, membership-based organizations, unions, etc.)

Members of cooperatives hold jobs in a co-operative producing goods and services. They participate in making major decisions concerning the cooperative. Cooperatives are not common in the MENA context, and the ones that exist are almost entirely staffed by men. The existing cooperatives are often not well-organized or well-run. Members had limited access to training, social protection and benefits via cooperatives, but they were able to access markets and export licenses through their participation in cooperatives. Barring a few examples such as argan cooperatives in Morocco, women's access to cooperatives and producer organizations was minimal in MENA (Perry et al. 2019; Biermayr-Jenzano et al. 2014). Significant research has demonstrated that women are able to increase their social and economic power through membership in co-ops and producer groups and that such organizations can help women mobilize resources and networks effectively (de Pryck and

Termine 2014). However, women were rarely able to join cooperatives in MENA countries. Women's only cooperatives in other settings have been known to empower women on social, economic and political fronts (the Self-Employed Women's Association in India is a good example, see Baruah, 2004, 2010), but they are rare in MENA. Research aimed at understanding the experiences of existing co-ops and producer groups in the MENA region as well as in culturally comparable regions such as South Asia and of replicating or adapting them for the MENA is much needed. Increased engagement of unions as organizations that lobby for improved wages and working conditions for workers rather than just on increasing subsidized access to water and fertilizer, which is presently the focus of most existing farmers' unions in MENA, is also important.

10.2 How to deliver extension services and information in-person and digitally

It is well-established that agricultural extension services do not serve farmers well in the MENA and that women are often completely overlooked by extension agents. Some researchers have recommended training more women as extension agents as a means of reaching more female farmers. Other researchers have noted that the gender of the extension agent is not as important as it is for them to think of women as farmers rather than as 'helpers' to male farmers, and for extension agents to reach out to women more proactively with agricultural extension support. Progress has been made on both these fronts (training more women as extension agents and encouraging extension agents of all genders to reach out to female farmers) in some contexts in MENA countries, but one of the biggest limitations remains that some governments in the region do not have the financial resources to offer extension support, especially in remote rural areas, with meaningful levels of training frequency and outreach. In Egypt, for example, since 2015, the annual budget for extension services has been slashed to 230 000 EGP, which as one official from the Ministry of Agriculture and Land Reclamation informed 'is not even enough to run 10 motorcycles, let alone 350 extension centres around the country' (Najjar et al. 2017b). If governments are unable to provide adequate funding and support for agricultural extension services, it may be worthwhile to explore the possibilities, which are already available in countries in other regions, of domestic and international civil society organizations, aid agencies and private companies offering such services.

With the expansion of access to the internet and to mobile technologies even in remote rural areas in MENA countries, the idea of providing extension services digitally is being explored both by governments and by intergovernmental agricultural organizations. Of course, the fact that women in MENA typically have much weaker access to Information and Communication

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Technologies (ICTs) and digital resources than men remains a serious challenge (Najjar et al. 2021; Ragetlie et al. 2022) but research aimed at finding solutions to address this digital gap is important and must be pursued in the future as a means to improve equity in the provision of agricultural extension services. The limited research that is emerging on the topic has suggested that gender-responsive digital extension, accomplished via means such as phone distribution, radio and SMS messages, and sharing of information prompts can be useful for enabling women to learn about and adopt new agricultural inputs, techniques and technologies (see Ragetlie et al. 2022 for findings from northern Tunisia). Much more empirical evidence needs to be generated in specific countries and contexts in the MENA region to understand how best to deploy and maintain such services.

11 Ways forward: risk management, supporting refugees and youth

11.1 How to reduce risk for farmers

As the effects upon agriculture of climate change worsen, the conversation about how to reduce the risks and losses associated with farming via instruments such as crop, livestock and asset insurance and green bonds for agriculture is gaining more traction in research and policy circles. Other tools like payment for environmental or ecosystem services are also being proposed as payments to farmers or landowners who have agreed to take certain actions to manage their land or watersheds to provide an ecological service. However, systematic research on the feasibility and outcomes of such initiatives is lacking almost everywhere, including the MENA region. While such tools may be able to protect farmers from the vagaries of climate effects and may also enhance the adoption of improved agricultural and rangeland management practices (Louhaichi et al. 2016), other related thorny issues such as the rights of landowners, land users and renters have neither been researched nor received any policy attention. The gender implications, effects and outcomes (especially vis-à-vis community and private property rights regimes and women's weak access to both) are potentially profound and powerful but remain mostly unknown. Addressing them proactively via focused research and responsive public policy is critical to ensuring gender equity in climate mitigation, adaptation and resilience.

11.2 Research on refugees in agriculture in Middle East and North Africa

Four of the top ten refugee host countries in the world are in the MENA region: Lebanon, Jordan, Turkey and Iran (Al-Dajani and Marlow 2019). It is well known that large number of refugees living in rural areas in MENA are working in

agriculture, both as formal and informal wage labour, but there is virtually no research on their experiences in farming, what challenges and opportunities they face and how they might be supported to stabilize their livelihoods and build resilience towards climate effects. Given the continued political strife and turmoil in the region and the scale of migration within and between MENA countries, research on this topic should be considered an urgent priority (see Al Zoubi 2022 on Syrian women migrants' agricultural coping strategies in rural Lebanon). Women and girls represent almost half of the world's migrants and refugees. While refugees of all genders are likely to face challenges working in agriculture in MENA countries, women and girls may face additional problems given entrenched gender hierarchies and inequities. Specific attention must be paid to understanding and responding to them.

11.3 Better understanding of youth perceptions and interests in agriculture

There is strong evidence to suggest that youth in the MENA region are increasingly disinterested in agriculture as a livelihood strategy. The reasons for youth disengagement and disenchantment with agriculture are complex and may be attributable to the influences of globalization, wider exposure to urban lifestyles and professions, generational differences in material and ideological aspirations and the diminishing prospects of building economic security via sole reliance on agriculture (Bossenbroek et al. 2015; Najjar et al. 2018). As discussed previously, growing female participation in agriculture is often a direct outcome of male and youth migration out of, or diminishing contribution to, agriculture. Youth face significantly higher levels of unemployment in MENA and migrate from rural to urban areas more frequently than other age groups (Bossenbroek et al. 2015). The existing research on agricultural labour in MENA confirms that most of those between the ages of 15 and 24 only participate in agriculture when they have no other viable livelihood options. Among young women, the existing research confirms that agricultural wage labour is most often carried out by women from the poorest landless families as an option of last resort (Najjar et al. 2018). Diminishing returns from farming due to climate change may exacerbate these trends of youth departure from agriculture. More research is required in different contexts to better understand youth perceptions of agriculture. Research and responsive policies aimed at revalorizing agricultural labour to render it more compatible with the contemporary aspirations of youth are urgently needed. A deeper structural revalorization of the importance and necessity of the agricultural sector within MENA is also required so that agricultural labour does not continue to be perceived as an occupation of last resort. Agriculture remains the backbone of many national economies in the MENA region. Given the added stress that climate change places upon agricultural systems and productivity, the sector can

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ill afford to lose out on the labour, energy, enthusiasm and creativity that youth can bring to it. Governments, donors, intergovernmental organizations and NGOs can also play a role in revalorizing agricultural livelihoods by supporting efforts to raise public awareness about the contribution agricultural workers make to national economies and to society at large.

12 Ways forward: policy lessons from the global coronavirus disease experience

Coronavirus disease 2019 (COVID-19) led to an unprecedented global reckoning of what constitutes essential work and essential services in all countries around the world, leading to calls for comprehensive reforms of sectors such as basic income, pensions, paid sick leave, childcare, eldercare and other stronger social protections for those who work in such sectors (Doss et al. 2020; Najjar and Baruah 2020; Baruah 2021; Bossenbroek and Ftouhi 2021). Agriculture, food security, food accessibility and availability (grocery stores, vegetable stands, for example) were recognized worldwide as sectors and services that no country could do without. COVID-19 has also led to a broader conversation about the possibilities and benefits of providing social protection within a human rights framework and delinking social security from employment status. In recent years, there have been significant advancements globally in expanding and strengthening social protection policies as more countries transition towards developing welfare systems.

Some strategies that are being tried in European, African, Asian and Latin American countries include basic income schemes as well as conditional and unconditional cash transfer programs designed specifically to enable poor women to make priority decisions for themselves and their dependents. Programs like Brazil's Bolsa Familia, Mexico's Prospera, Mali's Social Cash Transfer initiative, Togo's Novissi scheme (a fully digital cash transfer scheme designed and deployed during COVID-19 for workers in the informal sector) and India's basic income pilot are important developments given that structural inequality constrains individual ability to exercise rights and demand entitlements. Since so many countries around the world rolled out new social protection schemes (basic income and paid sick leave, for example) or strengthened and expanded existing schemes during the COVID-19 pandemic, there is now a clear opportunity to design research to understand how such schemes might be introduced or adapted to benefit the agricultural labour force in MENA and other contexts in the Global South.

13 Conclusion

Gender inequality persists in the MENA region because of an entrenched patriarchy from within the private domain of households, to communities, to

a more systemic patriarchy sustained by the state and other key political and economic institutions (Geha and Karam 2021; Kandiyoti 1988; Moghadam 2020; Ragetlie et al. 2021). Geha and Karam (2021) and Ragetlie et al. (2021) emphasize that MENA governments focus almost exclusively on skills development as a means to strengthening women's economic participation, but they rarely implement policies that address the root causes of gender inequality, such as patriarchal inheritance laws, male-biased land rights and structural gender inequality in democratic and inclusive governance.

Recognizing women as workers, framing and enforcing equal pay legislation for women and men in agriculture, strengthening social protection for all workers, increasing funding and support for agricultural extension services (including hiring more female extension agents), and providing gender-inclusive digital extension services are essential first steps that will enable women in MENA countries to benefit more optimally from working in agriculture and building resilience towards climate change. Investing in more public awareness about women as agricultural workers rather than helpers may also eventually shift more deeply entrenched social norms.

14 Where to look for further information

The following publications provide a good overview of the subject:

- Baruah, B., & Najjar, D. (2023). Priorities for Research on Gender Equality, Climate Change, and Agriculture in the MENA Region: A Policy Brief (https://hdl.handle.net/20.500.11766/68298)
- Baruah, B., & Najjar, D. (2023). Priorités de recherche sur l'égalité de genre, le changement climatique et l'agriculture dans la région MENA : note de politique (https://hdl.handle.net/10568/130021)
- أ ولويات البحث حول المساواة بين الجنسين وتغير المناخ والزراعة فيمنطقة الشرق ألوسط وشمال إفريقيا:- موجز السياسة Baruah, B., & Najjar, D. (2023). (https://hdl.handle.net/10568/130020)
- Baruah, B.,& Najjar, D. (2022). Gender Equality, Climate Change and Agriculture in the MENA region: Priorities and Possibilities. Beirut, Lebanon: International Center for Agricultural Research in the Dry Areas (ICARDA). (https://cgspace.cgiar.org/handle/10568/126987)
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- Baada, J.,and Najjar, D. (2020)**.** A Review of The Effect of Migration on the Feminization of Agrarian Dryland Economies. *Journal of Gender, Agriculture and Food Security*, 5(2), 1-12.
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- Najjar, D, Baruah, B., and Garhi, A. (2018). Women and Land Ownership in Egypt: Continuities, Contradictions, and Disruptions. Chapter 3, p. 59-86. In Emerich, Y. and Saint-Pierre, L. (Eds). Access to Land and Social Issues: Precarity, Territoriality, Identity. McGill-Queen's University Press (MQUP).
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Published by Burleigh Dodds Science Publishing Limited, 2025.