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The lives of women in a land reclamation project: gender, class, culture and place in Egyptian land and water management

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Abstract: This article links feminist political ecology with the academic debate about commoning by focusing on the gendered distribution of common pool resources, in particular land and water. The research is set in the context of a coastal land reclamation project in Egypt's Nile Delta, in a region where conflicts over resources such as arable land and fresh water are intensifying. Drawing on recent literature on commoning, we analyse the conditions under which different groups of resource users are constrained or enabled to act together. The article presents three case studies of women who represent different groups using land and water resources along the same irrigation canal. Through the concepts of intersectionality, performativity, and gendered subjectivity, this article explores how these women negotiate access to land and water resources to sustain viable livelihoods. The case studies unpack how the intersection of gender, class, culture, and place produces gendered subject positions in everyday resource access, and how this intersectionality either facilitates or constrains commoning. We argue that commoning practices are culturally and spatially specific and shaped by pre-existing resource access. Such access is often unequally structured along categories of class and gender in land reclamation and irrigation projects.

Keywords: Common pool resources (CPR), commoning, Egypt, feminist political ecology (FPE), gender, intersectionality, Nile, performativity

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1. Introduction

This article presents the case of women and their access to land, water and ecosystems in one of Egypt’s most famous land reclamation mega-projects. The construction of the Salam Canal aimed to reclaim desert land and coastal wetlands for irrigated agricultural production. Land reclamation and the resettlement of people in order to ease population pressure on the Nile Valley and Delta is a national political strategy that has dominated Egypt’s land management policies since the 1950s (Voll 1980; Sims 2015). Four consecutive Egyptian presidents have initiated a series of settlement schemes that have distributed land and houses to groups of beneficiaries, including landless people, university graduates, war veterans and investors. Such horizontal agricultural expansion faces increasing sustainability challenges due to mounting pressures on limited national water resources. In a geopolitical context of increasing transboundary conflict over Nile water resources, our research project studies the gendered distribution of access to natural resources resulting from public irrigation investment in the Nile Delta. The Salam Canal project is an example of how informally managed commons are partially transformed into a regulated environment for irrigated agriculture. We explore how and why local groups engage in commoning strategies to create collective access and share resources, as well as where and why they do not. By drawing on a recent literature about commoning and de-commoning (Turner 2017), we analyse the conditions under which these groups are constrained or enabled to act together.

This article focuses on the commoning strategies and gendered subjectivities of three important land user groups in the reclamation project. As we argue, these subjectivities play a role in differential access to land, water and livelihood resources. We present three cases of women who stand out as exceptions in a male-dominated landscape to demonstrate the gendered nature of resource access. Land and resource ownership in Egypt are traditionally masculine, and public settlement schemes effectively transfer land property to men. Although female quotas are set to assure female land ownership on paper, de facto decision-making is commonly transferred to male family members. The male bias in access to and control over resources reflects the patriarchal structures that dominate government institutions, family life and economic decision-making in Egypt. In spite of these structural disadvantages, the three women presented here own, access and control resources to sustain their livelihoods. We show how they develop gendered subjectivities and negotiate access to land, water and natural resources at the intersection of class, culture, and place. The study draws on Feminist Political

Ecology (FPE) and utilises the theories of intersectionality, subjectivity, and performativity to unpack the intersecting social categories of gender, class, culture and place that shape these women's experiences with livelihood generation and resource access.

2. Commoning strategies in natural resources management

Irrigation management has stimulated influential theories on why and how communities act together and design rules to sustainably self-govern common pool resources (CPR). Ostrom (1990) focuses on the collective strategies used to manage irrigation systems as joint, community-based resources. She highlights the challenges of delineating their legitimate users and regulating their collective allocation. Neo-institutional economics demonstrates that clearly circumscribed social groups are able to collectively manage CPRs, thus avoiding Hardin's Tragedy of the Commons.

Commons studies have more recently started engaging the concept of 'commoning'. Lang (2014, 852) refers to this turn as "research that considers commons through the practices which produce and maintain them—commoning". The focus is shifting to commoning as a verb rather than a noun to emphasize that the commons are not a fixed entity, but a changing set of social relations (Turner 2017). Commoning highlights the *practices* of using resources in shared ways (Linebaugh 2008), following egalitarian principles and non-hierarchical relations (Paudel 2016). While Hardin's solution is a privatisation of the commons, recent commoning literature emphasizes the non-capitalist, anti-neoliberal and counter-hegemonic opportunities that commoning bears (Caffentzis and Federici 2014; Singh 2017). Commoning generates new ways of what Linebaugh (2008) calls being-in-common (Gidwani and Baviskar 2011)—new ways that resist hegemonic discourses, rules and practices of managing the commons. Garcia López et al. (2017) argue that "habitual performance in the everyday" (89) turns the commons into "dialectical webs of everyday practices through which people care for and (re)produce their ecological and social sustenance" (91), which then "transform our social relations and create an alternative to capitalism" (100). Thus, commoning enables the emergence of other-than-capitalist subjectivities (Singh 2017). It becomes a "commitment to the creation of collective subjects" (Caffentzis and Federici 2014, 1103) which may advance post-capitalist subjectivities, practices, and economies (Gibson-Graham 2006; Gibson-Graham and Miller 2015).

The commoning literature seeks alternatives to neoliberal regimes of 'enclosure', the walling or fencing of private property, which produce "certain forms of spatiality and subjectivity" (Jeffrey et al. 2011, 1247) that divide and individualize rather than share the commons. How can this be done in an environment where resource access is orchestrated through public land distribution for capitalist production? A capitalist outset should not, in itself, be an obstacle to commoning practices. Paudel (2016) confirms that indeed commoning can occur in both commercial and non-commercial sectors. However, commoning is not a universal

or culturally neutral response to hegemonic capitalism, but, as we will show, complex and context based. This study looks at groups of resource users and managers placed in a spatial resource arrangement that is at times uneven, classed and gendered. We contribute to the debate about the commons with an understanding of commoning in resource access as situated and differentiated by the intersection of different social categories, among which gender is crucial.

3. Feminist political ecology and the subjectivation of resource access

The intersectionality of class, gender, culture and place produces and simultaneously hinders commoning practices. Only through unpacking “the grounded set of spatial practices” (Jeffrey et al. 2011, 1263) that drive commoning and enclosure, or the ways in which subjects negotiate resource access each day, can commoning be understood as a nuanced, cultured and gendered process. This article attempts to sketch the individual and joint subjectivities actors develop in response to differential and unequal resource access. These subjectivities have the potential to either foster or contradict commoning.

Institutional economic approaches to collective action in natural resources management (NRM) traditionally overlook the role of gender and power in environmental change. FPE helps to analyse how the gendered structures created by NRM projects generate practices of commoning and enclosure, especially where resource access is uneven. Feminist approaches to social theory and political ecology have shown that access to, and decision-making power over, resources are deeply gendered (Nightingale 2006; Sultana 2009; Elmhirst 2011). Viewing gender as performative enables an understanding of NRM practices based on the constant renegotiation of subject positions in decision-making (Butler 1999). As Elmhirst (2008, 65) argues, “gender is re-inscribed through discursive and material struggles around livelihoods and natural resources, and whilst inherently unstable, through iterative repetition, it comes to appear as natural and fixed”.

Performativity theory helps unpack how access to land and water management are couched in cultural perceptions and gendered practices, which are reinforced through daily re-enactment and political decision-making. Recurrent cultural performances of irrigated agriculture as masculine influences both policies and practices concerning the access to water and other natural resources (Zwarteveen 2008; Rap and Oré 2017). NRM practices can work performatively to either reinforce gender roles, or to become tools of “counterhegemony...performed through everyday practices that rearticulate existing common senses about commons” (García López et al. 2017, 88). While performing subject positions in resource management, women become entangled in, reproduce, and resist webs of gendered discourse and practice. As subjects, women do not act in isolation, but as part of “[h]ouseholds ... linked to communities through collective actions and through informal and overlapping networks of reciprocity and cooperation” that produce gendered norms and expectations (Cleaver 1998, 298).

Intersectionality offers a framework to understand how gender intersects with other axes of social differentiation such as class, caste, race, culture and ethnicity (Zwarteveen 2008; Elmhirst 2011), in shaping access to land, water and other spatially distributed environmental resources (Crow and Sultana 2002; Mollett and Faria 2013). Gender is not a separate, but an interdependent and interlocking social category in NRM (Rocheleau 2008), which contributes to an intersectional experience that is greater than the sum of its parts (Crenshaw 1989). The intersection of gender, class, culture and place produces gendered subject positions, subjectivities and socio-environmental identities that social actors engage in to negotiate resource access (Nightingale 2011; Radel 2012).

Class, culture and place are all categories intersecting with gender in the cases presented below. Class is a social category defined through the ownership of capital, means of production, skill, education and other resources. Intersectional subjectivities are also embedded in different cultures, which are understood as 'shared webs of meaning' (Geertz 1973) grounded in social, material and spatial practices of resources management. The cultural practices that are particularly relevant in this article include the beliefs and meanings attached to land, water and other natural resources and the ways in which these meanings shape resource access (Nightingale 2003). This cultural component concerns the particular situated ways in which groups of people process human experience and give meaning to their environment and the resources within it. Place, then, refers not only to how positionality in a spatial network mediates access to resources (e.g. the ways in which up- or downstream positionality on an irrigation canal determines water access), but also to how people produce, give meaning to, and move between the spaces and scales of their livelihood activities.

In this article, we explore how intersectionality shapes access to resources and commoning practices in the case of women's livelihoods in a reclamation project in Egypt's Eastern Delta. How do gender, class, culture and place intersect to affect how women develop and negotiate subject positions and achieve access to resources? What influence does this have on commoning practices, and where do these intersecting categories hinder or benefit commoning?

4. Methodology

This study is methodologically based on three situated case studies of women who were selected from a wider group of 40 interviewees. The three cases represent different resource user groups along the same branch canal. The women introduced here stand out as particularly active, visible and outspoken in relation to land and water management, and display extraordinary life situations and subject positions. Their exceptionality, rather than the representative character of their subject positions, motivated the sampling. We constructed these case studies and life histories on repeated field visits (around 15) between 2015 and 2016 with a mixed gender team of Egyptian, Dutch and German researchers, who built relationships of trust with these women. Besides in-depth, ethnographic observations

and semi-structured interviews conducted in Arabic, we organized three participatory workshops, focus-group discussions and mapping exercises through which these women were able to portray their livelihood strategies and commoning experiences in the Salam Canal reclamation area.

5. The Salam Canal reclamation project

In Egypt, 98% of the population lives on only 7% of the land mass, as most of the country is desert. With a total population of 97.8 million in 2017, which is growing by a million every six months (CAPMAS 2018), Egypt needs to boost its food production and security. Meanwhile, the country is heading into extreme water scarcity, with available fresh water per capita expected to drop below 500 cubic meters per year by 2025 (MWRI 2014). The Nile Valley and Delta are among the world's most densely populated areas, and informal construction is eating into agricultural land. In response, Egypt's governments have been pursuing a national policy of reclaiming desert land for agricultural production and settlement since the 1950s (Voll 1980; Sims 2015).

This article is set in the context of one of Egypt's largest land reclamation and irrigation projects, the Salam Canal. The canal connects the eastern Damietta Nile branch with the Sinai Peninsula, running across Egypt's northern Nile Delta, just south of the coastal Lake Manzala and the city of Port Said (Maps 1 and 2). Unlike most reclamation projects, the reclaimed area was not a desert, but a lake surrounded by swampy marshland, which was drained to enable irrigated agricultural production. The project rationale was to divert excess Nile water toward agricultural land before losing it to the Mediterranean Sea. The canal reuses the Delta's drainage water, mixing fresh and drainage water flows at a proportion of 1 to 1. We focus on one of the first areas to benefit from the canal's water, located west of the Suez Canal and south of Lake Manzala.

This project area was designed to bring 220,000 feddan¹ of land into agricultural production under private ownership, of which around 180,000 have been reclaimed at the time of writing. The East Delta Agricultural Services Project (EDASP) partially developed the area's production and housing infrastructure. Our study area is located on the third Branch Canal (*Talta* in Arabic), which extends southwards from the Salam Canal. After passing the project area, the Salam Canal is siphoned underneath the Suez Canal towards Northern Sinai.

Seen through a CPR lens, the resources available in the coastal wetlands later converted to agriculture were once 'commons' shared by informal resource users. These users included fishing villages around Lake Manzala, Bedouin nomads who used the vast wetlands as collective grazing lands for their herds, and (partly Bedouin) fish farmers who had informally appropriated wetlands to start fish farms. Reclamation interventions aimed at converting these wetlands, first to government property, and then to individual privately-owned parcels

¹ One feddan translates into 0.42 hectares or roughly one acre.



Maps 1 and 2: El Salam Canal project, based on Google Maps.

through government resettlement schemes. The modernist reclamation discourse portrayed the project area as ‘empty’ and ‘uninhabited’, and the promise of turning this land into productive farms justified the eradication of earlier land use practices. Reclamation required removing the existing population from land and water and redistributing the land among the new settlers. This resulted in a number of, sometimes violent, conflicts, as several of our interlocutors vividly recall. Lake Manzala fishermen migrated abroad or to other fishing areas, reoriented to fishing in canals, or entered other employment. In the reclamation process, most original and temporary settlers moved away. Several received substitute land or compensation payments, while some remained in place, maintaining their land claim.² Previously shared wetlands were structured, enclosed, and redistributed in a plan to advance agricultural production for the capitalist market.

The reclamation process included the construction of irrigation and drainage infrastructure, land preparation for agricultural cultivation, and the development of settler villages. The government prepared a land-zoning plan for Egyptian investors, landless beneficiaries, war veterans, and university graduates, and set up specified land management regulations for these different settlement zones. The settlers were selected through a formalized application process and purchased their land and houses through long-term instalments. However, the project only partially succeeded at restructuring land access, creating a multi-layered pattern of mixed and hybrid (public, private and common) property relations (Turner 2017). The stories of land and water use and the land appropriation process before and after reclamation still affect the ways in which original and new settler groups interact today.

² During reclamation, settlers had permission to start fish farms for three years in order to flush the saline soils with fresh water and make them suitable for agriculture, but in practice many continued with aquaculture, rather than switching to agriculture. Some ‘illegal’ settler groups maintained and formalized their land claim in this manner.

6. Three case studies of women in the reclamation project

We present three case studies of women who represent important groups of resource users in the area: investors, graduate farmers and Bedouin nomads. The case studies demonstrate how these extraordinary women challenge dominant subject positions, negotiating resource access and commoning practices in relation to gender, class, culture, and place. The case studies interrelate subjectivities with unequal and gendered access to natural resources. The women's stories show how class, culture, and place shape commoning and resource access strategies that emerge in response to resource scarcity. We demonstrate how these categories intersect in the case studies, which are organized into thematic subsections.

Madame Samia is a 55-year-old widow of a former expat who lived in the Gulf. She owns a farm at the head of the Talta branch canal in a land development zone designated for investors. In 1995, her late husband bought 112 acres of agricultural land near the Salam Canal as an investment. Madame Samia radiates an air of international experience, university education and upper middle class urban manners. The former teacher has one son and two daughters who studied at university and now live and work in Cairo. After her husband died, she decided with her grown children to continue her husband's farming dream by becoming farm manager herself. Every fortnight, Samia drives in her car from Cairo to her farmhouse in order to tend to the property, which is sectioned into 22 six-acre plots rented to sharecroppers.

Om Amira, the widow of a graduate farmer, is in her early forties and lives in a newly built settlers' village for university graduates, several kilometres downstream from Madame Samia's land at the tail of the Talta Canal. She owns five acres of land and a modest house. Her name 'Om' (Arabic for mother) indicates respect for her social status as a married woman and mother of Amira, her eldest daughter. As a jobless graduate, her husband was eligible to apply for the Salam Canal settlement program. Once accepted, the couple was able to marry. In 1995, they moved from the 'old lands' to the reclaimed area in order to build a new life. When her husband passed away almost two decades later, Om Amira faced the responsibility of running a farm and a family.

Rasha and Ayda are married Bedouin women in their twenties who lead a lifestyle of modern pastoral nomadism. Pastoral nomads are "tribal people who engage in animal husbandry in marginal environments; their movements are governed by the constant quest for pasture and water" (Marx 2006, 79–80). With their extended family, these women move around the Egyptian Delta's agricultural areas herding cattle and sheep. Most Bedouin nomads passing through the Salam Canal area originate from Sinai and can trace their clan origins back to Syria, Saudi Arabia or Sudan.

6.1. Class- and place-based inequalities in access to natural resources

Through its interventions in the infrastructural landscape, the reclamation process carved a spatialized water, transport, energy and resources network that remaps

geographical possibilities and redirects and provides differentiated access to resource flows. An assessment and mapping of different types of land use and ownership in the Salam Canal area shows that the land distribution among settler groups was unequal. Land was allocated on the basis of level of initial investment. Class is a key theme in mediating access to land, water and other resources which is spatially differentiated along the branch canal. Investors at the branch canal head received larger pieces of land which were located close to the main canal, paved roads and other strategic infrastructure. Their place in the infrastructural network facilitated a better and more direct in- and outflow of resources associated with irrigated agriculture. In comparison, graduate farmers received land further along the branch canals with less privileged conditions. Yet, those graduate farmers at the tail end, in turn, were privileged in comparison to crop sharers, land labourers or nomads, who do not have formal land and water access.

The early years of settlement were particularly hard for the settlers in the graduate villages. According to Om Amira, “life was almost impossible...no water and no bread”, while public services were close to non-existent. During the first years, the government provided oil, margarine, and ducks, but later halted this service. A government project introduced filtered drinking water to village households only seven years ago. Upon his first visit, Om Amira’s brother said to her husband: “if my father sees what his daughter has ended up living like, he would divorce her from you immediately”. Most graduates deserted their farms and houses and left the area. Some never even decided to settle. The village comprises 196 graduate houses, only 27 of which are still owned and inhabited by the original graduates (14%). Small investors informally purchased or rented the land and graduate houses from those original owners who had left. Through the remaining settlers’ struggle and effort, the village improved over time. Land value near the paved village road has increased 35-fold since the 1980s. The village now enjoys better public services, such as water, electricity, and shops, but access roads are still unpaved and become unnavigable during winter rains. On her land, Om Amira grows wheat, sugar beet and vegetables with family labour. To this day, graduate farmers in this tail location struggle with irrigation water access.

The investors benefited from their favourable place and access to resource flows in the infrastructural network at the branch canal head, close to the main canal and road. This proximity secures water access, which has boosted farm productivity in the investors’ zone. Like most investors, and unlike the graduate farmers, Madame Samia does not personally cultivate her land, but hires sharecroppers to do the work. The landowner and each sharecropper divide the production costs and benefits according to a fixed share (2/3–1/3) and decide on crops, seeds and fertilizers. In summer (April–September), the crop sharers cultivate rice, maize, and cotton, while in winter (October–March) they plant wheat, sugar beet, clover and barley. The widow manages the farm with the help of a farm supervisor who has an agricultural background. The supervisor monitors the land, crop development and water management, and reports on the agricultural practices of the sharecroppers. When needed, for example during crop harvesting, Samia hires a group

of agricultural labourers. Should problems with productivity and soil conditions occur, she consults a male agricultural expert from a government authority for selecting seed varieties, or for taking soil and water samples. Despite her lack of knowledge and experience in the male-dominated agricultural field, Madame Samia has succeeded in sustaining the farm as a viable business. After harvest time, she sometimes allows Bedouins to camp on her field with their animal herds.

Rasha and Ayda belong to such a nomad Bedouin group and sit in front of a tent on a neighbouring investor's farm. The makeshift tent made of blankets and plastic sheets is open at the front. A large herd of cows is feeding on the stubble left behind from the sugar beet season. In search of resource access, modern pastoral nomads travel hundreds of kilometres across Egypt's agricultural areas throughout the year, following the growing and harvesting seasons of specific crops such as sugar beet, clover or maize. The herders travel around the Delta, into Sinai, and even down to Giza, Cairo, following the Bahr El Baqar drain. The Bedouin tents are designed to be swiftly packed up and transported to a new location on donkeys, carts, motor bikes, and in some cases, pickup trucks. Rasha's and Ayda's family has a herd of *baladi* (local breed) sheep and cows of mixed breeds. Passing traders buy old or unproductive animals and bulls. The Bedouins keep their cows for milk production. Women milk the cows twice a day (3–6 litres/day) and look after the animals. Moving from place to place, in tune with the rhythm of the agricultural seasons, the Salam Canal's nomads continuously search for fodder on agricultural lands, negotiating a few days' access with the landowners. The landowners benefit by saving on labour costs for clearing their fields, and by receiving free organic fertilizer from the herds' manure. The commonly accessible wild vegetation growing along waterways, fields and fishponds in this former wetland also attracts nomads. Defying the state's objectives of permanent settlement and agricultural production, linked to rules of prescribed land use, the Bedouins have successfully modified the ancient art of desert nomadism to a contemporary form of rural livelihood.

The class and spatial differences in access to irrigation water, drainage infrastructure, soil quality, and transportation created structural imbalances among land and water user groups. The government imaginaries of new livelihoods in Egypt's new farmlands made green with irrigation water attracted investors and graduate farmers alike. At the Salam Canal, this materialized into land and water management infrastructures which unequally structured, distributed and enclosed resource access. The differential geographical positioning in the development area, which is closely connected to land and water access, creates varying starting points from which settlers negotiate livelihoods. As we will show, these situated places intersect with gendered subjectivities.

6.2. Gendered subject positions in land reclamation

Patriarchal and gendered constructions of land ownership mediate how the reclamation project structured access to land, water and biomass. The vast majority of the project beneficiaries were male and are assisted by their female family

members in operating farms and households. While the project's quota mandated that at least 20% of the graduate settlers on reclaimed land be female, the research team only encountered a few female land applicants. All of these formal land owners had handed over the control over land and farm management to a male family member. This contrasts with a reclamation scheme in Egypt's Western Desert, where female landownership significantly empowered some women (Najjar 2013). Resettlement may increase female involvement in natural resource management because of increased distance from the social control families impose (Sukkary-Stolba 1985; Adriansen 2009). However, land ownership on paper does not automatically change actual resource control or gendered power structures in reclamation projects in Egypt and elsewhere (Elmhirst 2008).

Nevertheless, women in the Salam Canal area contribute significantly to the viability of farms and livelihood generation, although their involvement varies per livelihood activity. In crop farming, contributions are more pronounced than in fish farming, where women are only involved in marketing (Macfadyen 2011). In crop production, women prune, harvest or weed, while land preparation, irrigation, the use of fertilizers and pesticides and the marketing of produce are constructed as male tasks, although women do engage in these as well. On many family farms, women contribute labour without payment or control over the income. Poorer women engage in daily labour on investor farms. They are generally paid less than men, showing that the gender division of labour intersects with class (Toth 1991). Among Bedouin cattle- and shepherders, women play an active role in daily resource management tasks. All cases of women presented here go against the norm of permanently settled male-headed agricultural farms that define settlement zones. As widows and farm managers, both Amira and Samia have escaped the cemented subject positions of farmers' wives. Rasha and Ayda also escape the reclamation project's expectations of female project beneficiaries, because of their nomadic livelihood.

Om Amira and Madame Samia have each stood their ground as farm managers and avoided a common cultural response to widowhood: returning to one's own family. This reaction is deemed culturally most appropriate, given that females rarely head Egyptian rural households. The ability of these women to inhabit the subject positions of widowed farm managers who enjoy respect, authority and cultural acceptance in this rural area is partly based on their husbands having paved the way towards land ownership. Whilst grieving over her deceased husband, Om Amira kept working the inherited land and took care of her four young children. Om Amira continued to pursue her husband's dream of a new livelihood, building on their strong sense of land-based identity. Her subject position transformed from graduate farmer's wife and homemaker to female farm owner, manager and family head, which increased the tasks she engages in to secure her family's livelihood. Consequently, she carries out more physical labour in the field than before her husband's death and has developed a strong, sturdy body. Wearing farmer clothing and interacting directly with other farmers on her land, she performs the new subject position of farm owner and livelihood generator. In the summer,

she produces vegetables, a portion of which she sells on the market or to neighbours. When she has no vegetable harvest, she buys and resells vegetables from her neighbours. Raising livestock and poultry and selling buffalo milk are other strategies to overcome the hardships of poverty. For Madame Samia, assuming the farm management in a male-dominated agricultural place remains challenging: "Initially, I had a hard time, as I was not used to giving orders to people working for me. I also knew so little about agriculture. But I had to make this work to honour my late husband's dream!" A female landowner managing a property of this size in the Salam Canal area is very rare, and male government officials and farmers initially did not take her seriously. Samia learned to be firm with her male employees, and the interactions which the research team witnessed between her and her farm manager and sharecroppers made apparent their respect for her.

However, persisting patriarchal hereditary and family structures make a return to the existing status quo of male control over land and resource access likely, even in Samia's and Amira's exceptional cases. The masculine agricultural domain prompted Madame Samia to involve her son Abdulhamid in managing the family's farm. Abdulhamid grew up abroad and moved back to Egypt at the age of ten. He later studied business and now owns a motorcycle spare-parts trading business in Cairo. As his company struggled to perform after the Arab Spring, he increasingly assisted his mother in farm management. Despite his limited knowledge of and interest in agriculture, he has contributed new business ideas, such as producing livestock, jojoba, and salt tolerant olive trees. Om Amira's only son also plays an active part in farm management. The soon-to-be school graduate does not intend to further attend college. He is seeking paid labour as a seasonal migrant to financially support his mother and eventually run the farm. Despite their leadership as female landowners, both Amira and Samia have put their sons in charge of carrying on the farms. It is therefore questionable if the leadership of these women will continue into the next generation.

Rasha's and Ayda's subjectivities are beyond the cultural and place-based expectations of sedentary farmer women. The Bedouin nomads' marginal and unsteady position in the reclamation scheme has led them to retain their mobile livelihoods. The nomads' resource access is fluid, temporary, uncontrolled, and spatially distributed. This fluidity is built into the women's subject positions and gendered livelihoods, and it gives them freedom from set perceptions of livelihood. "We move around the entire year", Ayda says, exhibiting pride in the nomad lifestyle. Raising livestock is the nomads' livelihood base, and women play important roles in resource management, albeit following a gendered division of labour. Married women raise their children, cook and wash outdoors, fetch water, keep the tents in order and raise ducks and chickens. Rasha and Ayda make cheese and butter, while other families increasingly rely on purchased groceries. Teenage girls and boys herd the animals, taking them to nearby canals to drink irrigation water several times a day. Bedouin men drive off on their motorbikes to run errands or to find new land. Men and women visit the market together to buy fresh fruit and vegetables.

Among nomadic herders, gender roles seem relatively more egalitarian than among settled crop and fish farmers. Women move around in public areas herding cows, fetching water or visiting neighbours. They share public spaces with men, openly address male visitors, and even take mixed gender group pictures. Male and female relatives deal with each other in friendly, open ways, joking and teasing each other. We also watched women openly protest male instructions without repercussions. These public gendered performances and the more relaxed rules of seclusion contrast starkly with those of wives of settled Bedouin fish farmers, who live much more confined and private lives. Nevertheless, among the Bedouin nomads we visited, decisions about trade, family income, and the travel path are made by the men. Men, at least discursively, must retain the roles of family leaders. Ayda's father-in-law describes women as "having nothing in their heads", as "all they need to care for is the children". We observed multiple daily resource management practices and performativities by women that contradict this masculine discourse.

Female Bedouins do not inhabit extraordinary, but rather untypical subject positions, stemming from an unconventional lifestyle where public and private naturally merge. This livelihood has unhinged rules of seclusion, creating a more balanced gendered labour division. It has not changed formal or discursive decision-making processes or resource control, but it has shaped practical divisions of male and female tasks and their attachment to gendered subject positions.

6.3. How class, culture and place mediate resource access

Class, culture and place differentiate relationships and attach particular meanings to land and other productive or livelihood resources. Om Amira, as a graduate farmer's widow, views land as a crucial livelihood resource to produce food crops, dairy products and small cash. The tail location of their land and the less accessible village significantly aggravated the harsh experience of settlement. Publicly provided resources, such as irrigation and drinking water, only scarcely and gradually flowed into the area, and settlers often depended on their own initiative to acquire them. Om Amira views her small farm as a treasure that she has developed with her husband and family. She clings to her land as the very basis of her existence. Amira does not understand how people can possibly sell land that "has become fertile from our sweat". Her husband used to ask her: "What weighs more, one meter of land or one meter of gold?" Before she ever had a chance to answer, he insisted that it was the land, a "gift from God". As with several interviewed settlers who remain in the area, Om Amira's persistence is based on a socio-environmental identity built on a strong material and spiritual connection to the land, and a shared rural identity of neighbours who persevered together under harsh conditions. The special meaning that these settlers attach to their land is culturally embedded in their shared experience of labouring and improving their land and a pride in surviving settlement. This contrasts with the embodied experience of investors and Bedouin nomads. Om Amira's attachment to the rural settler village, the place in which she built up her life, is reflected in her jokes about her

farmer's accent. She compares this with her children who learned to speak the modern Egyptian Arabic of Cairo through regular family visits.

For Madame Samia, as the wife of an expat investor, land is an investment described through discursive attributes of business, marketing, innovation, and productivity. The family plans to sell the land when it has increased in value and reaches good returns to investment, something that is unimaginable for Om Amira. Like her husband, Samia and her family do not personally engage in physical labour. Her challenges relate to management, a fact she underlines with urban, elegant clothing. Madame Samia's investment property is managed following the clear rules of a landowner-sharecropper arrangement. Madame Samia's urban elite experience of occasionally visiting the family's comfortable and accessible farmhouse is substantially different from Om Amira's lived experience as resident of a remote graduate village that copes with poor public services, unreliable water access and a precarious economic situation. Performed class markers delineate the difference in land ownership and economic standing. People refer to 'Madame' Samia, a title that emanates respect. Her fluent command of both Arabic and English indicates a privileged education. Serving us espresso in the well-furnished three-storey house, equipped with a flat screen TV, Samia's family members display consumer items that signal the cultural capital of the urban upper class in Egypt's class-based society (Jayne 2006). Her lifestyle practices, such as the ability to return to an urban home, clearly set her aside from the women in the graduate village who struggle to maintain a farming existence. The land, water and other environmental resources have a completely different meaning and value for her family.

At the bottom of the area's discursively constructed 'class scale' are the Bedouin nomads, who do not possess land or succumb to the cultural rules of sedentary agriculturalists, associated with settlement and land ownership. For temporary access to land, water and fodder, the Bedouins pay landowners a fee calculated per acre of crop residue (between 300 and 3000 EGP or 20–200 USD, depending on the crop type and quality). There are occasional conflicts between nomads and landowners, as cultural and ethnic stigma attached to Bedouins and stories about their 'unreliable behaviour' generate distrust. Farmers who have bought into the dream of sedentary agriculture look down on the Bedouins' lack of land ownership and nomadism, which is seen as an unruly and rogue makeshift lifestyle. During fieldwork, our project driver initially refused to leave the car to join us in interviewing the nomads, claiming that they were "dangerous". The nomads, in turn, celebrate their mobility and freedom. Despite their exclusion from formal land access, they have developed a surprisingly successful resource access strategy. Despite existing stigmas, our field data showed that the majority of Bedouins maintain a positive relationship with landowners and return to the same fields each year. Nevertheless, cultural, ethnic and class differences are visibly expressed and performed through meanings associated with clothing and language. Rasha and Ayda, like most other nomad women, wear colourful *galabias* and headscarves without face veils. They speak a Bedouin dialect of Arabic, which distinguishes them from peasant women and urban investors.

As these examples show, intersectional subjectivities that interlink gender, class, culture and place influence the access to and meaning of resources. This is reflected in the contrasting lived, embodied and narrated experience of settlement, place and mobility of these women. An ethnographic eye for the gendered performativity of bodily, linguistic, apparel, consumerist, and gastronomic differences, thus indicates how the interrelated social categories of gender, class, culture and place are at play in intersectional subjectivities and resources access.

7. Commoning strategies at the Salam Canal

Intersectional subjectivities lend themselves to particular strategies of commoning and enclosure in a project situation of mixed and hybrid property relations. Both Madame Samia and Om Amira are private landowners, differentiated by land size and location. Because of her privileged conditions in terms of class, culture and place, and the different opportunities and restrictions that count for an urban educated woman of means (e.g. driving a car and employing male experts), Madame Samia is less dependent on commoning strategies than Om Amira, both financially and in terms of resource access. As an individual urban investor who is not a permanent resident of the area, Samia's subject position contrasts with that of permanent settlers. She did not develop a place-based identity of having survived settlement as part of a community of neighbours. Her labour relations with engineers, farm managers, crop sharers and land labourers are more hierarchical and commodified than the horizontal and egalitarian ones that commoning approaches foresee. Madame Samia's temporary land access sharing with the nomads is partially regulated in monetary terms.

For the Bedouin nomads, partly commodified resource-sharing practices are an important way for this group that is formally excluded from resource access in the reclamation area, to circumvent sedentary structures and to retain a mobile livelihood in the area. The long-term relationships established between landowners and Bedouins show that this exchange generates a degree of mutual trust, which is the basis for the nomads' acceptance in the agricultural zone. Some nomad families have been returning annually to Madame Samia and other landowners' properties for years. Despite the continuing relationship of mutual benefit, a degree of cultural and ethnic stigma prevails. Madame Samia still does not fully trust nomads, having heard stories about Bedouins leaving properties overnight without paying the agreed sum. Although the sedentary farmer-nomad interaction is partly commodified, an associated commoning practice is that Bedouin animals are allowed to feed from the rich and wild vegetation on public, sometimes private and communal land, and to drink from canals, drains and other waterways. Besides these resource-sharing practices that are partly unplanned, temporary and cut across land ownership structures, class and culture, other, non-monetary survival strategies occur among nomad clans and within extended Bedouin families. Nomad groups sustain each other through mutually supportive livelihood practices, such as sharing food, medicine, and vehicles; helping with animal sales; and providing

aid in cases of emergency. These exchanges are firmly based on concepts of Bedouin culture and clan, which extend across considerable geographical distance and are seen as a basis for instant mutual support.

Like the nomads, whose commoning strategies are a practical necessity and survival technique, the graduate farmers have approached the hardships of life in their new home through commoning strategies. The communal identity and culturally cohesive experience of settlement survival among neighbours became a basis for commoning in two areas: microfinance and water access. Om Amira depends on financial support and found a support network in her neighbours, who “know more about her than her own family”. The neighbours’ spatial proximity makes mutual financial support easier than reverting to distant family members. Loans, microfinance, labour sharing and the exchange of goods that provide livelihood security are gendered. Women tend to share more readily amongst each other than across genders, borrowing or exchanging in small revolving fund schemes in which they share their own savings. This local sharing of money, goods and labour indicates a gendered dimension to commoning.

Commoning in response to financial hardships was accompanied by similar responses to water scarcity. Government institutions failed to deliver irrigation water to the village in the 1980s, when settlement began. The Talta branch canal, which is the village’s designated water source, was not finished until 1996. Due to design and construction flaws, as well as illegal pumping and drainage water release by upstream fish farmers, the canal did not provide sufficient water quantity and quality to the middle and tail parts, particularly during the hot summer seasons. In the water scarce summer of 2006, as complaints to the irrigation department had not triggered agreed solutions, the farmers pooled 120,000 USD (2 million Egyptian Pounds) with contributions of around 60 USD per farmer (1000 Egyptian Pounds) to build a common waterway connecting their sub-branch of the Talta Canal to the Bahr El Baqar drainage canal. Bahr El Baqar is sometimes referred to as the ‘sewer of Cairo’, containing drainage, household and industrial sewage water. Experts are concerned about the high levels of faecal coliform affecting water quality, especially for producing vegetables (Elbana et al. 2017). Nevertheless, farmers at the tail proudly claim that the water is good and that its organic matter increases crop productivity. Bahr El Baqar is these farmers’ only reliable water source, and access to it is a matter of survival. Attaching a positive meaning to this resource despite their challenging settlement and resource conditions is a cultural response of resilience. Ironically, Bahr El Baqar is a water source that Bedouin nomads avoid, fearing for their animals’ health. “That water is this black”, Rasha’s father exclaimed, pointing to the black colour of the rug he was sitting on. What has become a survival mechanism for tail-end farmers is a sub-standard resource that landless nomads are not interested in sharing as commons, because they attach a very distinct meaning to the same resource. Our research findings did not directly point to a gendered dimension of this particular form of commoning around water access.

Having investigated these cases through the lenses of FPE, intersectionality, performativity and subjectivity, we have shown that resource access at the Salam Canal is gendered and that women's performativity of new subject positions can problematize the gendered binary of male/female in relation to resource control and public representation. Whether this potential leads to structural changes is an open-ended question. Women's initial access to resources and their resource sharing strategies are shaped by, and simultaneously mobilize, dynamics and differences of class, culture and place. The intersection between these categories facilitates or limits commoning—class boundaries, for example, may generate commodified exchange instead of commoning practices, while shared hardships due to a lack of resource access or cultural bonds in the context of non-formalized, mobile livelihoods may open up spaces for commoning. Some of the commoning strategies we observed are clearly gendered, while others may not be overtly so. However, on a very local, quiet level, some of the described practices partially transform hegemonies of unequal resource access and transect, at particular moments, predominant structures of gender, class and culture.

8. Conclusions

Commoning studies as political projects highlight alternatives to land and water management practices that follow hegemonic, capitalist structures. This study draws attention to the importance of understanding the intersectionality of subjectivities and processes that encourage, shape, enable and limit commoning. This is necessary in order to assess where and why commoning happens—and where and why it does not. Our study is one of small farmers and larger investors privately acquiring pieces of formerly commonly-, then publicly-, and later privately-owned land to produce for the capitalist market. As we have shown, when looking at on-the-ground resource management practices, none of these categories are absolute. Strategies of commoning and commodification presented here are diverse strategies for survival in a place of limited and contested resources. Where it occurs, commoning aims at reclaiming room to manoeuvre in accessing resources, rather than being a political project against capitalist hegemony. In the presented cases, varying degrees of collective action enhanced local livelihoods by mobilising social, cultural and economic connections. Local resource management strategies, however, simultaneously exhibit relationships based on capitalist exchanges, class and gender differences.

Analytically, the three presented cases show that resource sharing is a complex and interrelated endeavour partly based partly on commoning strategies and partly on commodified exchanges. These commoning and de-commoning strategies in resource access respond to intersecting subjectivities constructed in relation to categories of class, gender, culture, and place. Tsing (2015, 135) characterizes such landscape-based assemblages potentially “mobilized in common cause” as “latent commons”. It is these kind of collaborative projects, which work across difference and combine human and non-human, capitalist and non-capitalist

forms, in which “we might encounter our best hopes for precarious survival” (34). We concur with Tsing when she finds it premature to label such collaborations as ‘post-capitalist’ alternatives to capitalism, because within them capitalist and non-capitalist forms and lives continuously meet and inter-correlate, thus becoming interdependent.

We argue that commoning practices are culturally and spatially specific and shaped by pre-existing access to resources, which is often unequally structured along categories of class and gender in land reclamation and irrigation projects. The Salam Canal irrigation project spatially distributed and segregated settler groups and developed an uneven spatial network across the reclaimed land, structuring the use of common resources and delimiting commoning practices among user groups. In line with ‘tragedy of the commons’ arguments, one could maintain that reclamation projects aim to regulate settlers’ resource use, whilst trying to exclude ‘free riding’ groups such as fishermen, fish farmers and Bedouin nomads from the developed area. A CPR perspective allows us to understand that some of these groups’ claims and rules of access to water, land, and natural resources as commons actually preceded, and were disrupted by, the project’s focus on agricultural reclamation. From an FPE perspective the cases show that gendered inequalities persist even among current land beneficiaries themselves, affecting possibilities for resource access and sharing. This research points to the need to further study the interlinkages between intersectional subjectivities and commoning strategies in NRM, particularly in order to better understand the gendered dimension of commoning strategies.

Our study and analytical framework resonate with examples of land reclamation and irrigated agriculture projects elsewhere on the planet, which illustrates the cases’ wider relevance. Political investments in such projects in other countries, such as for example Indonesia, Burkina Faso, and Peru, often end up reinforcing established gender roles and power structures in land ownership and water management (Zwarteveen 2006; Elmhirst 2008). The joint socio-environmental identities, settlement experience and insecure water access reinforced farmers to exercise collective agency and redesign the infrastructural land- and waterscape and their own place within it, not unlike cases in India (Baviskar 2007). The unequal social and spatial distribution of environmental pollution evident in the Salam Canal case further mirrors global concerns over disproportionate class-based exposure to detrimental health effects and environmental injustice.

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