

Living on the edge:  
Gender relations, climate change and livelihoods  
in the villages of Maryut and Nubia, Egypt

Mona Mahmoud Daoud

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## **Abstract**

Most climate change literature tends to downplay the gendered nature of vulnerability and adaptation. At best, gender is discussed in terms of the male-female binary, seen as opposing forces rather than in varying relations of interdependency. Such construction can result in the adoption of maladaptive policy presenting culturally unfit gender-blind interventions. In Egypt, which is highly vulnerable to climate change, gender analysis of how intra- and inter-household relations shape people's adaptive responses is non-existent. This thesis addresses this important research gap by asking 'How do gender relations influence vulnerability and adaptation to climate-related stresses in a rural Egyptian context of multiple risks, shocks and stresses?'

Drawing on gender analysis of social relations (Kabeer, 1994, Jackson, 2007, Sen, 1987), based on the notion of multiple and intersecting roles and identities, and framed within an understanding of sustainable livelihoods (Ellis, 2000, Scoones, 1998), I position climate change within a broader spectrum of political, sociocultural, economic and environmental influences on people's livelihoods. During 16 months of fieldwork I used multiple ethnographic methods to collect data from two culturally and ethnically diverse low-income villages; Nubia in Aswan in Egypt's Nile valley and Maryut in Alexandria in the Nile Delta.

My main argument is that experiences of and responses to climate change are closely intertwined with gender and wider social relations in the household and community. These are shaped by local gendered ideologies and cultures that are embedded in conjugal relations, kinship, and relationship to the environment, as compared across the two villages. In Nubia, kinship (based on matrilineal and matrilocal ties) and its resulting intergenerational local knowledge of the environment and its changes, as well as mutual support networks, figure as the most significant influences mediating gendered adaptation. In Maryut, I argue that this mostly patrilocal nuclear family setting tends to make individuals and households less able to adapt. In this study I strongly argue that these sociocultural gendered issues should be at the heart of adaptation discourses, policy and interventions.

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## List of Acronyms

CAPMAS	Central Agency for Public Mobilization And Statistics
CBI	Community-Based Initiative
CEDAW	Convention on the Elimination of all forms of Discrimination Against Women
EEAA	Egyptian Environmental Affairs Agency
EGP	Egyptian Pound
GAD	Gender and Development
GDP	Gross Domestic Product
GED	Gender, Environment and Development
IMF	International Monetary Fund
IOM	International Organization for Migration
IPCC	Intergovernmental Panel on Climate Change
SREX	Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation
IUCN	International Union for Conservation of Nature
MDG	Millennium Development Goal
MENA	Middle East and North Africa
NGO	Non-Governmental Organization
OECD	Organization for Economic Co-operation and Development
PRA	Participatory Rural Analysis
SLR	Sea Level Rise
SSI	Semi-Structured Interview
UEA	University of East Anglia
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States Dollar
WED	Women, Environment and Development
WEF	World Economic Forum
WFP	World Food Programme
WID	Women In Development



## **Chapter 1: Introduction: Gender relations, climate change and livelihoods**

This research stemmed from a deep personal interest in the gender dimensions of vulnerability and adaptation to climate and wider livelihoods change. My personal interest in the topic developed from years working in the environment and development field in Egypt where I noticed that gender is a left-out concept in the climate change debate. Furthermore, when it is incorporated, it is tackled as an addition to satisfy international or national reporting obligations. Discourses, policies and interventions on the gendered dimensions of climate change are almost non-existent in Egypt. During project-related fieldwork in a rural context in the outskirts of Alexandria in 2008, talking to the people made it very obvious to me that their livelihood experiences, perceptions and responses to climate-related stresses are highly gendered but this is not reflected in current Egyptian discourse and policies. This gap compelled me to start my postgraduate studies on the linkages of gender, climate change and livelihoods. With extensive background research, the topic was narrowed down to the objective of addressing gender relations in adaptation to climate change in people's livelihoods.

After completing my MSc in climate change with a dissertation on gender and adaptation to climate change in Egypt (Daoud, 2013), I wanted to pursue the topic further with a greater focus on gender relations. The main finding from my MSc dissertation was that sociocultural determinants are the most significant factors that affect how gender relations influence perceptions and experiences of vulnerability and adaptation to climate-related stresses, among other livelihood stresses. This finding influenced how I approached this Ph.D. research through a constructivist epistemology, interpretive methodology and ethnographic fieldwork.

Aspects of my own experience as an Egyptian also helped to determine my focus and research questions, particularly regarding the nature of the Egyptian household, gender norms and relations. My life as an Egyptian makes me very conscious of the importance of family as the nucleus of Egyptian society, particularly in rural areas. In the context of livelihoods and the ability to adapt to stresses, I understand why women and men may try to manipulate their circumstances and gender norms under persisting sociocultural and legal constraints, and why defying cultural norms can be very painful for all the members of the family. I realize that the key to social change lies not only in legislation but also, and mainly, in understanding how sociocultural norms change in response to changing opportunities and constraints. And so when I began my fieldwork, besides my training in economics, climate change, gender and development I carried with me the life experiences of a Middle Eastern woman who has been put to many tests. These accumulated personal, professional and

academic experiences also drove me to contest mainstream gender and climate change discourses, particularly in developing Middle Eastern societies.

My interest in this research is in men's and women's livelihoods in the families, households and communities of the villages and what gendered livelihoods mean for perceptions and experiences of vulnerability and adaptation to livelihood stresses including climate-related stresses and shocks. From villagers' accounts and experiences, I draw out insights that can feed into climate change adaptation research.

My main argument is that understanding gender relations in the household and wider gender relations in the community in local sociocultural and ecological contexts is central to framing climate change adaptation discourses and policy. In this research I give voice to a local contending discourse at the nexus of gender and climate change that focuses on livelihood processes and that is informed by real world experiences of men and women in their households and communities. This discourse questions the conventional discourses about gender and climate change that take a binary men/women analysis and that regard climate change as a scienticised and securitised issue. Climate change and GED feminist scholars need to recognize this discourse that reflects different realities of differently-positioned men and women, their interrelations and their sociocultural interdependencies that affect men and women's perceptions, experiences and responses to climate change stresses. I draw attention to issues of masculinities and intra-household bargaining as two key empirically and discursively analysed issues that are seldom discussed in gender and climate change scholarship. My empirical work demonstrates that theorizing the link between gender and climate change requires an understanding of local contextual gendered roles and relations as well as local construction of masculine and feminine identities, as this can greatly assist in securing and adapting livelihoods.

### **1.1. Rationale**

In this section, I introduce the rationale for researching gender relations in the context of climate change in a wider, global context.

Climate change and gender are two crosscutting themes that are rapidly rising to the forefront of international development agendas (Dankelman, 2010). There are complex and dynamic links between climate change and gender relations that exist in the context of human experiences, perceptions of and responses to climate impacts - among interlocking livelihood stresses – in the context of differently positioned men's and women's livelihoods (Denton,

2004, Vincent et al., 2010). Although more initiatives and research studies are emerging in this critical domain (e.g. Carr, 2008, Nielson and Reenberg, 2010, Terry, 2011), much strategic work is needed to promote an analysis of the gender dimensions of vulnerability and adaptation to climate change (Kaijser and Kronsell, 2014). This research seeks to fill this gap.

Changing climatic conditions, and how people perceive, experience and respond to them have significant and challenging gender dimensions for people's livelihoods and sense of wellbeing. However, empirical analyses and conceptual frameworks to understand the gender, climate change and livelihoods nexus are still limited. Gendered vulnerabilities in rural livelihoods related to women's work burden, mobility, access to knowledge, control over land and land ownership are well-recognized in the feminist political ecology literature (e.g. Demetriades and Esplen, 2008, Rocheleau et al., 1996). These constraints, as will be discussed in Chapter 5, have implications for climate vulnerability and adaptation but are not directly linked to climate change in this feminist political ecology literature. Growing scholarship of adaptation to climate change pays attention to the influence of gender on individual and household adaptation (e.g. Carr, 2008, Eriksen et al., 2005, Nielson and Reenberg 2010, Terry, 2011). The study of gender and development during the last two decades has improved understanding of livelihood strategies in the context of environmental/climate change (Green et al., 2005, Moser and Young, 1981, Terry, 2009). This literature has broadened the focus of research on adaptation, coping and survival behaviour to include the household and gender ideology and relations. However, many of these studies do not account for local sociocultural diversities that influence household relations and structure. Furthermore issues of masculinities and intra-household bargaining and cooperative conflicts are still not featured as a key focus affecting vulnerability and adaptation to climate change, among other livelihood stresses. Furthermore, I have not come across any of these studies in the MENA region or Egypt. Attaher et al. (2009) breached the topic of gender in their study of the perceptions of climatic changes of rural farmers in the Delta in Egypt but gender was just touched upon as one of the factors affecting perceptions. Therefore, my main contribution to the scholarship of climate change is the contextual framing of gender relations and negotiations of local notions of femininities and masculinities in the household and community as key factors affecting vulnerability and adaptation to climate change in a region where this type of sociocultural livelihood approach to climate change is missing.

Furthermore, an engaging discourse on the relevance of that nexus for climate change adaptation policy and practice is limited (Dankelman, 2010, MacGregor, 2010). In general, there is a well-documented gender blindness in the field of climate change policy (Banerjee

and Bell, 2007). The most prominent climate change conventions such as the Kyoto Protocol and the United Nations Framework Convention on Climate Change do not even mention the words 'gender' or 'women'. The 2015 Paris agreement acknowledges gender but only partially (in the Preamble and Article 7 on adaptation), failing to meet international efforts and demands to have gender equity in operative articles (Burlinson, 2016). As noted by Geraldine Terry (2009, p. 5) in her opening commentary to the 2009 *Gender and Development* issue: 'academics, gender and development practitioners and women's rights advocates are still only starting to grapple with the many gender dimensions of climate change'. She stresses that unless greater attention is given to the gendered dimensions of perceptions, experiences and responses to climate stresses, adaptation may exacerbate the hardship of men and women in the North and South.

Awareness of these gender dimensions of climate change is growing in Gender, Environment and Development (GED) discourse but limited in mainstream global climate change policies (MacGregor, 2010). Even though alternative approaches to thinking about climate change through concepts such as sustainable development, human wellbeing, climate justice and ethics are strongly emerging in the international climate discourses, to date, gender equity has not been prominent in these alternative paradigms (Terry, 2009). Even with growing acknowledgement of climate change as a gender-differentiated problem (IPCC, 2014, Moosa and Tuana, 2014), there remains a lack of attention to gendered social relations in climate change discourse and policy. The limited but growing research that exists on gender and climate change has mostly been focusing on binary gender categories of homogenous men and women in the 'Global South' and the measurable climate impacts on them (Arora-Jonsson, 2011, MacGregor, 2010). There is a lack of research on the discursive dimensions of climate change from a gender relational and contextual perspective, intersecting with other social stratifiers such as age and ethnicity. This gendered perspective of climate change requires consideration of the context-specific ideologies that underpin livelihood experiences of vulnerability and adaptation, and the discourses through which they are articulated.

In part, the absence of a gender perspective in climate change discourse is due to a lack of empirical analysis and alternative discursive constructions based on them (Aguilar, 2009, MacGregor, 2010). Another challenge to understanding the link between gender and climate adaptation is the fact that climate change is not manifesting itself in isolation but is rather synergistically interacting with multiple social, economic and political livelihood stressors. This research tries to address these challenges, particularly in Egypt as part of the Middle

East and North Africa (MENA) region, where research in the field of gender and climate change is almost non-existent.

This research also feeds into alternative narratives to the mainstream gender and climate change discourse. Through empirical ethnographic evidence, this study aims to challenge mainstream discourses that focus solely on climate change as a global problem and on women in the 'Global South' as victims of its impacts (Arora-Jonsson, 2011, MacGregor, 2010). The methodology, analysis and findings focus on climate change among many factors that affect men and women as individuals and as members of households/families. The gender relations affecting and affected by perceptions of, experiences of and responses to climate-related stresses, among other livelihood stresses, are studied in intersection with other social stratification categories such as age, kinship and ethnicity. The study does not adopt a gendered perspective of woman versus man but rather focuses on gender relations rooted in the social positioning and structures of men and women as individuals and as members of households/families in two villages in Egypt.

## **1.2. Introducing the key concepts: gender, climate change and livelihoods**

I begin by introducing the main themes of my research linking gender, climate change and livelihoods. The thesis is about identifying, interpreting and addressing the perceptions, experiences and responses of men and women – as individuals and as households – to climate-related stresses, which are inseparable from other stresses on their livelihoods. I consider differently-positioned men and women who have different perspectives, perceptions and experiences of vulnerability and adaptation to these stresses. This is a study of how men and women as individuals and families in rural Egyptian communities perceive the threats and changes around them and how they respond to them. Through this enquiry I seek answers to my main research question: how do gender relations influence vulnerability and adaptation to climate-related stresses, among other livelihood stresses in a rural Egyptian context of multiple risks, shocks and stresses? I specifically focus on two different contexts within Egypt – Nubia and Maryut. To answer this question, I use interpretative gender analysis to analyze socialization processes and norms. The gender analysis is not exclusively about men and women in their separate worlds but focuses on their social relations in the household and the community. This study thus considers other important elements of adaptive capacity that include kinship structure, marital and fertility status, family structure and lifecycle, and access to different types of resources.

It is important to define from the start how I use the term 'climate change' in this study.

IPCC (2001) defines climate change as changes in the mean and/or the variability of climate properties that persist for decades or longer. It refers to a change in climate over time caused by natural variability or human activity. Climate variability is an integral part of climate change. Climate variability is a change in the nature and frequency of particular yearly conditions (e.g. temperature and precipitation patterns), including extremes (Smit et al. 2000). Climate variability can change with climate change and adaptation to climate change includes adaptation to climate variability (Ibid).

I use the term ‘climate-related stresses’ to include actual stresses and perceived potential risks (the possible adverse outcomes of an impact) related to climate change and climate variability that interact with current stresses and underlying problems (e.g. income poverty, structural adjustment, political problems). I use the term ‘climate shocks’ to refer to climate extremes such as heatwaves or rainstorms. The inhabitants of Maryut and Nubia villages have noticed changing weather and rainfall patterns as well as the increased intensity and frequency of rainstorms over the past three decades. This is consistent with studies in other parts of Africa that report perceptions of increasingly unpredictable weather and rainfall patterns (Conway, 2011, Terry, 2011). It is not always possible to attribute such changes to climate change rather than climate variability, but for the purpose of this research I am interested in stresses and shocks related to both climate change and variability as well as other environmental stresses.

Vulnerability of systems and their adaptations also respond to other livelihood stresses that include economic and governance pressures (Smit et al. 2000). This is specifically true in most poor rural African contexts that suffer from multiple intersecting risks and underlying stresses (Reid and Vogel, 2006, Terry, 2011, Thomas et al., 2007). The accounts of people in the two case study villages reveal that they are affected by climate-related stresses and shocks that have serious negative impacts on their livelihoods. They are also affected by other challenging socio-economic, political and environmental problems such as land fragmentation and governance pressures. It is not possible to consider the social impacts of climate change without taking into account other aspects of people’s livelihoods (Cannon and Muller-Mahn, 2010, O'Brien et al., 2009b). Recognition of this milieu of multiple stresses is crucial for the analyses of vulnerability and adaptation.

I adopt a social contextual definition of vulnerability that arises from underlying social conditions and the changing characteristics of people or communities in terms of their susceptibility (sensitivity) and capacity to anticipate and cope (adaptive capacity) with exposure to stresses (Adger, 2006, Adger et al., 2009b, Blaikie et al., 1994). Adaptation aims

to reduce vulnerability to climate stresses, interlocking with other livelihood stresses (Füssel and Klein, 2006, IPCC-SREX, 2012, Ziervogel et al., 2006). Adaptation is identified by IPCC (2014) as a learning process that occurs at different levels. Adaptation, whether individual or collective, is a dynamic process that is influenced by sociocultural norms and social categories – including gender, ethnicity and age - and the enabling/disabling environment of the household and the community (Yohe and Tol, 2002).

I define gender as the socially constructed roles and responsibilities associated with men and women, as well as hidden power structures that govern the relationship between them (Vincent et al., 2010). In this research I use gender analysis as a tool to understand the gender dimensions of development issues or interventions (Dankelman, 2010). Gender analysis emphasizes aspects of contextually specific gender relations and their intersection with other social stratifiers such as age, ethnicity and income as key components of social vulnerability and adaptation (Kaijser and Kronsell, 2014, Moosa and Tuana, 2014). This is based on the concept of gendered social relations shaped through interactions with social institutions of the household, community, markets and state (Kabeer 1994, 1999). Such a social relations approach takes a socialist feminist perspective on gender analysis and critically deconstructs gender relations drawing on inequalities in rules, activities/responsibilities, resources, people and power, which are renegotiated through different institutions (Kabeer, 2003). I focus in this research particularly on the household.

In considering gender relations intersecting with other variables of social positioning and structures, I look at evidence that intra-household gender relations influence and are influenced by experiences of vulnerability and processes of adaptation to climate-related stresses interlocking with other livelihood stresses. To look beyond an approach that treats the household as an altruistic ideological unit, I examine the environmental, cultural and socio-economic forces that influence gender relations within the household. For this analysis I adapt the intra-household models of cooperative conflict (Sen, 1987) and creative conjugality (Jackson, 2007). This approach allows me to examine whether responses to environmental and socio-economic change reproduce or modify existing gender relations within the household. This work is contextualised within Egyptian culture, central to experiences of vulnerability and household livelihood adaptation strategies.

It is important to explore what is meant by ‘household’ and ‘marriage’. The definition of the household varies from culture to culture. In Egypt, households are based on blood kinship and marriage (Hoodfar, 1997, Rugh, 1984, Shorter, 1989). In my case studies, households are

mostly based on kinship in Nubia and on marriage in Maryut. I define the household in terms of physical presence of family members in the domestic unit and the pooling of resources. Marriage is a key pillar of this research closely tied to livelihoods. Marriage and conjugal relations are however affected by the family and kinship structure of the communities. The nuclear family is the predominant domestic unit in the community in Maryut, while kinship networks and extended families have more importance in the Nubian community.

The key concepts introduced in this section reveal how this research, its objectives and questions are about men's and women's livelihoods and relations, and how these are changing, more broadly, rather than solely about climate change. This conceptualisation allows me to contest the prevalent gender and climate change discourses that tend to overlook fundamental development and livelihood issues and discourses.

### **1.3. Research objective and questions**

The overall objective of the research is to analyze how gender relations influence perceptions, experiences of and responses to climate-related stresses, among other livelihood stresses, and what this implies for adaptation discourses, policies and interventions.

The objective of the research is covered through the research questions.

The overarching research question is: How do gender relations influence vulnerability and adaptation to climate-related stresses in a rural Egyptian context of multiple risks, shocks and stresses?

In order to answer this main research question I devised a set of research sub-questions to fulfil the research objectives:

1. What are the perceptions and experiences of gendered vulnerabilities to climate and livelihood stresses?
2. How do gender relations affect the adaptation of individuals, households and communities to climate and livelihood stresses?
3. How far do climate change adaptation discourses and policies address gender-specific vulnerability and adaptive capacity?

### **1.4. Research assumptions**

I situate my research in wider interdisciplinary development concerns around people's livelihoods, as climate change is not manifesting in isolation from other stresses facing men and women in vulnerable communities. Hence the focus in this research is on broader changes: not simply climatic ones but rather livelihood changes including climate-related



changes. To avoid simplistic coverage of a complex topic that merits many nuances, I investigate and address the issue without adopting dichotomous classifications: rather I explore complementarity in terms of the continua of natural and social worlds, gender and climate constructs, public and private domains, western and indigenous narratives, and strategic and practical notions of gender interests<sup>1</sup> (Table 1).

Dichotomized assumptions to avoid	My assumptions
Two separate disciplines of climate change and gender	A holistic view where the two disciplines are closely interconnected based on an inherent belief in a holistic world consisting of the natural and the social/cultural. Men and women are a part of the environment and the environment is part of them.
It is all about climate change	Climate change within the cultural, socio-economic, political and environmental conditions in question
It is all about gender	Considering gender within a social and cultural construction that considers other stratifiers of income, ethnicity, class, religion and age
Classifying women as either vulnerable or virtuous	Neither structure nor agency has analytical priority, but each depends dialectically on the other
Dominance of either the public or domestic domain	Investigating the possible complementarity of the public and domestic domains
Polarized view in terms of favouring western ideals of gender rights and identities versus presuming an inherent rightness in the cultural and social preconceptions of the communities in question	Exploring, interpreting and analyzing the cultural and social ideals of the communities for what they are and what they represent for the people who adhere to them

**Table 1: Research assumptions**

### 1.5. Research approach

My premise is that social vulnerability to climate-related stresses and shocks, people's livelihood adaptation strategies and their perceptions of and responses to climate risks are closely intertwined with gender and wider social relations. I explore this premise through a gender-analytical framework that sees gender as a social and cultural construction among

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<sup>1</sup>Strategic gender interests are developed by virtue of social position. They entail strategic objectives that aim to transform unequal social and institutional structures in order to make them more sensitive and responsive to gender needs. Practical gender interests are those developed as a response to an immediate perceived need (mainly material conditions) without necessarily entailing strategic changes in gender social or political positions (Molyneux, 1985).

other social categories such as ethnicity and age within a broader context. This conceptualization also positions climate change among broader political, social, cultural, economic and environmental influences in people's livelihoods.

I view this conceptualization through a constructivist epistemology that is relatively new to climate change research. The constructivist approach, characteristic of interpretive social science (Malone and Rayner, 2001), allows me to focus on the what, who and why of people's perceptions, experiences of and responses to stresses in their livelihoods. The framing entails an interpretative context-specific methodology based on two case studies of rural villages in Alexandria and Aswan, Egypt. My selection of these specific case studies in Egypt stemmed from two main indicators: the vulnerability of the village residents and their livelihoods to climate-related stresses and shocks, and the gendered nature of social relations and family structure. These experiences and responses require institutional and policy measures that support livelihoods in terms of agricultural production, water-resource management and infrastructural development (Eakin and Luers, 2006), and therefore the case studies are followed by interviews with policymakers and experts in the fields of climate change, gender and development that reflect on discourses, policy and institutional factors beyond the villages.

I focus on the relational nature of perceptions and experiences of vulnerability and adaptation to climate-related stresses against the backdrop of socio-economic livelihood stresses within and beyond the household. This study accounts for gender norms to the extent that they manifest in gender relations, decision-making and experiences of vulnerability and adaptation to climate-related stresses, among other livelihood stresses, in the household and the changing position of individuals within it. In the process, I bring together the seemingly disparate fields of environment, development, gender and social change that reflect my interdisciplinary as well as my cross-cultural education and inclination.

I rely on a holistic approach and a multi-layered framework that makes it possible to examine environmental, social, cultural, ideological and economic factors that shape perceptions and experiences of vulnerability and adaptation. These internal and external factors are like a *tagine*, a one-pot slow-cooked Arabic dish, in which all of the elements blend together and affect one another. I adopt a constructivist, interpretive multi-layered approach to analyze these interlinkages.

The study of households' adaptive livelihood strategies and economic behaviour is basically

the study of how individuals and households access and make use of their own tangible and intangible assets to maintain their livelihood and wellbeing, while accounting for factors such as stresses, change and risk (Ribot and Peluso, 2003). Their assets include financial capital such as cash income; natural capital such as land; social capital accessed through networks; human capital such as education; and cultural and symbolic capital, which confer status in the community. The elements of income are affected by the outcome of other forms of capital such as networking and information exchange. This research explains varied types of assets and ties that people share to help them cope with and adapt to different livelihood stresses. Hence in this work, 'household assets' refers to household members' material and non-material benefits. Access to, control over and sharing these different forms of assets are important indications of gender relations and power structure in the household as well as markers of vulnerability (Dwyer and Bruce, 1988, Hoodfar, 1990, Moser 2009).

The research has been a challenging journey but a very rewarding and enjoyable one, revealing local 'stories' linked to wider issues of social change and equity that underlie the gender and developmental aspects of adaptation to climate-related stresses, among other livelihood stresses. The research highlights important policy implications of recognizing context-specific gendered priorities, needs and rights.

## **1.6. Thesis structure**

I focus on the experiences of the residents of the villages of Maryut in Alexandria and Nubia in Aswan of climate-related stresses and shocks, among other livelihood stresses. The villages are subject to incremental environmental and climatic stress affecting land salinity and fertility, as well as extreme rainfall, dense settlement and fragmented agriculture land. They are also affected by national trends of inflation, economic liberalization, diminishing social benefits and market changes for labour and products. I discuss how men and women's experiences of and responses to these stresses are gendered in the two villages of differing ethnicity and family structure.

My main argument is that experiences of and responses to climate-related stresses and shocks are closely intertwined with gender and wider social relations in the household and community. These relations are shaped by local gendered ideologies and cultures that are embedded in relations of family, kinship as well as connection to the environment. Such influences, which I compare in the villages, include family structure, family lifecycle, marital and fertility status and local knowledge. They shape the adaptive livelihood strategies of

differently-positioned men and women as individuals and families. In this thesis, I argue that these sociocultural gendered issues influencing vulnerability, adaptation strategies and knowledge production should be at the heart of adaptation narratives and policies.

The research is laid out in eight chapters, summarized as follows:

**Chapter 1** (this *introduction* chapter) introduces the research in terms of its rationale, main themes and concepts, assumptions, and approach. It sets the tone for the research and links its chapters.

**Chapter 2** presents a *Literature Review* and investigative framework to familiarize the reader with the gender dimensions of climate change, and how discourses and practices have evolved. It also highlights the research gaps that make this much-needed research of critical importance, salience and significance.

**Chapter 3** elaborates on the methodology, explaining the research approach, methods and analysis in detail to validate findings of trustworthiness and reliability. It examines the epistemological and methodological approaches behind the ethnographic study of daily livelihoods in the villages, which have led to valuable insights.

In **Chapter 4** I define the environmental and socio-economic context of my case studies. To better understand individual and household adaptive choices it is important to explore the context in which these choices are made. Therefore I outline the development of the political, social and economic policies that have influenced the case-study villages. I explain why Egypt and the specific case studies in it were chosen and prepare the ground for the context through an analysis of secondary documentary and empirical data relating to gender, climate change impacts and threats, and socio-economic data.

**Chapter 5** investigates and contextualizes the perceptions and experiences of vulnerability – in terms of its components of exposure, sensitivity and adaptive capacity - in the livelihoods of men and women, as individuals and households, to climate-related stresses among other livelihood stresses. It considers some of the sociocultural dynamics of vulnerability in terms of feminine and masculine identities. It also addresses contextual aspects of adaptive capacity in the lives of the men and women in their households and communities.

**Chapter 6** explores on- and off-farm livelihood diversification, including migration, which the men and women employ in the villages as an adaptation strategy, and how it is affected by gender ideologies, identities and relations.

In **Chapter 7** I identify and interpret the national and local discursive constructions of gender and adaptation to climate change in Egypt through a contextual gendered relational lens. I challenge the national gender and climate change discourses and their implications for adaptation at the local level.

**Chapter 8** brings together the major factors linking gender relations and climate change in people's livelihoods that are discussed in the preceding chapters. I discuss the research findings and provide policy recommendations. I synthesize insights from my research and point out how they contribute to existing knowledge. I also point the way forward to much-needed future research in order to validate and verify the findings of my own research and investigate other elements that this small-scale project cannot cover.

## **Chapter 2: Conceptualizing gender relations, climate change and livelihoods**

The messiness of social reality has always exceeded the explanatory power of our conceptual frameworks and this is all the more so in the area of gender. (Kandiyoti, 1998, p.147)

### **2.1. Introduction**

There is an emerging body of literature on gender and climate change (e.g. Denton, 2004, Vincent et al., 2010). However, it provides limited analysis of the mechanisms linking gender relations to adaptation (Terry, 2009). There is also a lack of attention to the gender dimension of vulnerability and adaptation in mainstream climate change discourses (MacGregor, 2010, Terry, 2009). Furthermore, most literature on gender and climate change tends to generalize this context-specific analysis to the Global South, losing the nuances of data and analysis of gendered cultures and differences in specific regions and communities (Arora-Jonsson, 2011). These nuanced discourses have implications for equitable and effective adaptation to climate change and variability. The importance of this topic stems from the limited though growing recognition of gender considerations in climate change adaptation discourse on a global level, and its neglect in the Middle East and North Africa (MENA) region and Egypt. Highlighting this gap does not undermine the growing empirical literature on the importance of sociocultural livelihood framing of climate change scholarship and the discussion of contextual stratifiers such as gender, ethnicity and culture that shape adaptation and adaptive capacity.

As will be discussed in detail in this chapter, recent studies have situated climate change in sustainable livelihoods (e.g. Goulden et al., 2009b) and in the cultural construction of adaptive capacity and adaptation (e.g. Ensor and Berger, 2009, Nielson and Reenberg, 2010, Pelling, 2011, Roncoli, 2006, Roncoli et al., 2009). However, empirical analyses exploring how sociocultural norms and values influence adaptation are as yet under-researched (Adger et al., 2007, 2009b, Smit et al., 2000). Furthermore, gender is not a main factor or framing discussed in this recent scholarship.

Growing scholarship of adaptation to climate change pays attention to the influence of gender on individual and household adaptation (e.g. Carr, 2008, Eriksen et al., 2005, Nielson and Reenberg 2010, Terry, 2011). These studies show that livelihood diversification as a household adaptation strategy shape and are shaped by gender roles in the household and

community. They resonate with the findings of many studies in the gender and development literature (e.g. Dolan, 2004, Whitehead and Kabeer, 2001). However issues of masculinities and intra-household bargaining and cooperative conflicts are still not featured as a key focus affecting vulnerability and adaptation to climate change, among other livelihood stresses. Furthermore, I have not come across any of these studies in the MENA region. Attaher et al. (2009) breached the topic of gender in their study of the perceptions of climatic changes of rural farmers in the Delta in Egypt but gender was just touched upon as one of the factors affecting perceptions<sup>2</sup>. Therefore, my main contribution to the scholarship of climate change is the framing of gender relations and negotiations of local notions of femininities and masculinities in the household and community as key factors affecting vulnerability and adaptation to climate change in a region where this type of sociocultural livelihood approach to climate change is missing.

I see gendered social relations as a critical factor in the gender and climate change discourse. My analysis challenges the tendency of some climate change researchers (e.g. Frihy, 2003, Medany et al., 2009, Nicholls et al., 2008) to consider gender as just an additional factor and not a framing. I also think that it is a framing that is applicable to all contexts in varying ways, and should not be relegated to a Global South context.

Changing climate trends and extremes are perceived as serious stresses and threats to livelihoods and food security throughout Africa, in interaction with a multiplicity of other contextual stresses and underlying problems. Significant non-climate stresses that recur in several African (including North Africa) studies include lack of access to basic services (Quinn et al., 2003); income poverty and food insecurity (Attaher et al., 2009); conflict and gender inequalities (Tadjbakhsh and Chenoy, 2007), and other issues such as the depletion of natural resources, environmental degradation and social inequality (Dercon, 2008). Studies in North Africa regarding climate and environmental impacts on the deltas and coastal areas tend to be mostly economic and technical (for example, climate impacts modelling) at the expense of more social qualitative research on poor marginal communities in North African countries (Tucker et al., 2015). Social qualitative research is indispensable in understanding

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<sup>2</sup> I have drawn on anthropological work discussing gender relations in the MENA region such as Homa Hoodfar's (2006) ethnographic work in low-income communities in Cairo, Abu-Lughod (1986) in Bedouin communities in the Egyptian western desert, Mary Chamie (1985) and Suad Joseph (1993) in Lebanon, Anne Jennings (1995, 2009) in west Aswan, and Fatima Mernissi (1977) in rural Morocco to situate my discussion of intra-household gender relations in my case studies. Their work does not explicitly tackle gender and environment linkages but constitutes a key literary insight into understanding gender relations in a Middle Eastern context.

and assessing men and women's perceptions, experiences of and responses to climate change.

As a country, Egypt is viewed as an environment highly vulnerable to climate stresses and hazards, as will be discussed in detail in Chapter 4 (EEAA, 2010, ElRaey, 2010, IPCC, 2007). Social life in Egypt is also highly gendered in terms of social norms that affect access to tangible and intangible resources (Hendy, 2010, Hoodfar, 1997, Kabeer et al., 2013, Nadjé, 2002). The Global Gender Gap Report quantifying the magnitude and scope of gender-based disparities in access to resources and opportunities ranks Egypt 126th among 135 countries (WEF, 2014). Thus perceptions and experiences of vulnerability and adaptation to climate-related stresses among other livelihood stresses in Egypt are also gender-differentiated. However, recognition of gender-sensitive vulnerabilities and agency in adaptation is not even included in the UNFCCC's original guidance to governments on the development of their National Communications (UNFCCC, 2009), and there is no trace of it in Egypt's Second National Communication (EEAA, 2010). Research communities in Egypt are increasingly focusing on social concerns within the environment and climate change research fields as important for analysing and assessing vulnerability and adaptation to both experienced and expected future climatic changes, which are uncertain. However, there is no particular attention paid to gender analysis therein (Aguilar et al., 2011).

In this chapter I explore the dynamic linkages between gender relations, climate change and livelihoods. Through a review of existing literature, I review theoretical reflections on these linkages and their conceptualisation. I discuss my conceptualization of gender relations, climate change and livelihoods, and the criteria I applied to develop a conceptual framework that is fit for my research aims, questions and context. Implications for understanding these linkages will be introduced in this chapter and explored in more detail throughout this research.

## **2.2. Gender and climate change in a rural North African livelihood context**

Rural North Africa is characterised as a vulnerable environment to climate change (AFED, 2009). Chronic and extreme pressures arise both from environmental and climate-related stresses and from the multiplicity of livelihood stresses, underlying problems and social relations of everyday life. Different methodologies and research traditions such as those emanating from anthropology, development or climate change research tend to accentuate one or the other stress or effect. The disaster literature primarily deals with risk related to natural hazards affecting vulnerable populations (Blaikie et al., 1994). Anthropological research focuses on ethnographic methods to explore people's perceptions of daily stresses



and threats (Attaher et al., 2009, Thomas et al., 2007). Although some of these studies have a climate change framing, they highlight the multiplicity and dynamic nature of the stresses and risks that characterise the livelihoods of rural people in African communities.

My research approach resonates with social vulnerability assessments that prioritise daily livelihood problems affecting men and women, their families and social relations (Cannon, 2008, Cannon and Muller-Mahn, 2010). Understanding how daily risks and stresses interact with long-term climate trends and risks is a critical research need (Cannon and Muller-Mahn, 2010). My study is in part a fulfilment of that need. I adopt the view that climate-related stresses and risks present a threat in contexts such as my case studies, but people's experiences and perception of them are socially constructed. This local social construction is closely intertwined with socio-economic and cultural factors. I also adopt the stance of Smit et al. (2000) and Terry (2011) that prioritizes analysing men and women's perceptions over conceptual distinctions.

Many climate change adaptation studies are gender-blind, some treat gender as a social category, and a few explore the ways in which gendered relations between men and women affect adaptation choices and outcomes. Gender relations are central to African smallholder livelihoods (Carr, 2008). Few recent studies of climate adaptation in Africa pay special attention to the influence of gender relations on individual and household adaptation. Studies of smallholders' responses to climate stress in Kenya and Tanzania (Eriksen et al., 2005), in Ghana (Carr, 2008) and Uganda (Terry, 2011) explore how unequal gender norms restrict men and women's adaptive capacity and consequently household adaptation options. These studies show that livelihood diversification as a successful household adaptation strategy can undermine the interest and status of the married women in these households. These studies resonate with the findings of many studies in the gender and development literature (e.g. Dolan, 2004, Whitehead and Kabeer, 2001). However, Terry (2011), Francis (2000), Jennings (2009), Morton (2007) and Whitehead and Kabeer (2001) point out that despite African women's crucial role in the domestic sphere and rural production, intra-household gender relations are still not sufficiently studied.

Peasant societies are domestic-centred, meaning that the family unit is the socio-economic core and decision-making 'factory' of the village community (Rogers, 1975). Furthermore, modern peasants may feel marginalized by the larger richer urban society, which makes men and women cling more closely to the domestic sphere (Ibid). This constructed value of the domestic sphere gives women more status and cultural capital in their rural communities.

However, I argue against the polarization of the gendered public and private spheres and the primacy of one sphere over the other. I rather explore the gender relations that make these spheres complementary rather than hierarchic. Income-earning activities, social networks and information sharing channels are mutually interdependent and complementary in village life (Nielson and Reenberg, 2010). These mechanisms of livelihood adaptation give men and women access to and control of different but complementary forms of assets and resources.

In Egypt, climate-related stresses compounding the effects of the increase in food and fuel prices, as well as existing poverty and unemployment, diminishes the adaptive capacity of rural families with limited incomes (Attaher et al., 2009, Fahim et al., 2013). However, research investigating interactions/linkages between gender relations, livelihoods and 'living with' climate-related stresses is still in its infancy in rural villages in Egypt among other Middle Eastern countries (AFED, 2009, Attaher et al., 2009). Research among villagers in Maryut and Nubia villages has given me a chance to investigate these linkages in rural Egyptian communities. These linkages are (as elsewhere in Africa) greatly dependent upon coping and adaptation strategies that include livelihood diversification (including migration), social networks and knowledge/information sharing (Goulden et al., 2009b). These livelihood strategies are fundamental to and dependent on the moral, cultural and social order of the context in question, which dictates how different assets are valued and how vulnerability is perceived.

Studies of livelihood strategies have drawn attention to the elaborate means households develop to enhance their adaptive capacity and make best use of their resources such as labour, skills, capital, social networks and information (Chant, 1991, Gonzalez de la Rocha, 1994, Hoodfar, 1996b, Safa, 1995). Understanding of the adaptive behaviour of the household and men and women within it requires an examination of domestic factors, such as gender, family structure, and availability of material and nonmaterial resources that influence experiences of vulnerability and adaptation (Nielson and Reenberg, 2010). To start the analysis of these gendered dimensions of vulnerability and adaptation, it is first important to introduce the gender approaches to environment and development as well as the key concepts of vulnerability, adaptive capacity and adaptation.

### **2.3. Gender approaches to environment and development**

The gender and development literature tells us that climate adaptation interventions that ignore context-specific gender concerns threaten to reinforce gender inequalities and the differential gender dimensions of vulnerability, and can lead to ineffective and inequitable

adaptation initiatives (Vincent et al., 2010). To explore gender in the adaptation discourse, it is first necessary to review emerging dialogues on gender and climate change in the context of earlier gender approaches to environment and development, as summarised in Table 2.

Research focusing on women, environment and development started in the early 1980s but the policies and interventions that followed have not succeeded in addressing women's needs and 'have even often been counter productive' (Green et al., 2005, p.259). This failure can be largely attributed to the rather static conceptualization of gendered social relations in relation to environmental change, emerging from the Women, Environment and Development (WED) school of thought derived from Women in Development (WID) development discourse (Jackson and Pearson, 1998). They reflect WID shortfalls such as the tendency to represent women 'unproblematically as a single cohesive social group' (Green et al., 2005, p.272) with a special relationship to nature by virtue of their sex, overlooking other social differences and positionality such as ethnicity, age and type of household.

In the 1990s, an alternative conceptualization of gender-environment relationships, known as Gender, Environment and Development (GED), emerged in line with the Gender and Development (GAD) approach and its application to environment discourses (Braidotti et al., 1994). This concept challenges the essentialist assumption of women's special relationship to nature and instead sees gender-environment relationships as emerging from the social context of gender relations and hence dynamic, interactive and liable to change according to environmental, socio-economic and political stressors (Agarwal, 1991, 2003). GED shifts the focus from women as a target group to the gender analysis of women and men's relations which affect control over resources and household decision-making and thus influence adaptive capacity and coping opportunities (Green et al., 2005). This approach to gender analysis, as characterized by Jackson (1993), is highly sensitive to the cultural, socio-economic and political dimensions of the context in question.

	Intellectual Origin	Characteristics
<b>Gender-neutral</b>	Pre-WID	Targeting delivery to men and assuming ‘trickle down’ to women
<b>WED</b>	WID established by (CEDAW) 1979	<ul style="list-style-type: none"> <li>• Attention to gender roles and division of labour that ‘inherently’ links women to natural resources</li> <li>• Considering women as a homogenous group</li> <li>• Portraying women as primary victims of environmental change who bear greater responsibility for coping with ‘chronic’ climate changes or disasters</li> </ul>
<b>GED</b>	GAD emerged late 1980s	<ul style="list-style-type: none"> <li>• Attention to dynamic gender relations and their impacts on division of labour and livelihood diversification</li> <li>• Considering other social stratifications such as socio-economic status and age</li> <li>• Transforming existing gender relations and policies at their cultural and social roots</li> <li>• Acknowledging women’s proactive role in environmental initiatives and coping strategies</li> </ul>

**CEDAW** the Convention to Eliminate all forms of Discrimination Against Women

**GAD** Gender and Development

**GED** Gender, Environment and Development

**WED** Women, Environment and Development

**WID** Women in Development

**Table 2: Gender approaches to environment and development**  
Source: adapted from Green et al. (2005) and Jackson and Pearson (1998)

## 2.4. Social vulnerability, adaptive capacity and adaptation

Tucker et al. (2015), in a paper I co-authored, systematically review recent social vulnerability literature to provide a better understanding of the determinants of social vulnerability at varying scales of analyses and highlight the key knowledge gaps in the literature. The main identified gaps include the need for greater understanding of the underlying drivers of social vulnerability at local scales. Analyses of social sensitivity and adaptive capacity are particularly less developed than impact analyses of climate change exposure. Tucker et al. (2015) also highlight the need to capture the interaction of multiple stressors, and incorporate context-specific longer-term socio-economic trends into vulnerability analyses. Furthermore, they flag the need for in-depth understanding of the role of social stratifiers such as gender, ethnicity and age. They also emphasize the need for synergies between the national or regional scales and the in-depth, local context-specific analyses often found in wider development literature

(Ibid). In my thesis, I try to address these gaps.

Tucker et al. (2015) define social vulnerability as a dynamic state of societies comprising exposure, sensitivity and adaptive capacity. Exposure is defined as the extent to which a system is exposed to external and internal stresses and hazards (IPCC, 2014). In my context of study I refer to these as climate-related stresses among other livelihood stresses. I focus on the social dimension of exposure that is determined by where people live and work and how they construct their livelihoods. Sensitivity is defined as the degree to which a system is affected by, or responsive to these multiple stresses (Smit et al., 2000). In this research (Chapter 5), I mostly focus on sensitivity factors related to gender relations and masculine and feminine identities shaped by local gender norms and roles.

Smit et al. (2000) and Nielson and Reenberg (2010) define adaptive capacity as the capability or potential of a system to cope or adapt to climate variability and change, among other livelihood stresses through capabilities, resources and institutions. Adaptive capacities vary between individuals, households, communities, countries and regions (Adger et al., 2007, O'Brien et al., 2006). Adaptive capacity is often influenced by factors such as gender, culture and ethnicity (Ensor and Berger, 2009, Kelly and Adger, 2000, Nielson and Reenberg, 2010).

I use adaptive capacity in the sense of what Homer-Dixon (1999) refers to as 'social ingenuity' and defines as the ability to respond to intersecting climate-related, environmental and socio-economic changes. Adaptive capacity is more generally measured at the national level (Yohe and Tol, 2002), but is increasingly being studied at the community, household and individual levels (Tschakert, 2007). I argue in line with Tucker et al. (2015), that determinants of adaptive capacity, as are those of exposure and sensitivity, are context specific.

What shapes adaptive capacity? It is often defined in terms of forms of capital, assets or resources and other influences on adaptive capacity such as institutions (Tschakert, 2007). I study the different types of tangible and intangible assets that underlie adaptive capacity and the adaptation choices of individuals and households. I particularly focus in Chapter 5 on those aspects of adaptive capacity that shape and are shaped by gender relations such as family structure, gender ideologies and the marriage lifecycle, among other assets, activities and processes in people's lives. I argue that these factors highly influence adaptation decisions and experiences, at the individual, household and community levels.

Due to the long-term climatic impacts that we are bound to endure (Hare and Meinshausen, 2006), adaptation emerges as an inevitable response, particularly in the short and medium terms (Füssel and Klein, 2006, Morton, 2007, Ziervogel et al., 2006). Adaptation in human systems is defined by the Intergovernmental Panel on Climate Change - Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (IPCC - SREX) (2012, p.3) as ‘the process of adjustment to actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities’. Adaptation, whether individual or collective, is a dynamic process influenced by cultural norms and the enabling/disabling environment of the community (Yohe and Tol, 2002).

The main distinction between adaptation and coping behaviour is their planned and long-term aim, with coping behaviour largely regarded as a practical step of adaptation (Agrawal and Perrin, 2008, Eriksen et al., 2005, Yohe and Tol, 2002). Smit et al. (2000) review types and forms of adaptation processes. Based on intent, adaptation may be autonomous or planned, or some combination of the two. Adaptations can also be classified based on their timing relative to the climate impact as anticipatory (ex ante) and reactive (ex post). In this research, I focus on mostly autonomous and reactive adaptations of the people in the villages of Maryut and Nubia, due to the fact that Egyptian and other African smallholders cope or adapt to climate risks with little or minimal support from government or international agencies (Attaher et al., 2009, Terry, 2011). They can be both short-term and longer-term, as will be discussed in Chapter 6.

I also draw implications from this local contextualized adaptation for planned long-term national adaptation policies in Chapter 7. In evaluating adaptation, numerous considerations are noted by Adger et al. (2009b) that include criteria of efficiency, equity and legitimacy. Smit et al. (2000) also propose criteria of flexibility, local priorities and time frames of decisions. In this research, I mainly focus on equity and local priorities.

Many recent studies investigating how African smallholders cope with or adapt to intersecting stresses and threats, including those related to climate, are framed as contributions to the climate change adaptation literature (Eriksen et al., 2005, O’Brien et al., 2009b, Roncoli, 2006). Several types of adaptation activities have been identified in rural Africa including crop and farming adjustments, livelihood diversification, and migration (Goulden et al., 2009b). These livelihood adaptive or survival strategies are responses to interlocking climate and non-climate livelihood stresses and threats to livelihoods (Ellis, 2006a, Homer-Dixon, 1999, O’Brien et al., 2009b, Ziervogel et al., 2006). Empirically, it is

impossible and may be pointless to disentangle adaptation to climate-related stresses from adaptive responses to other livelihood stresses (Thomas and Twyman, 2005). However, climate-related stresses are key factors affecting natural resource dependent livelihoods as will be studied in the case study villages. This is why an integrated analysis of climate change assesses experiences of and responses to climate-related stresses – where they can be delineated and delimited – while keeping it in context of and in relation to other livelihood stresses. I will follow this type of integrated analysis in this research.

A current challenge in adaptation research is to understand that adaptation is defined by varied sensitivities to climate change exhibited by different actors – with differential positionality and social positioning - at the local level (Adger et al, 2009b). There is a need to enhance adaptation research that focuses on issues of gender, local norms and values, and cultural pluralism (Nielsen and Reenberg, 2010). This acknowledgement - by researchers and policy makers - is a first step for enhancing adaptation at the local level.

Culture is a strong influence on adaptation choices and outcomes at the local level, to the point that Nielsen and Reenberg (2010) state that livelihood adaptation strategies are culturally determined. Recent studies in climate adaptation have researched the positive and negative influences of sociocultural norms and values on adaptation choices and outcomes (Pelling, 2011, Roncoli et al., 2009). Adger et al. (2009a) propose that symbolic meanings of culture and environments might enable or limit adaptation choices. However, empirical analyses exploring how sociocultural norms and values influence adaptation are as yet under-researched (Adger et al., 2007, 2009b, Smit et al., 2000). Empirical localised adaptation studies are needed to better understand the nature of adaptation and its processes by observing, documenting and reconstructing current and past adaptations to climate and other livelihood stresses (Ibid). Analyses of adaptation processes starts with analyses of people's perceptions and experiences of these stresses. Perceptions of stresses and risk – only understood at the local level - are key in influencing individual and communities' experiences of and responses to climate-related stresses, among other livelihood stresses, due to the difficulty and uncertainty of distinguishing and attributing climate change signals (Ensor and Berger, 2009). My study of the links between gender relations and adaptation to climate-related stresses is framed within the sociocultural norms and values that shape these perceptions and experiences.

Highlighting this gap does not ignore the growing empirical literature on the heterogeneous nature of adaptation to multiple stressors affected by sociocultural contextual stratifiers that

include gender, ethnicity and culture, to name the few that I focus on in this study. Geraldine Terry (2011) explores the importance of gender roles and relations in influencing the adaptive capacities of individuals and households in a hillside village in Uganda affected by the climate-related stresses of rainstorms and landslides, among other livelihood stresses. Nielson and Reenberg (2010) provide ethnographic empirical evidence of socio-cultural determinants of adaptation with a focus on livelihood diversification as a key adaptation strategy for two ethnic groups in a small village in Northern Burkina Faso. They explore the heterogeneity of sensitivities and adaptive capacities to climate change and variability, among multiple stresses. They highlight the influence of gender, culture and ethnic identity as important determinants of the readiness to adopt livelihood diversification. Ensor and Berger (2009) also provide the example where petty trading as a livelihood adaptation strategy for women in Pakistan - where women's work outside the home is constrained - is resisted due to lack of sensitivity to social norms. Hence, an understanding of culture can help in understanding local power relations, including gender relations, and how they can influence adaptation strategies.

Ensor and Berger (2009) highlight the important role that culture plays in enabling adaptation to climate change, among other livelihood stresses. They emphasise that rooting the process of adaptation in local social norms allows engaging with indigenous capacities, knowledge and practices of coping with past and present climate-related stresses to enhance adaptation from within. This is not to suggest that cultures are fixed across space or time. Rather, it suggests that adaptations that are perceived as a threat to culture or social norms are likely to be resisted locally. Hence experiences of vulnerability and adaptation have important gendered sociocultural dimensions.

## **2.5. Gender aspects of vulnerability and adaptation to climate impacts**

Gendered vulnerability is explored in this thesis through exposure to two types of climate-related impacts: extreme events such as extreme rainfall events, and incremental impacts on livelihoods as a result of seasonal changes in temperature and precipitation patterns. Gender-specific vulnerability to natural disasters is increasingly recognized (Fordham, 2003). Most studies attribute it to women's roles and social norms (e.g. Oxfam, 2005). More recently, in-depth and contextual analyses of gender constructions of vulnerability have been emerging. For example, Neumayer and Pluemper (2007) conclude that women in inequitable societies are more vulnerable to climate change, and provide empirical evidence linking women's socially-constructed gender-specific vulnerability to their economic and social rights.



The other aspect of gendered vulnerability relates to climate-related impacts on livelihoods (Francis, 2000). Morton (2007, p.19680) argues that livelihoods are 'grounded in intra-household social relations, especially gender relations, as well as inter-household relations'. This type of gender analysis of inter and intra-household relations is less developed in the climate adaptation literature compared to the Gender, Environment and Development (GED) literature and livelihoods traditions (Agarwal, 1995, Ellis, 2000a, Jackson, 1993, Rao, 2006).

Recent studies of climate adaptation pay special attention to the influence of gender relations on individual and household adaptation. Eriksen et al. (2005) discuss gender roles affecting smallholders' responses to climate stress in Kenya and Tanzania. Carr (2008) studies gender roles as key factors affecting livelihood diversification strategies of rural communities in central Ghana. Carr (2008) and Eriksen et al. (2005) study the effect of livelihood diversification as a household adaptation strategy on the status of married women. Geraldine Terry (2011) explores how unequal gender norms restrict men and women's adaptive capacity and consequently household adaptation options in a hillside village in Uganda affected by the climate-related stresses of rainstorms and landslides. Nielson and Reenberg (2010) provide ethnographic empirical evidence from a village in Northern Burkina Faso highlighting the influence of gender, ethnicity and culture as important determinants of livelihood diversification as adaptation to climatic changes. These studies show that livelihood diversification as a household adaptation strategy shape and are shaped by gender roles in the household and community.

The analysis of inter and intra-household gender relations and how they affect the vulnerability of livelihoods to climate-related stresses raises the issue of the interplay between public and domestic domains. The polarization and separate analysis of these domains, in my opinion, is a major pitfall in much research using gender analysis. Public and domestic domains can be complementary rather than hierarchical, particularly in rural/mixed Muslim communities, as I discuss in the case studies. These communities, where the women's domestic domain is important economically and socially, are predominantly domestic-centred (Ahmed, 1992), as demonstrated by ethnographic studies of the Cairiens by Hoodfar (1997), the Bedouins by Abu-Lughod (1986) and the Nubians by Jennings (1995, 2009).

Emerging gender and climate change discourse progressively recognizes that women experience climate change differently to men in terms of vulnerability and adaptive capacity (Adger et al., 2007, Denton, 2004). Arora-Jonsson (2011), Denton (2004) and Terry (2009)

take a critical view of current discourses and initiatives that adopt a blind North-South perspective, reinforcing gendered polarities portraying women as vulnerable in the South and virtuous in the North. They argue for gender vulnerability assessment that, rather than implying that women are victims, acknowledges their role as active agents of change. Charlotte Bretherton (1998) argues that perceptions of the linkage between women and the environment fall into the discursive categories of women as victims or saviours. More than a decade later, in the context of climate change, Arora-Jonsson (2010) refers to these categories as 'virtue' and 'vulnerability'. In questioning assumptions about women's portrayed and perceived vulnerability and virtuousness through tracing the origins of the gender, environment and development discourses, Arora-Jonsson (2011) highlights how these preconceptions can deflect attention from gender inequities in wider frameworks of structure, agency and their possible complementarity. Categorizing women as vulnerable strips them of their agency and their role as individuals and members of families in adaptation. The virtuous role is often linked to motherhood and criticized in what Sandilands (1999) calls 'motherhood environmentalism' and MacGregor (2006) refers to as 'ecomaternalism', where women's natural maternal instinct to protect home and family is uncritically used as a driver and justification for their environmental preservation role. These discourses of women as victims or saviours emphasize 'women' as a monolithic homogenous group with common characteristics based on their biological sex (Arora-Jonsson, 2011).

Arora-Jonsson (2011) and MacGregor (2010) argue that these generalizations can lead to an increase in women's responsibility for environmental management, which encompasses adaptation to climate-related stresses, without corresponding benefits to their livelihoods. Their argument feeds into the diverging debates in the academic literature that revolve around this issue of portraying women as victims (e.g. Mustafa and Ahmed, 2008), which can hinder their adaptive capacities (Aguilar, 2007), versus the highlighting of gender agency and social comparative advantage in managing adaptation to climate change (e.g. Terry 2009). This brings me to discuss key debates in the gender and climate change literature and where I position my research among them.

## **2.6. Key debates in the gender and climate change literature**

In this section I focus on two key debates in the gender and climate change literature.

### **2.6.1. It is not all about vulnerable women in the South: It is about women and men as agents of change**

The 'gender means women' approach has been long debated in feminist and gender research and interventions. Most analyses of gender and climate change focus almost exclusively on

physical measurable climate impacts in relation to a homogenous group of women as a biological category in the Global South, with little or no mention of men or the relations between the two. It enables the idea that the gendered dimension of climate change solely concerns women in the South. My argument here is in line with that of Bretherton's (1998, p. 86) contention that understanding the gender-relational aspects of environmental politics, which are shaped by inequalities and complementarities of power and access to resources, is compromised by presenting women's experiences 'in isolation from the broader sociocultural content in which norms are embedded'. As noted by Seema Arora-Jonsson (2010), these narratives are also misleading in enabling the presentation of women as one monolithic group, thereby obscuring the differences among them. In this research I theorize gender as a social construction of masculine and feminine identities and how they relate to each other and to intersecting identities.

Rather than assessing and addressing a set of complex and intersecting power relations most mainstream gender and climate change discourses treat gender as a binary issue attributing all the vulnerability to women in the South (e.g. Mustafa and Ahmed, 2008). As noted by Arora-Jonsson (2011, p.2), such an uncritical portrayal deflects 'attention from power relations and inequalities reproduced in institutions at all levels and in discourses on climate change'. An overemphasis on women's vulnerability denies women's agency, adaptive capacity, situated knowledge and resilience, as discussed in Chapters 5 to 7. Most importantly, such framing obfuscates the social and cultural drivers that make women and men vulnerable and silences contextual differences. An additional danger of such uncritical representation lies in the portrayal of gender roles as static, ignoring how gender vulnerabilities, roles and responsibilities in adaptation are produced, reproduced, negotiated and contested as a reflection of emerging constraints and opportunities that operate within the dynamic context of daily life. Moreover, cultural norms can also increase gender-specific vulnerability among men concerning, for instance, their male provisioning role and migration (Chapter 5).

I was conscious of and careful about not going to the other extreme and directing attention only to women's agency, skills, voices and experiences in adaptation. Although women in the villages indeed embody the role of agents for change, I did not want the findings to mirror a 'feminization of responsibility' (MacGregor, 2010) that risks further entrenching gender roles and binary representation. I rather focused on gender relations and the complementarity of men and women as individuals and in the households of the studied villages.

I argue in line with Arora-Jonsson (2011) for recognition of the complexity of the gendered contexts in which climate change takes place in order to appreciate perceptions, experiences and responses shaped by cultural and social norms, including gender norms. A gendered focus on climate change needs to go beyond the vulnerabilities of women and men to their adaptive capacities and to the ways in which their relations in family and kinship, their 'situated knowledges' (Haraway, 1988) and their experiences render them resilient (or not). With this approach I challenge the discourse that sees poor men and women as victims, arguing that they are active and innovative agents of adaptive change.

### **2.6.2. Gender is not a stand-alone factor: It is a relational framing**

One of the key tasks in this research is to articulate the normative implications of more sophisticated ontological understandings of gender and climate change. Relationality in approach is important in order to develop the transformative understandings required to address climate change. This approach offers relational narratives that humanize the complexity of the problem and constitute a discursive reconstruction of it from a political and scientific framing to a framing of climate change as an intrinsically social and cultural challenge.

A crucial research implication is the importance of framing micro-level gender social relations as critical factors of vulnerability and adaptation to climate-related stresses. My analysis challenges the tendency of some climate change researchers to consider gender as just an additional factor. I argue in line with Sherilyn MacGregor (2010) for the conceptualization of gender as a discursive framing. Gender framing and analysis encompass other social categories and cultural structures such as ethnicity (implied in family or kinship structure) and age (implied in family lifecycle) (Carr and Thompson, 2014, Kaijser and Kronsell, 2014, Moosa and Tuana, 2014, Rao, 2014). I also consider this framing applicable to all contexts in varying ways.

Gender is one element of the complex and multiple identities that a person may inhabit that influence adaptive responses to climate change. I stress that gender is a vector that intersects with age, ethnicity, etc. Men and women's vulnerability, responsibility and decision-making power can be attributed to the sociocultural structures based on characteristics explored in this research which include gender, ethnicity, place and age. As remarked by Tschakert and Machado (2012), studies and initiatives that focus solely on one single variable (such as gender or economic status) often fail to consider how this vector is meshed with other sociocultural structures, positions and identities. This risks fixing the differences and

moulding them into static categories; it also excludes those who do not fit into these categories and denies social change and contestation and the complexity and fluidity of identities (Lykke, 2009). I have aimed to avoid this in this research and to highlight how differences are dynamic, socially-constructed and context-specific. I find that individuals relate to climate change depending on their position in context-specific sociocultural structures based on social categorizations. It is difficult and pointless to ascribe certain aspects of vulnerability or adaptive capacity to one single factor, as each is but a component in the *tagine*. Yet my aim is not only to include many intersecting analytical categories but also to widen the perspective and reflect upon the factors that I found relevant in my study setting. My research strategy required me to select and prioritize the most relevant intersections in the case-study villages while keeping the wider national and regional picture in mind. I question prevailing categorizations and analyze how they are related to broader relations, institutional practices (mostly focusing on the household and the community), and to norms, symbolic representations and situated knowledge. This type of gender analysis requires a contextual and relational approach.

## **2.7. A contextual and relational approach to gender and climate change**

Recent work focuses on the social impacts of and responses to climate change. Michael Doan (2014) states that climate change cannot be understood as ‘an isolated problem, unconnected to broader problems of social and economic inequality and political disempowerment’ (p. 635). He argues for a new research approach that promotes a relational understanding of climate change in a broader socioeconomic context of structural processes and relational dynamics. Sherilyn MacGregor (2010) argues for the need for feminist analyses of climate change focusing on ‘critically analyzing the historical forces, hierarchical power relations, and value systems that have caused, and are standing in the way of addressing, the current predicament’ (p. 627). Moosa and Tuana (2014) highlight a need for feminist situated analyses that take into account the social position and interests of men and women affected by and responding to climate change. They highlight the need for a holistic ontological perspective to address the interlocking systems affecting and affected by climate change. These studies demonstrate the need for gender analyses that are situated and relational and which are needed to reveal the gender and power relations underlying responses to climate change. This is where I situate my research.

The most fundamental premise of relationality is that differently-positioned men and women experience varying degrees of vulnerability, not as isolated individuals but in relation to one

another and to their environment at varying levels. Hence addressing climate change needs to emerge from a relational understanding of the experiences, perceptions and responses of the people affected in their sociocultural context. Turning away from conceptualizations of climate change as an outside global problem and reimagining the ways in which people experience it and are part of its processes necessitates contextual and relational engagement.

Climate change is shaped by a number of hegemonic discourses that set the tone for global and national policy agendas and inform understanding of local experiences and interventions (Hulme 2009). Many of these discourses are shaped by assumptions that climate change is a global, scientific, gender-neutral security issue that needs top-down and scientific approaches to tackle it. There is a need to identify the complex interlinkages of material, symbolic and ideological factors that shape its meaning for different interlocutors (Pettenger, 2007). Climate change may be real, with material impacts and manifestations, but its meaning and perceptions of it are shaped by sociocultural gendered norms and discourses.

I present the framing of climate change with different, socioculturally-loaded meaning and terms. This is highlighted in men and women's perceptions of the threats and changes to 'their' Nile, land and community in my study villages in Chapter 7. It raises the questions, iterated by Beck (1995, p.36), of 'whose nature' and 'which nature?' This is more understood in a framing of climate and environment as a livelihood's sociocultural medium rather than just an 'out there' (external) ecological construct (McKibben, 1990). Latour (2004) argues that the representation of nature as an external medium, obeying its own laws that are only understood and tackled by the privileged authority of scientists and experts, has limited the options for human action and interaction. Macnaghten (2003) criticizes the discourse of 'global nature' because it lacks connection with daily life concerns and thereby limits policy options. I argue for a representation of the human relationship to nature as defined by Donna Haraway (1991) as a social and cultural engagement with a being.

Dale Jamieson (2010) argues for the need for new relational frameworks to understand climate change as situated within interconnected relationships. He makes the case that climate change is more than an environmental or economic problem: it is rather an ethical and social problem relating to 'how we ought to live, which kinds of societies we want, and how we should relate to nature and other forms of life (Jamieson, 2010, p.82). Fiona Robinson (2011) discusses relationality in terms of the reciprocal relationship between humans and the environment. She argues that the challenges that climate change pose to people's livelihoods necessitate a deep understanding of people's relationship to others and to their environment.

In her article entitled 'Climate Change, Vulnerability, and Responsibility,' Chris Cuomo (2011) argues that a relational approach is needed to understand climate change as 'emerging from powerful and deeply entrenched economic and social norms and practices' (p.692). Neimanis and Walker (2014) call for attentiveness to understanding the interrelation between nature and culture in terms of the spatial and temporal relations of people to their environment and its changes, which should not be approached as 'some natural backdrop to our separate human dramas, but are rather of us, in us, [and] through us' (p.559). In response to these needs in scholarly research, I study climate change from the viewpoint of people's perceptions, experiences and responses to their environment and its changes, in the context of their livelihoods and relations to each other, and gender relations in particular.

Based on these insights and research needs, I follow a gender analysis rooted in a contextual and relational approach to my analysis of climate change that builds upon the main axes along which feminist philosophy has engaged with climate change. As defined by Moosa and Tuana (2014), these axes include nuanced analysis of the impacts of climate change that deal with the intersection of social roles, relations, values, and identities, as of gender, class and ethnicity, which create differential vulnerabilities and adaptive capacities to climate-related stresses, among other livelihood stresses (Chapters 4 and 5). Another axis adopts an adaptive capacity lens that highlights agency in adaptation to climate change within the local social, political, cultural, and economic context (Chapter 6). A third axis is the construction of local knowledge of climate change that calls attention to the ways in which an individual's social positioning shapes his or her perceptions, experiences and attitudes to climate change (Chapter 7). A fourth axis is the relational approach to climate change as it emerges from and affects gender relations, which in turn influences experiences of vulnerability and adaptation to climate change, a theme running through and connecting the whole research. As is evident from these four axes, gender analysis provides resources for reflecting on climate change to develop richer epistemological understandings of the experiences and perceptions of and responses to its impacts, and to allow the formulation of more responsive frameworks for investigating them.

## **2.8. Gender relations, climate change and livelihoods: developing a holistic investigative framework**

Perceptions of livelihoods may differ among individuals in a community and within the same household due to their different social identities and structural positions, which are defined by and define the cultural norms and values of the community (Folbre, 1993, Ensor and

Berger, 2009). Furthermore, the analysis of social relations as critical dimensions of personal identity and livelihoods requires a consideration of the ideologies that underpin them and the discourses through which they are articulated (Kabeer, 1994). These features of the investigative framework are critical to my empirical analysis in Chapters 5 to 7, where I discuss the prevailing norms, ideology and practices regarding gender roles and relations that affect and are affected by experiences of vulnerability and adaptation to climate-related stresses, among other livelihood stresses. In Appendix 1, I compare different frameworks related to my topics and the reasons why I chose to adopt elements within them that are fit for my aims, research questions and context of my research. The sustainable livelihoods framework (SLA) helps to integrate the social and climatic dimensions of vulnerability and adaptation (O'Brien et al., 2004, Roncoli et al., 2009) through a holistic view of how people sustain their livelihoods in evolving social, institutional, political, economic and environmental contexts (Allison and Ellis, 2001, Allison and Horemans, 2006). Livelihoods analysis places people at the centre of the analysis by focusing on their social and economic activities. The element of sustainability adopts a broad view of development that encompasses economic, institutional, social and environmental dimensions.

The SLA has its origin in literature on entitlement and food security (Sen, 1982, 1999), where it acquires particular strengths for understanding social vulnerability and coping (Ellis, 2000a, 2006a). According to Scoones (1998) and Ellis (2000a), the SLA is constituted of three main components: the vulnerability context, defined as the risk factors that affect people's livelihood and survival; the livelihood context of assets, activities and processes; and the institutional context that includes an analysis of social institutions at various levels (of these levels I focus on the household). I frame my research and arguments within the SLA through the vulnerability context (Chapter 5), livelihood context (Chapter 6) and institutional context (Chapter 7) through a gendered relational lens.

My premise is that livelihood vulnerability to incremental and extreme climate impacts, people's adaptation strategies and their perceptions of and responses to climate risks are closely intertwined with gender and wider social relations. I explore this premise through a gender-analytical framework that sees gender as a social and cultural construction among other social categories such as ethnicity and age within a broader context that also positions climate change among broader political, social, cultural, economic and environmental influences in people's livelihoods. This understanding was developed in the 1990s within the



livelihood approach (Scoones, 1998). While the livelihood approach and gender analysis have often been applied to sustainable development and environmental management, they have not been widely used to investigate climate adaptation (e.g. Goulden et al., 2009b). Thus this research introduces a new conceptualization of adaptation to climate change.

A very important criterion in developing the analytical framework is its dynamic nature, which can reflect the uncertainty and change in the gender dimensions of vulnerability to climate-related stresses within rapidly-changing political and socio-economic conditions (Lambrou and Piana, 2006). A second criterion is its adaptability to the local context, as climate/environmental conditions and gender analysis are context-specific (Adger et al., 2009a, Jackson, 1993). A third criterion is the framework's ability to reflect strategic as well as practical gender needs (Molyneux, 1985). Last but not least, I frame the conceptual framework within the overarching social, cultural and ideological mechanisms/norms that reproduce and construct the gendered and social notions of privileges and marginality which in turn affect vulnerability, access to resources and adaptation.

To operationalize my research question I mainly use an adapted sustainable livelihoods framework, which integrates the vulnerability, the livelihood and the institutional contexts. I focus on the household in the institutional context, which puts gender relations at the heart of the analysis. Gender analysis of vulnerability and the adaptation of livelihoods to climate-related stresses is based on concepts of gendered social relations, as developed by Naila Kabeer (1994, 1999), and cooperative conflict developed by Amartya Sen (1987). The analysis starts with the individuals within the household as a unit of analysis and expands out to the household and community, also exploring the interlinkages between them. It aims to transcend the superficial representation of gender roles adopted in mainstream climate change and gender literature and focus on gendered cultures and relationships in people's livelihoods.

### **2.8.1. Vulnerability context**

The term 'vulnerability' is defined, used and conceptualized in many different ways by various scholars from various fields that include climate change, entitlements theory and disaster risk reduction (Adger, 2006, Füssel and Klein, 2006, Tucker et al., 2015). Following on from Section 2.4, a meaningful consideration of the concept depends on the context and purpose of the vulnerability assessment. Adger (2006), Füssel (2007) and O'Brien et al. (2009a) identify two distinctive epistemological paradigms in vulnerability research that are used

according to the objective in question. The first, referred to as outcome vulnerability (O'Brien et al., 2009), has grown out of various risk-hazard and impact frameworks (Füssel and Klein, 2006). It focuses on vulnerability to environmental impacts and then adds on social parameters. The second, contextual vulnerability, originates from the literature on entitlement and livelihoods frameworks rooted in social systems (Ellis, 2006a, Sen, 1982, 1999). Emanating from socio-economic stressors added to environmental ones, it focuses on the variation and dynamics of vulnerability within and between social groups, emphasizing aspects of inequality and distribution (Adger et al., 2007).

I adopt a social contextual definition of vulnerability that arises from the underlying social conditions and changing characteristics of people, households or communities in terms of their susceptibility and capacity to anticipate and cope with exposure to livelihood stresses, including climate-related stresses (Adger, 2006, Blaikie et al., 1994). It focuses on the sensitivity and the adaptive capacity of human and social capital (Ibid). Taking it further, I follow Ellis's (2006b) approach of placing vulnerability in the social context of people's livelihoods, and link its underlying factors to multiple socio-economic, political and environmental stresses through the livelihoods approach. These factors differentiate vulnerability across communities and societies. The literature concerning the social distributional dimensions covers an increasingly broad range of categories that includes, among others, income (Tol et al., 2004) and gender (Denton, 2002, 2004). I emphasize the factor of gender and its intersection with other factors, such as income, age and ethnicity, as key components of social vulnerability and adaptive capacity in a livelihood context.

### **2.8.2. Livelihood context: assets, activities and processes**

Researchers privilege different indicators or factors of adaptive capacity which include different forms of assets framed in different ways (Adger et al., 2009b, McLaughlin and Dietz, 2008, Moser, 2009). These factors are mediated by sociocultural characteristics and relations manifesting through social institutions (Kabeer, 1999). I argue in line with Tschakert and Machado (2012) that the most significant gaps in research on gender and climate change concern the difficulty of addressing the social norms and practices that create unequal access to and control over households and communities' tangible and intangible assets, thereby restricting adaptive capacity and responses.

In the discussion of assets, the theory of access developed by Ribot and Peluso (2003) is critical for defining mechanisms that mediate access to assets/capital and link the

vulnerability of livelihoods to gender relations. Ribot and Peluso (2003) redefine the term 'access' to resources as 'the ability to benefit from things – including material objects, persons, institutions, and symbols' (p.153). Access depends on the 'bundles of powers' that individuals hold that are mediated through 'structural and relational mechanisms' to gain, control and maintain access to resources. This concept of access constitutes a conceptual shift from a focus on *de jure* legal rights to the importance of the *de facto* mechanisms by which people gain access and the underlying relations, identities and networks that contribute to shaping and negotiating access. The livelihood assets and/or forms of capital (Scoones, 1998, Sen, 1999) are generally divided into natural, financial, physical, human and social assets. I add cultural and symbolic capital, as developed by Pierre Bourdieu (1986), as indispensable assets to people's livelihoods and their relations. Cultural capital represent forms of non-financial social assets such as knowledge, skills, intellect, attire and advantages that people have, which give them higher status and social mobility in society. Bourdieu (1986) refers to symbolic capital as the resources available to an individual on the basis of honour, prestige or recognition that give 'value' within a culture. These forms of capital, as Bourdieu (1986) argues, can produce or reproduce inequality and therefore can be used as means through which to study processes of access. Access to these forms of capital, which I study in this thesis, is socially differentiated at the individual/intra-household level and is also dependent on more expansive institutional patterns.

### **2.8.3. Institutional context: Gender relations**

Within the institutional context of people's livelihoods I focus on gender relations as the core of my study. I adopt the social relations approach (Kabeer, 1994), which takes a socialist feminist philosophy to gender analysis and considers gender relations at several levels of analysis and identities such as age, class and ethnicity. It critically deconstructs gender relations, drawing on inequalities in rules, activities/responsibilities, resources, people and power that are renegotiated through institutions (state, market, community, family).

The study of gender and development during the last two decades has improved understanding of livelihood strategies in the context of environmental/climate change (Green et al., 2005, Moser and Young, 1981, Terry, 2009). This literature highlights the role of the household structure and gender relations in determining how different members of a household contribute to and benefit from livelihood strategies. It has broadened the focus of research on adaptation, coping and survival behaviour to include the household and gender ideology and relations. However, in many of these studies the household itself is assumed to

be an egalitarian and rational unit where individuals selflessly contribute to one another's welfare. They do not account for historical and cultural diversities that influence household relations and structure according to age and gender hierarchies. The emergence of a new literature on gender and development, gender ideology and relations, based on a wide range of cross-cultural research, questions these assumptions of altruistic egalitarianism (Chant, 1991, Gonzalez de la Rocha, 1994).

Detailed studies of livelihood strategies have drawn attention to the fact that most people, particularly in the developing world, maintain their livelihoods in their surrounding social and natural environment as members of a household rather than as autonomous individuals (Chant, 1991, Gonzalez de la Rocha, 1994). A person's choices and decisions are affected by the roles and relations that wider society attributes to him or her as a member of a household (Booth, 1993). This is particularly true in Egypt, where the domestic unit is at the centre of social life, the household is based on family and/or kinship, and the interdependence of family as household members is emphasized (Hoodfar, 1997, Singerman, 1996).

The household as a social institution is subject to change in its internal relations, organization and livelihoods as a result of external pressures. It is considered part of the complex of institutional structures of a given society that is in a constant state of flux (Chant, 1991, Singerman and Hoodfar, 1996, Kabeer, 1994). However, the Egyptian household is an institution that has proven relatively resilient in the face of all forms of change. It strives to act as a buffer to protect the individual from shocks, whether these are environmental, political, economic, or state policies and rapid social changes (ibid). In an uncertain world, membership of household or kin-based groups is a principal means of access to resources and livelihood security (Gonzalez de la Rocha, 1994, Singerman, 1996). On the other hand, vulnerability and lack of resources influence the ties between members of the household both positively and negatively.

The household/family remains important as a unit of analysis, but it is important to look within the household to investigate intra-household relations; conceptualize human agency, experience and culture; and capture the dynamic relationship between people's livelihoods, social norms and institutional practices (Abu-Lughod, 1986, Jackson, 2007). This is why I complement Kabeer's social gender relations framework (1994) with an analysis of intra-household and conjugal relations.

To conceptualize conjugal relations in my study villages I use the cooperative conflict model of households developed by Sen (1987) and adopted in Agarwal's (1997) bargaining framework that deals with the dynamics of intra-household bargaining power and inequality. Focusing on both cooperation and conflict within the household, it also incorporates perceptions of needs, contributions and risks and how these are constantly negotiated and renegotiated in households and societies. The model focuses on explicit and implicit bargaining in households whose outcomes are influenced by three factors; each spouse's breakdown position (fallback position in case of separation or divorce); his or her perceived interests; and his or her perceived contributions to the household, which may differ from what they actually contribute. This is critical in the gender analysis of environmental change because perceptions of risks and adaptive capacity are not only fundamental to adaptation (Adger et al., 2009b) but also mediate and influence the vulnerability of livelihoods. However, this framework still focuses on separate interests and individual autonomy within the household, and so I complement it with Cecile Jackson's (2007) idea of creative conjugality. While I do not dismiss the existence of separate interests within the household, I explicitly acknowledge the importance of recognizing both separate and shared interests within the household. This is critical to understanding vulnerability and adaptation to risks in people's livelihoods where 'the character of conjugality and other household relations mediate behaviour in relation to risk' (Jackson, 2007, p.115).

I also situate my analysis within the wider national institutional set up that frames the national climate change adaptation discourse. I frame my discursive analysis presented in Chapter 7 within Nancy Fraser's (1987) framework of the politics of gender need interpretation that consists of three stages of recognizing the status and construction of a need, interpreting it, and assessing approaches to addressing it. In Fraser's (1987) politics of contestation of multiple discourses, she calls for the identification of the different types of bureaucratic (status quoist discourse) and oppositional discourses by asking what knowledge, and whose knowledge? This is followed by the interpretation of how these discourses are constructed and contested and by the acknowledgement of what knowledge becomes relevant or authoritative and how to contest it. This framework is useful in reflecting local discourse – as the more general notion of how people talk – on the evolving global discourses of gendered adaptation to climate change. I adopt this discursive framework to argue that local cultural and social constructions should be reflected in broader epistemological discourses in dealing with climate change as a gendered discourse.

This combined conceptual framework shows how vulnerability and adaptation to climate-related impacts on livelihoods are mediated by the gender relations manifesting in experiences of vulnerability and adaptation. The concepts used in the framework are highly inter-related and broad social, economic, political and ecological conditions affect them to varying degrees. The framework is complex and depends on many diverse factors and their interrelations. Rather than simplifying the complexity and uncertainty of the dynamic, interdisciplinary and multi-dimensional topic in question, the framework investigates the mechanisms and missing links between gender relations and climate adaptation, particularly in the context of marginal livelihoods.

## **2.9. Conclusion**

In this chapter I have discussed my investigative framework and introduced the concepts and approach that I used in formulating it. I have also presented empirical evidence from the literature highlighting gendered vulnerability and adaptation to the multiplicity of climate and non-climate related stresses in rural livelihoods. This review allows me to position my study that aims to enrich the adaptation literature with a more in depth contextualised and gendered analysis of vulnerability, adaptation and knowledge production of climate change in Egypt where this type of gender analysis is almost non-existent. The importance of this dissertation topic stems from the limited, though growing, explicit recognition of gender considerations in climate change adaptation discourse.

The focus of my research is on exploring gender relations rooted in contextual sociocultural influences. This is an under-researched area in climate literature. Factors affecting the individual's position within the household continuously evolve in response to social and cultural changes that affect and are affected by vulnerability and adaptation. Therefore the study of gender relations, climate change and livelihoods should be understood in conjunction with pre-existing economic, cultural, and ideological factors. However, while it is important to take into account the cultural and ideological constraints, it must be understood that men and women are social agents who actively struggle to reform their livelihoods and conjugal relations. While members of a household harmonize their activities and face outside forces as a unit, this does not mean that they do not have internal conflicts of interest regarding the acquisition and allocation of different forms of assets. A prevailing atmosphere of cohesion and cooperation in a household does not exclude the presence of unfavourable relations or conditions for differently-positioned members with varying capacity to cope with or adapt to stresses to their livelihoods, as individuals or as a household. Therefore, there is a

need for contextual empirical evidence - based on an interpretive ethnographic methodology as will be discussed in the next chapter - which contributes to the basis of theory on climate change adaptation in development contexts.

## **Chapter 3: Methodology**

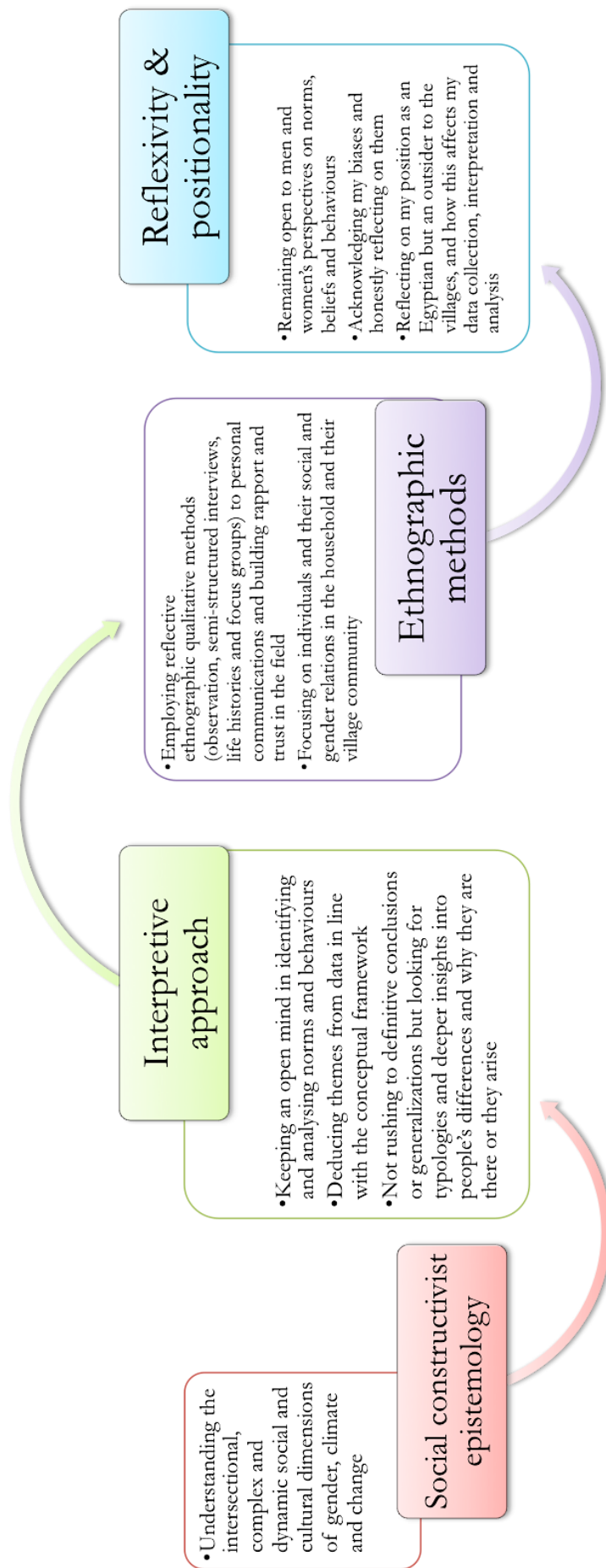
### **3.1. Introduction**

In my research tackling the sociocultural dimensions of climate change, I follow a constructivist approach characteristic of interpretive social science (Malone and Rayner, 2001) where I focus on the what, who and why of people's perceptions of and responses to stresses on their livelihoods. To research the interlinkages between gender relations and adaptation to climate change, I employ comparative case studies of two rural villages in Egypt that are exposed to climate-related stresses interlocking with other socio-economic stresses and underlying problems. Ethnicity, family structure and sociocultural norms are different in each case study. By examining the context and mechanisms linking gender and climate change, insights from the study can draw useful implications for groups and individuals in similar settings in Egypt and elsewhere, particularly in the Middle East and North Africa (MENA) region.

I used mainly qualitative methods with semi-structured interviews, life histories and focus groups. I also conducted simple numerical and categorical quantitative analysis. The focus on qualitative methods and analysis allowed me to explore the complexities of gender relations and how they affect and are affected by vulnerability and adaptation to climate-related stresses (O'Laughlin, 2007). I also used secondary data concerning the historical, ethnographic, socio-economic and political contexts, as well as background literature to ground my research and analysis.

In this chapter I introduce my research methodology and methods, summarized in Figure 1. I begin with an overview of the methodology and then present how I have followed a sociocultural constructivist approach (section 3.2) to answer my research questions (section 3.3). This approach is rarely used in realist/positivist climate change research. Within this approach I employ reflective ethnographic methods of personal communication and building rapport and trust in the field (sections 3.4); this reciprocity entails an ethical responsibility that I discuss in section 3.5. Then I present the methodology, research design and methods used in section 3.6. Finally I go into the practicalities of data analysis in section 3.7, and research challenges in section 3.8.





**Figure 1: Overall approach to research design**

## 3.2. Epistemological issues

### **Social constructivism: gender and climate change as social and cultural constructions**

I locate my research methodology within a constructivist epistemology wherein knowledge of social relations is socially and culturally constructed (Harding, 1986, Longino, 1990, Mason, 2002, Nelson, 1990, Raskin, 2002). As my research investigates the gender ramifications of climate-related impacts, it considers the socially-constructed aspects of responses to and perceptions of climate change and variability at multiple levels, from the household and community to policymaking.

I conceive of social constructivism in terms of emic perceptions and experiences of vulnerability and adaptation to climate impacts/stresses which are usually viewed through a positivist or critical realist lens. In adopting this epistemology, I consider that the interpretation, experiences of and responses to climate-related impacts are socially-constructed and differently perceived by differently-positioned people (Hulme, 2009). I acknowledge the active role/agency of individuals in the social construction of reality, but do not assume that social phenomena or categories are solely produced through social interaction (Becker 1982).

Within this constructivist epistemology I conceptualize gender as a social and cultural construction (Guba and Lincoln, 1989, Harding, 1989, Wickramasinghe, 2006). In theorizing gender my underlying assumption is that gender is an identity among many other identities and positions, such as ethnicity and class. It is by no means universal or static, but is rather context-specific and in a constant state of flux. This conceptualization of gender is influenced by strands of feminism and postmodernism that see social and scientific research processes as 'situated knowledges' (Haraway, 1988, p.575). Gender is viewed as an 'ideology of social life' (Abu-Lughod, 1986, p.32) conceptualized in local context as a social, political, cultural and ideological construction of society (Becker et al., 2012). Linking gender relations to vulnerability and adaptation to climate-related stresses means not that I see gender relations as the primary driver of vulnerability in the villages but that I am interested in investigating how gender relations affect vulnerability on the level of households and community.

This constructivist paradigm infiltrates the essence of my research, in which I do not claim to observe an objective reality but present my understanding of the accounts of the participants as research partners. Although this implies a context-specific meaning, insights from it can be

transferable through diligently examining the processes and mechanisms by which the social world is constructed in the context in question. The critical question is how well the research generates theory of processes and interactions that can potentially be applied to other, comparable cases. This type of transferability is denoted as ‘analytic generalization’ by Yin (2004) and ‘theoretical generalization’ by Mitchell (1983).

Gendered sociocultural dimensions of vulnerability and adaptation to climate change can only be understood in context due to the contextual nature of these dimensions (Nielsen and Reenberg, 2010). The chosen approach, based on in-depth analysis of two villages in Egypt, limits the generalisability of the data. However, this does not mean that these context-specific case studies may not provide theoretical, methodological and discursive insights of a more generic nature about gendered sociocultural dimensions of vulnerability, adaptive capacity and adaptation (Adger et al., 2007, Ensor and Berger, 2010).

I also acknowledge the ‘conscious partiality’ (Mies, 1993, p.68) of my research, but I have attempted to work systematically and critically, to be self-reflexive and to consider alternative interpretations at every step to ensure robust conclusions. I have followed an iterative approach to the relationship between theory and research (Houston, 2005), where data collection is based on a theoretical framework that is flexible enough to be retuned or reshaped according to what the research on the ground reveals. I consider my study a co-construction by the villagers and myself as the researcher. I am aware that my social identity as a researcher influences my study, from the formulation of the research questions to the analysis and interpretation of data (Harding, 1987), and therefore as an Egyptian but an outsider to the villages I have tried to be conscious of the way I affected the fieldwork and its interpretation.

### **3.3. Research questions matched to research methods**

The overarching research question is: How do gender relations influence vulnerability and adaptation to climate-related stresses in a rural Egyptian context of multiple risks, shocks and stresses? In order to answer this main research question I devised a set of research sub-questions matched to frameworks of analysis and data methods in Table 3.

Sustainable livelihood approach	Research questions	Specific research questions	Research methods
Vulnerability context of risk factors impacting people's livelihood	1. What are the perceptions and experiences of gendered vulnerabilities to climate and livelihood stresses?	1a. What are the main climate trends and shocks that men and women experience and are expected to experience?	<ul style="list-style-type: none"> <li>- Secondary data for climate parameters and projections</li> <li>- Participant observation</li> <li>- Semi-structured interviews</li> <li>- Group discussions</li> </ul>
		1b. How do gender relations affect livelihood conditions and vulnerability to climate-related threats (among other stresses)?	<ul style="list-style-type: none"> <li>- Secondary data/document analysis of policy reports</li> <li>- Participant observation</li> </ul>
		1c. What do the gendered relational aspects of men's and women's livelihoods under stress imply for adaptive capacity? (i.e. what shapes adaptive capacity?)	<ul style="list-style-type: none"> <li>- SSIs</li> <li>- Group discussions on livelihood changes</li> <li>- Policy interviews</li> </ul>
Livelihood context of assets, activities and processes	2. How do gender relations affect the adaptation of individuals, households and communities to climate and livelihood stresses?	2a. How do men and women interpret and respond to past, current and future climate/environmental trends and threats (among other stresses)?	<ul style="list-style-type: none"> <li>- Literature review and secondary data</li> <li>- Participant observation</li> <li>- Semi-structured interviews</li> <li>- Group discussions</li> <li>- Policy interviews</li> </ul>
		2b. What do the sociocultural aspects of men and women's perceptions and responses to livelihood stresses imply for adaptation of individuals, households and communities?	<ul style="list-style-type: none"> <li>- Review of case-study evidence</li> <li>- Participant observation</li> <li>- Semi-structured interviews</li> <li>- Group discussions</li> </ul>
Policy and institutional context	3. How far do climate change adaptation discourses and policies address gender-specific vulnerability and adaptive capacity?		<ul style="list-style-type: none"> <li>- Policy documents</li> <li>- Semi-structured interviews</li> <li>- Group discussions on gender interventions</li> <li>- Policy interviews</li> </ul>

**Table 3: Research questions linked to investigative framework and research methods**

### 3.4. Methodology and reflexivity

#### Case study

Research design ‘deals primarily with aims, uses, purposes, intentions and plans’ (Hakim, 1987, p.1) to design a project fit for the purpose of answering the research questions with the available time and resources. I employ a dominantly qualitative case-study methodology with some quantitative analysis. My approach to the case study is selectively comparative on the basis of exposure to climate/environmental impacts, livelihood characteristics and gender and cultural relations and norms. However, it is informed by broader perspectives of vulnerability and livelihoods in Egypt.

I chose the case study approach because it focuses on the complexity and particular nature of the communities in question and their settings (Bryman, 2012).<sup>3</sup> The two cases I study are the Nubians in Aswan as a *unique case*, because of their history, culture and ethnicity, which is different from the *representative* (Yin, 2004) or ‘*exemplifying case*’ (Bryman, 2012, p.70) of communities in Alexandria that are considered ‘mainstream’ Egyptians. This helps to nuance the discourse and highlight the key role of social relations and institutions in shaping adaptation strategies and outcomes. The criteria of choice for the two sites were based on elements of similar livelihood conditions, exposure to local climate stresses and national social and religious norms with differing ethnic and cultural contexts that shape gender relations.<sup>4</sup> In Chapter 4 I present the sociocultural, environmental and economic contexts of the villages and their livelihoods.

My epistemological position implies an interpretive methodology with empathetic interaction between me as a researcher and the participants, who I see as people who hold the key to my research and not as research instruments. Living in the research communities for 16 months (October 2013 to July 2014 in the Nubian village that I name Nubia and October 2014 to March 2015 in the Maryut village that I name Maryut) was extremely valuable and provided me with the chance to participate as a member of the communities and see the values, perceptions, attitudes and actions of their people from the inside. Furthermore, I developed a better understanding of people’s daily livelihood problems. This led me to observe and appreciate the adaptive livelihood strategies that they devise to deal with daily chronic and

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<sup>3</sup>It is a case study because it is closely linked to the environmental, social, cultural and socioeconomic setting of the place and the people’s attachment and sense of belonging to their land. For example, a study of the Nubians in Sudan would be very different from the Nubians in Aswan.

<sup>4</sup>Religion is an important influence in Egypt that needs deconstructing in terms of distinction between the religion itself and its changing societal and political interpretation, as well as challenging the stereotypical ‘Western’ view of it that expresses ideology more than reality (Ahmed, 1992).

feared risks and stresses. This could only be possible through a personal approach to the fieldwork and data collection (Daoud, 2016).

### **Interpersonal rapport while ‘being there’**

In my research dealing with climate stresses and gender relations in the households and communities I found personal rapport and ‘being there’ (Roncoli et al., 2009) to be irreplaceable approaches in the context of traditional rural villages. This approach is dictated by the personalized nature of Egyptian social life, especially in traditional rural settings where one only talks openly and deeply with people that one personally knows, trusts, likes and is close to and comfortable with.

I initially met my informants and friends through my gatekeepers, and later through my network of personal acquaintances and daily activities in the villages. My gatekeepers in both villages were close friends and family acquaintances whom I have known for many years. I re-established links with them during a scoping visit in December 2012. In this scoping phase I confirmed the choice of villages that fit my research criteria. I met with village elders and sheikhs, who welcomed me as a researcher in their villages. I had good trustworthy connections with the gatekeepers, who welcomed me to the villages and helped me to begin to build a trusting rapport with the villagers.

The high degree of social interaction in the villages I lived in for 16 months proved helpful in keeping in constant contact with a large number of people. Apart from some older and very young men, the only exception to this personal rapport was men, because due to the gender ideology in these traditional villages, as a single woman I had to keep my relationship with men limited and somewhat formal. My relationships with the women in the villages were varied. I developed very close friendships with many of the women, and with older women I developed almost mother-daughter relationships. Relationships with other women in my network remained friendly but limited.

Interpersonal rapport is undeniably necessary in exploring gender relations and livelihood adaptation strategies in a community. Marital gender relations are at the core of domestic-centred village communities and livelihoods, as marriages do not just link people but also provide sociocultural and economic alliances between groups and kin. Many of the most important livelihood decisions in village life are made in the domestic household domain. The women and men’s spheres work interdependently to sustain village livelihoods within the framework of the villages’ values and social organization. It was only possible to explore

these styles and processes of living and adapting through interpersonal rapport.

Through personal rapport with the villagers, developed through months of 'being there', they felt more inclined to trust me with personal information about their lives and those of their families and communities, because as they perceived it I was not just after gathering information; I was there to really get to know them and allow them to know me. However, such rapport entails a great deal of ethical responsibility and reflexivity.

### **Reflexivity**

At the start of the fieldwork I quickly realized that my perceptions, understanding of social issues and the way I conducted my fieldwork were related to who I am and how I was perceived in my research community, which in turn would affect the data, analysis and findings.

### **'Not-quite-indigenous' researcher**

I chose to do my fieldwork among the Nubia and Maryut rural villagers in Egypt for the research reasons discussed above, but also for personal and practical reasons. As a researcher who is Egyptian but not indigenous to the villages, particularly the Nubian village, I felt that I faced fewer barriers than many foreign anthropologists. However, I faced a certain 'gradation of endogamy', as expressed by Jacobs-Huey (2002, p.792): 'native anthropologists are seldom considered insiders by default; instead they experience various "gradations of endogeny" throughout the course of their fieldwork'.

Being Egyptian had some advantages, such as being perceived as one of the people, particularly in the Alexandria village since I am originally from Alexandria. Being Muslim was also an advantage as I was working with mostly Muslim communities and sharing their rituals, mores and festivities (though not necessarily their interpretations of the religious text). While I undoubtedly had certain advantages in this setting as a native anthropologist from Egypt, my position as a relative outsider to the villages helped me to overcome some of the disadvantages of being an insider, such as the tendency to overlook or take for granted cultural patterns and ideologies that an outsider would immediately see. I also tried to overcome this challenge at every point of my research by questioning and analyzing the different dimensions of my observations and interviews. As an Egyptian anthropologist in these rural Nubia and Maryut villages I was in the position of an indigenous field worker but not quite an insider, a position discussed by many anthropologists (e.g. Abu-Lughod, 1986, Hoodfar, 1997).

Although I wanted to try to maintain a certain level of objectivity in my fieldwork, I found myself more inclined to personal interaction between the villagers and the researcher who can be trusted with information about their lives. This was particularly useful for my historical and gender analysis. It was easier in Maryut village in Alexandria, since I am originally from Alexandria and belong to the same city and culture. It was somewhat different in Nubia. The Nubian villagers in particular tended to be somewhat reserved with outsiders, and most see mainstream Egyptians as marginalising Nubians and their culture. However, as I built up a personal rapport with them during the first couple of months of just 'being there' without conducting any formal interviews, they felt more inclined to trust me for several reasons. First, according to them, we were of common ancestry, with my being from Egypt and having distinctive Egyptian facial features but a lighter complexion so that they always called me 'Nefertiti', who was a half-Egyptian, half-Nubian queen. Second, I am Muslim, with the Sufi inclination that is most common in Nubia. Third, being a woman excludes me from the dominating social order in Egypt, which gave me leeway to be accepted in a marginalized community. Furthermore, as the villagers perceived it I was not just seeking to gather information; I was there to get to know them well and to allow them to know me before starting any work. For these reasons I was accepted openheartedly in the two villages as a caring researcher 'friend', or even as a distant relative of those to whom I was closest.

On the other hand I was aware that I was recognized as a quasi-outsider of a different social class and level of education (Cervone, 2007), even in the Maryut village in Alexandria. I am from a different Egyptian social stratification, I have lived abroad for many years and I was doing my postgraduate education in England. However, I was genuinely in financial need and suffering from the constant pressure of being self-funded, having used up my savings on my studies. This 'poverty' in the field has its advantages. I was living under the same conditions in the villages as the villagers themselves. This led some of the families to describe me as 'poor by choice'. Nevertheless, their perception of me as an outsider allowed me much more freedom of movement than other local women had and increased my ability to talk with men in the villages. This position did not allow me full access to unmarried men and their networks, but my status was better than that of an indigenous Muslim woman, and my being an Egyptian who lived abroad gave me a better status than a complete outsider or an indigenous researcher.

This 'not-quite-indigenous' position carried a sense of responsibility toward those hospitable villagers who hosted me and who held the key to my research. I feel accountable for what I



publish about them and its truthfulness in representing their perceptions and ideals. In pursuit of this goal I asked the villagers to look at my initial transcriptions of the interviews in Arabic and my preliminary analysis and to give me their feedback and insights on them. Some even chose their own pseudonyms. The villagers were keen to see their livelihoods, struggles and way of life represented, making me very conscious of my responsibility for the credibility and authenticity of my research which aims to present a true picture of village livelihoods while remaining sensitive to the villagers' concerns about that picture.<sup>5</sup>

### **Practicalities of getting accepted in the field**

I wondered if I would be accepted in the traditional villages as a single Egyptian Muslim woman travelling on her own. However, I quickly realized that the people accepted my reasons for travelling alone in the villages and the UK and were very supportive of me for choosing such a tough path. They value the pursuit of education and knowledge as a legitimate reason for departing from the accepted norms. Some were quick to defend me when I was asked about it, citing the Prophet Mohammed's encouragement of education in foreign lands: 'Pursue knowledge even in China [i.e. a distant and non-Islamic land]'.<sup>6</sup>

A single woman living alone in the village is not a very acceptable idea, even when she strictly observes the village norms. However, some factors made it more acceptable. These included my father coming with me to help me settle in the first few days, and welcoming visits from some older family members, which conferred a social license that is well-recognized in the villages.<sup>6</sup> Culturally and religiously, the approval of one's parents is highly respected. In Aswan I initially stayed with my gatekeeper's family, and many families, particularly those that did not have older sons, were welcoming to host me. However, in order not to be a burden on these very kind and hospitable people, to have more alone time to reflect and write, and to avoid being particularly associated with a certain household, which would affect my interactions with other villagers, I rented my own place. It was a joined extension to a family house that they had built for their daughter, who was getting married the following year. It gave me a social buffer against the stigma of living completely alone and provided me with my own space and a way to help the family with their wedding expenses.

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<sup>5</sup> Out of ethical responsibility I have omitted situations and activities that the villagers would not want explicitly and publicly acknowledged from my field observation and people's accounts. I believe that these omissions of a more personal nature do not harm the credibility of the research.

<sup>6</sup> In Egypt women generally do not live alone. They move from their family house to their husband's house when they marry. There is a social stigma associated with women, especially young women, living alone. Therefore having the blessing of my family, and especially my father, who stayed with me intermittently, made it more understandable and acceptable in the eyes of the villagers for me to live alone in the village.

Having Arabic as a mother tongue was very beneficial for me as I share and understand the people's thought processes and linguistic origins. It allowed me to interpret and reflect on choices of terms and the formulation of thoughts, which I found very revealing of many underlying meanings. This drove me to write down interviews in Arabic in the people's original words. I tried to take my notes in the form of direct quotations, which I have put in the text in quotes. I deliberately chose this model to remain true to my observations and what people wanted to express.

Noting my struggle with financial need and studying in a foreign land, I found that people were supportive and patient in making sure I fully understand the issues in question. They expressed that they did it to support an Egyptian to achieve abroad, so my professors would be satisfied with my work, and to give a good image of their communities. I was touched when the people in Nubia talked to my father when he came to visit in Aswan and told him that they would make sure that he would be proud of my study and of me. This issue of a good image was a challenge, because I wanted to dig deep into both positive and negative accounts. At first my respondents tried to portray a good image, but gradually as I became part of the communities I got closer to a more nuanced perspective. This was conditional on the people making sure that I did not portray any bad judgment about them, which was helped by the fact that I stressed that my thinking and the nature of academic research focuses on understanding people and not judging them.

### **Reciprocity**

During the fieldwork I wondered if the people were aware of the importance of the knowledge, training and support they were giving me, for my studies, my life and my personality. I thought a lot about what contributions I could make to their lives. As an Egyptian I deeply understand the importance of personal reciprocal relationships, so I took care to return my respondents' favours, kindness and love to the greatest extent I could. I realized that my interest in the details of everyday livelihood and gender relations gave the people a new consciousness of what they do and how they act and interact. It gave them the new insight that their lives, relations, histories and adaptive strategies are important and are taken seriously as a subject of research. However, it was daunting to realize that I could affect them as much as they affected me, which made me extremely careful about what I said and did and how I interacted in incidences of everyday life. I made sure not to project affirmative opinions or take sides in any conflicts. I had to be very careful not to project an image of judging or defying their gender norms out loud. An incidence in Maryut, when a man jokingly

told me in front of his wife not to fill his wife's head "with feminist ideas and ruin the family" made me very aware of this.

On the other hand, there were some incidents that were very rewarding for me in terms of feeling that I had made even the smallest contribution to their lives and thoughts. One Nubian family was considering sending their daughter to university in Cairo. During a conversation between the father and mother, the mother advocated sending her daughter, citing me as an example. She said that I study and live abroad on my own but I have my family's approval and am a well-behaved Muslim. They finally allowed their daughter to study in Cairo from September 2014.

In terms of giving back to the community I tried to make my stay in the village beneficial to its people. When I lived with families I helped with housework and food preparation. I babysat and taught English and French to a Nubian couple applying for immigration to Canada. I also shared in the daily chores, preparations for special occasion and other individual or group events. I did not give money as a direct payment but I did buy needed practical gifts for the households I visited. Gifts are an expected ritual in the Egyptian culture when visiting other people's homes or on special occasions such as weddings or births. It was a nice culturally-accepted way for me to give back to the communities that were hosting me and giving me their time, sharing their lives, and histories. The gift exchange is an important means of sharing in the community network. I tried to get gifts that the families needed such as utensils they needed in the kitchen or clothes for new babies, and sometimes printed colour photographs that were much appreciated and were hung on the walls. Furthermore, I tried to reflect to the villagers my view of them as key to my research, the real knowledge-makers, so that they felt a sense of ownership of the research. I will also prepare an executive summary of my study in Arabic to give to the residents of the villages and their sheikhs, who expressed interest in it.

This reciprocity carries with it a great deal of ethical responsibility that I discuss in the next section.

### **3.5. Ethical considerations**

In designing the research, a critical step was considering the ethical implications of this social research that directly involves marginalized people through individual and group interviews. This step was guided by my supervisors and pursued through the School of International Development's Ethics Policy for research, and the ethical considerations highlighted in

Robson (2002). The ethical application and approval forms are included in Appendix 2.

These considerations address the infringement of the rights, anonymity and sensitivities of participants, preventing any harm that could come to them as a result of their involvement in the research, and giving them truthful information about the research so that they are able to give informed consent. It is also important to provide a credible and authentic account of the research participants that is mindful of their time and attention constraints, their daily routines and where their activities take place. I scheduled my interviews in advance according to people's availability. However, later on in the fieldwork I conducted repeat interviews on the spot with respondents who were willing and happy to do so. Sensitivity to the anonymity of the participants, the villages and my findings, privacy and values while questioning (what I asked, how and where) were maintained and the respondents were constantly reminded of their right to refuse to answer questions should they wish. Special consideration was given to local social and cultural norms in relation to the conduct of the study in order to minimize disturbance of the respondents and their relationships with others. This is especially critical in understanding gender relations.

Other ethical issues included the need for confidentiality (especially for interviewed couples); ensuring that respondents were not coerced or inconvenienced; avoiding researcher bias; and lastly making sure that the respondents benefited in some way from the research and from my being in their villages. I ensured confidentiality during the fieldwork by never discussing what interviewees told me with anyone else in the village, including other household members. At the start of each interview I read the interviewees a short statement in Arabic explaining my research, gave them an information sheet and got their signature on the consent form. For villagers who cannot read or write, their verbal agreement was sufficient.

As a researcher, I recognize and acknowledge my preconceived perspective and positionality (Harding, 1987) as an Egyptian woman studying gender and climate change. However, I tried to minimize my bias as a researcher in the data collection, interpretation and analysis as much as possible by constantly reflecting on my own reactions to the interviews, observation and group discussions, keeping my reflections in a fieldwork journal. I also tried to remain true to people's accounts and perceptions while constantly questioning my interpretation and thinking of possible alternatives to my analysis.

### **3.6. Research design**

I employed multiple methods to understand the case study setting, guarantee the validity and robustness of the findings and provide an authentic and trustworthy account of the villages

(Yin 2004). These multiple methods included secondary documentary analysis, participatory rural analysis (PRA), participant observation, semi-structured interviews, and focus groups (Table 4). I present these in more detail in Appendix 3.

Fieldwork Phases	Method	Details
<b>Scoping and preliminary phases: Getting acquainted and building trust</b>  October and November 2013	<b>Sample framing and key informant interviews</b>	Village informants in and outside the villages (village sheikhs, schoolteachers, staff at social services, municipalities, etc.)
	<b>Secondary documentary analysis</b>	Mainly relying on local ethnographies such as Jennings (1995, 2009) for Nubia and ElRaey (2002), ElRefaie (2009) and Hoodfar (1997) for Alexandria and mainstream Egyptians
	<b>Participatory rural analysis</b>	Two separate groups of 10-15 men and 10-15 women in each village
<b>Data collection</b>  December 2013 to March 2015	<b>Semi-structured village interviews</b>	25 couples (one per household) and other younger and/or older members of households in each village (n=144)
	<b>Semi-structured policy interviews</b>	10 interviews with experts working in the fields of development and climate change
	<b>Life histories</b>	Older interviewees with whom I had built a close rapport
	<b>Focus groups</b>	Separate focus groups of 7-10 men and 7-10 women 6 (3 for men and 3 for women) in each village
<b>Feedback and reflection</b>  April and May 2015 and intermittent periods during fieldwork	<b>Reflection and feedback on collected data</b>	Feedback on preliminary analysis from the participants involved and generally from people in the villages
<b>All phases</b>	<b>Participant observation</b>	People in the villages

**Table 4: Research phases and methods**

My research methods developed during the fieldwork. I started with a structured approach in the interviews and focus groups that developed into more flexible forms of collecting and analyzing data. I had guides with the points I wanted to address in the individual and group interviews, which developed into free-flowing conversations about these topics.<sup>7</sup> This

<sup>7</sup>I was careful to make the interviews non-directional. I asked about livelihoods and the stresses and threats that face families and their relations without directing people to climate stresses and conjugal relations. However, these topics occupied a high priority in people's accounts and perceptions that give validity to my research topic.

conversation-style interviewing also proved to be very important to my data collection and analysis. It allowed me to gain more insight into people's ways of thinking, perceptions, self-expression and social relations. The approach was especially important when discussing gender and conjugal relations. Another method that proved indispensable to my research was observation of daily routines, social relations and interactions, special occasions and responses to daily and extenuating stresses. Observation provided me with tacit insights into people's livelihoods, gender relations and adaptive responses. To increase the number of villagers participating in the research, I tried to talk to different people while using each method.

### **Data collection methods**

**In-depth semi-structured interviews** were very important to assess individual perceptions and accounts of gender relations, climate change and livelihoods. In her article about interviewing women, Pamela Cotterill (1992) tackles the importance of this type of interviewing in gender studies.

The semi-structured interviews in the villages were structured in such a way that the respondents were asked to assess their current livelihood and family situation, then describe the main changes to it over the past 30 years and how they respond to them. No explicit indication of climate change was mentioned to respondents at this stage in order to minimize biases. At the end of the interviews, the respondents were asked to assess their perception of climate change, the perceived impacts of it on their livelihoods and families, and their adaptive actions to respond to these impacts. Participants in the village interviews distinguish a climate stress – even if they do not name it as 'climate change' - in that it is an environmental stress on their resources that has a pattern or a change in weather patterns over time such as change in precipitation patterns (e.g. frequency of rainstorms) or temperature (e.g. heatwaves) over the past recent decades (10-30 years). This is how I distinguished a climate stress in the villagers' interviews. As for 'climate change' as a term, it is widespread in the villages (much more than when I did my fieldwork in Maryut in 2011). Villagers explained that they learn about the term/concept primarily from the coverage in the media (mainly television and newspapers) as well as interactions with representatives from institutions external to the villages such as government institutions, agricultural cooperatives and/or NGOs they come in contact with.

Originally I had planned to interview couples in their households. I conducted repetitive semi-structured interviews with 25 couples separately in each village. However, as my

research progressed I saw that it was important to also interview other members of the household such as adult sons and daughters and older family members. This proved necessary because in extended households, livelihoods are shared amongst different members of the households and not just the spouses. It also added more intergenerational depth and historical accounts to my data. I saw the important role of the migration of male family members in the village communities and realized that it would benefit my research to broaden my sample to include households whose male head migrated. Furthermore, the prevalence of different types of households, such as female-headed households in Maryut, made me choose different members of these households. Interview questions for the young people of the households concerned their future plans as well as their views on marriage, the roles and responsibilities of husbands and wives in the household and how their gender relations affect and are affected by livelihood stresses, including climate-related stresses. The interviews ended up focusing on how different they thought their lives, marriages and coping strategies would be from those of their parents and grandparents. I also conducted key informant interviews, mainly with village elders, to provide credible historical accounts of the villages and the villagers. The interviews with older members of the households were mostly life history interviews.

I also conducted ten semi-structured interviews with professionals working in the fields of gender, development and climate change in Egypt to capture socio-economic and environmental policy and to get the gendered perspectives of people from different socio-economic and educational backgrounds.

**Life history interviews** with older people were particularly enlightening for assessing change through time and place. They were also revealing for tracing people's perceptions of their relationships with their spouse, family, community, society and environment. They revealed important cultural and symbolic forms of perceiving, knowing, valuing and responding to change and highlighted the significance, symbolism and attachment to places and times. In Nubia it was particularly interesting because the elders (aged over 60) had lived in the 'homeland' (Old Nubia behind the High Dam) before the erection of the High Dam in 1963-4 and related stories of spiritual, emotional and material connection to their ancestral land. Their stories animate the consciousness of the whole community, even those who have never seen the homeland themselves.

Since the study villages are mostly not officially integrated into national housing planning and monitoring, there is a lack of accurate national statistics on their livelihood conditions and

climate threats. This information was obtained from documentary data and from key informants and respondents through **PRA methods**. The documentary data include grey literature from European Commission and World Bank-funded projects (ElRaey et al., 1995, ElRefaie, 2009), ethnographies (Hoodfar, 1997, Jennings, 1995, 2009) and field research in Egypt (Hopkins et al., 2001). PRA methods that complemented the individual and group interviews helped me in obtaining consensual views of men and women in the villages. I used PRA techniques for participatory threat and wealth-ranking exercises. For the wealth ranking, gender-segregated groups of 10-15 men and women ranked the households in each village in four main wealth categories according to their own criteria, which mainly included assets, estimated monthly income and social capital, and differed in each village. I condensed the 'high and medium' category in one because the criteria were close and the number of households was limited. There was consensus between the men's and women's wealth rankings, with few discrepancies. I found that the women were more accurate because they had more details of households' capital due to their more intimate networks. The discrepancies were solved through field observation, key informants in the villages and personal encounters with the households. For the ranking of perceived threats, 10-15 men and women in separate groups were asked to identify and prioritize the risks and stresses they face in their everyday livelihoods.

**Group interviews/focus groups** for men and women are helpful for eliciting normative discourses in the village and giving me the opportunity to observe the gap between ideology and actual practice regarding issues such as gender relations and coping with climate change among other livelihood stresses. They allowed me to tune in to local discourses on gender relations, livelihoods and the stresses that were perceived as priorities in the threat-ranking exercise as well as to observe people's iterations and where they agree or disagree and why. Furthermore, they provided me with insights into people's interactions and networks, where participants react to the views of others and discuss deeper issues not fully raised in the individual interviews (Litosseliti, 2003). They were also useful in further exploring the controversial issues raised in the village interviews.<sup>8</sup> They revealed a side of the community's collective consciousness, perception of community vulnerability and openness to action for adaptation to climate-related stresses, among other stresses and underlying problems.

I conducted three gender-segregated focus groups of 7-10 men and women in each village

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<sup>8</sup> The focus groups' discussion points were primarily based on the preliminary analysis of the results of the individual interviews.



with participants of different wealth groups, ages, household types and perceptions. The women's group discussions mainly took place in normal everyday gatherings of which I had become a part while staying in the village. On the other hand the men's focus groups had to be formally arranged in advance, and I got a chaperone from the family I was staying with to accompany me to abide by the traditions of the village. The first focus group tackled issues of gendered livelihoods and explored livelihoods, income-earning activities, household management and perceptions of poverty, assets and needs. The second focused on vulnerability in terms of extreme events and changes in temperature, with a longer timeframe. The third was concerned with issues of past, current and future adaptation to supplement interviews assessing the commonalities and differences between people in the same village as well as communal adaptation, and why some measures work and others do not. It also helped to elicit people's needs to adapt and the types of intervention (governmental, non-governmental, civil society, etc.) that would help them to cope with these threats. Some of the questions focused on adaptation in response to a specific event such as the rainstorms of the winter of 2009, or more recently the winter of 2012. I followed this focus group with one or two additional individual interviews focusing in more detail on specific questions emanating from the group.

After I had been in the field for several months and had developed a better understanding of daily life in the community, I planned to work with a larger sample using a **household survey** to enhance the results of the research. The survey was intended to supplement the qualitative data on the same households that I was collecting and as a practical means of gathering comparable data. The survey questions included questions on issues such as the family and employment history of working members of the households; the ranking of climate-related stresses; and household indicators such as household assets, contributions and financial management and husbands and wives' expenditure preferences. However, after talking to people in the villages about it I refrained from conducting such surveys because I found it frustrating for the people to just have to tick boxes: as one interviewee said, 'When you're asked a tight question that you don't really get and then you're judged for getting it wrong, you don't have a chance to explain how you do the things and that's just frustrating'. I found that people needed a broader canvas in order to express their views, beliefs, personal life history, meanings and identity, and personal relationships, including gender relations, which were better elicited in the individual and life history interviews. I also had a large sample for the semi-structured interviews in which the structured parts included the comparable statistics I needed.

One of the main methods I relied on for collecting and understanding data turned out to be **participant observation**. It was one of the methods that I found central because it gave me tacit and deeper insights into everyday lives, relations and interactions. Spending many months in each village, it also allowed me to follow the changes in people's relationships and in the environment/climate. Although I would need to spend years in the villages to fully assess these changes, 'being there' (Roncoli et al., 2009, p.88) observing opened a window for me on the processes of these changes and how they were handled and perceived.

### **Sampling**

My sampling strategy was purposively derived from my theoretical criteria, which were intended to differentiate perspectives and experiences within the case-study villages (Gomm, 2008). These criteria, informed by empirical rural research and gender and development literature, included gender that was balanced in individual and group interviews. Gender proved a key variable in stress and risk perceptions and responses intersecting with wealth ranking, type of households (nuclear or extended), household headship (male-headed, female-maintained (de facto) and female-headed (de jure) households) and age.

I included in my sampling a variety of livelihood/occupational categories as well as the marriage lifecycle and the length of time the households had been located in the villages. This was implemented by interviewing equal numbers of men and women in a range of structural positions, and in wealth ranks defined by the participatory wealth-ranking exercises in each village, and enabled the exploration of intra-household relations and differences.<sup>9</sup> My sample also included individuals in the household belonging to different generations and with different perspectives, perceptions, histories and aspirations. Although I came to know many households while living in the villages, the core sample for this research was 50 households, 25 in each village (Appendix 4). I separately interviewed the main male and female members of each household as well as another member of older or younger age group giving a total of 144 semi-structured interviews.

Nuclear families are the norm in towns and their informal rural outskirts in Egypt (Hoodfar, 1997), while in rural areas a majority are extended families, especially in Upper (Southern) Egypt (Jennings, 1995). Most of the families in Maryut village in Alexandria were nuclear

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<sup>9</sup> In the eyes of most people in the villages housing, land and employment income were the most important indications of a household's socio-economic standing in the community. To own home and land, however small and humble, was the most important aspiration of all households. Networks and kinship ties were also mentioned as important indicators of wealth and social standing in Nubia. This perception of assets by the community is discussed in detail in later chapters.

(n=24 out of 25 households), with five female-headed and one female-maintained. The opposite is true for the Nubian village where only one household of the 25 was nuclear, only one is female-headed and one was female-maintained.

Gendered aspects of climate adaptation are mainly studied in male-headed households. Scholars are beginning to study female-headed households, which constitute a large percentage in rural Africa, as an important adaptation category (Chant, 2007, Terry, 2011). In my MSc thesis about gender and adaptation to climate change in a rural Egyptian village (Daoud, 2013) I found that the gender of the head of the household constituted a defining vulnerability factor because women household heads tended to be poorer and less-connected in the community. Therefore I took the gender of the head of household as a sampling criterion in this thesis and explore its significance as an influence on vulnerability and adaptation to climate-related stresses.

I also considered family cycle (through the elements of years of marriage, age and number of children) and education as sampling factors. The age of the men and women in the sample ranged from sixteen to eighty-two and the number of children per family ranged from one to ten. The education levels in the villages reveal that education has improved from generation to generation among men and women.<sup>10</sup> An observation from the data is that girls' education is improving at a faster rate than boys' in primary school and to a lesser extent in secondary school, but not at university or above. This is corroborated by studies of gender equality in education which attest to the improvement of girls' education in Egypt, which is classified as one of the top countries achieving the education target of the third MDG on gender equality (Abu-Ghaida and Klasen, 2004). This may be because the education of girls to primary school and to a lesser extent secondary school level is perceived as a marriage asset. Another reason may be that women from these villages worked either at home or informally or in low-paying formal jobs that do not require specialized education; therefore they needed enough education to get married, educate their children or work in crop or fish sales or clerical jobs. In the villages, 97% of primary-school-age children (male and female) were attending school. The remaining 3% were teenage daughters who had never attended school but were strongly committed to sending their own sons and daughters to school. A more thorough analysis of these data is presented in chapters 5 and 6.

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<sup>10</sup> Older men and women never attended school before primary education became obligatory in the 1970s. However, many men who never attended school learned to read and write to find secure employment. Many of the older women did not, because they did not need to work outside the house and land.

For the policy interviews, purposive sampling was used to select respondents who were knowledgeable, influential and therefore key to understanding adaptation policies and initiatives at both the national and the local level in Egypt. Five male and five female respondents were selected according to their affiliation to governmental (Ministry of Environment and Fishery Authority), municipal (Alexandria and Aswan Environmental Department) offices, NGOs, and international and private environmental organizations.

### **3.7. Data analysis**

Data analysis is defined by Robson (2010, p.115) as a ‘process of interpretation, of dealing with the raw data in such a way that the messages contained in the data become clearer’. In Chapters 5 to 7 I follow an approach to the analysis that is based on a balance between thematic analysis, which codes the theorized and emerging themes, and narrative analysis, which considers context, perceptions and interconnections in the flow of people’s accounts (Abu-Lughod, 1986, Bryman, 2012). I also follow an iterative process between the analysis of data and the operationalization of theory (Bryman, 2012). The analysis was intermingled with the data collection process. The interviews were used in the design of the discussion points of the focus groups. The preliminary analysis of these sets of data was used in the drafting of the policy interviews.

The flexibility of the interviews involved a challenging narrative analysis where most of the data from the interviews reflect attitudes and perceptions. These data were analyzed through thematic transcription of relevant responses and coding, partly using NVIVO. They were also interpreted qualitatively in a narrative manner without losing their original context or overall spirit (Hollway and Jefferson, 2001). Some of the qualitative data, such as perceptions of need and climate threat ranking and the quantitative data from the pre-planned section of the semi-structured interviews, were analyzed through simple descriptive statistics correlating key intersectional categorical variables such as gender, locality, family structure, education, livelihood parameters, income levels and perceptions.

In my analysis of the empirical data I followed a hybrid approach between deductive and inductive approaches to data and conceptualization. I used concepts emerging from my literature review and the developed conceptual framework as well as themes emerging from the data to code them for the analysis. I coupled this thematic coding – that has the possible limitation of taking the data out of its context - with narrative analysis by going back to the original interviews or focus groups to ground the thematic analysis in the narrative in which the theme was articulated and in the context of its interlocutors. I also used triangulation of

different sources of data to ensure its credibility and validity. For example, as presented in Chapter 5, the analyses of data presenting the ranking of dimensions of poverty and the ranking of threats in the villages were elicited using Participatory Rural Appraisal (PRA) focus groups of men and women in the two villages. The men and women in the villages defined the dimensions of self-perceived poverty and threats and I kept building up the ranking through the interviews and kept revising them in repeat interviews and field observations.

To provide a more integrated approach to the analysis, I use discourse analysis in Chapter 7 to relate local meanings of gender and climate change to the national discourse by juxtaposing village interviews and field observation on the one hand and policy interviews and documents on the other to explore the dominant national and alternative local discourses and where they diverge or can be complementary. Discourses do not just reflect or represent reality or socially shared beliefs but also make meaning of it (Fairclough, 1992). Discourse analysis stresses that the meanings of concepts never solidify but are dynamic and constantly the object of contestation (Van Dijk, 2001). This politics of meaning, applied to gender and climate change, shows how these concepts and their linkages are continuously contested in a struggle about their meaning, interpretation and implementation.

I frame my discursive analysis within Nancy Fraser's (1987) framework of the politics of gender need interpretation. This analytical focus consists of three stages: recognizing the status and construction of a need, interpreting it, and assessing approaches to addressing it. I identify and categorize the different types of national and local discourses and differently-situated knowledge (Haraway, 1988, Harding, 1991). In Fraser's (1987) politics of contestation of multiple discourses, she refers to these discourses as bureaucratic (or status quoist discourse) and oppositional. I interpret how these oppositional discourses are constructed and contested. What knowledge becomes relevant or authoritative, and to whom? I discuss the implications of this forum of contestation for adaptation policy and interventions.

### **3.8. Challenges**

In this section I discuss some of the research challenges as well as the challenges that I faced in the fieldwork and how I strove to overcome them in the course of it.

#### **3.8.1. Research Challenges**

In dealing with gender relations, climate change and livelihoods from an ethnographic constructivist approach, I was confronted with a host of challenges. It required immersion into systems of knowledge relative to climate science and policy, gender and development,

and social change as well as attainment of new competencies and proficiency related to research epistemology, methodology and ethnographic fieldwork. It also necessitated continuous tactful adjustments on how the research is conducted and how results are interpreted. Having read in many disciplines (BA in economics, MSc in climate change and Ph.D. preparation in social research), provided me with tools to address these challenges, which are inherent to ethnographic interpretive research and epistemological grounding.

This ethnographic constructivist approach allowed me to put emphasis on the value of in-depth research based on non-random, small-sized samples, open-ended interviews, and face-to-face engagement with the research participants – the knowledge makers - that characterize ethnographic approaches. This type of personal involvement research puts great responsibility on me as a researcher and raises ethical dilemmas that arise from potentially conflicting commitments and accountabilities to research participants (Marcus, 1995). These ethical considerations addressed in Section 3.5 are grounded in core ideals of cultural sensitivity, social equity and personal reflexivity.

Given the ideological and political polarization surrounding the gender and climate change discourse, it was imperative for me to approach this research with critical reflexivity. Doing fieldwork in the interstices of gender, climate change and livelihoods, and their politics was as challenging as it is crucial, due to the complexities that arise in studying cultural and social relations within communities and institutions in my country. Furthermore, the extent to which theoretical generalizations from observations from the field study can be scaled up to regional levels and the longer term is one of the greatest challenges that face this research and its contribution to knowledge about adaptation to climate change.

### **3.8.2. Fieldwork challenges and adjustments**

#### **The nature of the research and how to explain it**

The interdisciplinary nature of the research, which includes environmental, socio-economic, cultural and behavioural dimensions of gender vulnerability and adaptive capacity, poses a challenge, particularly because future climate risks are uncertain, political and socio-economic trends are rapidly changing in Egypt, and there is a weak evidence base of the complex, climate-society interactions and institutional issues (Conway, 2005) that threaten the key climate-sensitive sectors in Egypt; namely water, agriculture and coastal zones (EEAA, 2010).

Explaining the nature of the research to the people in the villages was challenging. Gender studies are very controversial in Egypt, as is evident in the automatic use of the term

'feminist' (in English) as a suspicious and little-accepted phenomenon. This may be due to the association of feminism with western interference and imperialist residues, with the first advocates of women's rights associated with British colonialism in the first decades of the twentieth century (Ahmed, 1992) followed by years of feminist discourse as represented by international advocates. At first I expected climate change to be viewed as equally suspicious due to its hegemonic discourse; however, it was perceived more as a nationalistic theme. This may be due to the association of climate change discourse with preserving the Nile's waters and protecting coastal cities, both of which are pillars of Egyptian livelihoods as well as symbols of identity and national security. I noticed that the term 'climate change' is much better known than it was when I did my last fieldwork in Alexandria in 2011. I found the best way was to explain the essence of my research, and what had led me to pursue it in simple words: that my interest was in how the environment and its changes, including climate change as a pattern of change, are affecting men's and women's livelihoods and social relations, and how its stresses are perceived and coped with.

#### **Preconceptions and positionality**

Although the feminist and mostly flexible qualitative nature of the research allowed a certain level of personal involvement (Hesse-Biber and Yaiser, 2003), another challenge relates to my personal reflexivity through the research process, being always conscious of my positionality in relation to the communities I was working with and my own gender bias, political views and cultural preconceptions.<sup>11</sup> I tried to overcome this challenge by being very conscious of my positionality and reflexivity, as explained in detail in the previous section. I also followed Robson's (2002) emphasis on working systematically on the project design, data collection and analysis; challenging my own ideas and findings and considering alternatives; and working ethically to guarantee that the project brings no harm to participants as well as provides reliable and authentic findings.

#### **Transcribing and translating**

In Egypt's politically-charged atmosphere, recording was a problem for most people in both villages. Even when they agreed to it – and some even enjoyed hearing their recorded voices – their accounts were much more reserved and calculated than in unrecorded conversations. For this reason I did not record the interviews and I transcribed them on the spot in Arabic, my mother tongue, and took an hour after each interview to add more fresh information and

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<sup>11</sup>I am conscious of my insider-outsider positionality as an Egyptian woman from a different socio-economic background, unmarried and studying on my own in the UK.

insights.<sup>12</sup> People in the villages were very helpful in trying to talk slowly to give me time to write so that ‘you can pass your Ph.D.’ Also after every interview and every night I took time to recall the issues of the evening and add details from respondents’ accounts as well as my own notes and reflections. I kept the interviews in Arabic until the write-up of the analysis to maintain the integrity of people’s accounts, capturing the thought processes and use of language of the interviews. I used NVIVO10 to organize and code the data according to emerging themes.

### **Defining households for sampling**

It was difficult to identify the categories of households. Such difficulties included discrepancies in wealth ranking and what wealth meant to people in each village. I tried to resolve this by validating the data from several sources such as PRA techniques, group discussions and key informant interviews, and by analyzing the data according to people’s perceptions. It was also difficult to differentiate between male-headed and female-maintained households, since most women in female-maintained household listed their husband as the head of the household even if he was not daily providing for or present in the household. Migration, in a setting of dynamic household composition resulted in some confusion in the household categorization (Hoodfar, 1996a, Moore, 1994). This was mostly prevalent in Maryut village, which is composed of mostly nuclear households whose composition changes rapidly due to seasonal and longer-term migration (other reasons include divorce and urbanization). This caused a constant revisiting of the household categorization during the course of the fieldwork.

### **Interviewing men**

As a single Egyptian Muslim woman it was initially difficult to interview men individually because of the traditional prohibition of single women being alone with men who are not relatives. However, being known as a ‘different’ Egyptian who studies abroad I was allowed more freedom than the village women, although I had to be very careful when interviewing them and especially those in my own age group. I overcame the restriction on talking to men by interviewing them in public spaces or at their homes with other people present. I found it a good solution to take care of a toddler or a young child while doing the interview with men in their homes. I also had to be very careful when interviewing husbands in the presence of their wives, which could cause a family dispute due to differences in how each of them

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<sup>12</sup> Nubian is not a written language, so Arabic is Nubians’ written language. Nevertheless, throughout my stay in Nubia village, I tried to learn their Nubian dialect to capture specific meanings and show my appreciation of their unique culture and language.



viewed their relationships, responsibilities and rights. These couples were familiar with me and had no problem with arguing in front of me. They even encouraged me to take sides, which was problematic. I refrained from taking sides or giving opinions on their disputes and simply tried to propagate calmness.

### **Time constraints**

Taking on this ethnographic type of research would ideally require years in the field, but I could only be there for 16 months if I was to complete my Ph.D. thesis on time. However, I tried to make the best of my fieldwork time and engage in it for all the time I was available. I extended my fieldwork for two months, which I dedicated at the start to building trust with the villagers in Nubia. Furthermore, given the time and financial constraints that I faced it was not possible for me to carry out a longitudinal study in Egypt. However, the documentary data, life history interviews and the accounts of elders in the community helped to provide such historical information.

### **Interpersonal trust as a barrier to building rapport and to the initial accuracy of data**

Being of the same nationality, religion and national culture gave me certain advantages and easier access and rapport than an outsider. However, building rapport constituted a major challenge at the beginning of the fieldwork, particularly in Nubia whose inhabitants were of a different ethnicity to me as a mainstream Egyptian. Since I had worked in Maryut village in Alexandria in 2011 for my M.Sc. thesis, rebuilding my rapport with the villagers was much easier than in the Nubian village, which I was exploring for the first time. The fact that I had stayed connected with some of Maryut villagers since 2011 and had given them a summary of my M.Sc. thesis findings in Arabic had helped to build the trust that continued during the Ph.D. fieldwork. It took a much longer time to build trust in the Nubian village, where I first stayed for two months without conducting any formal interviews and just focused on 'being there' to get to know people and let them get to know me on a personal level. In preliminary interviews before this period of building trust I felt that some people were presenting a certain normative image as a type of 'performance' (Butler, 1988, Goffman, 1969) and just providing me with 'right' answers. However, I still considered these accounts indicative of normative attitudes in the villages. This initial stage of building trust proved very important for the data collected later and made my fieldwork all the more valuable. I also presented hypothetical and past scenarios of family issues and climate disasters (e.g. the 2009 rainstorms) to encourage interviewees to talk about sensitive issues, perceptions and attitudes without reservation.

### **3.9. Conclusion**

I follow an interpersonal approach to the case-study methodology, research design and fieldwork to explore the linkages between gendered livelihoods and adaptation to climate change. This approach, rarely used in climate change research, employs ethnographic methods of deep personal communication and building rapport and trust in the field. In this chapter I have discussed this approach, the methods used and the challenges that I personally experienced in the field while conducting two case studies in rural villages in Egypt of different ethnicity, family structure and sociocultural norms. I consider my study a co-construction by the villagers and myself as the researcher, each coming with our own social identities, preconceptions and perceptions. I explore and reflect on my position as a researcher and the challenges that I faced in an attempt to discuss issues that are not usually discussed in climate change research methodologies.

With this complex personal topic of gender relations and livelihood adaptation, building personal trust and rapport with the people of the studied communities proved indispensable to the interpersonal research methods. In turn, these methods required a great deal of reflexivity and being conscious of the researcher/community relationship and influence before, during and after the fieldwork. They presented many challenges for me as the researcher that had to be dealt with the utmost sensitivity, accountability and ethical responsibility.

Having tackled the 'how' of the aims and methodology of my research in this chapter, in the next chapter, I present the 'where', introducing the research setting of my case studies.

## **Chapter 4: Gender, climate change and livelihoods: The research setting**

### **4.1. Introduction**

In this chapter I present my argument about why I chose Egypt, and why those rural villages in particular. Retaining my broader perspective, I discuss the climate context in Egypt and its pattern of change. Then I discuss the national socio-economic context, and how it influences the context differently in the two villages.

I seek to capture deeper dynamics of gender relations in the environmental, socio-economic and political contexts of Egypt and my case-study villages than the dichotomous men-women analysis. Rights, access and power are much more subtle and complex, and therefore it is important to go beyond the *de jure* or the legal to look at the *de facto*, socially legitimate norms and traditions embedded in the social and cultural context (Jackson and Pearson, 1998). This is essential to understanding how differently-positioned men and women use these different rights and norms to adapt their livelihoods to climate-related stresses that interlock with other, socio-economic and political stresses.

### **4.2. Rationale for focusing on Egypt: Introducing the context**

#### **4.2.1. Political, social and macro-economic context: Institutions, social relations, power, conflicts and cooperation**

Egypt is currently undergoing a radical, rapid and deep political and societal transformation that began with the 2011 Egyptian uprising, with institutions, social relations and power structures as well as modes of conflict and cooperation being rearranged with uncertain outcomes. Egypt's economy is rapidly collapsing from a pre-revolution 6-7% average annual (2000-2010) growth of GDP to 1-2% with accumulating external debts (CAPMAS, 2012) and an ongoing phasing-out of subsidies for energy and basic needs. Inflation has increased by 12%, unemployment from 9% to 14% and domestic and foreign debt have reached 90% of GDP (ibid). This economic depression is mostly affecting poor and marginalized communities which do not have reserves or savings to fall back on. With fluctuations in the ideologies of the ruling parties and their rapid rise and fall, socio-political discourses are constantly posing new challenges relating to political, legal, social and gender rights (WEF, 2014). Furthermore, the effects of the economic collapse, the phasing out of social welfare/safety nets and the privatization of the public sector, which was hospitable to women in terms of employment and social security, will fall mostly on the shoulders of poor households, and particularly the women in them, as 'shock absorbers' (Kabeer et al., 2013).

To understand why people make certain livelihood choices it is essential to consider the wider society in which they live as well as their individual and community characteristics and circumstances. With the 1952 revolution against the royal kingdom, which was perceived to be dominated by the British protectorate, the military regime headed by President Muhammed Naguib (1953-1954) followed by President Gamal Abdel Nasser (1956-1970) promoted a socialist system and made the state responsible for delivering social services. To this end the regime introduced free education, a widespread public healthcare system, subsidies for basic needs, a rent-control system and labour laws that gave equal opportunity to women (Amin, 1995). The socialist military regime also implemented a radical land reform policy for the benefit of landless Egyptian peasants (Abdel-Fadil, 1975). It is popularly referred to as the ‘five feddan policy’, which redistributed land from the rich to landless farmers, giving each family five feddans of cultivable land.

In the 1970s, Egypt gradually turned toward economic liberalization and decreasing welfare provision, starting with the Open Door Policy (*infitah*) in 1974. This policy was a response to economic failure after the 1973 independence war against Israel and the need for foreign currency to import basic necessities such as wheat, of which there was a shortage (Kerr and Yassin, 1982). In the early 1980s the economic depression forced the state to accept IMF loans with structural adjustment conditions. However, this trend was somewhat reversed or at least stabilized after the failure of IMF policies in Egypt, and the public sector continued to be the largest employer (Amin, 1995). The state subsidies that are still in effect today cover wheat, rationed kerosene, sugar, rice, cooking oil, some cotton textiles and pesticides. At the start of these subsidies in the 1950s their initial cost was relatively low. However, through the years the cost has risen drastically with the rise of international food prices and inflation.

The quality of public services such as free healthcare and education has greatly suffered through the years. This is due to many factors, such as a rocketing population increase of over 2.3% per year, a 2.1% rate of urbanization per year (CAPMAS, 2012), and the shrinking role of the government due to its increasing budget deficit. This has stimulated the private sector to provide services, but they are expensive and beyond the reach of most. State support programs have become a major drain on government budgets but the state continues, although with increasing cutbacks in state expenditure, to maintain income support programs that are influential in avoiding public discontent in Egypt (Roy, 1992).<sup>13</sup>

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<sup>13</sup> This was a lesson learned in the bread riots of 18 January 1977 when President Sadat announced a sharp reduction to subsidies on some food items including flour, and had to cancel them after two days due to rioting.

Parallel to the increasing liberalization of the economic policy starting in the 1970s, migration to Gulf oil-producing countries by both skilled and unskilled workers became widespread. Their remittances have relieved some of the negative effects of Egypt's structural adjustment programs. Prior to the oil boom after the 1973 war and the shift toward economic liberalization, labour migration was controlled by the state and was limited to highly-educated and skilled workers such as doctors, engineers and teachers. The restrictions were gradually loosened, and starting in 1974 the government encouraged migration as a source of foreign currency (Amin, 1989, Waterbury, 1983). Remittances from Egyptians working in Gulf countries increased by 400% from 189 million USD in 1974 to 1,425 million USD in 1977, and reached 2 billion USD in 1979 (Amin and Awany, 1985). In 1990, workers' remittances amounted to 3.7 billion USD, which equates to 29.9% of total earned foreign exchange (Amin, 1989). Remittances have continued to be an important source of revenue, particularly since the Gulf war (August 1990 – February 1991). Remittances from Egyptians abroad increased six-fold between 2003 and 2013, reaching 18 billion USD in 2013 according to the International organization for Migration (IOM, 2014).

There are no reliable official statistics on the exact number of Egyptian migrants. Estimates vary by as much as 50%. Conservative estimates judge the number in 2012 at four million, 43.6% of which are women (IOM, 2014). The lack of reliable statistics may be due to the high turnover because the majority of migrants, skilled and unskilled, spend only a few years in the host country (Fergany, 1987). Therefore a large percentage of the population has been directly involved in this process as either migrants or beneficiaries of remittances (Amin, 1989, Hoodfar, 1996a). The numbers of migrants and the wealth of remittances from their earnings make migration an important issue that affects people's livelihoods, vulnerability and ability to cope with livelihood stresses, including climate change.

#### **4.2.2. Egypt under climate change**

Egypt, at the heart of the North Africa Mediterranean region, is vulnerable to climate impacts that mainly include the coastal threats of sea-level rise and water stress, as rising temperatures increase evaporation, reduce rainfall and modify – with a large uncertainty - the Nile's flow (Agoumi, 2007, Agrawala et al., 2004, Dasgupta et al., 2009, Zeitoun et al., 2013).

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This correlation between subsidies and political unrest continued from the 1970s. In January 2011, there were protests against President Mubarak, where one of the main demands and slogans was 'Bread', until in 2012 constant riots against President Morsi's rule led to his ousting in 3 July 2013. This strong public reaction is motivated by the important contribution of food subsidies to the daily budget of low-income earners, which constitute up to 60 per cent of Egypt's population (CAPMAS, 2013), to the extent that any cut in subsidized items takes a heavy toll on their struggling livelihood.

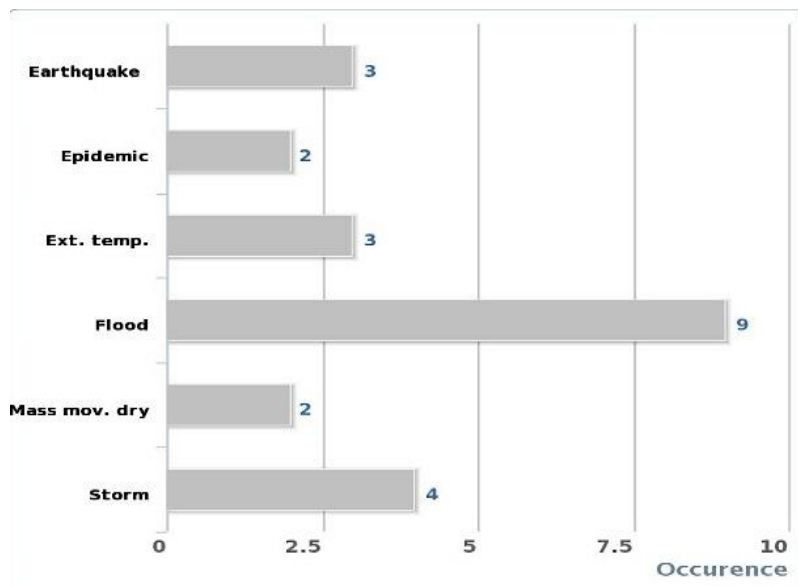
Rising sea level – caused by local subsidence and global sea level rise due to thermal expansion of the oceans and melting ice - threatens some of the most productive agricultural areas in the region such as the Nile Delta in Egypt, where a rise of a metre in sea level would put 12% of the country's agricultural land at risk (EEAA, 2010). The Nile Delta is one of the three sites (the Nile Delta, the Mekong Delta and the Ganges Delta) that are considered highly vulnerable to sea-level rise (Nicholls et al., 2007). Dasgupta et al. (2007) consider the impact of a one-metre sea-level rise for 84 developing countries; Egypt ranked second in terms of affected coastal population, third for affected coastal GDP (constituting 15% of national GDP) and fifth for affected coastal land. Scenarios of sea-level rise of 0.5-1.5 m by 2050 in Egypt's coastal zones (Dasgupta et al., 2007, ElRaey, 2010, Strzepek et al., 2001) indicate serious impacts on the livelihoods of millions of people living in this low-lying and highly populated area.

The considerable uncertainty associated with sea-level rise scenarios poses a problem for adaptation planning (Abdelgawwad, 2006, Azaz, 2004). In the coastal cities of Alexandria, Rosetta and Port Said a sea-level rise of 1.5 m could result in the displacement of over two million people, the unemployment of 214,000 and the loss of urban and agricultural land valued at over 35 billion USD (ElRaey, 1997). These coastal cities host most of Egypt's wetlands and lakes (Idku, Burulus, Manzala and Maryut) and produce 60% of Egypt's fish catch. A large share of the population would not be willing to resettle due to a sense of attachment to the land and because their only income source is related to place-specific ecosystem services such as fishing (ElRaey, 2010).

The low-lying coastal areas in the major cities of the Nile Delta have the highest population density in the Mediterranean region. They host large agricultural areas that are being affected by saltwater intrusion and lack of silt input due to the construction of the High Dam as an adaptation measure to regulate Nile water (Kashef, 1983). The construction of the High Dam reduced sediment input to the Delta, which has increased coastline erosion by an estimated 125-175 m per year (Abou-Zeid, 1989), resulting in serious shore erosion and salt-water intrusion (Ericson et al., 2006). The coastal areas of the Nile Delta constitute a hub of socio-economic development, agriculture and fishing, among other human activities, in a surrounding desert environment. However, the Nile Delta is geologically unstable and sea-level rise associated with climate change will add to the impacts of erosion and subsidence of 2-2.5 mm annually (ElRaey, 2010). Most of the coastal land is less than 2 m above sea level and is protected by only a 1–10 km coastal sand belt (ElRaey, 1997).

The impacts of sea-level rise in Egypt can already be observed in the ongoing coastal erosion of the Delta, which is exacerbated by human interventions such as reduced sedimentation, groundwater extraction and unplanned construction in the coastal strip. The coastal zone is also threatened by the indirect impact of waterlogging, high rates of erosion, saltwater intrusion and the contamination of groundwater resources that increase soil salinity, affecting agriculture and food security (Agrawala et al., 2004). They also suffer from a multiplicity of stressors that exacerbate vulnerability to climate change such as growing population and urbanization, unplanned coastal development and lack of institutional management systems (ElRaey, 2004). Given the concentration of Egypt's main economic and touristic activities in these coastal zones, particularly Alexandria, the potential social and economic impacts of sea-level rise and subsidence constitute a serious threat to the country's future. National adaptation policies focus mostly on technical measures such as using hard structures of concrete seawalls to protect coastal resources (EEAA, 2010).

Egypt also faces other climate-related hazards that include droughts, flash floods, hot windstorms in spring (*kbamasin*) and sandstorms. Flash floods have been the most frequent natural hazard in Egypt for the past three decades and have affected more than 160,000 people (PreventionWeb, 2012). As shown in Figure 2, floods are the most frequent and severe of impacts, followed by storms and extreme temperatures. These impacts have serious consequences for the Egyptian economy and society. They will directly and indirectly affect agriculture and food security, with agricultural yields expected to fluctuate over time and stabilize at lower yields enduring higher salinity and average temperatures (Ibid). Declining agricultural productivity is likely to undermine rural livelihoods and accelerate migration to urban areas that suffer from inadequate provision of infrastructure and public services.



**Figure 2: Reported occurrence of extreme events in Egypt 1980-2010 (PreventionWeb, 2012)**

In terms of adaptive capacity, Egypt is a lower-middle-income country with a population of 87 million in 2012 which is increasing at 2.3% per year (CAPMAS, 2012). Egypt's limited available natural resources and its large and increasing population put profound pressures on its environment and economy. Egypt's economic activity and 95% of its population are located in, and dependent on, the Nile Valley and Nile Delta, which comprise 5.5% of the country's total land area. The Nile (locally referred to as the Egyptians' 'vein of life') represents 95% of Egypt's annual water budget (Abou-Zeid, 2002) and is mostly dependent upon river water originating in the upstream headwaters in the Ethiopian and East African highlands. This makes Egypt's water resources highly sensitive to fluctuations in rainfall and river flow associated with climate variability and change in East Africa (Conway, 2005, Conway and Hulme, 1996). These uncertain climate impacts are compounded by uncertainties in the use of Nile water by the upstream riparian countries associated with development, demographic trends, urbanization, socio-economic effects, and water-related conflicts and cooperation between Nile Basin countries (Goulden et al., 2009a, Zeitoun et al., 2013).

Egypt is particularly vulnerable to climate change because of its dependence on the Nile as the primary water source, its large agricultural base and its low-lying eroding coastline (Rosenzweig et al., 2004). In the next section I focus on climate-related stresses on two main vulnerable sectors that are highlighted in the Initial and Second National Communication reports on climate change in Egypt (EEAA, 1999, 2010): water resources and agriculture. These sectors are the most relevant to my case-study villages.



## **Assessment of vulnerable sectors at the national level**

### ***Water resources***

The impact of climate change on freshwater systems is mainly due to observed and projected increases in temperature, evaporation and changes to precipitation (IPCC, 2014). This is likely to lead to a change in the flow of mid-latitude rivers such as the Nile, with an uncertain magnitude of change (Arnell, 2004, Zeitoun et al., 2013). Water shortage is already a constraint in most MENA countries and is likely to be exacerbated by projected changes in the climatic patterns of the region. A study published by the Organization for Economic Cooperation and Development (OECD, 2004) in Egypt concludes that the population, agriculture and economic activity in Egypt are constrained along the Nile valley and Delta, making the country extremely vulnerable to reduction in Nile water availability.

More than 95% of the water budget of Egypt is generated outside its territory. Although the impacts of climate change on the Nile Basin are uncertain, there are indications that they will be significant. Higher temperatures threaten to evaporate more water and increase the need for water supplies. Observed and analyzed data for the past four decades in Egypt show positive trends of the mean maximum air temperature of  $+0.34^{\circ}\text{C}/\text{decade}$  and of the mean minimum air temperature of  $+0.31^{\circ}\text{C}/\text{decade}$  for the period 1961-2000 (EEAA, 2010).

Goulden (2006), Goulden et al. (2009a) and Zeitoun et al. (2013) highlight the high uncertainty in the future projections of climate change and variability influences on the River Nile flows and changes in precipitation in the Nile source regions in East Africa. Zeitoun et al. (2013) also flag the importance of other pressing challenges that include demand governance, management and policy, and the politics of transboundary basin management. These challenges are interdependent in a way that adaptation to a shifting climate can be a factor complicating the other three challenges. The political tensions around the Nile transboundary basin management are also expected to hamper adaptive capacity at the regional, national and local levels of the 11 countries of the Nile basin.

Climate change, manifesting in changes in precipitation, temperature and evapotranspiration, is expected to exacerbate the challenge of Nile water quality and flow variability in the coming decades. This influence - direct or indirect - is characterized by considerable uncertainty as different models predict contradictory results with some predicting decreases in average flow and other predicting increases in average flow over the 21<sup>st</sup> century (Goulden et al., 2009a, Zeitoun et al., 2013). This uncertainty further compounds the uncertainty in social norms and values associated with adaptation of different actors (e.g. river managers

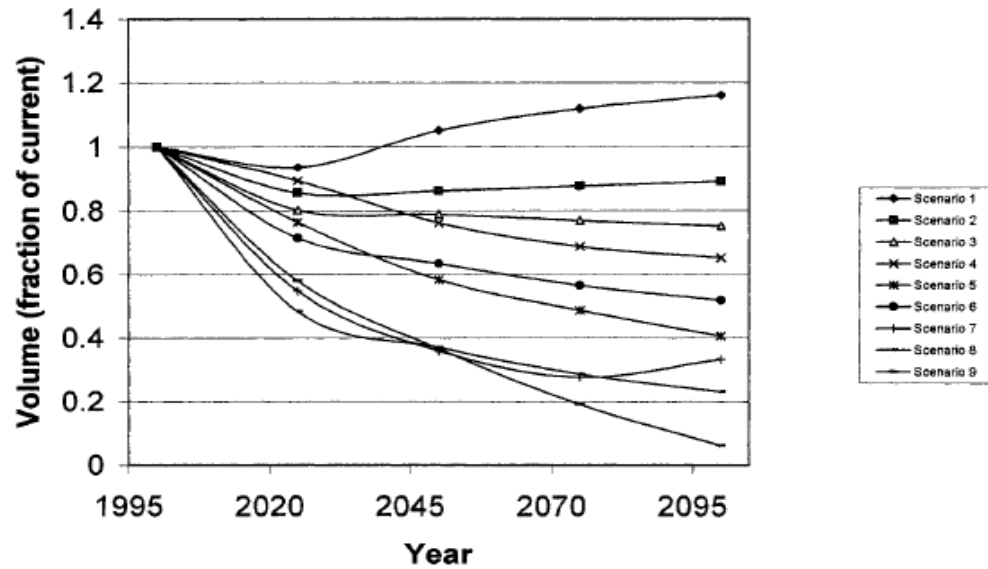
and farmers) as well as socio-economic uncertainties that are under-researched. Despite this uncertainty, climate change is occupying a large part of the water resource management discourse in many Nile basin countries, including Egypt (Zeitoun et al., 2013). Underestimating the degree of uncertainty can lead to maladaptive interventions at local, national and regional scales (Ibid).

Other less recent studies have pointed out that Nile water is highly sensitive to climate change (Strzepek et al., 1996, 2001). Conway and Hulme (1996) indicate that the sensitivity of Nile flows is affected by changes in temperature that affect evapotranspiration: an increase of 4% in evapotranspiration would result in a reduction of Blue Nile and Lake Victoria flows by 8% and 11% respectively. Strzepek et al. (1996, 2001) relate the sensitivity of Nile water to changes in temperature and precipitation, where a 20% reduction in precipitation and a 2 and 0°C increase in temperature would decrease Nile flows by 88% and 63% respectively.<sup>14</sup>

Strzepek et al. (2001) have developed ten scenarios for the Nile flow, as shown in Figure 3. In the long term, only one of these predicts a future increase while the other nine project a reduction of 10–90% by 2095. In the short term, all the scenarios project a reduction of 5–50% by 2020. The impact of climate change in the Nile Basin is strongly dependent on the choice of the climate scenario and model used, but most project a negative impact of climate change on Nile flows. However, this is contradicted by more recent studies that show more models projecting increased average rainfall and river flows (e.g. Goulden et al., 2009a). Hence, there is large uncertainty in projected Nile flow which requires more flexible adaptive management (Zeitoun et al., 2013).

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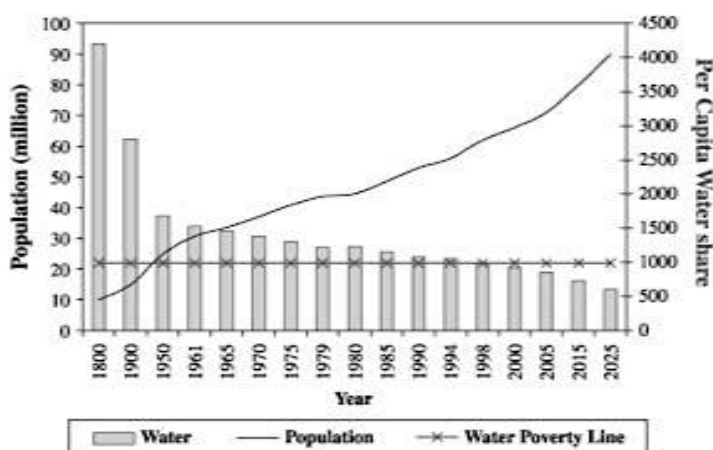
<sup>14</sup> Strzepek et al. (1996, 2001) employed three global circulation models (GCMs) to predict future flows of the Nile. The three models were those of the Goddard Institute for Space Studies (GISS), Geophysical Fluid Dynamic Laboratory (GFDL) and the United Kingdom Meteorological Office (UKMO). The results indicate that the Equatorial Nile has a very delicate water balance. Even a slight increase in temperature or slight decrease in precipitation can heavily influence Nile flows to Egypt.



**Figure 3: Scenarios of projected changes in Nile flows to Egypt's Aswan (Strzepek et al., 2001)**

Climate change is not the only factor likely to affect water resources in Egypt. Increased demand for water due to population growth as well as changes in upstream water use will affect water resources in Egypt. Climate change impacts will combine with any reduction in the water volume received by Egypt due to water resource developments carried out by Egypt's riparian neighbours who have their own strategies for securing future water needs through the erection of dams such as the Renaissance Dam in Ethiopia, which has the potential to change the flow into Egypt (Elsaeed, 2012). All of these indicators make water resources in Egypt to be considered by governmental authorities as a national security priority.

Any decrease in the total supply of water, coupled with the expected increase in consumption due to high population growth rates (2.3% per year), threaten to exacerbate Egypt's already existing water poverty of less than 800 cubic meter per capita annually (EEAA, 2010). With a high rate of population increase, per capita water share decreases and climate change puts further stresses on the water supply and the food security of the growing population. The amount of available water per person in Egypt is below the water poverty line of 1,000 cubic meters per capita per annum. As presented in Figure 4, as the population increases the per capita water share is projected to fall further below the water poverty line to 670 and 536 cubic metres in 2017 and 2025 respectively (Loutfy, 2011).



**Figure 4: Per capita water share in Egypt (Loutfy, 2011)**

The Egyptian Environmental Affairs Agency report (EEAA, 2010) calculates that Egypt’s freshwater budget runs at a deficit of 19 billion cubic meter per year. Agriculture and fish farming are the main consumers of water in Egypt as they use about 80% of the country’s water budget.

### *Agriculture*

The high consumption of water by Egypt’s agricultural sector makes it highly vulnerable to climate-related stresses. Agriculture plays a significant role in the Egyptian economy and social life and in the stability of rural areas (Attaher et al., 2009, Medany et al., 2009). Agricultural production is closely connected with people’s livelihoods, with over 30% of the Egyptian population relying on agriculture for income generation and employment opportunities (CAPMAS, 2012). The percentage of rural inhabitants decreased from 83% at the beginning of the twentieth century to 58% in 1966 (CAPMAS, 2011) and since then, as presented in Table 5, has stabilized at 56–58% during the last three decades (CAPMAS, 2012). This is due to limited job opportunities in urban areas, particularly in the industrial and services sectors that attracted most rural-urban migration during the 1950s and 1960s (Hoodfar, 1997).

Description	Projected					
	1980	1990	2000	2007	2017	2030
Total population (1 million)	42.13	51.9	64	72.90	92	106
Rural inhabitants (1 million)	23.59	29.4	36.8	42.11	53	62
Agricultural working force (1 million)	4.2	4.5	5.00	5.4	1.6	4
Percentage of total work force employed in agriculture (%)	38.4	33.7	28.7	27.00	-	-

**Table 5: Rural inhabitants and working force from 1980 to 2007 and projected for 2017 and 2030**  
Adapted from the Central Agency for Public Mobilization and Statistics (CAPMAS) statistics 1980-2007

The major crops in Egypt include wheat (a staple food), maize (used primarily as animal feed), clover, cotton, rice, sugarcane and fava beans. Climatic differences between the northern part of the Delta and Upper Egypt in the south influence the geographical distribution of crops. Cotton and wheat are the major crops in the north, while sugarcane plantations and palm trees are most-planted in the south. Egypt essentially has two seasons, summer and winter, with spring and autumn short and not very distinct. Cropping patterns and yields differ according to farm size. Wheat and sugarcane can be grown on small and large farms. However, fruit crops need larger farms. This is why fruit plantation is very rare in the villages, where landholdings are small and fragmented due to the high capital investment and long-term commitment required for fruit plantations, making them prohibitive for small farmers (Fahim et al., 2013).

Plant production comprises 71% of total agricultural net income and animal and fish production comprise 23% and 6% respectively. Egypt is far from self-sufficient in agricultural production, as shown in Table 6 (Abul-Naga, 2009). Climate change and variability, along with population growth, are likely to increase the reliance on food imports as the adverse impacts are expected to reduce the national production of major crops (Fahim et al., 2013).

Main food commodities	Production (1,000 tons)	Requirements (1,000 tons)	Self-sufficiency (%)
Wheat	7388	13591	54.4
Maize	6300	11900	53.2
Sugar	1487	1933	76.9
Fava beans	301	578	52.1
Milk	4400	4859	90.6
Red meat	670	1001	66.9
Fish	971	1001	97

**Table 6: Egypt's self-sufficiency in the main food commodities in 2008 (Abul-Naga, 2009)**

The potential impacts of climate change on agriculture in Egypt include changes in crop productivity and cultivation seasons; increased irrigation requirements; increased intensity and severity of pests and diseases; and land loss due to sea-level rise and fertility degradation (Medany et al., 2009). Projected changes in crop productivity are mainly attributed to the projected temperature increase, crop-water stress and pests and diseases (Medany et al., 2009). Projected temperature increases are likely to increase crop-water requirements, which will increase the agricultural sector irrigation demands (Fahim et al., 2013). Many studies have been conducted to assess the potential impacts of climate change on crop productivity in different agro-climatological zones in Egypt (Eid et al., 1997, Eid and El-Marsafawy, 2002,

Fahim et al., 2013, Hassanein, 2011, Medany and Hassanein, 2006). Most crops are expected to drop in yield, whereas crops such as cotton could increase in yield. The crop-water requirements of the important strategic crops in Egypt are expected to increase under all socio-economic scenarios of climate change by 6–16% by 2100, with a potential drop in national food production of between 11% and 51% (Eid and El-Marsafawy, 2002, Fahim et al., 2013, Hassanein, 2011).

The intricate and dynamic relationship between climate change, agriculture and food security is also affected by socio-economic conditions influenced by factors such as population growth, international food prices, macro-economic policies and political conflict (O'Brien et al., 2010). Climate change may affect food systems in Egypt in several ways, ranging from direct effects on crop production to changes in global food prices. Key impacts on agriculture are likely to be the loss and salinization of agricultural land and a possible shortage of irrigation water from the Nile. Egypt's first report to the UNFCCC states that 'climate change may bring about substantial reductions in the national grain production' (EEAA, 1999, p.16). Climate change could exacerbate the food security issues that Egypt already faces.

The government, with increasing resource demands on its limited and shrinking budget, is reluctant to continue subsidizing local food production and food imports to stabilize prices. Rural and urban incomes, already low, are largely being outpaced by inflation. Therefore agriculture and rural livelihoods are expected to become more insecure in the future. The impact of adverse climate changes on agriculture is further exacerbated by Egypt's lack of national adaptive strategies, which are increasingly limited due to its lack of institutional and financial capacity (Fahim et al., 2013). Assessment of the effects of climate-related stresses on rural livelihoods as studied in this thesis can help to inform adaptation that affect women and men's livelihoods in rural Egypt.

#### **4.2.3. Gender and Social Relations in Egypt**

Since the 1980s Egypt has ratified the main international gender equality agreements including the Convention on the Elimination of all Forms of Discrimination against Women (CEDAW) in 1981 and the Beijing Declaration and Platform for Action (Molyneux and Razavi, 2005). Nevertheless, a persisting gender bias has remained embedded in Egypt's social and cultural norms (Hendy, 2010, Nadjje, 2002). Egypt ranks 124th out of 128 countries in gender equality in the World Economic Forum Global Gender Gap Report, with low performance in higher educational attainment, political empowerment and opportunity in the economy (WEF, 2014). More context-specific sociocultural indicators are needed to

understand the complex relationship between gender equality, livelihoods and effective environmental policy (Jackson, 1993). I explore and discuss these factors in this chapter and all through my thesis.

Most women who work in Egypt (24% of the labour force) occupy low-level jobs and are underrepresented in professional and managerial positions, where the share of women is 24% of middle management and 15% of high-level management (WEF, 2014). Furthermore, while the act of leaving home to work may have liberated some women in the past, Egyptian women have found no recognition at work, and those who can afford not to work are returning to the traditional norm of preferring to be respected housewives. Their greater presence in the workforce has not translated into any fundamental shift in prevailing attitudes toward women in public life. In a recent survey by the Pew Research Centre in Washington in association with the *International Herald Tribune*, 61% of respondents in Egypt said that women should be allowed to work outside the home but 75% said that when jobs are scarce men should have more right to work.

The public governmental sector has been more hospitable to women than the private sector. As the economy has shifted towards the private sector since the 1970s, women have had more to lose and carry the heaviest burden in this economic restructuring (Kabeer et al., 2013). Employment statistics only reflect employment in the labour market and do not consider women's unpaid labour in the household or community (Elson, 2009). Over the last two decades studies have examined the household division of labour and the invisibility of women's domestic work in developing countries, but very few have tackled the issue in the Arab world (Kabeer et al., 2013). A recent study by Rana Hendy (2010) on the division of labour in Egyptian households, using regression and propensity score models, shows that the invisibility of married women's domestic work, which can occupy as much as 46.72 hours per week, and the inequitable division of household labour greatly reduce women's participation in the market labour force, which remains below 30%. Comparing these findings on the persisting, although slightly narrowing, gender gap in employment with the improvement in girls' education in Egypt, which is classified as one of the top countries in achieving the education target of the third MDG on gender equality (Abu-Ghaida and Klasen, 2004), it is evident that the barriers to women's employment and welfare are embedded in the persistent cultural bias in society. This gender bias is particularly evident in poor marginalized communities (Hoodfar, 1997).

The turning point for women's legal position in the labour market was the socialist policies

initiated after the socialist revolution of 1952. The status of women figured as one of the most pressing issues on the socialist political agenda (Abdel-Kader, 1988). Nationalists, liberals and socialists saw the development of Egypt as closely linked to the education of women and their participation in the labour market and the political scene (Hoodfar, 1989, Jayawardena, 1992). The adoption of these social changes was partially based on the belief that developing Egypt requires the participation of women in the labour market (Waterbury, 1983). The National Charter of 1952 reads: 'Woman must be regarded as equal to man and she must therefore shed the remaining shackles that impede her free movement, so that she may play a constructive and profoundly important part in shaping the country'. Post 1952 the new socialist state gave equal legal importance to female and male education and passed liberal labour laws. Women's participation in the labour market was officially encouraged and legitimized; Nasser called it women's duty to participate in developing the national economy (Badran, 1995).

Women's employment is still governed by Law 91 of 1954, which makes discrimination against women illegal. This provision was also a clause in the subsequent constitution of 1971, removed in the 2012 constitution and reinstated in the new constitution adopted in 2013. This law entitled women to fifty days' paid maternity leave, extended to three months in 1979. Women continued to secure more rights under President Anwar El Sadat (1971–1981), especially with the enactment of the Personal Status Law in 1979. Chapter 2 of Law 44 (1979) also gave married women the right to be employed outside the home if the family's economic circumstances made it necessary (Sullivan, 1981). However, this is a conditional right that undermines women's absolute right to employment. This conditionality also figures in the wording of section 2, article 11 of the 1971 constitution (maintained in the constitution of 2012 and 2013), which declares:

The state shall be responsible for making a balance between women's duties toward her family and her activity in society, as well as maintaining her equality with men in the fields of political, social, economic and cultural life without detriment to *Shari'a* laws.

Furthermore, these laws, government efforts and liberal movements to promote women's employment have not succeeded so far in acknowledging domestic labour as contribution to development. Despite the value that Egyptian culture attaches to women's domestic family role, laws and interventions bypass the reality that in rural and urban areas the survival of many households depends on the domestic labour of women.



This bias based on socioculturally engrained gender roles also extends to and reaches its peak in public participation where, from 2006 to 2013, the female-to-male ratio did not exceed 2:100 in parliament or 10:100 in ministerial positions (WEF, 2014). In 2016, 89 women (75 elected and 14 appointed by President Abdel Fattah El Sisi) became members of the Egyptian parliament. The 89 members make up 14.9% of the seats in the current parliament. This is the highest representation of women in Egypt's parliamentary history (El-Behary, 2016). However, it is a matter not only of numbers but also of what women in power represent and advocate (Jackson, 2012). For example the five elected women of the Muslim Brotherhood conservative party in the parliament of 2011 represented the conservative whip of their party and actually advocated against women's legal rights in areas such as the age of marriage, female circumcision and sexual harassment laws. Furthermore, these political indicators may display the rise of women's voices in public life but do not give a full picture of women's status in the home and community. In the next section I dig deeper into gender relations in Egypt and the studied villages to distil lessons from the literature about more diverse social dynamics.

### **Household, marriage, gender relations and change**

Egyptian households are based on kinship and marriage (Shorter and Zurayk, 1988). Women rarely live by themselves: they move out of their natal household only to form their own household through marriage (Hoodfar, 1997). Households may include either extended or nuclear family members, and other kin on occasion, but rarely non-kin. Marriage plays an essential role in shaping the structure of a household and the positions of the individuals within it. The legal, social and cultural context in Egypt plays a very important role in shaping gender ideology in marriage.

### **Legal family code in Egypt**

The Personal Status Law, instated in 1979, gave divorce rights to women and curtailed polygamy by making it illegal for a man to marry a second wife without the consent of his first. In divorce the wife is entitled to the children's expenses, alimony, her dowry and the possessions she provided at the onset of and during the marriage (El-Messiri, 1977, Rugh, 1984).<sup>15</sup> However, the husband has the guardianship and custody of the children beyond a certain age, which was increased to fifteen in 2005 (Tadros, 2010). The husband also has the right to the marriage home and assets beyond the age of guardianship of children. This requirement means that many divorced women end up destitute and many husbands refuse

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<sup>15</sup> The Islamic dowry system, *mabr*, represents a source of financial security for women (Ahmed, 1992).

to pay adequate alimony (CEWLA, 2008).

In recent decades in Egypt there have been some attempts to give more rights to women in family law by favouring a more liberal interpretation of Islamic *Shari'a* law (Uhlman, 2004). These laws are publicly known as the Suzanne Mubarak laws, in reference to the First Lady of Egypt 1981-2011 who supported their enactment, and are mainly concerned with giving more custody rights to women and the right of women to divorce using the *Khula'* law.<sup>16</sup> I was surprised to find that most men and women in the villages were familiar with these laws. According to them, this was due to the issuing of the laws being widely publicized in television, radio and awareness campaigns as well as to information from friends or relatives who had been through divorce using these laws. Nonetheless, women, particularly those with children, are aware of their weak fallback position, in which they stand to lose much more than their husband in the case of divorce as I discuss in Chapter 5.

Egyptian women have the right to inheritance according to Islamic law and the Inheritance Law of 1943. The wife of a government employee also inherits his pension after his death unless she remarries. Egyptian women have the right to own and control property, including inheritances and earned wages. However, customary practice in rural areas may prevent women from accessing and using property such as land and housing that they have legally inherited. In practice women often delegate the responsibility for managing their property to their husbands or brothers, who assume financial responsibility for their wives and female relatives. This may explain the low percentage of land owned by women in Egypt, 5.2% (Tadros, 2010).

Under Islamic law, husbands have a legal responsibility to provide for their wives and households financially while women have no such obligation (CEDAW, 2008). In practise, this gendered responsibility is much more nuanced and not always applied as will be discussed in Chapters 5 and 6. There are no legal restrictions to women's access to financial services and credit. Women do not need the permission of a husband or male relative to apply for a loan. However, for women in the villages it seems easier to access credit through informal credit societies such as saving associations than through banks or official credit institutions such as the Principal Bank for Development and Agricultural Credit. This may be due to the fact that

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<sup>16</sup> The *khula'* law grants Muslim women the right to initiate and secure a divorce without the husband's consent, but they have to forfeit most of their financial divorce entitlements (Tadros, 2010). Coptic Christianity does not recognise divorce except in certain limited circumstances (e.g. adultery, or if one spouse converts to another religion) so these laws based on *Shari'a* do not apply to Copts in Egypt unless they choose a civil divorce.

in rural areas many women do not have identity cards, so they cannot open a bank account or access formal credit (CEDAW, 2008).

**Marriage: social and cultural context**

Marriage in Egypt is regulated by law but also by custom and religion, which dictate different roles, responsibilities and rights for men and women, shaping their gender relations. Generally marriage is the most important social event in the lives of Egyptian men and women (Hoodfar, 1997). It is widely perceived that marriage provides economic security, social status and protection, and symbolic capital to preserve the spouses' status in the community. In Egypt and in Muslim communities in general, marriage is the only acceptable context for sexual activity and parenthood. It is also the primary framework for gender roles and relations and the main medium for the expression of masculinity and femininity. It gives certain rights to husbands and wives in return for their expected contributions to the family. Religion and its different interpretations, customs and laws intertwine to shape these rights and contributions, bargaining and fallback positions and gender relations within the household.<sup>17</sup>

In reality, as my data and observation indicate, the conjugal contract and marriage institution are much more complex and dynamic than their ideological norms indicate. For example, men are responsible for their wives, according to the cultural interpretation of marriage norms that gives the husband the right to restrict his wife's physical mobility and employment. However, in rural settings where men often depend on their wives' labour, men rarely restrict women's movements and social activities. This becomes the norm when women's work is inside the village, as is the case for most Nubian women. However, in Maryut the gap between norms and practice is much more complicated. Due to financial need, many women (82% of sampled households) work outside the village in low paying jobs. This employment driven by need does not translate to a change in norms, as discussed in Chapters 5 and 6.

The complexity of the normative and the actual also figures in other issues. In general, most women enjoy more tacit rights than are traditionally ascribed to them. This makes them less likely to resist the status quo of gender relations, despite being aware of their restricted legal rights in marriage. As observed by Homa Hoodfar (1997), while the 'modern' more educated and wealthier classes advocate legal reform as a means of social change, the less-privileged

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<sup>17</sup> It is very difficult to disentangle religion, tradition and family laws based on interpretations of *Shari'a* law. As an Egyptian Muslim I have my own ideologies about the different interpretations of Islamic mores and how they are tinted by the traditions and customs of people and places. However, in this research I mostly represent this mix of religion and tradition as perceived, understood and practiced by the residents of the villages.

groups tend to protect their interests through social and cultural customary rights (ibid). Families, particularly in rural communities, conduct rigorous pre-marriage negotiations that cover every aspect of the marriage and the fallback conditions in the case of divorce. A woman's natal family is also responsible for advocating for and supporting her in cases of conflict, separation or divorce. This cultural norm gives women in extended family settings such as the Nubian village a better fallback position and bargaining power in their marriage. These practices, which I observed in the villages – much more rigorously in Nubia due to the extended family structure – are the accepted norm. The institution of marriage with these detailed pre-marriage negotiations is perceived as protecting the rights of women as the less-privileged partners in terms of their legal and social rights in marriage.

Marriage is perceived not just as a partnership between couples but also as an alliance between two families. This makes the conditions for choosing the best marriage partner very complex. In the face of this challenge, men and women in Egypt prefer kin marriages (Rugh, 1984, Watson, 1992): 90% of the women in my sample in both villages said that it was better for women to marry kin because this arrangement helps to secure their rights, which are guaranteed by their families. The 10% of respondents who said they wanted to find an unrelated spouse pointed out that families should interfere in the case of serious problems arising between the groom and the bride to prevent divorce or violence.

Despite these preferences, only 5% of the couples among my sample in Maryut were in kin-based marriages. This low rate of kin marriage may be attributable to the nuclear family setting of the village and the fact that the villagers were primarily first- and second-generation migrants who had few relatives nearby. Nevertheless, many of the marriages in the village were between neighbours who had had the opportunity to know and observe potential spouses and their families. This is a phenomenon observed in Egypt's poor neighbourhoods (Hoodfar, 1990, Singerman and Hoodfar, 1996). It was different in Nubia, where nearly all the couples among my sample were married among kin who are also neighbours. There were only two couples who married outside their kin, and their parents expressed grave unhappiness about it.

The marriage lifecycle figures as an important factor in gender relations that has the potential to affect vulnerability and adaptation to climate and wider livelihood changes. In older couples, the normative authority of men is less idolized and older women have more commanding status in the household and the community. The relatively low divorce rate in the villages after children are born suggests that years of marriage and fertility have an effect

on conjugal relations in the villages, as I discuss as a factor of adaptive capacity in Chapter 5.

Fertility also figures as an important form of individual and households' cultural and symbolic capital. At the start of my fieldwork the idea of incorporating fertility within research on the links between gender, climate change and livelihoods seemed very distant to me. However, women and men's discussions on the role of fertility and children within the marital setting and in their livelihoods made me more aware of their intricacy and their impact on gender relations and livelihood strategies.

Having children is widely considered the most important reason for the interdependence of men and women in Egypt and the case-study villages. A marriage is perceived as secure only after the birth of several children. Society values fertility and women draw social, cultural, symbolic and economic privileges from having children, particularly sons, in many different ways (Inhorn, 1996). Rural women recognize their fertility as empowering as well as a fulfilment of their desire for children. Women often spoke about how bearing children made them women who command respect from others, particularly their husbands.

In the next section I introduce the context of my case-study villages in Alexandria and Aswan (Figure 5).

### **4.3. Research area: The case-study villages**

My choice of the two villages reflects my interest in the historical context of adaptation to environmental and climate-related stresses in the Nile Delta and the Nile valley in Upper Egypt. The history of the Nubians (the Kerma and Meroë civilizations) and ancient Egyptian civilization provide a record of the adaptations of these closely-linked ancient Nile valley agricultural civilizations. Through time, Egyptian civilization has been influenced by many foreign influences, invasions and globalization. On the other hand, the Nubians are best known for preserving their unique culture, gender norms and way of life. The main striking difference between the villages is in their patterns of kinship and family structure, which I explore in section 4.3.3. This main difference between the villages allows assessment of the influence of cultural and gender relations on experiences and perceptions of vulnerability and adaptation to climate, environmental, economic and sociocultural changes and stresses.

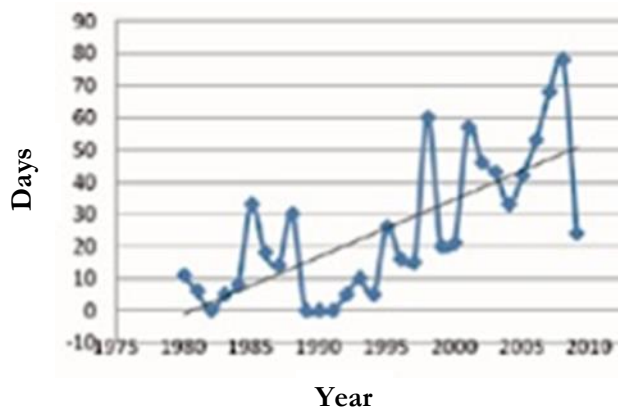


**Figure 5: Map of Egypt showing the locations of the two case study sites**

#### **4.3.1. The Maryut village in Alexandria: Maryut**

The city of Alexandria is the second largest Egyptian city and has the largest harbour, extending 60 km along the Mediterranean coast. It is an important touristic, industrial and economic centre. Its population is about four million and it hosts 40% of Egypt's industrial activity (EEAA 2010). Alexandria is one of the wettest areas of Egypt, with an average annual precipitation of about 170 millimetres, more than the nation's annual average precipitation rate of 80 millimetres (ibid). Most rainfall occurs along the coast and decreases gradually moving towards the South.

Alexandria is at high risk of sea-level rise, which is increasing at a rate of 1.6mm/year for the period 1940-2000 (Frihy, 2003). This is exacerbated by shoreline erosion, land subsidence (2.0 mm/year) and saltwater intrusion into the groundwater (CoRI, 2009). Together with an incremental mean maximum surface air temperature increase of +0.34C/decade (for the period 1961-2000), a steep increase in heat waves since 1980 (Figure 6) and an observed increase in the intensity and frequency of flooding and marine storms, these factors produce stressful effects on fisheries, water and agricultural resources, tourism and human settlements (EEAA, 2010, ElRaey, 2010, ElRaey and ElHadidi, 2012).



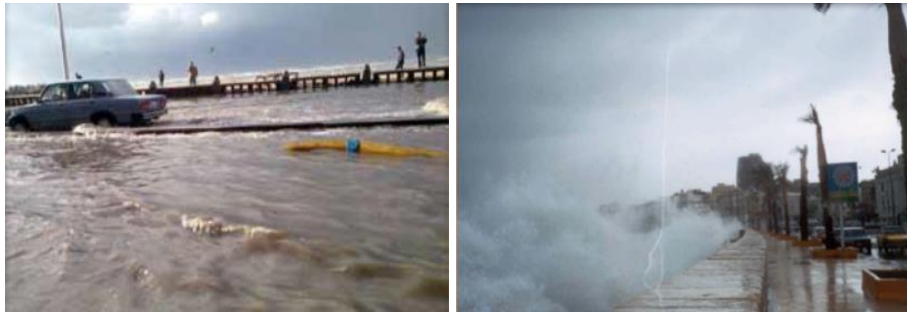
**Figure 6: The trend of duration of heat waves (defined as 5°C above average) in Alexandria from 1980 to 2010 (ElRaey and ElHadidi, 2012)**

Several studies, including those commissioned by the World Bank (Dasgupta et al., 2007) and OECD (Agrawala et al., 2004), have produced vulnerability assessments of Alexandria city with regard to the effects of a rise in sea level. A more recent study by ElRaey (2010) using high resolution satellite imagery, ground survey data and GIS data on land use/land cover, topography and population density distribution in Alexandria, concludes that by 2050, a 0.5 m sea-level rise is likely (no probability assigned) to cause the inundation of 317 km<sup>2</sup> of mostly agricultural land with the loss of 200,000 jobs and the displacement of 1.5 million people. Even though these projections undergo continuous improvement using satellite imagery resolution, elevation data, land use and socio-economic survey data, they do not present uncertainty probabilities and do not take unplanned coastal land use change into consideration (Abdelgawwad, 2006). They also fail to accurately assess the effects on agricultural productivity in rural coastal areas and the resulting impact of farmers abandoning their land and seeking urban jobs. Specific gender vulnerabilities are not assessed, and the data are gender-blind.

Alexandria is highly vulnerable to climate impacts, that include: direct impacts of sea-level rise that causes inundation of low-lying rural and urban land areas where loss may reach over 32 billion USD with a sea-level rise of 50 cm (ElRaey, 1997); indirect salt-water intrusion into groundwater and associated soil salinization with negative impacts on agricultural productivity and quality of crops (EEAA, 2010); accelerating coastal erosion (exceeding 100 meters/year in some locations), reduction of wetland size, and saltwater intrusion into land and groundwater; and impacts of increase of frequency and severity of extreme events of temperatures and precipitation. Extreme events of storm surges such as the ones shown in



Figure 7 occur when high tides coincide with low pressure and onshore winds, and they are exacerbated by incremental sea-level rise.



**Figure 7: Storm surges on the main sea road in December 2010 in Alexandria (Fouad, 2010)**

The description and profiling of exposed groups in Alexandria with regard to climate-related impacts such as sea-level rise, temperature and rainfall changes and their indirect impacts such as land salinization and fishing changes is dependent on households' differential exposure and socio-economic vulnerabilities to environmental stresses. The groups most likely to be affected are coastal and rural households living directly along the north coast of Alexandria along Lake Maryut and Abu Qir Bay (Daoud, 2013). These are mainly farmers and marine or lake fishermen and live in areas exposed to climate-related stresses.

According to ElShennawy (2008), the wetlands in exposed coastal areas such as Lake Maryut, the largest water body to the south of Alexandria, are vulnerability hotspots as well as important adaptation sites in the protection of the city from sea-level rise and extreme events such as storm surges. Excess water from the lake is pumped out and discharged in El-Max Bay, close to the Maryut case-study village. Lake Maryut has been subject to domestic and industrial pollution and landfill, particularly in the absence of security following the 2011 uprising. The lack of maintenance of the El Max pumping capacity that is responsible for transferring water from Lake Maryut to Max Bay constitutes a major threat to Maryut village. Any failure or damage to the pumping stations may result in direct inundation of the low-lying land adjacent to the lake. As a relatively shallow brackish lake, increases in water temperature and salinity result in changes to Lake Maryut's ecosystem with changes in its fish species and fishing yields (EEAA, 2010).

There is a lack of comprehensive demographic studies of the communities living around Lake Maryut. However, according to a socio-economic report funded by the European Commission (ElRefaie, 2009), the main communities living around the lake comprise about 30,000 inhabitants living on 3.19% of its surrounding area. They work mainly in low-paid vocations such as fishing (10,000 fishing families) and farming, as support staff in



governmental agencies and as technical labour in nearby factories. Other demographic characteristics include high illiteracy rates, especially in females, with 7% of female students dropping out every year because of the economic pressures that drive them to find work (ibid).

The studied village is located on the northern part of Lake Maryut. Field data and information from the village key informant, the village Sheikh, reveal that the village has a high unemployment rate, suffers from lack of secure tenure and has poor infrastructure, especially potable water, electricity and sanitation networks.<sup>18</sup> The provision of healthcare, education and transportation system/road network is inadequate.

### **Socio-economic livelihood context**

In the village's 102 households the residents are mostly Muslim and the family structure is mostly nuclear with a patriarchal patrilocal setting<sup>19</sup> in which the women have less support from their natal families than men. There is a small mosque in the village, built with contributions from the people. It has segregated spaces for men and women to pray and attend Quranic readings and religious gatherings, and a Quranic school for young children. With no other day-care facilities in the village, mothers are particularly pleased about this school that provides day-care and teaches the Qur'an at the same time. Most men work in agriculture or fishing, and some work in nearby factories or low-paying government jobs in Alexandria. Women who work are engaged in agriculture, fish sales and/or housekeeping jobs outside the community.

Most houses are built on small bought or rented plots in the agricultural areas in the village. Other houses are built on the outskirts of the village. There are daily vegetable and fish markets in nearby areas and many kiosk-type shops selling sweets, cigarettes and household items, with women making up the largest group of petty traders. Alleys and the porches of houses are women's spaces and provide for most of the women's contacts. The residents, however, have easy contact with Alexandria city centre that is 40-60 minutes from the village by public buses. They often go to the city centre to work, to government offices for services, or to visit friends and relatives. Cooperative shops called *gam'ayat* that sell subsidized goods, and pharmacies and schools are located nearby.

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<sup>18</sup>Since the study village is mostly 'informal', that is, not officially integrated into national housing planning and monitoring, there are no accurate national statistics on its livelihood conditions and climate threats. Data on these were obtained from key informants and respondents.

<sup>19</sup> Patriarchy is a social system where the fathers or father-figures hold authority over the household and community. Patrilocal or patrilocal residence refers to the social system in which a married couple resides with or near the husband's parents.

In Maryut village the population is not culturally or ethnically distinct from mainstream Egyptians. However, they are a socio-economically distinct *sha3bi* people, which literally translates into English as the low-income people. The people of the village are rural migrants and younger families from the densely-populated parts of Alexandria who had difficulty finding accommodation in the expensive centre. Although it is a poor, marginalized informal village with threatened natural-resource-dependent livelihoods, many people still migrate to it. Since my MSc. field research in 2011, twelve families had moved to the village when their houses in Abu Qir area were inundated by coastal flooding. I noticed that migrants from the same parts of the country do not necessarily cluster together or live next to one another. They all considered themselves 'just migrants', though with different regional accents. Setting up their own independent households at marriage, young people build their houses or huts anywhere available as housing in the village becomes scarcer and more expensive.

The village has an electricity and water supply, but is experiencing power cuts and water stoppages. Families in some parts of the village have to carry water from nearby houses or public taps installed on their boundaries. There is no proper sewage or solid waste collection system. Waste is periodically collected and mostly illegally disposed of in a rubbish dump at a corner of the village where it is occasionally burnt. The government provides large bins on the borders of the village but these are often stolen and the place just becomes rubbish dumps.

#### **4.3.2. The Nubian village: Nubia**

##### **A historical context**

Nubians have a distinct history closely intersecting with Pharonic Egypt as well as an East African heritage and ethnicity, which are different from the majority of Egyptians and is visible in their darker complexion. Today, Nubia is an 800-kilometre-long stretch of land along the Nile River, one-third of which, Lower Nubia, is in Egypt, with the remaining two-thirds, Upper Nubia, in Sudan. The Nubian population is close to one million, most of whom live in Aswan and North Sudan. The Nile and its fertile valley gave rise to the civilization of Nubia, which literally translates and is known in Egypt as the Land of Gold, as gold was extensively mined there and its women are known for wearing exquisite gold jewellery. Nubia's strategic importance arises from the fact that it is the only continuously-inhabited corridor between the Mediterranean and sub-Saharan Africa, and this has shaped its long history.

With the construction of the High Dam at Aswan in the early 1960s, Lake Nasser flooded much of lower Nubia and over 100,000 Nubians were resettled in Egypt and Sudan (Abou-Zeid and El-Shibini, 1997, Biswas, 2002, Scudder and Gay, 2005). The High Dam was built as an adaptation measure to deal with the floods and droughts that have affected Egypt at least as far back as Pharonic times. It offered protection from floods and droughts, facilitated increased agricultural and electricity production, employment, and improved navigation along the Nile, which benefits tourism. Conversely, the High Dam has also had adverse environmental, social and cultural impacts on the Nubians, who were forced to relocate to Aswan and Sudan in 1963-1964 (Abou-Zeid and El-Shibini, 1997, Scudder and Gay, 2005). The dam flooded a large area and submerged archaeological sites, which were relocated by the UNESCO Nubian Campaign from 1967–1980 (UNESCO, 2004). Although it caused the relocation of the Nubians, to my surprise I found that the residents of the Nubian village appreciate the High Dam as a national achievement for the economic benefit of Aswan and Egypt. However, they blame consecutive governments for not allowing them to relocate to their homeland south of the High Dam. There are environmental problems associated with the dam that include the trapping of sediment and the loss of sedimentation on the fields in Upper Egypt.

The majority of the 50,000 Nubians resettled in Egypt were moved to 47 village units in the Kommombo area, 45 kilometres north of Aswan in what was called New Nubia or 'land of displacement', and some were sparsely relocated to west Aswan. They rely on irrigated agriculture growing sugar cane and maize, fishing from the Nile and tourism, and some work in Egyptian and Gulf cities (Jennings, 1995). I took one of these villages as a case-study as generations of its residents have experienced forced migration - from the homeland behind the dam - first-hand. New Nubia is an area that is largely overlooked in scholarship, despite the fact that Nubians have a very rich and distinct culture and history.

The village in North Aswan is inhabited by Fadgiki Nubians, who consider themselves different from the Kenuz Nubians of West Aswan. This difference between the Fadgiki Nubians and the Kenuz Nubians stem mostly from the migration history of the Fadgiki Nubians who were relocated from behind the High Dam to the Northern edge of Aswan while the Kenuz Nubians had always lived in West Aswan, close to the city centre. The Fadgiki Nubians and the Kenuz Nubians differ in their Nubian dialects and some of their traditions. I observed this difference in the field compared to ethnographic accounts of the Nubians of West Aswan (Jennings, 1995, 2009). The Fadgiki Nubians are much more isolated

than the West Aswan Kenuz Nubians, who are more connected to the city of Aswan by the new bridge that was completed in 2002. This makes Kenuz Nubians more exposed to the foreign influences that result in sociocultural change, unlike the Nubian villages in North Aswan which are much more isolated and reflect the old Nubian culture. Though there are differences between the relocated Fadgiki Nubians and the West Aswan Kenuz Nubians, some aspects of Nubian Sufi religious mores, the patriarchal society but matrilocal residence<sup>20</sup> and the Nubian culture remain unchanged.

### ***Ancient and modern Nubia: gender and traditions***

Women played an important role in ancient Nubia. The royal women were very powerful, sometimes ruling Nubia as queens. The Nubians had over seventeen ruling queens, especially during the golden age of the Meroitic Kingdom.<sup>21</sup> The queens played important political power and spiritual roles as rulers in their own right as well as high priestesses and domineering mothers (El-Guindi, 1966). Although ruling queens in themselves may not be unusual in ancient Egyptian history, the portrayal of Nubian queens in many Pharonic temples is exceptional (Figure 8).



**Figure 8: Nubian Warrior-Queen Nut representing the sky and eternal love protecting the people of Egypt**

This unusual portrayal has led to research on the role of women in Nubian society from past to present. As eloquent orators and rulers, Nubian queens also symbolized the art of verbal

<sup>20</sup> Matrilocality or matrilocality residence refers to the social system in which a married couple resides with or near the wife's parents.

<sup>21</sup> A good example is queen TI, the grandmother of Tutankhamoun and the mother of Akhenaton, whose statue was presented higher than that of her husband Amenohotep.

communication. In the village I was able to attest that this art has been passed on through the generations, when I observed a common scene of the grandmother telling a story to extended family members from children to mature men and women. The stories create a collective consciousness and are passed on through generations. It is common to find a young man or woman who has never seen the homeland talk vividly and passionately about it as if they had always lived there. The stories go a long way in maintaining the Nubian culture through intergenerational knowledge and the preservation of customs and traditions. The importance of women, extended family structures, forms of kinship and gender relations in Nubian culture is unique and has been ongoing in Egypt through the changing times (Jennings, 1995).

### ***Why study Nubia now?***

Nubia is an interesting area for my research for several reasons. It is a region, ethnicity and culture that crosscuts MENA and Africa. It has a long history inseminated with various influences from Pharonic, Roman, Christian and Muslim cultures that the Nubians have adapted and tailored to their own. Furthermore, this is a crucial time in Nubian history. The Nubians are gaining national recognition since the adoption of the new constitution in January 2014 with article 236 stipulating the right of displaced Nubians to return to their homeland, which the government is obliged to develop for their resettlement within ten years.

The Nubian culture is one of living with the environment. The Nubians have always lived along the shores of the Nile and have coped with environmental changes and climate variations. The Fadgiki Nubians of North Aswan lived through the displacement by the drastic adaptation of the High Dam by resettling in the Kommombo area. Nubian life revolves around the Nile River, which provides water for drinking, irrigation, cooking and washing. Historically, the yearly flood brought water for agriculture and deposited silt upstream to renew the soil along its banks. This direct contact with the Nile and its benefits shaped the culture of the Nubians. In reverence for the Nile, the entire village gathers along its shores for special festivities. For instance, on the day following a wedding the married couple, their families and the villagers gather around the shore of the Nile as a blessing for the new couple, who wash their hands and feet in the river. This is a very important ancient tradition showing the reverence of the Nile as a spiritual symbol.

The resettled villages in North Aswan are somewhat isolated and climate-dependent, so climate-related stresses are a priority threat in Nubians' lives. The Nubians are farmers who work with the help of their families and livestock (cows, donkeys and camels) on their land, especially at times of planting or harvest. Young people help the elders and this is how

knowledge of traditional farming is passed through generations. Nubians have kept this traditional style of agriculture for thousands of years. They have coped with climatic variability and changes by gradually changing their cropping and sowing patterns and introducing new crop varieties. Irrigation channels are provided by the government of Egypt, but farms are also irrigated directly from the Nile using a *sakia* or *shadoof*, a traditional wooden water wheel powered by cattle or by man. Diesel pumps for those who can afford it are used to lift water from the Nile to the fields. Wooden sailboats are used to transport people, animals and goods across the Nile to villages on the other side or to Aswan centre.

The Nubian culture is one of very strong kinship ties. This social structure allows the assessment of the effect of the family structure and intergenerational knowledge on vulnerability and adaptation. Village life is maintained through socialization. The livelihoods of the villagers depend on sharing and cooperation. The village researched in this study consists of five big families and two smaller ones that intermarry, mostly through arranged marriages. Hence everyone is related in some way and, as expressed by many women and men in the village, the village is 'like a big family'. Family life is strong, and most people live in extended family households, the elders living with their children and grandchildren. Elders are a very rich source of information about the Nubian heritage for the younger generations. The doors of the houses are always open and meals are prepared even for passers-by. Throughout the day women and children visit and help each other with domestic work, drink tea or share food. Many different kinds of life-cycle event such as weddings, childbirth or death bring the people together regularly and provide regular economic and social support for all households.

#### **Socio-economic livelihood context**

In this village of 67 households the village residents embrace Sufi Islam mixed with traditional folk beliefs. Nubians take pride in their cultural history and identity, which they celebrate in poetry, novels, music and storytelling. The Nubian family structure is mostly extended and communal in a patriarchal matrilocal kinship setting developed from their matrilineal East African heritage. The matrilocal setting is one where newlyweds stay at the wife's family home in a built extension until they build a new house of their own close to the wife's extended family house. 'Close ties [of Nubians] are maintained with the matrilineal kin, as marriage is traditionally followed by a period of uxorilocality [matrilocality] that may last for five years or longer' (Jennings, 1995, p. 28).

Nubians are mostly Sufi Muslims. Religion is a core element of social life in the village. Men and some women gather for prayers in the village mosque, particularly for Friday prayer, after

which they visit their relatives and friends. At Ramadan, villagers fast from dawn to sunset, when they gather outside their houses to eat and share food with relatives, neighbours and guests. People celebrate the two main Muslim feasts dressed up in new clothes, visiting relatives, exchanging gifts and sharing the holiday meals. They also go to the graveyard on the outskirts of the village to mourn their deceased relatives and ancestors. Villagers save to go on a pilgrimage (*Hajj*) to Mecca and the whole village gathers to bid them farewell and welcomes them with songs when they return, usually with gifts. The villagers paint pilgrimage symbols and welcoming Arabic words on their houses which remain, as an indication of the cultural and symbolic capital of a pilgrim.

All the Nubians in the village, even the older people, speak Arabic due to learning the Quran and because Arabization has been government policy, with all schools teaching in Arabic since the 1920s, even in areas where Nubians make up a sizable proportion of the population. At the age of about four, children go to the public elementary school in the village. They go to middle school and high school in nearby villages by ferry. Due to the distance and their restricted mobility, many girls drop out of school after elementary education (sixth grade). However, parents highly value their sons' and daughters' education and try their best to send them to school, sometimes sending village daughters to school in chaperoned groups. All adults in the village participate in teaching children how to behave properly and how to cooperate in the life, work and livelihoods of the village.

I looked at Nubian men and women's perceptions of the changes that have taken place since the relocation in the 1960s. Older women and men bemoaned the loss of their homeland, the 'land their ancestors lived in and for, died in and made history on', and what they saw as the phasing out of their traditional customs. Older women expressed nostalgia for old customs and traditions such as the traditional Nubian dress which they now wear only for tourists and weddings and at the frequent village gatherings for Nubian songs and dancing. However, they still hold firmly to their wedding and funeral customs. Nubians are still very family-oriented and genuinely and readily sacrifice anything for family, which is more important to them than anything else. I experienced this first-hand almost on a daily basis in tangible matters such as finances and intangible matters such as their time, their support and their attachments.

The younger generations seemed happy with New Nubia. Now they have electricity so there is refrigeration, electric lights and appliances. They have water pipes, whereas before women had to fetch water from the river at least twice a day. In the old times, relying mainly on their agricultural land, men had to farm with very simple tools and women had to create meals

from scratch, from harvesting to transporting to preparation, such as grinding grain, and then cooking over fire pits. Now they have stoves, grocery stores, vegetable markets and modern clothes. However, as expressed by an older village *hagga* (a respected elder who had been to Mecca): ‘Young women have not experienced living in the blessed homeland of their ancestors and the serenity of simple life, and are just blown away by modern glow’.

### **4.3.3. Networks in the villages**

Social networks contribute to the development and preservation of social cohesion in Middle Eastern cultures (Abu-Lughod, 1986, Aswad, 1974, Joseph, 1993). As noted by many researchers (Hoodfar, 1990, Hopkins et al., 2001, Jennings, 1995), in maintaining their livelihoods Egyptians are largely motivated and supported by social relations and networks, particularly kin networks. Kin networks are not common in Maryut, which is mostly formed of nuclear families. In Nubia the extended families are interrelated and thus kinship networks may overlap with friendship groups in what I call ‘family friends’. Men and women use their networks to adapt their livelihoods to stresses and change, including climatic change, as discussed in Chapter 6.

Social networks and the informal associations based on them in the villages mainly centre on and are managed by women, as observed in many cross-cultural studies (e.g. March and Taquq, 1986). This can be partly attributed to the traditional gender roles that keep women in frequent contact with each other and with kin in their communities while performing their domestic responsibilities. Men are often working outside their community or even outside the country, which strengthens their vertical networks outside the village community.

#### **Kin Networks: Recognizing the importance of kinship relations**

Kin are broadly defined as a category of relatives who support each other consistently or intermittently, as a unit or individually (Fox, 1977). The use of the term ‘kinship’ is wide and debatable in terms of the details of how kinship networks, their patterns, meanings and obligations are constructed. In general, kinship refers to the web of consanguinity (descent) or affinity (marriage) at the heart of people’s livelihoods in traditional societies (Lamphere, 1970, Morgan, 1870). This definition stresses the importance of genealogical ties and the desire to construct social networks around these ties (Lieberman et al., 2007). I mostly use the word kinship in terms of descent, or what is commonly known in Egypt and the villages as ‘blood ties’. This genealogical type of kinship is based on religious and sociocultural norms and manifests in a number of legal ramifications which frame legal lineage in Egypt (e.g. inheritance and asset sharing) in terms of degrees of consanguinity (Tadros, 2010). This type



of kinship in traditional communities in Egypt greatly influences social, cultural and symbolic status and networks in the communities. Kinship networks in the villages are viewed as a main source of reliable and trusted economic, social, cultural and symbolic capital and support, as I discuss throughout my empirical analysis.

In Egypt in general, society centres on the family at the heart of social organization and structure, which gives special significance to kindred. The family is considered the primary risk-sharing social unit at the root of household livelihoods and kinship networks (Fafchamps, 2003). However, the degree of closeness to and dependence upon the family as a unit varies widely, mainly according to class, rural or urban classification and culture of origin.

The Nubian community, as a distinct cultural group in Egypt based on common ancestry and extended families, most strongly reflects the kinship cohesion and support system that feature in most Middle Eastern societies (Jennings, 1995). In Nubia networks are mostly based on kin. This social familial cohesion rooted in sociocultural and religious beliefs makes kin support an unconditional obligation. Thus even when kin are not friends they form a social network whose support is always sought after and counted on. This is why I characterize kinship as an important factor of adaptive capacity in my study context.

On the other hand, in Maryut social networks are mostly based on neighbours and friends and, as perceived by people in the village, are less dependable than those based on kin. People in Maryut indicated that the increasing movement of the population of villages on the outskirts of big cities has resulted in culturally diverse communities of people from different parts of Egypt. They do not share the same social and cultural customs, which weakens the cohesion of these social networks. The unconditional support of kin was missed and lamented by many male and female respondents in Maryut. Hopkins et al. (2001) note this perception of lack of cooperation in Egypt, where 93% of their respondents at four Egyptian sites in the north felt that people are becoming less cooperative and that family support is the only remaining form of reliable cooperation. In Nubia the perception tended to be different, with almost all respondents describing their village as a 'big family'.

Nubian kin networks are branched, and when their linkages are traced they ultimately link the whole community. The members of Nubian kin networks are geographically widespread, with relatives living in neighbouring villages called *nejas*. I found that, as described by El-Guindi (1966) in Old Nubia, these lineage networks are widely and visibly mobilized in family lifecycle and death rites.

In Nubia kinship is both patrilineal and matrilineal<sup>22</sup>, i.e. based on and relating to ancestral descent through the paternal and maternal line with the families in the village being interrelated through marriage and descent, but there is a clear distinction between both, as in other Middle Eastern and Arabic-speaking societies.<sup>23</sup> However, women have much stronger matrilineal than patrilineal bonds which are reflected in the choice of marriage partner, with most of the Nubian women I interviewed expressing a preference for matrilineal or distant cousins. To them, this guarantees a better marriage.

Patrilocality is the main family norm in Middle Eastern societies, where it is assumed that women will leave their family when they marry and establish a new nuclear household with the husband or live with his family in an extended household (Abu-Lughod, 1986, Altorki, 1988, Early, 1993). This is a main difference in family structure and cultural patterns between the Delta communities in Maryut and the Nubian community. Matrilocality is a defining, noticeable and unique phenomenon in the Nubian culture. Most Nubian women feel more supported and comfortable with their maternal kin in or outside the village.<sup>24</sup> Young women revealed a preference for establishing a social support network for daily chores and childcare with their natal families. Young wives, particularly working ones in Maryut, lamented not living near their mothers the most, because they need their help with their domestic responsibilities and childcare.

#### **4.4. Conclusion**

My study focuses on the perception, vulnerability, adaptive capacity and adaptation of men and women in rural communities in the Nile Delta and Upper Egypt as two distinctively agro-climatological zones in Egypt with different cultural and social norms. My case studies are mostly ethnographic and focus on three main issues: the relationship between gender (and wider social) relations and livelihood stresses (environmental and climatic stresses intersecting with socio-economic and political changes); the multi-dimensional and gendered nature of vulnerability; and the dynamics of gender relations and adaptation to climatic changes. The context of these issues has been introduced in this chapter via an exploration of the socio-economic and environmental setting at the national and village levels. In this chapter I have

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<sup>22</sup> Patrilineality is the tracing of descent through the male line whereas matrilineality is the tracing of descent through the female line.

<sup>23</sup> This distinction is obvious in the gendered Arabic kinship terminology. For example, there is a distinction between matrilineal and patrilineal uncles, aunts and cousins.

<sup>24</sup> Cultural norms define the home of a brother, parents, or close relatives as a legitimate refuge for a woman in need. Only kin ties provide this type of support and protection.

laid the ground for the investigation and discussion of the daily lives of men and women, their family structures and social networks and the intergenerational interactions in the villages.

Gendered social relations manifest in social networking that individuals and households develop to cope with livelihood stresses, including climate-related stresses. I have identified broad patterns of networks in the two studied villages. However, it is important to note that the differences should be viewed more as a continuum between gendered categories, cultures and spaces. Actual and potential material support in times of stress and change are important factors that influence social networks and groups and their interactions, but these are not the only such factors. The circumstances of individuals and households, such as family structure, personal characteristics, physical proximity, residency norms (patrilocal and matrilocality), level of income, financial obligations, cultural duty and moral support are also important determinants of social networking in the villages. These determinants should be understood in the context of cultural norms and practices and the options they provide to men, women and their households in the two villages. The differences mainly revolve around the extended family structure and the homogeneity of culture, heritage and traditions of the Nubian community as opposed to the Maryut community. The comparative analysis of this thesis highlights the significance of family structure as an important element of adaptive capacity.

Through introducing the Nubian and Maryut case studies I question some of the stereotypes about Muslim societies' gender relations and highlight the diversity of Egyptian culture which affects adaptation to changing environmental, political and socio-economic conditions. This theme runs through the research to reflect men and women's perceptions of their needs and aspirations at the individual, household and community level. It is important to understand this diversity when assessing the adaptive capacity of different communities and differently-positioned men and women in the same community.

While the account presented in this chapter is not a comprehensive account of the residents of the Maryut or Nubian villages, it provides a setting for the ethnographic research on the linkages between gender, climate change and livelihoods. This introduction to the context reveals aspects of power, relations and access that are key issues in the perceptions and experiences of vulnerability and adaptation to climate-related impacts, amidst other livelihood stresses. These issues are explored in the following data chapters, Chapters 5 to 7.

## **Chapter 5: What are the perceptions and experiences of gendered vulnerabilities to climate and livelihood stresses?**

The environment is everything and everyone around us. It is our origin, our *nizke* [livelihood], our life and our interactions with each other and with the environment around us. It is where we come from, where we belong and where we live and who we live with. Any *khatar* (danger) to it is a direct threat to us, our families, our children and their children after them. It is a danger to our existence, our family affairs, our livelihoods and our being together. (Excerpt from an interview with Zahra, a 45-year-old married woman in Nubia)

### **5.1. Introduction**

The literature stresses that environmental and climatic issues are constructed by people who define threats and risks according to how they experience them (Hannigan, 1995, Hopkins et al., 2001). Gilbert White (1988, p.174) notes that ‘unless a risk analysis comprehends the social structure within which individual decisions are made, it may fall short of understanding either the process or the consequences of those decisions’. Douglas and Wildavsky (1982) note that risk perception is a social process of shared threats and fears which influences and is influenced by social relations. Social and cultural factors help to identify and construct risk (Kasperson et al., 1988). Wolfe (1988) states that the perception of risk is related to social factors at least as much as to its quantified estimates. ‘Gender is a major axis of difference in Egyptian society’ (Hopkins et al., 2001, p.35) and thus is a major factor that affects perceptions and experiences of vulnerability to livelihood stresses, including climate-related ones.

Framed within my investigative framework, in this chapter I investigate experiences of climate-related stresses on the livelihoods of men and women in the villages within the context of interlocking stresses and underlying socio-economic problems, drawing attention to some of the influencing gendered sociocultural dynamics. I critically draw on some elements of Jackson’s (2007) creative conjugality, Sen’s (1987) cooperative conflict model of households, and pressures and ‘performances’ of femininity and masculinity (Butler, 1988) to analyze conjugal relations. Conjugal relations are influenced by gender ideology and family structure and in this chapter I show how they influence men and women’s experiences of vulnerability, i.e. exposure, sensitivity and adaptive capacity as elements of vulnerability (Chapter 2).

In section 5.2 I discuss experiences of social vulnerability to livelihood stresses, including climate-related ones. In section 5.3 I focus on exposure to rainstorms as an extreme climate event and land salinization as an incremental climate-related stress that affect my case study locations, and discuss how the experience of these stresses is gendered. In section 5.4 I argue why and how these gendered processes of sensitivity to climate stresses are socially differentiated and influenced by gender ideologies of masculinity and femininity. In section 5.5 I discuss conjugal cooperative conflicts in light of these pressures, and how they relate to the elements of adaptive capacity.

## **5.2. Household vulnerability and gender relations**

Accounts of people in the two studied villages reveal that they are affected as much by climate-related stresses and threats that have serious negative impacts on their livelihoods as by other challenging socio-economic and environmental problems. I discuss the sociocultural dynamics of conjugal gender relations that influence household vulnerability. These dynamics are rooted in intra-household gendered structural positions and power relations. I also address experiences of climate vulnerability in relation to the multi-dimensional nature of poverty and other non climate-related stresses and how it influences and is influenced by gender relations.

Most of the livelihoods issues that I analyze in this thesis contribute to the multidimensional nature of poverty as perceived by villagers. Household poverty was mentioned as a threat by roughly equal proportions of men and women in both villages. Climate-related and environmental stresses on land that include salinization, loss of soil fertility and temperature extremes affect subsistence consumption of farm and fish yields. Declining subsidies and soaring inflation also curb household consumption of even the basic purchased food. This shortage of food is a source of conjugal conflict.

### **The multi-dimensional nature of poverty: The ‘wheel of poverty’ and vulnerability**

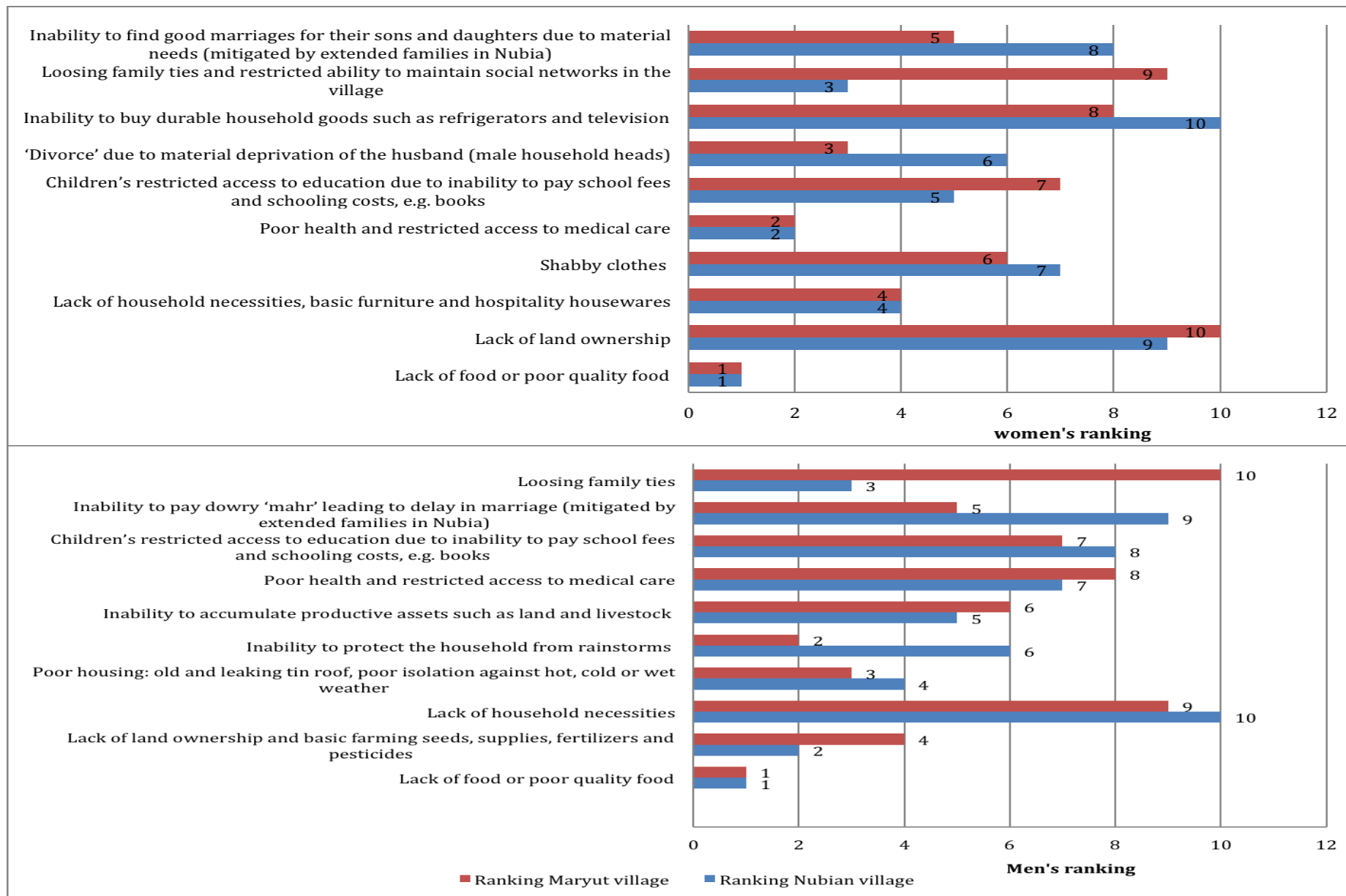
Climatic and environmental changes contribute to income poverty that in turn increases the vulnerability of the livelihoods of residents in the villages. This causal effect is more pronounced in the nuclear family structure of Maryut, as expressed by Haggia Samira in Maryut:

We are poor and can barely live off our land. Then all these environmental changes come and affect it and its crops. We become poorer. This wheel of poverty continues and we become unable to cope with these changes or with our

poverty. Also everything in our life has become commercial and all about money. It's not about rural cooperation values or people helping each other any more – it's about money and survival.

This 'wheel of poverty' begs the following questions: what assets/forms of capital are used? How are they valued? And by whom? I asked villagers in individual and group interviews (individual interviews with 36 men and 36 women in each village, and group interviews with 40 men and 40 women in each village) to define poverty in people's daily life. Figure 9 lists women (n=76) and men's (n=76) definitions of poverty, its varied dimensions and ranking of importance. The items in the figure representing perceptions and ranking of dimensions of poverty in the villages were elicited using Participatory Rural Appraisal (PRA) focus groups of wealth ranking of men and women in the two villages. The men and women in the two villages defined the dimensions of self-perceived poverty and I kept building up the ranking through the interviews and kept revising them in repeat interviews.

The items on this list of the dimensions of poverty relate to income and other forms of assets/capital. In addressing capability and wellbeing, Sen (1993) argues the importance of assets other than income in individual capabilities. As presented in Chapter 2, I discuss seven forms of capital that are discussed in the livelihoods literature (e.g. Ellis, 2000) and Bourdieu's (1986) forms of capital: financial, natural, physical, human, social, cultural and symbolic. As indicated in the figure, an important consequence of income poverty in the villages is that it prevents the accumulation of financial or investment assets such as the livestock, dowry and capital for self-employment in small businesses that secure households' livelihoods. Natural capital figures in the ownership and management of land. Human capital is reflected in the education of children and healthcare. Social capital is mostly prominent with reference to family ties, an important dimension of poverty mentioned by 95% of respondents in both villages. Social capital is also tied to dowry, the quality of clothes that confer social status, and hospitality houseware, which figured in women's answers. Symbolic and cultural capital can be inferred from each item on the list because they give status in the household and community.



**Figure 9: Women's and Men's perceptions and ranking of dimensions of poverty in the villages**  
 (1 = high, 10 = low priority)

The ranking and weight of each item is different in the two villages, as presented in the figure. For example, family ties/affairs and restricted ability to maintain social networks always appear at the top of the list of poverty risks in Nubia. They acquire a much higher priority in this village of extended families than in Maryut, with its predominantly nuclear families. This is expected, due to the fact that family ties in Nubia are the source of much financial and social support that can greatly help to alleviate the effects of poverty.

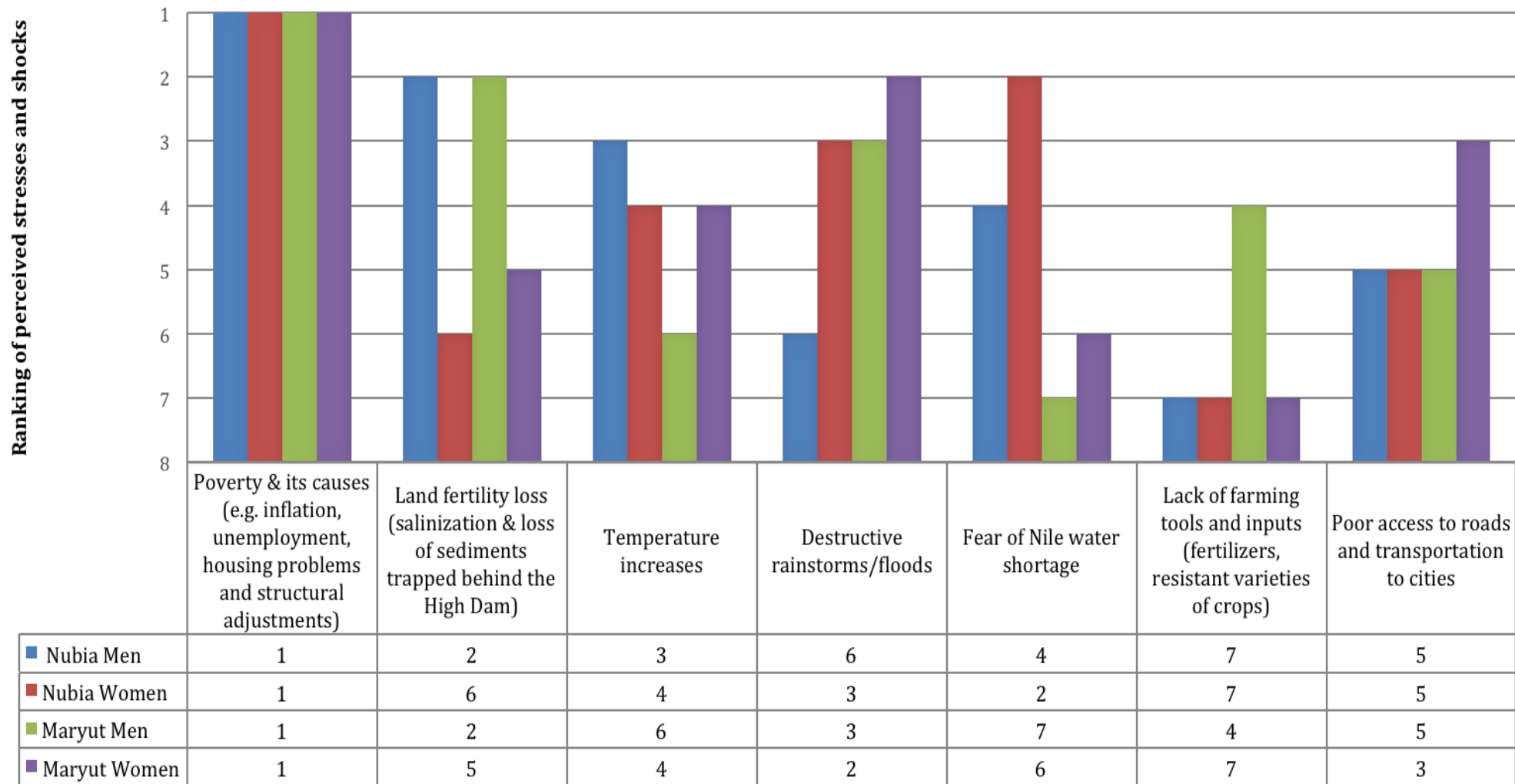
Perceptions of these dimensions of poverty are also gender-specific. These include the women's higher ranking of family ties and necessities in the domestic sphere and their roles in it. In the women's ranking, they recognise a need to accumulate durable household goods and hospitality items such as china tea sets. While men usually meet their friends in coffee shops, women are bound to entertain visitors and friends at home. These items are accumulated as social and financial adaptation measures that enable the women to maintain social bonds and networks. Divorce and fallback position in marriage also featured in women's accounts, reflecting their fear of divorce and its consequences, such as their losing custody of the children and losing financial rights, and their social status as a divorcee (stigmatized in the villages). These gendered dimensions and experiences of poverty reflect men and women's experiences and perceptions of livelihood stresses in the villages.

### **5.3. Gendered variation in experiences of vulnerability to climate-related stresses and shocks that affect people's *rizk* (livelihoods)**

In this section I address the first subsidiary research question: What are the main climate-related stresses and shocks that men and women experience and are expected to experience? My evidence strongly indicates that climate-related stresses and shocks have a serious impact on people's livelihoods at my case study locations. In my semi-structured interviews (SSI) I did not force any direction on people. My topics revolved around livelihoods and family relations, and my SSIs went on as conversations around these topics that reflected people's perceptions. During the interviews, all the women and men in both villages, with no exceptions, brought up climate or environmental stresses or shocks, including changes in temperature, seasons and rainfall patterns, as threats to their resource-dependent livelihoods of agriculture and fishing.

Figure 10 lists men and women's prioritization of ranking of livelihood stresses in the two villages. The items in the figure were elicited using Participatory Rural Appraisal (PRA) focus groups of threat ranking of men and women in the two villages. The men and women in the villages defined the threats to their livelihoods and I built up the ranking through the interviews and kept revising them in repeat interviews.





**Figure 10: Ranking of livelihood stresses, segregated by gender and location**  
 (1 = high, 10 = low priority)

Most men and women in each village agreed on the same climate-related stresses and risks, but their ranking was different. Land salinization and rainstorms figured as priority stresses in Maryut, and loss of land fertility, water stresses, increased temperature and the number of hot days and rainstorms were priorities in Nubia. These priorities are consistent with policy interview responses and climate change reports in Egypt (e.g. EEAA, 2010) as presented in Chapter 4, that give high priority to agriculture and water issues.

This figure also shows how the respondents ranked environmental concerns compared to other issues. Poverty was ranked first in all responses, with varying causes including inflation, unemployment, housing problems, structural adjustment and environmental threats. However, the provided explanations of poverty are firmly linked to environmental changes and threats to the villagers' natural resource dependent livelihoods. Economic and environmental concerns not only rate very closely in the ranking of stresses and threats but are also closely interlinked.

There is variation of ranking of threats by locality and gender. While the identified threats in both villages were similar, their ranking is different. The major difference is destructive rainfall, ranking higher in Maryut, which is more exposed to it. Water issues and connection to the Nile rank higher in Nubia due to its proximity to the Nile and the historical connection between Nubian livelihoods and the river. A noticeable outlier is the high ranking of Nubian women of the fear of Nile water shortage. When asked about such high ranking of a threat that is not directly 'seen', the interviewed Nubian women expressed that it is a fear that they 'get' from Egyptian mass media, particularly television talk shows that promulgate this fear. An explanation of this phenomenon is that women in Nubia are more exposed to television than men. Thus they reflect the fear of the dominant national discourse of presenting Nile water shortage as a national security issue that heightens popular fear of climate impacts on Nile water availability as well as other factors affecting it such as the erection of the Renaissance Dam in Ethiopia.

Heterogeneities in exposure to impacts are also spatially differentiated within Maryut, where the boundaries and territories delineate a landscape of selective vulnerabilities to exposure. I took my sample from the 102 households in the easternmost location of the village, which is most exposed to extreme rainfall events and land salinization. Within this sample there are families who are more exposed than others due to their location. Due to poverty and marginalization, the families that are most affected are not able to move somewhere else within or outside the overcrowded village. Furthermore, due to national political and economic conditions, families in the city of Alexandria move specifically to the parts of the village that are most exposed to climate impacts because they are the least inhabited.

There are patterns in the ranking of threats by gender, with parallels and contrasts. There are striking similarities in identifying climatic or environmental changes and their impacts on individual and family livelihoods. This observation was also found by Hopkins et al. (2001) when studying perceptions of environmental change and pollution in Egypt. The differences are mainly reflected in the ranking and interpretation of threats and their impacts. Women expressed more concern about the shifting baselines of environmental change, weather patterns and the increased intensity and frequency of weather events as they diverge from the traditional calendar (Appendix 5). Men expressed more awareness of the incremental changes in land fertility and crop patterns. These differences and the ranking of threats are related to gender roles in the villages, with men ranking threats that directly affect agriculture like land salinity and access to farming inputs higher. Women ranked threats that affect daily life and social interactions in the villages higher. However, these differences are not clear-cut because women and men share household and livelihood experiences; the ranking of threats reflects their individual priorities.

Women also tended to perceive and express issues in more personal terms, while men tended to see and express them in more pragmatic, financial and technological terms.

Umm Ragab,<sup>25</sup> a 39 year-old married woman from Maryut, reflected a deep personal fear of recent rainstorms:

We know when the rain comes and we know it passes without real destruction. The last years, the rain and the sound of thunder were frightening. People die, children are frightened, houses are wrecked and *nizke* [livelihood] is gone. It is new to us, and so scary that every time it starts to rain that heavily I fear it will happen like this again and will hurt someone in my family. It is a feeling of personal loss that recurs regularly as nightmares in my sleep.

### **5.3.1. Extreme events: Nightmares of rainstorms**

In this section I analyze village men and women's stories about how rainstorms and floods affect them. In individual and group interviews, men and women prioritised extreme rainfall events as a major threat due to their extreme unexpected and feared nature and the extent of their destruction. In general, the villagers perceive rainfall to be less predictable today than 30 years ago. In the group discussions in the beginning of my fieldwork in the two villages, I asked the gender-segregated groups about the worst environmental shock they had experienced and most men and women in Maryut chose the 2009 rainstorms.

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<sup>25</sup> In the villages older people are usually referred to as 'father of' (*Abu*) or 'mother of' (*Umm*) the oldest son. Respected older people who have made the Islamic pilgrimage to Mecca are referred to as *Hagg* (male) and *Hagga* (female).

Hagg Samir, from Maryut, described in painful and vivid photographic detail the 2009 destructive rainstorms. He reflected the fear this type of rainstorm instils:

I remember the dark grey sky and then suddenly there was thunder; thunder as loud as a warning of the coming nightmare. It rained heavily all night. It was destruction that I will never forget. Three people died in the village. Many houses were brought to the ground. Crops were washed away and the land was soaked. Our house was destroyed and it took all our savings, and we had to borrow more, to rebuild it. Mostly I was very scared for my wife and children. It really took a toll on us. It's a horrible memory that I pray we never experience again.

Rainstorms and floods affected both villages in 2009, 2012 and 2013. I witnessed the floods of March 2014 in Aswan and other governorates in Upper Egypt (e.g. Sohag and Qena). The March 2014 floods in Upper Egypt resulted in the deaths of 9 people and a large number of livestock, the loss of 3000 feddans of cultivated land and the destruction of over 200 rural households (Cabinet of Ministers, 2014). The destruction of houses and loss of crops due to extreme rainstorms and flooding is generally perceived as a terrible and relatively new problem. Most men and women in Nubia chose the 2012 rainstorms as the most 'frightening' weather they had experienced.

Umm Selim, a 41-year-old married woman from Nubia, expressed a similar fear:

For a few years we have been experiencing unusual rains, but the rains of 2012 were scary and destructive. Many of the homes that we never thought could collapse did. Everyone was terrified, the children were screaming. The rest of this season was extreme poverty. I still have nightmares of those few days. Maybe it was some kind of punishment from God. Whenever it rains here we pray in gratitude because rain is *kheir* [goodness] but this angry rain was a sign of *shar* [bad or evil]. It took away livelihoods [...] It's surely a punishment for the bad things we do and a sign that we need to repent of all sins.

This account also echoes symbolic and religious perceptions of environmental phenomena and changes to them. Perceptions of rainstorms reflect how climate stresses are explained in sociocultural terms, such as due to bad behaviour or failure to appease God. The causes of unfavourable climate events such as floods or storms are perceived by many village respondents as punishment for human's failure to appease the deities. This brings us to the concept of the 'cultured climate' (Roncoli 2006), discussed in Chapter 7, which refers to how the meanings

attached to experiences of climatic phenomena vary across cultures and contexts and affect how communities interpret scientific information depending on local cultural preconceptions and accumulated experience of climate events.

From the response of villagers to these two examples of rainstorms, in 2009 in Maryut and 2012 in Nubia, a certain pattern emerges. The community gathers to follow the event as it happens. After the rainstorm passes they assess the damage and react accordingly. Some have to repair their houses and farms if the damage was not drastic. In extreme cases where houses collapse the occupants relocate to other houses in the village or to relatives outside the village. In Nubia they mainly relocate to another house belonging to the extended family of the husband or wife, or of both if the couple are related. In Maryut people mainly move to a neighbour's house in the village or to relatives outside the village until they have rebuilt their home. Women from Maryut expressed a preference for relocating to their natal family home. The short-term relocation experience seems to be highly influenced by gender and family structure, and to a lesser extent by wealth. This finding is corroborated by similar evidence in Terry's (2011) study in Ugandan villages affected by rainstorms.

#### **Short-term relocation: a gendered experience**

The experience of short-term relocation caused by an extreme climate impact such as a rainstorm is mediated by gendered roles and relations as well as by the family structure of households in the village community. In their interviews many men and women in the villages expressed different aspects of this gendered experience of vulnerability.

Abu Gomaa, a 52 year-old farmer from Maryut, expressed how the impact of the 2009 rainstorm became the man's responsibility:

It is the man's responsibility to build the house. When part of our house collapsed, I stayed at a neighbour's house in the village and built the rest of our house while my wife and children went to her relatives in Kafr El Dawar for refuge. It is easy for women to go back to their natal homes but it is very difficult for us [men]. This is because they are their parents' responsibility too, but I am responsible for her and my children. I did all I could to rebuild the house quickly and get my family together again.

Umm Gomaa, his wife, expressed the disaster as a gendered experience:

The 2009 nightmare rains were scary, but the after-effects were the most devastating. It was especially hard on me as a woman. My husband is a man and he can look after himself, but I cannot. I had to leave the village and stay with my family in Kafr el

Dawar. It's painful to take your children, leave your husband and go to be a burden on your family elsewhere. We only came back when he sent for us. I'm very grateful to him for rebuilding the house, but the children and I had an especially hard time away.

Relocation also depends on individual and household access to different types of resources (Terry, 2011). In 2009 in Maryut, the wealthier households headed by higher-income-earning men had a better chance of relocating to other parts of the village or temporarily leaving it, and in 2012 in Nubia, the most renowned wealthier extended families/households provided better support for those whose houses or crops were damaged. Financial capital is an important determinant of relocation, but social and cultural forms of capital are also important.

With no exceptions, the men and women in my sample in Nubia referred to ancestral land in relation to post-disaster relocating. These ties reflect tradition and symbolism of two sorts: 'land as honour' and 'being tied to land'. Men and women's perceptions of rain and land and the environmental changes affecting them reflected symbolic, religious and cultural beliefs in their village communities. This symbolic layer of perception is discussed in more detail in Chapter 7.

Umm Maged, the wife of Hagg Farid, a 44-year-old Nubian farmer, highlighted Nubian men and women's attachment to their land even when facing risks such as the 2012 rainstorms. She expressed the value of being rooted in the land and her advantage in having a big family that can support her and her household:

All the village stayed after the scary 2012 rainstorms. We are a people who are tied to our land. Our land is our family's honour, our men's honour. You cannot take a fish out of the sea. We have been taken out once before [the relocation after the erection of the High Dam in 1963] so we are already low on oxygen. I am also blessed in coming from the Khaledan house. They took us in and helped my husband rebuild our house. We stayed at their house when we first married, so it is home too. I cannot imagine what we would have done without them.

The 'land as honour' culture is more tied to masculine identity rooted in the control of lineage land.<sup>26</sup> These perceptions suggest that being linked to land can be a barrier to relocation that increases vulnerability in the face of considerable physical threat or risk. As observed by Adger et

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<sup>26</sup> In Maryut and Nubias land tenure is secure for men and women. However, the Islamic inheritance laws give men twice as much as women as they are responsible for providing for the family (Ahmed 1992). This may make men more strongly attached to land than women. Women may also be prevented from accessing and using property that they have legally inherited (Tadros, 2010).

al.'s (2009a) review of adaptation literature and discourses, these perceptions are endogenous to the community and its culture and are influenced by perceptions, knowledge and experiences of risk.

Family structure, a key type of social capital in the villages, is an important determinant of adaptive capacity. A major difference between the villages was the extended families/households which were a main source of support for men and women in the village. This is especially true for Nubian married women, who keep up strong ties with their kin after marriage even if they leave the natal extended household.<sup>27</sup> This is an important cultural characteristic that affects sensitivity to climate shocks.

Next I discuss the problem of soil erosion and salinization as a gradual and an even more erosive climate-related impact on the livelihoods in the villages.

### **5.3.2. 'Our land will be barren [*bour*]: Loss of soil fertility, erosion and salinization**

Loss of soil fertility due to salinization, erosion, extreme temperatures and loss of sediment now trapped behind the High Dam was ranked as a major stress by the villagers. As farmers, land is key to livelihoods in the villages. Loss of soil fertility was a stress recognised by both men and women in the villages, as shown below. However, its ranking and interpretation as a major stress was much more substantial for men who, in their acquired gender roles, work the land. The women generally do not work on the land. They are mostly in charge of livestock, chicken and pigeons and of processing and/or selling the crops produced.

Hagg Ahmed, a farmer (and a part-time chef in Aswan) in Nubia, expressed the significance of the threat of land salinization for him, his family and his community:

Our land is becoming more *bour* [barren]. When we [Nubians] were relocated to North Aswan the land was already much worse than the land south of the dam. It is getting worse, especially in the last ten years, with the temperature rocketing, silt retained by the dam and a layer of salt forming on the land. This requires more fertilizers, which are available not at the subsidized price of 80 LE but only at 180 LE, which we cannot afford. The heat is becoming unbearable with the Samoum winds [literarily, the winds of hell]. The heat is also bringing pests and even scorpions into the fields. This also requires pesticides. The [organic] *super-phosphor* is very expensive, and the chemical stuff kills the animals.

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<sup>27</sup> As explained in Chapter 3, the family of the bride usually builds an extension onto their house for their daughter and her husband and later they may build themselves a house nearby.

His wife, Umm Haytham, expressed the same concern but with less knowledge of the details of farming:

Our land is our *riḥk* [livelihood]. The crops my husband brings [corn and hibiscus] are getting less and less and of worse quality. I know because I process them. If the land loses more fertility and becomes barren, we are in the air [we will have lost our secure income].

These testimonies reveal the intersection of different types of stresses with the impact of one stress rendering people more vulnerable to other existing stresses. They reflect the importance of land and its crops to people's livelihoods.

The Arabic term used emphasize the importance of land is *riḥk*, meaning core livelihood. The characterization of the land as 'barren' also gives it a more personal connotation and importance. As Leela Dube (1986) found in India, this connotation of fertility gains a gendered significance visible in the use of gendered symbolic metaphors. In the villages, this symbolism emanates from cultural and religious mores animating and giving a feminine identity to natural elements such as farmland (a feminine noun in Arabic) and symbolizing the honour and fertility that allow the continuity of life and require protection. This symbolism is explored in Chapter 7.

These examples of people's accounts also reflect fear of the loss of their land's fertility and productivity due to climatic conditions. This risk is real, but it is also socially constructed with the people defining the threat, the level of fear it engenders and its importance in their livelihoods (Hannigan, 1995, White, 1988). Adverse climatic conditions compound other stresses such as the unavailability of fertilizers, the lack of social welfare for farmers and the lack of government support that contribute to their vulnerability.

The poor villagers in my case study areas do not expect much support from national or local government when they are faced with climate-related disasters. In 2009, the government and NGOs distributed relief items, mainly food and woollen blankets, to affected families<sup>28</sup>. However, no long-term assistance or durable building materials to rebuild affected houses were provided. After the floods of March 2014 in Upper Egypt the Ministry of Water Resources and Irrigation was publicly criticized for not taking the necessary precautions in spite of predictions of adverse weather. Ministry officials began planning to dig ditches to channel floodwaters (*magarat el seyoul*) to save the crops in the most vulnerable villages, including my case-study village in Aswan; however, nothing has been implemented so far. Poor governance is an important

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<sup>28</sup> I was involved in these campaigns at the time.



contributory factor to the vulnerability of the villagers' livelihoods.

My policy interviews with government officials confirmed these observations and highlighted the fact that soil fertility problems and salinization feature prominently in official discourse. However, the policy accounts reveal minimal concern or attention to the gendered nature of these experiences of vulnerability that I discuss in the next section.

### **Land management under climatic stress: a gendered experience**

Gender barriers include the control of land by men and women's lack of practical farming know-how. Lack of farming inputs was mentioned in most interviews and group discussions, mostly by men, who identified the provision of fertilizers, pesticides and tools as a priority for adaptation support. A prominent discourse of both men and women in the villages revolved around the 'physical weakness' of women which makes them less able to undertake heavy work such as cropping or house repairs.

Abu Sami, a farmer and petty trader in Nubia, expressed this common discourse of women's physical weakness:

I have to carry out all the heavy work in the field and in building or repairing the house. It is like lifelong muscular training for such tough times. And if men don't do it, who can? Women are too weak to carry out these difficult tasks. Umm Sami [his wife] has her share of hard work with the children and managing the house and getting the spices done. But such work that requires strength is for us men.

On the other hand, Umm Ashraf, a 54-year-old woman from Maryut who worked selling vegetables and in domestic service in Alexandria, was one of very few women who publicly refuted this discourse in a group discussion:

We [women] should stop fooling ourselves and others. We are strong and we've learned that the hard way. Now we take care of the houses, bear and raise the children, clean our houses and those of others [in domestic service outside the village], sell crops and fish and take care of the husbands. Then you say we are weak and men are strong? Nonsense!

I observed that women engaged in hard work such as carrying heavy loads of vegetables or fish to sell at market in Maryut and carried barrels of water on their heads in Nubia. Through the understanding I gained from interviewing women in the villages, this discourse can be interpreted in a more nuanced light. The women do most of the sowing, vegetable sales and processing of food for sale (mostly in Nubia) and are solely responsible for the domestic work

and childcare. Besides the daily chores of cleaning, cooking and traditional baking, the women carry out physically demanding and arduous work such as carrying water and fodder for the livestock they are responsible for and bringing water for the household from nearby villages when there is a shortage of piped water.

However, the women use this 'physical weakness' discourse to save them additional labour that their husbands can undertake. For example, Umm Sami from Nubia initially reflected this discourse, but, on a later occasion when I interviewed her after a cleaning day at the house, which is definitely work that requires strength, she said:

I have to do so many things all the time, for the house, the children, preparing the spices for sale, taking care of the cattle. It's too much work already – do I need more? As women we have to make men feel powerful to assure them of their manhood, and we show our fragility to spare ourselves more work. Like this, everyone's happy.

The use of the discourse of women's feebleness has been noted in the context of Ugandan villages by Geraldine Terry (2011). It is part of a constructed gender identity in which 'a performative accomplishment which the mundane social audience, including the actors themselves, come to believe and to perform in the mode of belief' (Butler, 1988, p. 520). As Butler (1988) notes, these performances are adaptable to change and to ascribing new meanings in their continuous process of construction and reconstruction. However, women and men acknowledging these roles and making use of them in their own interests deters change to gender ideologies and their practice.

The use of this 'feebleness' discourse by women and men is an example of creative conjugality (Jackson, 2007), with wives saving themselves an overbearing burden of work and husbands using it to assert their masculinity, presented as their physical strength. It is also a manifestation of bargaining with patriarchy (Kandiyoti, 1988), with the normative patriarchal ideology of gender roles (and their justification) manipulated to the best possible interests of the married couple.

Gendered vulnerabilities are seen most in female-headed households. These include lack of control and/or ownership of land, lack of farming know-how, and lack of mobility and time. This lack of mobility and time has many faces in the villages. It has a sociocultural dimension in which mobility is associated with shame, particularly if the woman is not married. It also has a financial dimension, with women in female-headed or -maintained households (the poorest in

the villages) overburdened with responsibility for the family and the household and providing for both.

These gendered vulnerabilities differ greatly between the villages, due to the extended family structure in Nubia, where a female head of household is financially and socially supported by her natal extended family. In Maryut, with its dominantly nuclear family structure, a female head of household bears full responsibility for herself, her family and her household.

Hagga Gamila, the head of a household in Maryut, has four children, the oldest of whom is 16. Her husband passed away six years ago when she was pregnant with her fourth child. She inherited land from him and is also managing her children's land. Having no previous experience in farming, she hires farmers to work the land for a share of the crops. She works in domestic service in Alexandria and left her young children with neighbours. It is very difficult for her to keep up this arrangement because the hired farmers are 'ripping her off' and the neighbours are getting 'fed up with babysitting her children'. Being tied to the home to take care of her children and unable to freely mix with male farmers prevents her from gaining the knowledge about farming necessary for her to be able to supervise the hired labour. This is further exacerbated by the salinization of the land, as she does not know about farming innovations such as salinization-resistant seeds and irrigation techniques. She has only one son, the youngest child, who is 5 years old, and she said that she was waiting for him to grow up and help her in the field, where he will be her 'back' in the village.

These female household heads' problems with lack of time, mobility, access to knowledge, control over land and land ownership (or small landholdings, as in my study villages) are well-recognized in the GED and feminist political ecology literature (e.g. Demetriades and Esplen, 2008, Rocheleau et al., 1996). These constraints have implications for climate vulnerability and adaptation.

In this section I have introduced climate impacts and gender-specific vulnerabilities as perceived by the men and women in the villages. In the next sections (5.4 – 5.5) I explore this vulnerability more closely by addressing my second subsidiary research question: how do gender relations in the villages' social, cultural, economic and policy contexts affect livelihood conditions and vulnerability to climate-related threats (among other stresses)?

#### **5.4. Gendered experiences of vulnerability: Gender norms as discursive tools**

In this section I analyze Egyptian gender ideology, as it manifested in Maryut and Nubia, in relation to vulnerability. I analyze how the men and women's experiences of vulnerability are

influenced by their gendered positions and conjugal relationships. I argue that the gender ideology and its articulated discourses in the villages shape men and women's individual and household experiences of climate-related stresses, compounding their existing problems and poverty. I also argue that women's bargaining and social positions in marriage may be declining due to climate vulnerability, and demonstrate the relevance of this analysis to my research questions.

I begin by discussing the dominant normative ideology and pressures as articulated by most of the married men in the villages, and the differences between the two villages with their differing family/kinship structures.

#### **5.4.1. Pressures on masculinity**

Local gender ideology and norms and livelihood stresses and shocks, including climate-related ones, increase men's vulnerability in the villages. I discuss man's traditional role as the provider for the household as a main pressure on masculinity. This pressure is part of a wider traditional and historical norm in the Middle East (Tadros, 2010). I analyze it in terms of people's livelihoods and draw out its implications for adaptive capacity.

##### **Man as the provider**

As previously discussed, according to Islamic and traditional mores in Egypt, men are held responsible for providing for their families. Islam gives the wife the unconditional right to financial support from her husband, even when she is employed and has her own substantial income, to which she is solely entitled (Ahmed, 1992). However, this does not automatically imply that women spend their wages on themselves or their leisure freely, but it gives them power and autonomy about how they spend their income. Men see a direct link between their masculinity and their role as provider in marriage. Any deviation from this norm threatens their sense of their masculinity and adequacy as the husband and head of the household (Hoodfar, 1997). With climate-related stresses on their livelihoods and the rising need for cash, many men fail to fulfil their financial obligation to their families and try to find ways to limit it. Some men, mostly in Maryut, regretfully acknowledged that with the environmental stresses on their farming and fishing livelihoods and their decreasing income they were failing to keep up the traditional household customs.<sup>29</sup> Many older women openly acknowledged that this family arrangement causes family problems, but only a few of the younger women welcomed the change.

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<sup>29</sup>Most men did not acknowledge this at the beginning of my fieldwork and claimed that their wives worked for their own fulfilment. However, four months into my fieldwork in Alexandria, getting to know the families well and being part of their daily activities and budgets, many men told me privately that they felt like failures having to involve their women as contributors to and managers of the household budget.

Under these obligations, men depict themselves as pressured by the social and cultural responsibility for providing for the household. This depiction of the pressure to provide was reflected in many accounts given in individual and group interviews in the villages. Hagg Alaa, a 49-year-old man in Nubia, stated:

Men have an obligation to provide for their household. It is what we do and should do as men. In tough times like these the burdens are much heavier on us men. But we keep fighting with the help of [the others in our extended] households. Fail that responsibility, and you lose your manhood in front of your family and everyone.

Umm Selim, his wife, also highlighted this male responsibility for providing for the household, also mentioning the role of the wife in this:

Religion and society oblige men to *yekafi* [satisfy the needs of] the family and house. In tough times it's hard, but they do it. Certainly women work hard too, but we work in the comfort of our home among our family and friends. Men suffer more.

Umm Bekhit, a 43-year-old woman in Maryut, iterated this male responsibility for providing and the shame of failing to fulfil it:

Men have to provide for the family. Sometimes in tough times my husband feels he cannot provide, he fears not being a man in my eyes. I think this fear and weakness drives him crazy, and he can even hit me.<sup>30</sup> It's tough. I am also patient, I endure the hardship and support him in hard times in my own way.

These accounts exemplify the typical masculine discourse on the gendered dimensions of vulnerability. This evidence is corroborated by empirical research in other parts of rural Africa, particularly in Muslim communities (e.g. Eriksen et al., 2005). While some studies in rural sub-Saharan Africa indicate that the responsibility for household provisioning is transferred mainly to men in hard times (Jackson, 2007, Terry, 2011), in Muslim rural communities such as in Egypt and the rest of the Middle East it is always men's social and religious obligation whether they are able to fulfil it or not. This puts constant pressure on them that increases in times of livelihood stress and need. These accounts also signify how gender roles are accepted and normatively maintained, even in changing conditions. Even though these gender norms exert pressure on women as well as men to fulfil the traditionally-set gender roles, they are accepted and perceived

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<sup>30</sup> Domestic violence is an issue that is rarely talked about in the villages. Some women talked to me about it but stressed that it be off the record. Domestic violence is perceived as a private matter and most (if not all) incidents remain unreported. Violence within marriage is generally considered as socially acceptable by many women who perceive it as a part of married life they have to cope with. Dealing with cases of domestic violence was one of the most painful challenges I had to face in the field.

as working, good and logical.

Increasing exposure to environmental/climate-related stresses and shocks exacerbate the underlying pressures on men's livelihoods, constraining their ability to provide for the household and fulfil their masculine duty to the household and community. These pressures also deter young men from marrying. In Egypt, as in other Muslim societies, marriage is the only socially accepted form of relations between unrelated men and women and provides social status and integration in community life (Hoodfar, 1997). Unmarried adult men are considered and consider themselves vulnerable in terms of social, economic and symbolic capital. However, within this ideological mindset, increasing livelihood stresses and decreasing livelihood options mean that men struggle to accumulate sufficient assets and means to set up and manage a household.

Marwan, a male household head in his mid-30s in Maryut, was the only man I came across who publicly challenged the prevailing gender ideology on this issue:

Our society and religion have rules that men should provide for the house. This can be okay in normal times. But in these tough days, with the land dying, limited *nizk* [livelihood] and everything else, spouses should share this responsibility. Here, they do it like that anyway, but they do it covering their faces [to hide their shame]. It would be easier if they accepted the tough circumstances and just cooperated openly in supporting the family.

Although this account was different and refreshing, when asked about the domestic role of the wife in this cooperative arrangement Marwan described the same accepted role of the wife who is solely responsible for household chores and the daily care of the children. Thus, this cooperative arrangement, as defined by Marwan, would just result in a greater burden and more 'income-earning' work being added to the wife's domestic duties.

In many of the discourses that I present, men use 'the man as provider' discourse to legitimize their control of the household resources and put the full load of the domestic work and childcare on their wives' shoulders. On the other hand, women used this discourse to make their husbands fulfil their provisioning responsibilities. This analysis is corroborated by Jackson (2007) who argues that legitimizing their dependence on their husbands can be a useful discursive tool that allows married women to benefit from men's provisioning role. In households with severely asymmetric decision-making power a multitude of examples of 'everyday forms of conjugal resistance' (Jackson, 2007, p.2) revolve around this discourse. Most women in the villages told

me about acts of resistance including hiding their income, shaming their husbands if they cannot fully provide for the household, and using their skills at processing spices or selling fish to bargain for a bigger household allowance.

The ethnographic literature adds weight to these perceptions of men's conjugal vulnerability. Abu-Lughod (1986), Hoodfar (1997) and Jennings (1995, 2009) argue that men in low-income traditional domestic-centred communities in Egypt gain social, cultural and symbolic status by fulfilling their role of providing for their families and households. They are also dependent on their wives because they need their domestic labour, childbearing potential and networks to help them achieve their gender roles as men. This status that reflects on the respectability of their household and families is their main source of masculine status and prestige.

However, this notion of the heavily-burdened male household head is paralleled by that of the obedient, enduring and patient wife who takes care of the household and the children and works to help and support her husband in times of need. This is the ideal in the villages, and was expressed in group discussions emphasizing the normative performance element of such gendered group discussions (Butler, 1988, Goffman, 1969). It is the most prevalent and accepted discourse in Egypt across all social classes and regions (Hoodfar, 1997, Tadros, 2010). However, practice falls short of this norm to varying degrees depending on the culture of the community and the household. Deviation from the norm was mostly revealed in the individual personal interviews. This norm is a significant influence on household gender relations.

Most of the men I interviewed expressed that they would rather suffer working harder and longer than forgo their masculine role in the family. However, in practice this is not always the case, predominantly in Maryut where extended family support is almost non-existent. With the existing gender ideology and in the absence of extended family support, men can be obliged to accept their wives' working or even oblige them to work when they do not want to. From observation and individual interviews, I found that husbands' claiming control of their wives' income usually increases in tightening financial situations. Following the same logic, increasing livelihood stress tends to increase conjugal conflict over control of the women's income. On other hand, with increasing livelihood stress the husbands' economic position and hence their masculine role as the household provider deteriorates, causing them to lash out to prove their masculinity. Some women whose husbands cannot provide for them commonly complained of them as 'lazy and selfish'. This was paralleled by the men's complaint about 'demanding unsupportive' wives. These attitudes and behaviours cause conjugal problems and conflict.

In short, I argue that with the existing gender roles and ideology, livelihood stresses put greater pressure on men and on conjugal gender relations. Threatened gender relations may hinder the adaptive capacity of households (Nielsen and Reenberg, 2010) by deterring or recognizing women's contribution, and the vicious cycle continues.

#### **5.4.2. Pressures on femininity**

In light of the prevailing gender norms in the villages, women face many pressures that increase their vulnerability and that of their household. In this section I discuss the two main pressures. The first is social constraints on women's engagement in off-farm livelihood activities outside the house and village, whether in the petty trading of fish, fruit and vegetables or any other informal income-earning activity. The other prevalent pressure is the social and legal norms that weaken women's fallback position in marriage and thus skew the marital power relations.

#### **Conjugal contestations over women's livelihood activities**

With increasing livelihood stresses, including climate-related ones, wives are obliged to maintain their families' livelihoods by finding employment (mostly in Maryut), seeking their families' assistance (mostly in Nubia) or finding ways to ensure that their husbands fulfil their obligation to the household. However, traditional gender ideology prevents women working outside the village when they can engage in informal activities such as processing spices, handicrafts or raising cattle, which are seen as an extension of their domestic work. It seems that wives earning cash may be viewed as a transgression of male authority and the husband's pivotal responsibility for providing for the household. It can also be viewed as a threat to the traditional gender roles: as Sami, in Nubia, expressed it, 'a woman working makes work seem like an easy job that women can do and we [men] are good for nothing'. From another point of view, some women also fear devaluing their domestic role and adding more demands on their energy and time.

The problem is not only about the threat of women earning money. Men do not have a problem with women earning money from informal income-earning activities that they do in the house or the village. This type of in-house productive work is considered domestic work and does not challenge the traditional gender norms and status quo. Men's objections to their wives working outside the village may also emanate from concern about them congregating with men in public places such as on public transport and in markets in the city centres.

Men's objection to their wives working is not only framed as a threat to their authority, role or honour but also sometimes justified in terms of the costs involved. The low wages that village women can earn make men and women question the cost of employment that would not contribute much to the household. However in Maryut, due to increasing livelihood stresses,



generally if the women's job is critical to the family's livelihood, the husband agrees and even encourages her to work, driven by need and not by a change in social attitude or gender ideology. In similar stressful conditions most women in Nubia work from home due to the long distance from the village to the city centre, tighter family traditions and extended household pooling.

In other cases conjugal conflict arises over the control of the woman's income, which is not in line with Islamic mores of giving the wife complete control over her income. On the other hand, women are conscious that environmental and socio-economic stresses are gradually decreasing men's involvement in the daily life of the household. With the increasing need for cash and livelihood diversification, women who are not supported by kin are obliged to enter the labour market. They adopt strategies to resist this reversal of the gender roles by appealing to traditional ideology to secure their husbands' commitment to the household, pressuring them to provide their basic needs such as food, shelter and clothing. These strategies include resisting silently, resisting vocally by arguing or involving a neighbour or family member to argue for them,<sup>31</sup> and resisting actively by leaving their jobs to oblige their husbands to contribute under the pretence that they need to care for their children. Married women communally and openly discuss different strategies for manipulating their husbands into providing for the household. These bargaining strategies, as analyzed by Agarwal (1997) and Jackson (2007), constitute discursive tactics to emphasize the husbands' provisioning responsibility.

Hagga Rashida from Maryut spoke about the strategies that village women adopt:

Husbands and wives fight, but when life gets tough and money gets short then all problems are magnified. Women here work to help maintain the family as well as doing all the housework and raising the children. However, if the husbands slack off and start depending on us we have to be careful. We can say, and rightly, that the children need us at home so we have to cut down our hours of work or leave it altogether. We also use society's expectations of husbands to shame them, implicitly, into providing for the family. We help our family, but we do not want to be used beyond our capacity.

These manipulation strategies presuppose a necessity to view the needs and rights of the underprivileged – women in this context – within the existing social and material constraints of

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<sup>31</sup>This is more widespread in Nubia due to the extended family structure. Some wives take their complaints to an influential member of the family and ask him or her to exert social pressure on their husbands.

realizing them (Kabeer et al., 2013).<sup>32</sup> How do the underprivileged penetrate, manipulate and bargain with the ideological norm set by the privileged? Kandiyoti (1998, p.147) calls this ‘bargaining with patriarchy’ and it suggests agency woven into ‘the limits of the culturally conceivable’.

These findings of women’s constrained ability to undertake income-earning livelihood diversification activities resonate with ethnographic studies in rural sub-Saharan Africa (Dolan, 2004), North Africa (Assaad and Krafft, 2014, Mernissi, 1977) and Egypt (Hoodfar, 1997). They raise questions about who controls the income that the women earn. The constraints on women’s income-earning and livelihood diversification activities increase their vulnerability to climate-related stresses, among other livelihood stresses. Women’s livelihood diversification is discussed in detail in Chapter 6.

### **Social norms weaken women’s fallback position and bargaining power**

Here I present social discourses on divorce and underlying fallback positions and bargaining power in the villages. As introduced in Chapter 4, the social and legal norms provide men with a better fallback position in Egyptian marriage. The difference between men and women’s fallback positions stems from three main factors that the village women brought up in their accounts, which place social and financial pressures on women and skew the power relations in marriage, in turn increasing both spouses’ vulnerability to livelihood stresses. In the case of divorce, husbands have the guardianship and custody of the children and the right to the marital home and assets beyond the age of the children’s guardianship. The women, particularly those with children, are aware of their weak fallback position and that they stand to lose much more than their husbands in the case of divorce. First, the children are legally in their fathers’ custody and mothers do not want to risk being separated from them. Second, women, especially those not supported by their kin, often lack the financial means to survive and support their family, even if they have a job. Third, women benefit from the legitimacy of marriage as social and symbolic capital which affords them more freedom in the community. In traditional communities divorced women are of lower status and are not as well-respected as married women. Women are also aware that a divorced woman with children has little chance of remarrying.

Shokria, from the Maryut village, had been divorced four months earlier and spoke of the ‘aching pain’ of being divorced:

I am a divorcee now. I see on TV that divorce is now common in Egypt. But it is not

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<sup>32</sup>This does not in any way deny the fact that there is a need and even an obligation to question these constraints and strive for long-term social change to modify them.

here. It is automatically our [women's] fault. I did all I could to prevent it: I endured bad behaviour for years until I just could not handle it any more. Sometimes I regret it, because now my son is not with me and I get no alimony because I initiated the divorce. And the worst is how people look at me and blame me for being divorced, even though they know how bad it was.

Comparing such accounts with past ethnographies (Hoodfar, 1997, Jennings, 1995, 2009) shows that women's social status and household gender relations are deteriorating, and hence their vulnerability is increasing. The stories from both villages suggest that married women in Nubia have relatively stronger fallback positions than those of Maryut. This may be due to the support of their kin, who endorse both their bargaining power and their fallback position in the case of conflict or divorce. Many wives in Maryut endure material hardship due to their husbands' lack of support but stay in their marriage due to their weak fallback position. Many said that their parents, who live in other governorates of Cairo, would not welcome them in their natal homes in the case of divorce. This is also reflected in the acceptance of polygamous marriage by women in Maryut rather than considering divorce. According to these women the practical choice for a first wife is to accept her husband's second marriage and try to secure his support for her household and children.

Climate-related stresses and shocks that lead to declining agricultural productivity and compound problems of land scarcity and lack of government support put pressure on conjugal relations that can lead to divorce. Married village women's income-earning activities are constrained to differing degrees, affecting their bargaining and fallback position. This impacts not only their financial assets but also their social and symbolic status in the household and the community.

As reflected in the women's accounts, this cycle of their vulnerability is somewhat alleviated in Nubia by kin and extended family support in the village or nearby villages. The proximity of women to their natal kin enables them to continue to benefit from their support during and after marriage. Umm Mohsen, one of three divorced women in Nubia, recounted her experience:

Getting to the stage of divorce took years. It was like the Palestine peace negotiations between the families. In hard times I know my family has my back. My family did all they could to prevent it to protect me from the shameful status of divorcee, but it is *naseeb* [destiny]. His family makes him pay alimony. My family insisted that the children stay with me. Of course he can see them any time. He is still in the village, but I can raise them better.

Kin also monitor the behaviour of the husband and provide financial support to the household of the married couple. This gives Nubian wives a stronger fallback position if the husband fails to provide or conjugal conflict leads to divorce, which in turn enhances their bargaining power within marriage. The situation is quite different for the women in Maryut, who live far from their families. However, in both cases the women consider divorce as a last resort, not only for financial but also for sociocultural reasons, fearing the taboo label of divorcée. On the other hand, divorced men face no such stigma and generally have no problems remarrying and starting a new family.

Next I consider conjugal cooperative conflict in light of these pressures, and how they play out in the household.

## **5.5. Intra-household cooperative conflict and how it impacts experiences of vulnerability and adaptive capacity**

This section addresses the third subsidiary question of gendered vulnerability: what do the gender-relational aspects of men's and women's livelihoods under stress imply for adaptive capacity; i.e. what shapes adaptive capacity?

In light of local gender norms, experiences of vulnerability and adaptive capacity have implications for gender relations in the household. It is difficult to generalize the patterns of cooperation and conflict in conjugal relations. With the variations between villages, households and individuals, a continuum of household cooperation and conflict emerges, ranging from harmonious household cooperation to conflict. I explore in this section whether livelihood pressures, including climate-related impacts, tend to aggravate these conflicts.

### **5.5.1. Intra-household decision-making as an aspect of gender relations**

For decision-making, I adopt the classification used by Nitya Rao (2014) to present variations in perceptions about the involvement of women of different castes, age and education in household decision-making in rural South India. She classifies the domains of decision-making as productive, reproductive and personal (Rao, 2014). The productive domain includes decisions about household provisioning (e.g. employment and mobility) and expenditure. The reproductive domain is captured by decisions regarding the healthcare, schooling and clothing of the children. The personal domain includes decisions about fertility (number of children) and marriage. To present a nuanced picture of household decision-making disaggregated by gender I also use Benjamin White's (1984) categorization of the relative involvement of spouses in the various domains of household decision-making according to the perceptions of husbands and wives in male headed households (19 in Maryut and 23 in Nubia as presented in Chapter 3).

The results do not reflect normative answers about who should make the decisions in the household. Rather they reflect the actual nuanced construction of the husbands and wives' relative spheres of influence. This perspective is obtained through the qualitative methods used to illicit the answers, which include direct observation and interviews with men and women with whom I had built a personal rapport, both separately and together on different occasions, using differently-worded questions about specific incidents. Thus although the data are represented quantitatively, the qualitative methods used to obtain the data and their analysis are in line with the constructionist nature of the research.

I represent these adapted categories in Figure 11, disaggregated by gender and locality. They show the scale of husband/wife dominance regarding a selection of decisions in the productive, reproductive and personal domains.

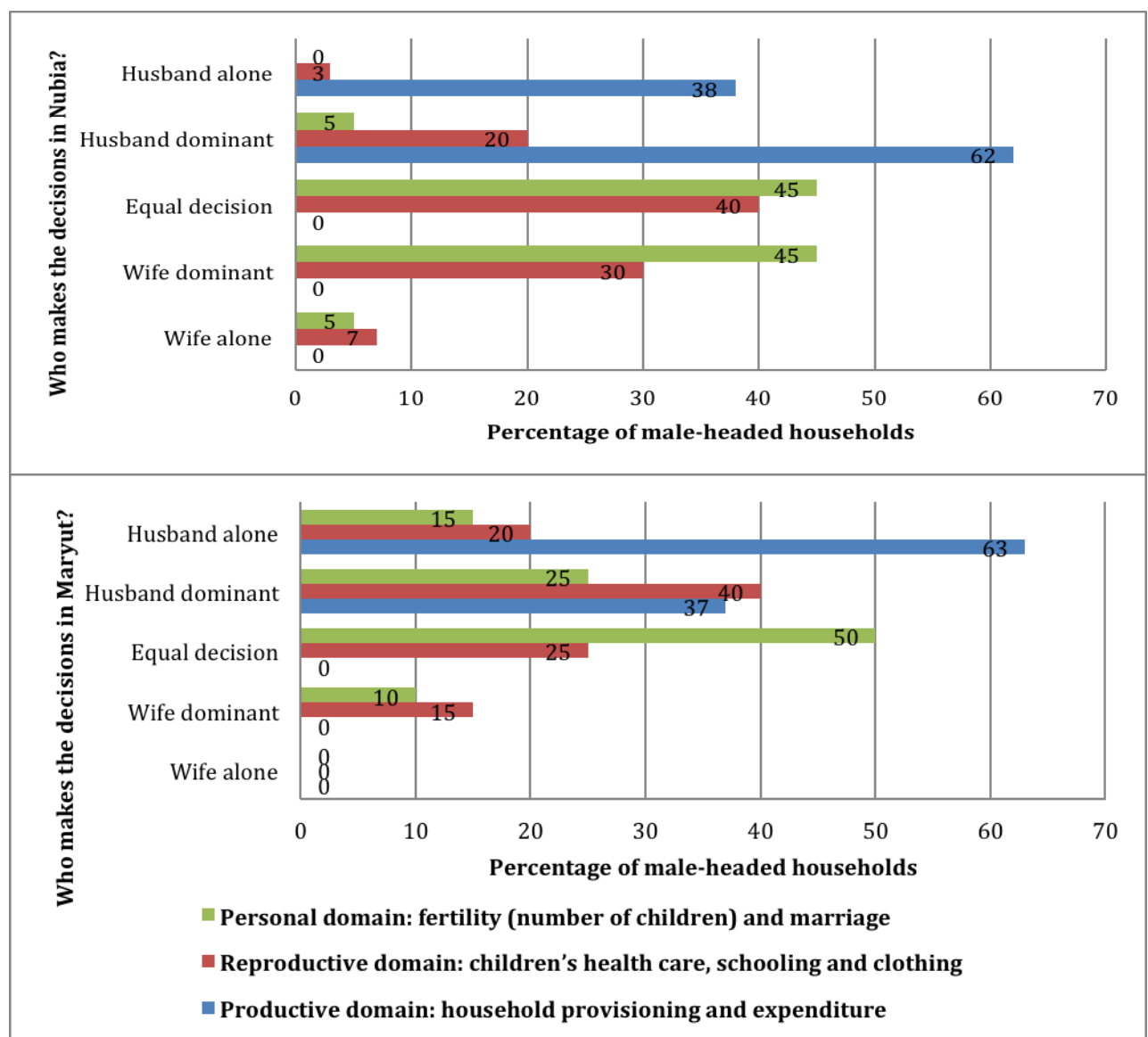


Figure 11: Household decision-making in male-headed households in the villages

The results on the scale of household decision-making suggest variations between different areas and domains of decision-making and between the villages. From these variations we can develop a typology or trends. The general trend shows that the Nubian women are more involved in making household decisions in the three domains than the Maryut women. However, the exception is that the husband is more dominant in the productive domain, particularly concerning household provisioning in Nubia. This is discussed in detail in the next chapter. The variation between and within the villages can be explained and mediated by factors discussed in the next section.

The results also reflect a gap between community ideology and actual practice relating to the husband solely making all the household decisions. Women are involved in household decisions to different degrees. Even though the general trend points to women being less involved in the productive domain than men, wives do not appear to be excluded from decisions about it, as assumed in conventional normative views. These cases indicate that normative ideologies do not rigidly determine household decision-making. Furthermore, in areas where the majority of cases follow the norm of men taking the lead in productive decisions, there are exceptions. This may point to diversity in the community or a possible change in patterns of decision-making as an aspect of changing gender relations in the villages.

In presenting these results I do not claim that they are completely without biases due to preconceptions on my part as a researcher or on the part of village respondents. Another point to highlight is that the household decision-making that I have explored here is one aspect of conjugal relations. I explore other aspects of decision-making in the following sections and chapters. These include the *who* and *how* of actual negotiated and renegotiated power to influence household decisions, especially in times of stress and conflict; the individual and household interests served by the consequences of these decisions; and the factors that mediate this decision-making power.

From these variations in household decision-making and bargaining, factors of gendered adaptive capacity (a component of vulnerability) based on existing gender norms can be drawn out in the villages. Overall, from my interviews, and even more from my observations in both villages, it seems that in Nubia household decisions and other decisions regarding the family are taken at home with full consultation between the spouses. In fact household decisions that more directly affect the wife and children mostly emanate from her. In Maryut the decision-making

process is more often characterised by the husbands taking all the decisions and informing their wives, or consulting them in some cases.<sup>33</sup>

Most accounts emphasise that livelihood stresses and the husband's migration to diversify the source of income (Chapter 6) magnifies conjugal conflict. As found by Whitehead (1981), the husband's failure to provide for the household and fulfil the responsibility of the conjugal contract figures as a major reason for conjugal conflict. This is reflected in the account of Karima, a wife in a polygamous marriage in Maryut:

You would think that with all the hardship in the village and with the land going bad, my husband would focus on his family. But no, it just creates more fights between us on how to manage our lives and the house. He travels to work in Saudi and this distance makes things worse, and he went for another woman.

Male migration as a response to livelihood stresses also plays a role in exacerbating conjugal conflict over household income in the villages. The husbands of housewives periodically send remittances home, allowing many wives access to their income, which continues even after their return. This is more common in Nubia, where women are not commonly engaged in productive employment. However, the husbands of working women are less likely to provide for their households with their remittances, and this pattern also continues after they return home. Their wives are obliged to provide for the household and lose access to their husband's income. This trend is more common in Maryut, where the women adopt several strategies to resist this reversal of the traditional gender roles including leaving their jobs or insisting on accompanying their husbands when they migrate.

In some households where women work and have their own income the husband does not contribute at all or only contributed irregularly. This pattern of the 'guest husband' was observed by Homa Hoodfar (1997) in Egyptian households where wives perceive their husbands as permanent guests who are fully accommodated by the women as the hosts and who occasionally bring gifts. This occurs in 40% of the sampled households in Maryut and not in any of the households I sampled in Nubia.

Umm Karkar, a 45-year-old woman in Maryut, is an example of that pattern. She expressed its hardship:

I get all the family needs. My husband only buys 'presents' such as this fan, which he

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<sup>33</sup> Decision-making process in female-maintained household in Maryut differs from one household to the other in terms of agency exercised in household and farming matters. It ranges from women taking the lead to others seeking permission from male members in the smallest details.

keeps mentioning whenever we fight. This is my fate. I cannot do anything about it. The shadow of a man is better than the shadow of a wall [a popular Egyptian proverb meaning that having a man is better than nothing]. I have the image of a husband and my children have a father.

Women trapped in this arrangement felt bitter about it, and about disclosing their income to their husbands. The majority of the women in this group wished they could give up their jobs and stay at home and take care of their children. As the household expenses are considered the husband's responsibility, this role reversal was resented by women and looked down upon by the community.

These trends present only one face of conjugal relations, that are characterized by conflict. There are also several variations in between cooperation and conflict, as explored in the previous analysis of decision-making in the productive, reproductive and personal domains of the household. On the other side of the coin, many spouses speak of consultation and cooperation<sup>34</sup> in household decisions and management. The discourse of cooperative spouses consulting each other has its own normative weight in the community, especially among women. This cooperative trend in the villages is reflected in accounts that relate how husbands try to provide for the household and wives assess their husbands' financial ability and try not to pressure them by directly or indirectly demanding things that it is beyond their means to provide. An example of this cooperative attitude is highlighted in the following account of Hagga Umm-Dorra, a middle-aged woman in Nubia:

Abu-Dorra kills himself working to fulfil our [family] needs. I know that our land is becoming barren, his money decreases every year, but I show him every chance I get, alone or in front of other people, that I'm perfectly satisfied. I can't even tell my sister that I need a new dress or a scarf. Even with financial problems, he gets to keep his male ego and feel proud of his long hours of work, even with less money.

'Good' husbands, as referred to by many village women, work hard to provide for the family and trust their wives with the household management and budgeting. Many of the men and women I interviewed in both villages affirmed this perception of how women are better household managers than their husbands and how they gain social status by being so. This perception is also reflected in Papanek and Schwede's (1988) study of Muslim communities in Indonesia.

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<sup>34</sup> Sometimes couples started their interview by describing conflicts to express their discontentment at that point in time (e.g. after an argument), and in following interviews revealed the cooperative side of their marital relations.



Wives' involvement in decisions about household management, farming and livestock also seems to be a significant factor in promoting a sense of conjugal cooperation. Therefore while the norm of the man as the head and provider of the household, with the right to control all of its resources, is powerful and predominant, in practice household decisions, control and management are exercised in varying ways, mostly while preserving the family picture framed by the prevalent gender ideology.

From this continuum of household cooperation and conflict, factors of vulnerability and adaptive capacity, which are based in gender norms can be drawn out comparatively in the two villages.

### **5.5.2. Gendered factors of adaptive capacity**

From structurally situated analysis in the prevalent gender norms and ideologies of the studied communities, several gendered factors that play a role in shaping vulnerability and ability to adapt to livelihood stresses, including climate-related stresses, emerge.

From my data, income-earning prospects is not a defining factor in household bargaining or adaptive capacity. In general, women in Maryut earn more money than women in Nubia, but their husbands generally control both their money and the income to be spent on the household. They participate actively in family income earning but not in budgeting or expenditure. My data on actual household expenditure reveal that even with the minimal number of income-earning women, household preferences in Nubia correlate more closely with the women's preferences. In Maryut, where 82% of the women in my sample worked – more than the national figure of 23.4% (CAPMAS, 2013) – household decisions in male-headed households reflected men's preferences. I found that women's visible work does not automatically translate into their empowerment. I argue that the relaxation of patriarchy, or, more simply put, the diminishing provision and protection roles of men due to economic hardship, necessitating women to take low-paying and time-consuming jobs outside the home, does not necessarily lead to the women's empowerment or improved capacity to adapt, which requires a change to societal gender norms. In critique of Sen's key concept on the perception of value and fallback position based on women's 'productive work', I argue that women's bargaining position and power seem to correlate with other factors such as their personality, family support, age, life course and personal characteristics and relationships with spouses, families and wider society, rather than to their access to income.

Cross-cultural studies indicate that household bargaining is affected by contextual cultural practices, the family life cycle and the nature of livelihood activities (Agarwal, 1997, Beneria and Roldan, 1987, Jackson, 2007, Pahl, 1989). However, each factor has a different weight depending on the specific norms of the community and even the household in question.

### **Family life cycle of the marriage**

The family life cycle or life course of the marriage is linked to the ages of the spouses and the number of years they have been married. In traditional communities women gain agency and voice with age, particularly after menopause, when they acquire more respect and freedom (Rao, 2014). From my fieldwork observations and ethnographic studies (Hoodfar, 2007, Jennings, 1995), this correlation is more prevalent in Nubian than in Delta communities, and plays a greater role in Nubia, where women in the later stages of the family cycle have more authority and power. This is related to the long history of Nubian warrior queens and female spiritual figures (see Chapter 4).

A family passes through several stages, from marriage to the birth of children, the children leaving home, and its dissolution or extension (within the extended family structure). The family cycle analysis considers the family as a process of gender relations over time rather than a static unit. It assumes that men and women live through different family lifecycle stages in their families and households which have different types of organization and structure (Hareven, 1974). This dynamic is captured in individual and life history interviews which provide a 'longitudinal tracing' (Hareven, 1974, p.326) rather than a cross-sectional snapshot.

The stage of the family life cycle tends to play a role in intra-household bargaining in the villages and in mitigating conjugal conflict about household income management. The majority of couples reported that after long years of marriage they had stopped arguing about the household income and concentrated on making ends meet with their earnings. Most spouses in longer marriages expressed the effect of the family life cycle in coping better with conflict using the term *ʒeshbra* (long companionship).

This is expressed by Hagga Mayar in Nubia, recounting her 40-year marriage journey with her deceased husband:

With marriage you are supposed to enter into a relationship based on *Mawadah wa Rabma* [Quranic terms meaning harmony and compassion]. However, hardship makes married life a big challenge. In time, my husband and I have learnt to face this by sharing responsibility and being open about how we each struggle in our own way.

For example, my husband consults me about selling our goats and about the spices we grow, because I take care of the goats and I process the spices. He even helps me sell the cheese I make from goat milk. I think this sharing comes with trust and *ʒeshbra*. It pushes the boat [of marriage] forward even amidst the floods [of hardship].

With *ʒeshbra*, you learn to deal with tough times together and enjoy the good times.

Cooperative gender relations and marital satisfaction can be assessed in four dimensions, as defined by Gayla Margolin (1981) in her study of happy and unhappy marriages using a life-cycle approach. These dimensions are communication, intimacy, companionship and instrumental events. The instrumental events encompass the social and economic aspects of a relationship that include household management, childrearing, income-earning activities and financial and other forms of decision-making.

The stage of the family life cycle affects the behaviour of the spouses toward each other and thus the degree of reciprocity and marital satisfaction. Sociological research reports a general curvilinear relationship between the family cycle and marital satisfaction which reaches its peak in young couples and declines steadily after the first child (Schram, 1979). Studies of post-parental stages are less conclusive, with some indicating increased satisfaction (e.g. Rollins and Cannon, 1974) while others report a continued decline (e.g. Luckey and Bain, 1970).

In this analysis I describe a number of significant stages in the family cycle which vary in the two villages. Stages of the family life cycle affect access to different forms of assets and capital that in turn affect the family's adaptive capacity. The income-earning activities that husbands and wives are engaged in differ throughout the different stages of the family cycle.<sup>35</sup> Their social networks, cultural and symbolic capital of social prestige and status in the community also differ from one stage of the cycle to another. Thus the adaptive capacity of the family, the household and its members also varies with the stages of the family cycle.

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<sup>35</sup> Ninety-eight per cent of male family heads aged under 60 in the villages can be classified as workers. Above the age of 60, only 70% of male heads of families in Maryut and 75% in Nubia consider themselves workers. These workers over 60 mostly work as farmers or fishermen. The number of working wives was very difficult to define and relate to the family cycle due to women's classification of themselves as housewives while they earn money from activities done in the home as food and spice processing and handicrafts, and because wives who consider themselves workers enter and leave the workforce at different stages of their family cycle. Those who work tend to do so when they get married and leave the workforce when they have children to look after them, especially in Maryut, where they have no relatives to help them with the childcare. Then they sometimes resume work when their children get older.

In my study relying on self-reporting by husbands and wives in the villages I focus more on the length of the marriage as a distinguishing feature of the family cycle (Margolin, 1981).<sup>36</sup> In the first year of a young couples' marriage many experience the least marital satisfaction, which then increases, steadily passing through phases of depression and resurgence. My analysis show that communication, intimacy, companionship and pleasing behaviour at instrumental events assumed great importance in the wives and husbands' accounts, especially in times of stress. They are likely to be reciprocated and are associated with marital satisfaction. Contrary to family cycle literature (Schram, 1979) that indicates the highest marital satisfaction in young couples without children, it seems that in the two villages marital satisfaction is greater between couples with length of marriage of 21-30 years of marriage followed by 11-20 years of marriage.

I categorize my data into four categories according to the length of the marriage: 1-10; 11-20; 21-30, and more than 30 years. From people's accounts of their perceived ability to cope and my observations of their actual ability to adapt, I arrived at the following results, which are largely similar in both villages, with some differences. Couples married for 21-30 years were more able to cope, followed by those with 11-20 years of marriage. At these stages of the family life cycle the marriage has passed through the first rocky years, children have been born and the family is established, and the couple has reached a stable phase in conjugal relations (e.g. bargaining to cope with stresses). At 21-30 years the marriage is more stable due to the added support of young adult children who can help their families in such activities as farming, house construction, household activities, etc. These first two categories are similar in both villages. The marriage of 1-10 years comes third in Nubia and fourth in Maryut, while the marriage of over 30 years comes third in Maryut and a close fourth in Nubia. This may be due to the fact that couples are supported in the early years of marriage by extended family, which is not generally the case for the nuclear families in Maryut. Beyond 30 years of marriage there is less adaptive capacity due to the age and decreased productive capacity of the married couple; another reason is that at this stage of the marriage, the children leave their natal households to establish their own homes with the economic support of their parents.

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<sup>36</sup> I conducted interviews and life histories about the marital communication, intimacy, companionship and instrumental events, particularly in times of climate-related incremental stresses and extreme events. I included a self-reporting five-point ranking of marital satisfaction (with 1 totally unsatisfying and 5 totally satisfying), focusing on times of stress.

**Marital and fertility status: *Umm el wad madasaha fou' el ras* (she who has sons is carried over heads)**

Marital and fertility status is not only a source of financial capital; it also brings social, symbolic and cultural capital to both men and women in the form of prestige and acceptability in the community. Single men and women beyond the age of 25 (as an average expressed by the residents in the two villages) are considered outcasts in the community and are thus more vulnerable than married women at their age. Having children, particularly sons, is also considered social and economic capital in both villages as it gives prestige in the community and improves the household income, as the children assist with the household expenses.<sup>37</sup> This is highlighted in the account of Umm-Sokar of Nubia:

I got married at the age of 26, and you have no idea how hellish it was the last years before I got married because I was advancing in age and had started to acquire the stigma of a spinster. Then I could not have children for over three years, and this brought such shame on me and my husband that we went as far as going to a doctor in Cairo. We finally made it and hit the jackpot, and I got twin boys. As they say: *Umm el wad madasaha fou' el ras* [she who has sons is carried over heads]. Imagine how blessed I am, not one but two boys at the same time, *hamdulab* [thank God]! Our patience paid off, and now no one can pity us, look down on us or push us to the side because we were barren. People can be cruel. And now we have boys to support us when we grow old.

This excerpt from Umm-Sokar's interview shows how strongly marital and fertility status affect men and women's social and cultural capital in the community, in turn impacting on their economic prospects and adaptive capacity. In *The Forms of Capital*, Pierre Bourdieu (1986) explains this link between cultural, social and economic capital, where cultural and social capital may be convertible into economic capital depending on societal conditions, and how people internalize the value of the different forms of asset. Marital status in the villages has a stronger influence on women's status but also affects men at a later age. Fertility and the preference for boys seem to affect both wives and husbands equally. Many women and men see their fertility as the ultimate way of dealing with economic insecurity, for example by having many sons, who are expected to support them.

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<sup>37</sup> The average number of children in Maryut is 4.5, half of that of Nubia, which averages 9 children per family, reflecting a cultural preference for larger families. It also reflects a more instrumental reason – according to people's accounts in Nubia – the ethnic minority wants to procreate to keep their heritage, culture and ethnicity.

The family lifecycle, marital and fertility status are gendered factors of the adaptive capacity that I observed in the villages. These factors affect the vulnerability of men and women and their families/households in the village communities. Next, I focus specifically on kinship, which is the main difference between the two villages with their different family structures: Maryut, which consists mostly of nuclear families and Nubia, which comprises large extended families of a single ethnicity who intermarry in a mostly matrilineal setting.

### **Family structure and kinship**

In this section I show how family structure and kinship, crosscut by the above factors of adaptive capacity, shape individual, household and community adaptive capacity. As the main difference between the villages, kinship is the most visible factor differentiating their adaptive capacity. In this section I relate the link between gender relations and adaptive capacity to underlying context-specific kinship and family structures that affect vulnerability and adaptive capacity (Cannon, 2002, Hemmati and Röhr, 2007).

The extended family structure seems to mitigate conjugal conflict in Nubia. Hagga Noha, from Nubia, spoke about her natal family's support:

‘Married life has its ups and downs. The downs are lower in times of hardship. In the first years I returned to my family's house a lot. They always mediated the fights. I always knew my family had my back through all the tough times. My husband is always careful in his dealings with me because of that, and that makes me feel secure.’

This account exemplifies the natal family's support of the wife that guarantees her rights in marriage. The support of a woman's kin appears to be one of the most important factors influencing men's attitudes to their wives' household responsibilities and shared decision-making. This is also observed by Hoodfar (1997) in a study of poor neighbourhoods in Cairo. Nubian women generally have control of the household financial budgeting and retain full control of their own income from income-earning activities in the household (e.g. from sales of handicrafts and processed spices). Some of the most content wives of my sample were from Nubia. Men in Maryut are generally (as reported by the women) less sensitive to the needs of their wives than those in Nubia.<sup>38</sup> This, as explained by the women in both villages, may be due to the extended family structure that supports and protects women's interests as the ‘queen of the house’.

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<sup>38</sup> It seems a popular perception among women in the Nubian and Maryut villages that men of Upper (South) Egypt are more sensitive to and fulfilling of their wives' needs than *Bahari* men (from the Delta region). This is corroborated by studies in Nubia (Jennings, 1995) and the Delta (Hoodfar, 1997).

This analysis leans towards the hypothesis that women (in Nubia) who are supported/protected by their natal extended family are less vulnerable than those (in Maryut) with a more nuclear family setting. This reflects their better relations with their husbands, who are accountable to their wife's family and kin and in turn, leads to better household adaptive capacity.

Household bargaining is situated within the context of the existing system of gendered forms of kinship and family structure that define the nature of the conjugal contract. The Nubian natal kin support system strengthens women's bargaining power and fallback position and endorses their agency within the dominant gender ideologies and orders. This in turn affects gender relations within and beyond the household, and the adaptive capacity of the household and its members.

Family structure also affects the adaptive capacity of individuals and the community in other ways, such as in pooling income. In general, higher family income was found among the extended families in Nubia due to the adult family members pooling their income. The extended family structure provides social and economic support to men and women and their households and community, enhancing their ability to adapt. This is why my findings suggest that Nubia, with its extended family structure, has greater capacity to adapt to livelihood stresses than Maryut, as corroborated by Whitehead and Kabeer's (2001) argument that the extended household communities that characterize West African societies provide protection against livelihood stresses.

There are more internal differences within the extended kinship/family structure in Nubia. In this village of a homogenous ethnicity and descent, the community consists of seven families which intermarry. Some families are more powerful in terms of natural (land), human, social and financial capital than others.<sup>39</sup> From my data, it is evident that endogamous marriages within the same family provide much stronger social and economic support for the newly-formed household than other marriages from outside the kin. This applies to the less powerful families as well as to the more powerful ones. The best marriages in Nubia are considered to be those between maternal cousins. This may be due to family coherence in which both the new husband and wife, from the same extended family, acquire the social and economic support of their natal 'big family'. As reflected in many interviews, the young couples also enjoy the privilege of having their aunts (usually referred to as 'second mothers') as mothers-in-law. The family name and lineage is maintained through the marriage and reproduction of men and women of the same

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<sup>39</sup> I searched for forms of conflict or rivalry between families but found that the more powerful families take on more responsibility for the financial and social protection of the village community. This sense of protection and collectivity is constantly endorsed by the connectedness of ethnicity, descent, lineage and affinity (marriage).

family. This seems to foster cooperative marital relations in the household and better ability to adapt.

The second best scenario seems to stem from the wife being from the more powerful family, for several reasons. In this matrilineal society where the newlyweds live in an extension of or near to the wife's extended household, the stronger the wife's family the greater the social and economic support for the new couple. In terms of conjugal relations, the husband, as expressed by many Nubian women, feels accountable to a powerful family, treats his wife better and has more harmonious and cooperative relations in the marriage. Better gender relations result in better adaptive capacity, mitigating vulnerability to livelihood stresses.

## **5.6. Conclusion**

Based on the empirical evidence that I have presented in this chapter, in response to my first research question I argue that the livelihoods of men and women are perceived by villagers as vulnerable to climate-related stresses, among other livelihood stresses, in my case-study villages. The villagers perceive rainstorms as one of the most damaging climate impacts on the villages. Given that land underpins the livelihoods and cultural life of rural villages, climate-related incremental stresses such as land salinization, decreased land fertility and increasing temperatures that affect crops and demand for water are also imminent threats that affect individual and household livelihoods. These climate shocks and stresses exacerbate existing political and socio-economic stresses and underlying problems such as land fragmentation and scarcity, political instability, lack of government support, the rising price of fertilizers and the phasing out of subsidies for basic necessities. If projections about these climate stresses (EEAA, 2010) are correct, the expected impacts are likely to intensify experiences of vulnerability and poverty in the people's daily life in both villages.

Climate-related stresses and shocks interact with the sociocultural norms and values that shape household gender relations and result in culturally-constructed gender-specific vulnerability. Marriage remains the main arena within which social relations in general and gender relations in particular manifest. The institution of marriage and gender ideology provide a framework for household decision-making and bargaining that affects perceptions and experiences of individual and household vulnerability. By exploring and observing actual decisions made in the household in the productive, reproductive and personal domains, I sought to explore actual decision-making practice in the household, nuancing some of the norms and assumptions that characterize the community and literary discourse about gender relations and household decision-making (e.g. Tadros, 2010). The findings raise questions about the validity and function



of local gender norms and ideology and how they are maintained.

Asymmetric gender relations and gender ideology are maintained or reproduced in the process of household bargaining. Gender norms that shape gender roles and relations, household decision-making, mobility, access to and the control of different types of assets/capital make vulnerability a gendered experience at the individual, household and community levels. These factors mostly increase the vulnerability of women in the villages by socially constraining their engagement in income-earning activities and weakening their fallback position and bargaining in marriages. On the other hand, the gender mores of 'man as the provider' who supports the family put pressures on men that increase their vulnerability.

Both men and women make a conscious effort to maintain the image laid down by the accepted gender ideology. In practice, the reality is much more complex and dynamically-changing in response to the stresses of life including climate-related stresses. One example is women's employment, particularly in Maryut, where women increasingly work outside the village, sometimes even coerced by their husbands. However, women's access to income-earning activities does not automatically translate into their increased decision-making in the household. In Nubia most women do not work outside the village and in response to livelihood stresses they gain access to more income from engaging in income-earning activities inside the house while their husbands lose more income from their resource dependent livelihoods of agriculture. Thus the women actually gain increased access to income and decision-making about managing their household. In Maryut, working women lose control of their husbands' wages as the men adopt strategies for limiting their financial responsibilities. Couples in which the wife earned more than the husband that I interviewed in Maryut were suffering from marital problems and the women complained that their husbands mistreated them because they felt inferior and unable to fulfil their role of household provider. This reversal of the customary gender roles is widely perceived by the villagers to be the primary cause of conjugal conflict.

I argue that in light of the persisting gender norms in Egypt, increasing vulnerability can negatively affect gender relations in the household in several ways. It leads to a decline in married women's bargaining power and fallback position. This is a trend observed in rural Africa (e.g. Bryceson, 2002, Terry, 2011). It also increases the pressure on men who cannot fulfil their main gender role of provider for their household. Such pressures on masculinity and femininity skew gender relations and in turn increase vulnerability. This vicious cycle constitutes a serious livelihood issue because of the negative socio-economic and relational impact on men's and women's livelihoods and ability to adapt.

There are many factors other than gender that affect adaptive capacity (Carr and Thompson, 2014). However, these factors are shaped and reshaped by gender norms and relations. The study of gender relations focuses not only on men and women in their separate worlds but also on the family, the basic unit that frames and affects men and women livelihoods, and its structure and cycle. Gender analysis in this context encompasses other factors of adaptive capacity that influence and are influenced by household bargaining, such as the family life cycle, marital and fertility status, and forms of kinship and family structure. These factors are related to gender as well as other social categories such as age and ethnicity that affect family life cycle and family structure. These contextual factors of adaptive capacity affect access to livelihood adaptation strategies, as discussed in the next chapter.

## Chapter 6: Livelihood diversification as gendered adaptation

When life gets hard on us and our people, our lands and our houses, we have no choice but to find other *nizke* options, mostly away from our land and houses but keeping close to our people. We can only survive by striving to work hard and to keeping our connections with our people, who are our true value. (Excerpt from an interview with Hagg Mortada, a 79-year-old farmer in Maryut)

### 6.1. Introduction

In this chapter I address my second research question: how do gender relations affect individuals, households and communities' adaptation to climate and livelihood stresses? I examine this gendered effect in the context of village men and women's livelihood diversification strategies for coping with climate and livelihood stresses.

Frank Ellis (2000) defines coping as the responsive methods used by households to survive when confronted with unanticipated stresses on their main sources of livelihood. To recap on the livelihood stresses discussed in Chapters 4 and 5, the villages are subject to incremental climatic stress affecting land salinity and fertility, as well as extreme rainfall, dense settlement and fragmented agriculture land. Salinized soils means an increased need for fertilizer, and all the farmers complained about the increase in fertilizer prices or their unavailability at the subsidized price. They are also affected by national trends of inflation, economic liberalization, diminishing social benefits and market changes for labour and products.

Natural resource-dependent rural households experiencing increasing climate/environmental and economic stresses seek to increase their income by diversifying their income-earning activities and creating social safety nets. Environmental and socio-economic conditions provide the context within which men and women assess viable diversification options in relation to their position, responsibilities, relations and networks. To survive and adapt, they weigh the costs and possible benefits of alternative income-earning activities and networks in the public and private spheres. Within the sustainable livelihoods approach (SLA), I draw on livelihood diversification research to discuss the importance of diversification as a gendered livelihood adaptation strategy.

Frank Ellis's (2000) conceptualization of livelihood diversification makes the distinction between diversification by necessity and diversification by choice. In my research

context, the observed diversification is mostly driven by necessity as a coping strategy in response to increasing soil salinity and declining soil fertility. Within that livelihood framing I define diversification as the continuous adaptation of a diverse portfolio of productive and reproductive activities in order to secure a livelihood. This is a trend observed in rural families in developing countries, particularly in Africa, where studies show that 30–50% of household income in rural Africa is derived from diverse off-farm sources (Reardon, 1997).

I organize my discussion within the three main clusters of rural livelihood options identified by Scoones (1998): agricultural on-farm diversification; off-farm diversification of income sources; and migration, which can be national or international. As conceptualized by Frank Ellis (2000b), ‘livelihood’ conveys the economic and noneconomic attributes of survival. Therefore it includes the social relations and institutions that mediate men and women’s access to different types of tangible and intangible assets in the household and community. Through this gender-relational lens I address social relations and processes in people’s livelihoods, an element that is lacking in the sustainable livelihoods approach (Whitehead, 2002).

In this chapter I argue that livelihood diversification is a significant adaptation strategy that influences and is highly influenced by gender norms, roles and relations in the villages. I present gendered data on livelihoods from the villages and focus on the portfolio of activities of three households in each. I link this livelihood analysis of the case-study households at the micro level to the macro national level to explore the wider institutional context that mediates access to different types of resources (Scoones, 1998) and draw out the factors that influence the livelihood diversification choices of men and women in the village households.

## **6.2. Positioning local livelihood diversification in national trends**

To position the local trends of livelihood diversification in the villages in the national context, I examine national employment trends in Egypt. These micro-macro linkages allow a deeper understanding of the livelihood diversification activities of selected households in the villages in the following sections. They also allow a more comprehensive analysis of the drivers and determinants of livelihood diversification choices of men and women as individuals and households in the villages.

At the national level the profits and wages of Egyptian farmers are dropping, with the

majority of rural workers living below the poverty line and seeking off-farm employment (Radwan, 2009). High and increasing unemployment rates in the formal sector in Egypt are coinciding with the decline in agricultural employment. This is a trend that has been increasing steadily over the last four decades (Kabeer et al., 2013). However, the public sector remains the major formal sector employer. Many of the older men in the case-study villages were among these public sector workers. However, with increasing economic and political liberalization since the 1970s structural changes, the rate of privatization and private sector employment is constantly expanding in comparison to public sector employment (Handoussa, 2010). A dynamic and growing informal sector accompanied by growing rates of urbanization and migration are increasingly accounting for a large percentage of informal employment among the poorest, least-educated unskilled and semiskilled rural groups (ibid). From the early 1970s to 2010 public sector employment dropped by 33% while the private sector employment grew by 54% (CAPMAS, 2012). The remaining informal employment is underrepresented in national records due to its unrecorded nature (Radwan, 2009).

The informal economy encompasses a variety of occupations that people undertake in return for goods or cash and is not reported in the official figures (Lobban, 1996, Moser and Young, 1981). National data are particularly scarce for the lower end of the scale, which includes the petty traders and vendors, a category that covers the majority of men and women in my sample. The informal economy is a major source of employment and cash-generating activity in rural villages in Egypt (Abdel-Fadil, 1975, 1983). Since the end of the 1970s, structural adjustment policies, labour migration to the Gulf and an increase in national and foreign investment have revitalized the informal sector in terms of increased wages and job creation in Egypt (ibid). The wages of skilled and semiskilled workers have risen substantially since the 1980s and can even surpass the salaries of university graduates employed in the government sector (Amin, 1995, Handoussa, 2010). However, the government sector remains the most hospitable to women and employs more of them than the private sector (Kabeer et al., 2013). To discuss this, I explore the national context of women's employment in Egypt.

### **Women and employment in Egypt: A historical and legal view**

Judith Tucker (1976, 1985, 1993) traces rural women's employment activities in Egypt, documenting their family businesses and independent trading and processing businesses in the Egyptian market. Records from the nineteenth century list many rural women as

greengrocers, midwives, servants, bakers and cotton workers (Ibrahim, 1981, Tucker, 1985). Egyptian rural women remained integrated in the economy and participated in petty production as part of rural households' enterprises or independently (ibid). By the 1950s, an increasing trend of women withdrawing from wage work had emerged. As specified by Tucker (1985), this may be due to the availability of wage work far from rural areas which distanced rural women from opportunities in commercial agriculture and wage work due to their restricted mobility. With the emergence of large-scale industries in city centres, rural women's participation in national production decreased sharply due to the separation of domestic and production units (Badran, 1995, Hoodfar, 1989). This trend affected women in the Delta and Upper Egypt. With the change in the form of employment from rural household subsistence activities to wage work, women faced mobility restrictions and the gendered division of labour became more rigid (Hoodfar, 1990). Men took on the role of household provisioning in the formal labour market while women remained in the domestic realm and informal market to be able to attend to their domestic responsibilities.

However, the government sector remained acceptable and hospitable for women's employment. As presented in Chapter 4, after the socialist revolution of 1952 women's participation in the labour market was encouraged by the state and followed a political legal path of socialist laws and rights to ensure equal payment and opportunities (Abdel-Kader, 1988, Sullivan, 1981). However, these laws and the state ideology in Egypt have never challenged the gendered assignment of domestic work only to women.<sup>40</sup> They simply promote extending a woman's duties to the labour market without any change in gender roles in the household, burdening women further (Hoodfar, 1996b). Neither the education and employment laws nor their implementation are designed to influence or incorporate prevailing gender roles. There is also no change in the shape of the labour market to accommodate the socially-engrained gender roles, except in the public sector which currently pays minimal wages. These national trends are a major influence on the gendered patterns of livelihood diversification in the village households, as explored in the next section.

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<sup>40</sup> Chapter 2 of Law 44 (1979) also gave married women the right to be employed outside the home if the family's economic circumstances made it necessary. However, this is a conditional right that undermines women's absolute employment right. This conditionality also figures in the wording of section 2, article 11 of the 1971 constitution (maintained in the constitution of 2012 and 2013), which declares: 'The state shall be responsible for making a balance between women's duties toward her family and her activity in society, as well as maintaining her equality with men in the fields of political, social, economic and cultural life without detriment to *Shari'a* laws'.

### **6.3. Livelihood diversification in the villages**

As discussed in the previous chapter, the main stresses identified by the village men and women to which their livelihoods are vulnerable are climatic/environmental and economic. The former are the incremental stresses of increased land salinity, increasing temperatures and the shocks of extreme rainfall and heatwaves. The economic stresses mainly encompass the shrinking national social welfare services due to structural adjustment and increasing unemployment in Egypt and Gulf countries due to the turbulent political situation. These stresses are interlinked, as environmental and climate-related stresses affect land productivity and fish yields, exacerbating economic stress. The men and women in the villages cope with these stresses by diversifying their livelihoods through on- and/or off-farm work and migration.

#### **6.3.1. On-farm livelihood diversification as adaptation**

Prominent on-farm diversification in Egyptian villages includes changing sowing/cropping times to suit the changing seasonal, rainfall and temperature patterns. In the study villages there are commonly four cropping cycles corresponding to the four seasons of the year.<sup>41</sup> In the villages people reported that they had shifted to earlier and longer summer sowing and later and shorter winter sowing in expectation of rainstorms, adjusting the spring and autumn seasons between these.

On-farm diversification strategies also include switching to varieties of crops that are more tolerant to heat and declining soil fertility and moisture (Fahim et al., 2013). Many men in the two villages expressed that they want and seek improved varieties of existing or new crops as adaptive measures. In Maryut, many farmers were switching from tomatoes and fruit, as water-demanding food crops, to maize as a less water-demanding and more heat-tolerant cash crop. In Nubia, farmers have switched from planting cotton to mainly sugarcane, hibiscus, spices and dates. The villagers face difficulties in accessing the needed seeds.

Gender is an important influence in adaptive livelihood choices in rural farming livelihoods due to the cultural gender roles. Women in the study villages are not much involved in cultivation. However, they are involved in raising livestock and poultry and in

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<sup>41</sup> There are exceptions such as sugarcane, that used to be planted in Nubia in two seasons: April to September and October to March. The change in cropping times has shifted the sugarcane seasons to March to October and November to February due to the prolongation of the summer season and the shortening of the winter season with the environmental/climatic changes.

processing and selling crops.<sup>42</sup> They influence their husbands and male relatives with regard to the choice of crops that they feed to farm animals or birds and the crops that they will process and/or sell.

Umm Shaker, who works selling her husband's farming produce in Maryut, expressed her influence in her husband's choice of crops:

With our land going from bad to worse the quality of our crops gets worse: smaller and with less taste. I'm the one who sells the vegetables in the Alexandria market, and bad crops do not sell well. I tell Abu Shaker, and advise him on the best crops sold on the market. He usually takes my word for it because I know the market better than he does.

Women in Maryut prefer (and hence influence their husbands and families' decisions towards) growing vegetables that are easier for them to market and sell. In Nubia, women favour '*etarab*' (spices) that they process. Their husbands eventually sell the processed spices, but the women's contribution to this cash-earning activity is well recognized and appreciated by the village community. From the women's accounts in both villages it is clear that they value the cultivation of these crops and their accompanying businesses highly.

However, due to the lack of access to farming inputs and the diminishing landholdings in both villages men and women are limited in their ability to diversify their agricultural activities. They receive minimal or no support from the government or any other institution for agricultural diversification. This drives many villagers to join the urban proletariat by seeking off-farm livelihood diversification, discussed in the next section.

### **6.3.2. Gendered off-farm diversification of income sources**

Climate-related stresses on farmland exacerbate other stresses, such as land fragmentation and lack of access to farming inputs, making it inevitable for people in the villages to seek other forms of employment that are not related to their land. Men and women in the villages are aware of the uncertain future of farmers who do not secure other means of earning a living and therefore many seek employment opportunities in

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<sup>42</sup> Although most women raise a few cattle or chickens on their land for subsistence, only those with larger plots can raise more to trade. However while they have customarily controlled the production and sales of poultry they lost this role with the commercialization and industrialization of the poultry industry. Large-scale factory production and cheap imported frozen chicken makes selling poultry from a small home enterprise unprofitable (Hoodfar, 1997).



the formal sector<sup>43</sup>, whether in the government (technical, clerical, administrative or unskilled jobs) or the private sector. They mostly find work in the informal sector (employment not included in national accounting) ranging from retail activities such as selling vegetables or spices to skilled labour such as that of carpenters and plumbers. This off-farm livelihood diversification is highly influenced by gender roles and relations that affect employment prospects, opportunities, mobility and preferences.

### **Men and livelihood diversification in the villages**

Livelihood diversification is the men's main adaptive method. As presented in Chapter 5, as household providers, men experience great financial and social pressure to take on many jobs. Most men (95% in Nubia and 97% in Maryut) in my sample of 76 men in each village<sup>44</sup> seek diverse sources of employment other than agriculture in or outside the villages and in the formal and the informal sectors in order to secure and diversify their livelihoods. Ten per cent of the interviewed men in Nubia and five per cent in Maryut are working in the government sector. However, wages for government employment are among the lowest in the Egyptian labour market and hardly meet the basic needs of a small household (Kabeer et al., 2013). Therefore all government employees in my sample of men in the villages have a second job or take leave without pay to migrate in search of better-paying work.

In their quest to diversify their livelihoods men hold a wide range of jobs. Male workers reported that they earned more from their second, informal jobs than from their primary occupations as farmers, fishermen or government employees. Some had formal jobs in the private sector (2% of my sample in the two villages) demanding high levels of education, skills and time including working in private factories, hotels and hospitals in the big centres close to the villages. The village men have a wide range of informal employment including self-employment in sales from kiosks in or near the villages, petty trading, skilled labour as electricians, mechanics and carpenters and seeking a religious position as the village imam (Islamic preacher). It is impossible to present accurate figures for these categories as the men hold several jobs simultaneously and change jobs according to livelihood stresses and market conditions. Some even engage in four or five different kinds of job over short periods. Therefore, I focus in Section 6.4 on a much

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<sup>43</sup> I define formal employment as the employment that is included in national accounting whereas informal employment is not included in national accounts of reporting or taxation.

<sup>44</sup> As detailed in the methodology chapter (Chapter 2), I conducted individual interviews with 36 men and 36 women in each village, and group interviews with 40 men and 40 women in each village.

smaller sample of households to present a more comprehensive household profiling of economic activities in the villages.

In general, skilled workers such as mechanics and electricians earn higher wages. However, few of the residents in the villages (10% in Maryut and 20% in Nubia) have such skills. Skilled workers in my sample earned between 50 and 150 EGP daily, depending on the level of skill and the workplace. These wages are considered relatively good and cover the daily needs. However, they do not secure income for their old age. In older age many men leave their skilled activities and invest their savings in petty trading or a local shop or kiosk, often with the help of their wife and children.

### Women and livelihood diversification in the villages

Many women in the villages engage in paid employment in or outside the home or village to diversify their household livelihoods. The range of their activities is varied (Figure 12).

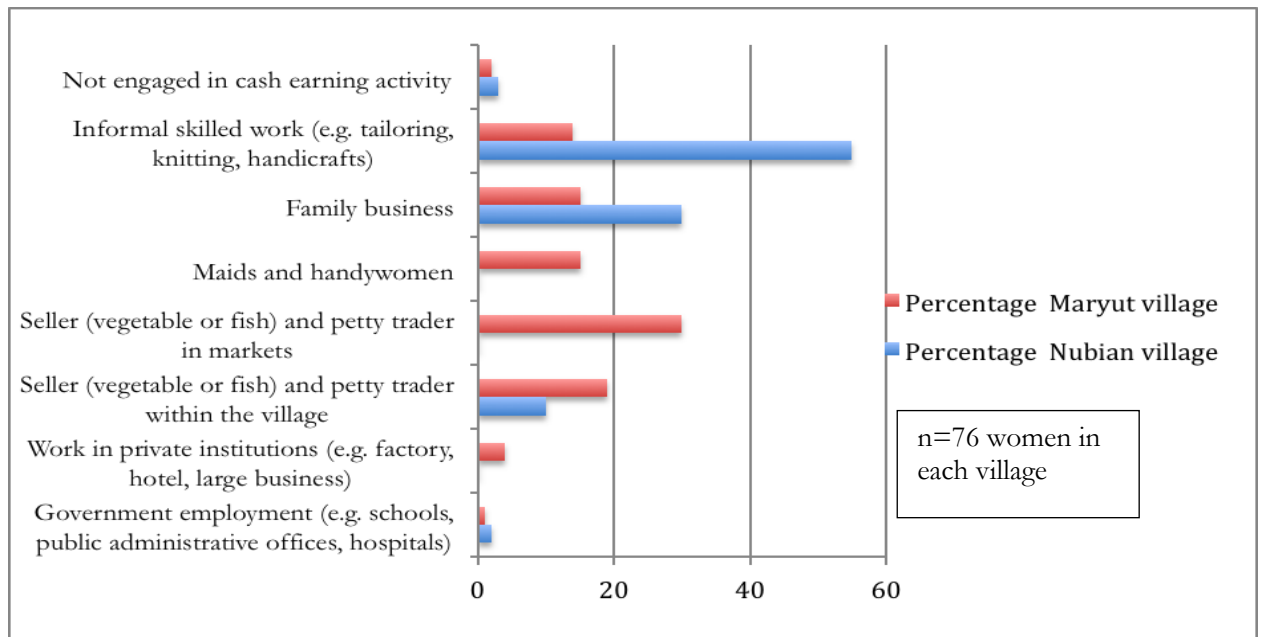


Figure 12: Types of primary employment of the women in my sample

The few women with better education and social networks tend to work or search for formal employment, mainly in the government sector as clerical and service staff. Many women in the villages, faced with increasing environmental stresses on their resource-dependent livelihoods and with little disposable income provided by their husbands working in farming or fishing, are forced to work in informal activities or market their skills such as tailoring or handicrafts.

Informal employment is the most viable option for most rural women.<sup>45</sup> Petty trading outside the village is only common in Maryut. Women generally trade from home or at nearby markets in vegetables, fish and foodstuffs or more durable goods such as clothing or plastic utensils. In Maryut vegetable and fish sales are the most common. Trading in more durable goods is not very common because, according to the women interviewed, such trade requires capital, knowledge and social networks. Selling vegetables requires little capital. They sell vegetables grown on family land, if they have any, or in the village, or buy vegetables from nearby villages to sell at market. Their income varies from 15 to 20 EGP daily, depending on the types of vegetable they sell. More expensive vegetables not grown in the village, such as green beans and okra, make a higher profit but require more capital. They also sell fish that their husbands or other men in the village have caught. The range of income for fish sale is very wide, from 5 to 100 EGP daily, depending on the yield, the type of fish and prices in the market.

The number of hours the women work varies with family responsibility, the source of their produce, the season and the location of the market. However, I noticed that most women's activities outside the house are limited to the daylight hours from sunrise to sunset. The exception is women who sell vegetables not grown in the villages. A few times a week they leave home at dawn prayers to purchase produce. Women said that they could save a lot of working hours if they had more capital to invest in a small shop or kiosk and buy produce from nearer but more expensive producers. However, with the decline in the productivity of their land and inflation, they find it difficult to financially maintain their kiosks or sell vegetables.

Fifteen per cent of the women in Maryut work as domestic servants in Alexandria city centre. Many women (55% in Nubia and 14% in Maryut) work in handicrafts, hairdressing and tailoring catering for other women in the villages. Tailoring and hairdressing are considered occupations suitable for women on a small private scale and serving other women. Commercial hairdressers and tailors in the villages and nearby are run and managed by men. Most of the female tailors and hairdressers work in the vicinity of their homes to be able to attend to their domestic responsibilities while they work. Many made it clear that they would prefer to forgo more profit to work close to home and avoid conflict with their husbands.

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<sup>45</sup>There are no reliable statistics on the number of self-employed women (including petty traders). However, local markets (*sugs*), especially of vegetables and fish sales, are dominated by women.

In Nubia the women mostly trade from home in processed spices from their farm, handicrafts and clothing. Their customers are neighbours, friends and tourists. They also work collecting and processing agricultural produce and are involved in small family businesses, shops and kiosks that sell handicrafts, processed crops and spices. Most men and women aspire to set up small businesses but the initial cost is often prohibitive. This is why many men in the villages migrate to the oil-rich Gulf countries to save enough money to establish such a business. This highlights migration as an important livelihood diversification activity in the villages.

### **6.3.3. Migration as gendered livelihood diversification**

Migration is a main source of livelihood diversification for the village residents. Migration can be national, regional or international. Here I mainly focus on the regional migration to the Gulf countries (Bahrain, Kuwait, Saudi Arabia and United Arab Emirates) that is most common in the village<sup>46</sup> (40% of men in my sample in Nubia and 25% of men in my sample in Maryut). Eighty per cent of the men in my sample viewed migration as the best income-earning and coping strategy. They migrate driven by financial necessity (Ellis, 2000b) to cope with the climate effects on their land and its failing productivity.

In the villages migration to the Gulf is generally viewed as a short-term income-earning coping strategy. However, the length of migration depends on market and political conditions, personal circumstances (e.g. family left behind) and emotional considerations related to attachment to the villages or homesickness for Egypt. Some men returned from the Gulf to settle back in Egypt but did not find employment, so they migrated again.

This pattern is illustrated in the account of Abu Mohsen, a 35-year-old father of three from Maryut. He related the history of his migration-seeking employment:

My second cousin got me a job in Kuwait in 1995. It was a very tough decision for me to leave my family and go and work in the Gulf, but I had to. The productivity of my land is getting worse and the crops don't sell for much, so I went for just three years. After all, jobs in the Gulf provide the best pay. I made some good money and rebuilt our house here from good

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<sup>46</sup> In the villages, working in nearby city centres in Egypt, mostly Alexandria and Aswan is more of a medium or long-term employment without actually moving to another city. International migration is very rare in the villages. I only encountered one family in Nubia seeking migration to Canada but I have not come across any cases of actual international migration beyond the Gulf region.

materials to withstand the heat and heavy rains. Then the money got short again. I was about to go again in 2011, but the political situation stopped it. Now that our relations with the Gulf are good again I'm looking for a job there again.

Like Abu Mohsen, the people in the two villages recognize the importance of migration as an income-earning and livelihood diversification strategy and resource. With land salinity affecting the productivity of their farms, men like Abu Mohsen seek employment in the Gulf countries. This enables them to earn and save money to go back to their villages able to afford inputs to work on their land such as fertilizers or more advanced farming equipment. They can also afford to rebuild their houses after heavy rainfall events, as Abu Mohsen did. With longer years of migration, they can even save enough money to invest in a small business such as a kiosk in the village. Like Abu Mohsen, many men who migrate or aspire to migrate complained about the reduction in migration opportunities since the uprising of January 2011, due to the worsening of regional political relations with the Gulf countries. However, they were optimistic that with reconciliation with the Gulf countries in 2013 more opportunities will be available for Egyptians to migrate.

#### **6.4. Household livelihood diversification**

Here I focus on a small sample of three households in each village to investigate the livelihood diversification activities of male and female adult household members in detail. I use household profiling through case studies as adopted by Ann Whitehead (2002) in her paper tracking the livelihood strategies of farm families in Ghana. Through the lens of gender analysis, I analyze the interlocking individual and collective economic activities within households. The selected households show gradations of household income, typology (male and female-headed), vulnerability and livelihood diversification activities. The case studies highlight many factors that affect men and women's choices of livelihood diversification.

##### **Three households in Maryut**

###### **Maryut household 1: Halim and Sawsan's family**

Halim, the head of the household, is 42 years old and Sawsan, his wife, is 36. They have been married for 19 years and have two daughters and a son. They own a small plot that is becoming highly salinized. For on-farm diversification, in 2009 Halim changed from

growing tomatoes to growing maize, which is more salinity- and heat-resistant and requires less water. He uses more fertilizers but suffers from their lack of availability at the subsidized price.

Before 2009 when Halim was growing tomatoes, he rented trucks to transport his produce, but with the decreasing productivity of the land and the change to maize, which is much less lucrative than tomatoes, he is now working as a truck driver carrying vegetables for small informal businesses trading with larger cultivators in Alexandria. He is an experienced truck mechanic so is also employed as a car mechanic near the village. This is a job that he got through a connection built with the owner of the shop when they met at a teahouse close to Maryut.

Sawsan was originally a housewife, taking care of all the reproductive work in the house from cooking to childrearing. With the loss of the land's fertility and Halim starting to work as a truck driver and mechanic she had to sell their maize, which her husband earlier used to transport to markets in Alexandria, at a small market close to Maryut. She also started selling eggs from the chickens that she raised. However, with the avian flu epidemic spreading in Egypt in 2009-2010 she stopped raising chickens. With the maize production declining by more than 45% due to increasing temperature and land salinity she began working as a domestic servant in Alexandria at the house of one of the families that her husband transported vegetables for.

Their oldest daughter of 17 only went to primary school so that she could help with household work, since her mother was engaged fully in income earning work. The youngest daughter of 13 is still at middle school and intends to finish secondary school, but her parents are not sure if they can afford to send her to university. The youngest son of 10 is at primary school and his parents are determined to send him to university so he will have a better future and help the whole family in their old age.

At first when the salinized land could not produce good tomatoes Sawsan sought financial help from her family in Tanta, but her husband refused such help because 'it was too humiliating for him' as she said. She belongs to savings associations with other women in the village to raise money, particularly at the beginning of the school year, so that she can afford the fees, books and clothing for her children at school.

Sawsan expressed that her relationship with her husband had kept on getting worse ever since their land had started to become barren and Halim could not fulfil his role as family

provider. It was really bad when she took the domestic job because it was ‘a humiliation to the family’, but she had to do it. Sawsan described her struggle to maintain her job:

Since my daughters could stand on their own I’ve been working as a maid, for five years now. I work for at least nine hours a day and start very early in the morning. My husband is not very happy about it, but we need the money because even our maize crop is losing quality and does not sell for much. Both of us understand that I need to keep my job, but we still have many fights about it. When I stay late there, we fight. When I’m too tired to cook, we fight. If it were up to me I would quit and be the queen of the house. But need dictates hardship. I do not spell this out to my husband, because it would hurt him that he cannot satisfy the needs of the house. He knows it, but he still fights with me about it. It’s not easy.

This account shows the struggle between necessity and gender norms. It also highlights the significance of the family life cycle with Sawsan being able to get a job after her eldest daughters got older and could ‘stand on their own’. Furthermore, it emphasizes the importance of respectability and status of the type of employment as an influencing factor for women’s choice of livelihood diversification activities.

### **Maryut household 2: Abu and Umm Jobran’s family**

Abu Jobran, the head of the household, is 64 years old and his wife, Umm Jobran, is 47. They have been married for 30 years and have two sons and two daughters. They were one of the first settlers in the village, and have one of the biggest plots. The husband and wife have government jobs. Besides cultivating his land, Abu Jobran worked on a production line in a government factory in Alexandria and got his wife a job as a receptionist in the same factory.

They sold different kinds of vegetables that they grew, including okra, and ‘had a good life’. They owned a small place with two tables and eight chairs where Umm Jobran sold the vegetables cooked with rice after her morning shift at the factory, with the help of her daughters. With the increased land salinity and heat, in 2007 Abu Jobran changed his crops to beans that could withstand these conditions.

Furthermore, with the diminishing pay from their government jobs, which did not keep up with inflation, they sold their small restaurant. Abu Jobran got a job in an electronics factory in Bahrain through a friend at his factory job. He took leave with no pay from his

government job. Umm Jobran had to complement her government job by selling ‘things made in China’ from a kiosk in the village that belonged to a neighbouring family. Being well established in the village, she maintains good networks and got women in the village to help with her sales while she was working at the factory.

In 2012 Abu Jobran left Bahrain due to deteriorating relations with the Gulf countries from 2012 to 2013. He is now on a pension and suffers from back problems. The sons persuaded their father to sell half of the land, and with the money from that and some he had saved from his work in Bahrain they opened a small *fool* (beans) and falafel shop in Alexandria. They hire labour to help their father with cultivating the land. Abu Jobran fishes and sells his catch at the roadside close to the village.

Only the youngest daughter continued her education to high school, because her parents wanted to secure her a good marriage and job. She worked as a teacher in a private kindergarten and then married and moved to Cairo. She wanted to work in a public school to secure the benefits but could not find such a job.

The effect of livelihood diversification as adaptation on conjugal relations is much smaller in this case than in household 1, because Sawsan always had a government job, which is socially respectable, the kiosk that she worked in is in the village, and their sons helped to maintain their aging parents throughout the hard time of the loss of their land and its declining productivity.

### **Maryut household 3: Fatima’s female-headed family**

Women farmers in female-headed or maintained households in Maryut seem to be more vulnerable and restricted in their ability to diversify their on-farm activities than male-headed households. These women usually lease their land to male farmers and take a share of the profits, let male relatives farm the land, or, in one rare case, take on a farming role culturally designated to men. This is the exceptional case of Fatima, a 45-year-old widow whose husband, a farmer, died in 1995 after seven years of marriage. She inherited part of his land and is managing the part that her two daughters inherited. Fatima is originally from a village in the South of Egypt. Her natal family deserted her after she refused to marry her second cousin and chose to marry a man from Alexandria and move with him to Maryut. She is farming the land herself with hired help from the village. She explained her grievances and access difficulties in this role:

Farming my family’s land has become my destiny. I did not choose such a tough task, but I do it for my family. With the land becoming salty, this



difficulty is multiplied a hundredfold. It's hard to communicate with the men from the agricultural cooperative because they don't even believe that a woman can be a farmer. It's difficult to get improved seeds and irrigation machinery because of this, and because of the lack of money. I had to hire men to help me with these things and to talk to the cooperative people.

Fatima also works three days a week as a domestic servant in Alexandria and babysits her grandchildren while her daughters, who are married and still live in the village, sell the produce near the village. Fatima explained:

In the past in Egypt's rural villages mothers and relatives helped with the childcare, which allowed women to work. With housing problems, people move far away from their relatives. My daughters live here, which is very rare here, and I look after their children when they sell vegetables in the nearby market.

Raghda, her eldest daughter agreed, kissing her mother's hand:

Thank God, I am very lucky my mother is here. I don't know what would happen to my children and me if she was not here. My husband's land is also drying up, so I have to work. Without my mother, we would starve.

This case exemplifies women's difficulty in accessing assets for agricultural diversification such as improved seeds, inputs and government support. This gendered constraint is highlighted in many rural African contexts (Carr, 2008, Terry, 2011). Another factor that makes Fatima's case so 'hard' is the lack of support from her natal family, which has disowned her. This case is an example of the vulnerability of female-headed households, but most importantly it highlights the agency of a female head of household in managing her family assets and adapting to climate-related stresses, among other livelihood stresses. Fatima has succeeded in continuing to cultivate her increasingly salinized land and has diversified her livelihood by seeking a job that does not require education, because she did not go to school. Although she recognizes the low status of her domestic service work she values her contribution to her family and her success in raising her children on her own.

### **Three households in Nubia**

#### **Nubian household 1: Hagg Ghareeb and Hagga Somaya in Abu Ali's extended household**

The first Nubian case is that of the male-headed extended household of 61-year-old

Hagg Ghareeb Khaledan and his wife, Hagg Somaya Abu Ali, 44. This husband and wife, married for 25 years, belong to the biggest two families in Nubia. They live in the extended household of Hagg Somaya's family, which is the most renowned family in the village. They have four daughters and two sons.

Hagg Ghareeb is a farmer who used to grow cotton on the Abu Ali land but shifted to sugarcane because of the loss of soil fertility due to salinity and increasing temperature. Producing cotton was much more lucrative than growing sugarcane. He, along with other male members of the Abu Ali family, started the plantation season a month and a half earlier in summer and winter than the previous years. They also allocated some plots of land to growing spices such as hibiscus and cumin. With yields declining since 2004, Hagg Ghareeb engaged with the tourism industry, taking tourists out in the family boat and inviting them to the village. With the collapse of the tourist industry in the turbulent political situation in Egypt starting in January 2011, his income decreased considerably and he started selling processed spices in a nearby village.

Ever since changing their crop to spices, Hagg Somaya has been working processing spices with the help of her four daughters two of whom have a primary school education. She also used to make handicrafts such as Nubian baskets and hats to sell to tourists visiting the village. Now they do not sell well with the collapse of tourism.

As reported by Hagg Ghareeb and Hagg Somaya, their extended families provide them with increasing financial help every month as their income has dropped from the loss of land fertility and the collapse of tourism. The Abu Ali family also lets them sell the dates from the palm trees next to their house. Their oldest son of 23 works at a cultural centre in Cairo, and the 21-year-old second son works in a hotel in Aswan. The youngest son used to contribute money to the family in the good times of tourism before 2011.

This case exemplifies a widespread pattern of on- and off-farm livelihood diversification in Nubia. It also highlights the importance of the support of the extended family in the face of rising livelihood stresses.

#### **Nubian household 2: Sabry and Ebtehal's household**

Sabry and Ebtehal's household is the only nuclear household in my sample in Nubia. Sabry is 30 years and his wife Ebtehal is 25. They both belong to the Shifi family, which does not have a very strong presence in Nubia. They moved to the village when they married seven and a half years ago so that Sabry could grow hibiscus on a plot owned by

the Abu Ali family, for a share of the profits. With the decreased land productivity lowering his profit, Sabry left when their daughters were 5 and 6 to work as a construction worker in Saudi Arabia. During the years of his migration he sent remittances home to support his family and send his daughters to the primary school in the village. He returned in 2013 and bought a small *felouka* (a small motorless boat) with the money he had saved working in Saudi Arabia. He uses his *felouka* to transport people from the village to Aswan city centre for a fee of 10 LE.

Besides her household work and raising the two girls, Ebtehal works processing the spices produced on the Abu Ali farm that her husband had worked on, as well as spices from other farmers in the village. She expressed the effect of her contribution on her bargaining position in marriage:

I have always worked processing different kinds of spices since I was a child for my family in our [nearby] village and now with my husband. It is a talent we, Nubian women, learn and perfect. It is not work per se because it is a part of our housewifely duties, but it is valuable. Our spices are famous in Egypt and I know of people who even export it abroad. Our men value this very much because without that income life would be hard. I get a share from the money from the spice sales that I keep for myself. Other than money, this skill makes our husbands value us more and be afraid to get us angry or sad. Sad women do not work, right? [jokingly].

Despite the tough conditions that she and her husband face, and living on her own during the years her husband was away, Ebtehal has kept up her spice processing work which, as she perceives it, gives her agency in her household and the community. Furthermore, as reflected in her account, it brings about better conjugal relations because 'sad women do not work'. She also expressed that even though she and her husband belong to a minority family in Nubia, the fact that they both belong to the same family guarantees that he treats her well. This is a trend that I observed in Nubia, where women are treated better by their husbands if they come from their own or a prominent family.

Nevertheless, Ebtehal and Sabry lamented not having extended family in the village, although in times of great need, such as when their house was partially destroyed by rains in March 2014, they sought help from their kin in the nearby village to rebuild the damaged parts.

This case illustrates the variations in family structure in a kin-based community that affect livelihood diversification. It also highlights the importance of Ebtehal's perception of her contribution to the household. Even though she considers her spice-processing work part of her household duties, she acknowledges the value of her contribution to her husband and family's income. This gives her a better bargaining position and creates more cooperative conjugal relations in the household.

### **Nubian household 3: Somaya's female-headed household**

Somaya's household is the only female-headed household in Nubia. It is not a clear-cut case of a female-headed household because she lives in an extension built onto her extended family's house, but she lives on her own with her 8-year-old daughter Sorayah. She lives on her own income with some financial help from her family. She identifies her household as 'provided for by myself'.

Somaya is 37 years old. She was married at age 18 for only three years until her husband, not a Nubian, divorced her and left to live in Cairo. Her family did not approve of the marriage, but after the divorce they still took her in in an extension to their house. Somaya provides for and takes care of her daughter. She works in processing the spices produced by her extended Karar family household for a share of the profit.

With the decreasing land productivity due to salinity and the increasing temperatures, her share of the profit decreased substantially. At first she sold her gold without letting her family know. She said:

Here in the land of gold [Nubia], we are all one big family who support each other and no one sleeps without dinner. I caused my family pain with my marriage and divorce so I try to not overburden them. In black [tough] times, we [women] sell our gold to put food on the table. We value our gold, which has been passed on to us from our parents. We pass it on to our daughters as a tradition, as a passing on of heritage and as security. But in the bad times of bad harvest I sold my gold. This would be very painful for all the men in the family who will feel they cannot help us. That's why I haven't told them.

This short-term solution was not sustainable, so she started working as a Nubian wedding planner in the village and nearby villages. She still processes spices at harvesting times but complements this with her wedding-planning job.

This case of a female-headed household is exceptional in the Nubian community. However, it shows that kinship support is still extended in some way in the form of her extension to the family house, even in situations such as conflict with Somaya in the Karar family over her choice of husband. It also shows Somaya's creativity in working as a wedding planner in the village, a job that does not usually exist in Nubia. In her own words, she chose her battle and extended her domestic role to an activity related to that role so that she can earn income without defying the gender norms in the village.

### **Trends in household livelihood strategies**

The case studies present an idea of the decisions and choices that household members make to secure their livelihoods in the face of the stresses affecting the villages. These include environmental and climate-related impacts of land salinity, high temperatures and rainstorm events; national economic policies of structural adjustment that erode the public sector and social services; and changes in the local and national markets for products and labour, especially in tourism, with conflict and political instability that also affected migration to the Gulf.

The cases also show that men and women in the different households make strategic choices about diversifying their livelihoods to cope with uncertainty and stress. Their choices are made in the context of the interlocking spheres of individual and shared income-earning and non-cash activities, such as networking and domestic work. The case studies provide a glimpse of the way in which productive and reproductive labour transactions affect and are affected by social relations in the households and community.

These social relations are different in the two villages, which mainly stems from the difference between the kinship-based structure of the Nubian community. This kinship structure provides social and economic support for household members, and the nuclear households of Maryut, which have less access to family support. According to my observations and my respondents' accounts, the former also guarantees better conjugal relations for two main reasons: the first is the extended family's pooling of income, which cushions the effects of livelihood stresses, and the second is the husband and wife's accountability to the elders of the extended family. There is a gradation of kinship support in the different types of households in Nubia, as shown in the case studies. However, kinship-based support is still available even for the nuclear and female-headed households, which are rare in Nubia.

These household profiles illustrate the important factors or drivers affecting men and women's livelihood diversification choices in the villages, which I discuss next.

## **6.5. Factors and drivers affecting village men and women's choices regarding livelihood diversification**

Employment availability and financial assets, although significant, are not the only factors that determine the men and women's preferences for different types of jobs. Social status and respectability, are also significant factors that determine choice or perception of employment (Skeggs, 2009). This is particularly true for women, who carry the most responsibility for status production in the family (Papanek, 1979). Gender norms, roles, and family life cycle also shape livelihood diversification choices. In this section I analyze these factors as important drivers of such choices and consider them within the social and cultural context of the gender norms and relations in the village communities.

### **6.5.1. Can securing social benefits for the family outweigh a better wage?**

As previously mentioned in the national context, state and public sector jobs, which currently pay minimal wages in Egypt, are preferred, particularly by women, as they have shorter working hours and guaranteed social benefits and are more secure (Abdel-Fadil, 1983, Cooper, 1982, Singerman and Hoodfar, 1996, Kabeer et al., 2013). Despite frequent complaints about the low wages for government work, not one of the men or women who had a government job in my sample resigned from it. This is because such work is perceived to provide financial security and respectability, mostly through the pension scheme and medical insurance. Abu Goma, a 45-year-old white-collar administrative government worker in Maryut, told me:

I have five children and I have to think about their future. With the guaranteed salary of my government job, at least there is a secure minimum allowance so they can eat. When I'm over 60 years or I die, God forbid, they are guaranteed a low but steady pension. But if I resign and only work privately they might have to beg on the streets.

However, the real wages and purchasing power of government employees have declined considerably as result of the high inflation and socio-economic changes accompanying structural adjustment in Egypt since the 1970s. This has eroded the comparative financial advantage of government employees, especially women (Kabeer et al., 2013). As Hagga Samira, a middle-aged government employee in Maryut explained:

A woman government employee in the past earned as much as a well-paid

man. She could also be a good wife and mother, and with the money she took care of herself and helped the household. Any man married to a government employee at that time was lucky. But now with rising prices but stagnant salaries, our salaries cannot even cover the cost of our absence from the family.

This weighing of the advantages and disadvantages of women's paid work brings the significance of gender roles and relations in valuing women's work to the foreground, as I discuss next.

### **6.5.2. Gender roles and relations in valuing women's productive and reproductive work**

The link between women's employment to diversify the household's livelihood on the one hand and women's agency and conjugal relations (and hence gender relations on a wider scale) on the other is very complex. The link is mediated by the gender ideology and norms of the community, which play out differently according to the type of employment, life cycle of the marriage, family structure and marital and fertility status (Rao, 2014). Gender norms are a significant factor affecting women's adaptive livelihood diversification possibilities and choices.

This effect of gender norms is pronounced in migration choices, with only men in the villages migrating. The processes, nature and scale of migration as a coping strategy shape and are shaped by gender roles and relations (Barnett, 2003, Enarson, 1998, Hugo, 1996, Magadza, 2000). There is a considerable body of empirical research that argues that women suffer disproportionately from migration because of the gender constraints on accessing different types of resources and services that meet their needs (Masika et al., 1997, Women Watch, 2010). A common women's discourse about male migration in the villages is the risk of being abandoned in the village with the children while the husband 'goes off and marries another' as expressed by many women in the villages.

However, in my fieldwork I observed that the men suffered greatly from being the designated migrants due to their gender role as provider (Chapter 5) and because they can travel freely. Men endure the hardship of working as labourers or proletariat workers in unknown lands. In all the households in the villages with a migrant husband he travelled alone and sent remittances to support his family. Most wives in the two villages expressed their preference for staying in the village while their husbands migrated. They gave reasons including being close to their family, friends and neighbours, being

‘comfortable in their skin’ in their own community, and being able to care for their children better. The men travel away from their family ties to a foreign urban situation with sociocultural practices different to those of their rural place of origin. All the men that I interviewed who had migrated and returned to their village had similar perceptions to those of Anwar from Nubia:

When the land becomes *bour* and no other sources of income can be secured in the village, a responsible husband has to migrate to seek work elsewhere and provide for the wife and children. It is very tough living on your own in a different land and with different people. You have to save every piaster to send home and so you live on bread and on a mattress. You are always homesick, but you know that you are doing it for your family.

Such accounts reflect how gender roles shape decisions about and experiences of migration. However, the application of gender roles is not so black and white when it comes to women’s work in the villages.

Gender ideology seems to be the biggest factor defining the link between women’s agency and their capacity to undertake paid work. However, these norms are not set in stone: there are discrepancies between the ideology and its practice. For example, in some cases intentions for future generations reflect double standards. Some women in the villages said that they wanted their daughters to have a good education that would allow them to have ‘respectable employment’ (mainly meaning formal employment in the government sector). However, I interviewed some people several times and the same women said in different interviews that they would prefer their sons to marry a housewife because she would always ‘comfort him’ better than a working woman. This contradiction reveals how women’s adherence to local ideologies of gender roles serves their interests, given the available possibilities. The gender ideology justifies financial dependence on their husbands and gives their sons the comfort and social prestige of the man of the household. Yet they want to enable their daughters to have a better future and a better bargaining position in marriage. Women in the villages feel that with the increasing stresses of their domestically-centred rural livelihoods their fallback position is becoming less secure, a situation that they address practically by educating their daughters to enable them to access gainful employment.

When discussing women’s responsibilities, all the women in the two villages with no exceptions declared that a woman’s priority and primary role are her domestic and



childcare responsibilities. From the household profiling in Section 6.4 it is evident that the composition and value of women's incomes vary widely, from food and spice processing to petty trading and domestic service. However, their reproductive work responsibilities have not diminished. There are few conditions that make it acceptable for a woman to work. According to many men and women in Maryut, these include the household being unable to survive without the woman's wage, the woman being able to perform her domestic duties just as before, and the husband permitting her to work. Most men and women regard cash-earning activities as socially optional for women. However, the data and my observation show that with the increasing livelihood stresses, including climate-related ones, on the households' resource-dependent livelihoods, women in the villages have to work in or outside the home and the village for the household to survive. The decision to work comes back to weighing up the advantages and disadvantages that it would bring, including financial, social and symbolic capital.

In practice many other considerations influence Maryut women's engaging in paid work outside the village. It requires an extensive weighing up of the advantages and disadvantages of women's paid work in which different elements carry different weight. The benefits are a secure livelihood in the face of severe financial need; a strategy for coping with environmental stresses on natural-resource dependent livelihoods; financial security in case of divorce, widowhood or old age; and a sense of independence or empowerment. The costs include financial and social burdens on the household that include compromising the domestic work, which increases conjugal conflict; the costs of transportation and childcare; the inconvenience and added workload for women; and symbolic and cultural sacrifices such as compromising respectability, discussed in the next subsection.

The ideology of gender roles is much more pronounced in Nubia for several reasons. One reason seems to be the greater value that men and women place on the domestic sphere of their households, which figured in almost all of the Nubian men and women's accounts as at the core of their life. Another reason is the village's spatial and social distance from the urban Egyptian city centres: spatial distance figures in the difficulty and expense of travelling to Aswan and other big towns in Egypt, and social distance is caused by the marginalization of Nubians as an ethnic minority from the Egyptian majority (Jennings, 1995). A third reason is the ability to maintain such gender norms where the large extended family provides social and economic support that allows

women to work from home, given similar livelihood stresses in the two villages.

In Maryut, with the absence of the extended family, these gender roles are maintained ideologically but not much in practice. For example, all the men interviewed in the village expressed the view that it is the husband's prerogative to deny his wife the right to work. Only very few women contested this claim, but they made it conditional on the ability of the husband to provide for the household. Lacking extended family support, only a few men in Maryut were able to fulfil their provisioning obligation in the face of the increasing livelihood stresses. Hence only a few men could deny their wives the right to work, and only a few women could choose not to seek paid employment outside the village (Section 6.3).

Many of the men and women viewed employment in the household such as in handicrafts or food processing for sale from home or at a shop in the village close to home as most suitable for women, because it is flexible work and preserves local codes of conduct. Nubian women who participated in their husbands' businesses (for example by processing spices) or made and sold handicrafts received a share of the income and felt that working in the family business gave them a better bargaining position with their husbands. However, they considered this work not as earning cash but as a by-product of being a housewife, their socially constructed gender role in the family.

At the individual and household levels, both men and women perpetuate the socioculturally engrained gender norms in the villages. Men have little reason to challenge these since their high social status in the family and community is based on their role as provider, which also legitimizes their access to a wide range of employment opportunities. The family being the essence of Egyptian rural society (and mentioned as such in the current constitution), women also value their role as the backbone of the family and as the lady of the house – the literal meaning of *sit beit*, housewife.

**I am a *sit beit*. Men, including my husband, know this very well and 'carry us on their heads'**

The unreflective use of the concept of *sit beit* (housewife) in collecting data is a major source of underreporting and misunderstanding of women's employment in Egypt (Hoodfar, 1997). The official definition of 'housewife' precludes gainful employment (Ibrahim 1981), whereas the popular use of the term accommodates other types of employment such as self-employment in a family business, processing foods or spices, and handicrafts. This is a prevalent pattern in the Middle East. Mary Chamie (1985)

reports that when Lebanese men were asked about their wives' work a large percentage answered that they were housewives. However, when the question was rephrased to ask whether their wives assisted them in their business and whether they would have to hire workers to do their jobs if they did not, the majority answered yes. This notion and interpretation of work drove me to explore the meanings attached to the concepts and terms used to express women's economic roles in the villages.

Hagga Nasda from Nubia expressed the value of her contribution to the household as a housewife:

I do not have a job, I am a *sit beit* [housewife]. I maintain our house, raising my children and taking care of my husband. Without me there will be no home and no family, and men, including my husband, know this very well and carry us on their heads for it [an Egyptian expression denoting ultimate respect]. Being a good *sit beit*, I also help my husband with processing the spices he grows and I make very beautiful Nubian baskets that we sell [...] We share the spice money, but the money for the baskets is mine. So I am a good *sit beit* that even brings money working at home. I prefer this a thousand times more than slaving in a job outside [the home].

This account, echoed in the accounts of many housewives in the villages, mostly in Nubia, reflects the value of reproductive work for women which they, their husbands and the community value and respect. It also reflects the economic value of women's work, which they consider part of their domestic duties.

Among my sample in both villages many of the women who engaged for long hours in activities that sometimes earned more cash than their husbands earned, still introduced themselves as housewives. This is because 'work' has come to mean a paid formal job outside the home. All the women of families who had a business in the village such as a kiosk or small shop participated in running the business. However, in the community these working women are considered as housewives.

In Maryut, the husband of Umm Samir, a 35-year-old woman, owns a shop that sells beans and falafel sandwiches. She spends four to five hours daily cleaning and preparing the ingredients with the help of her eldest daughter (14 years old). She explained that if she did not do this work to help her husband he would have to hire a worker to do it. Despite her recognition that she does the work of a paid worker, when I conducted the

formal interview with her and asked her about her work she considered herself ‘only a housewife.’

This stresses the importance of women’s perception of their contribution to the household through their productive and reproductive work, as explored in Sen’s work on perceptions of capabilities in conjugal cooperative conflict (1987). A key question is how women internalize the value of their responsibilities and contribution to the household. To explore this question, I discuss the concepts of respectability and value (Skeggs, 2009) in the household and community as important determinants of women’s livelihood diversification choices.

### **6.5.3. Respectability and value as important determinants of livelihood diversification choices**

Beverly Skeggs (2009) defines respectability and value as the way people feel about themselves and others. Respectability is derived from the status or social standing collectively shared assessment of a person or societal unit. These notions are context- and culture-specific and influence every aspect of people’s lives and livelihood choices (Ibid).

In Egypt social change has not kept up with employment trends (Kabeer et al., 2013). Egyptian society is in transition from a more state-controlled to a free market economy, and wages do not always correspond to job status. Higher social status and respectability remain associated with formal jobs. This is particularly true for women.

The notion of respectable employment raises the issue of the type of employment as a determining factor of women’s livelihood diversification choices, and as a mediating factor in linking women’s paid work to their agency and adaptive capacity. There is a preference for respectable jobs, mostly in the government sector, as paid work that affords value and respect to women in Egypt, even in conservative rural communities and with their low and stagnant wages. Government sector jobs were valued in the accounts of the men and women in the villages. However, this type of employment requires higher education and vertical networks that are generally not available to the village women, and thus informal employment with demanding hours and tough working conditions remains the most available option. However, this is not the preferred option for the village women. In choosing a job they try to balance their financial needs and their social status (how they wish to be perceived by others). Respectable social status is an influential factor in livelihood diversification choices and is reflected in women’s

preference for the social status associated with employment in the government sector or income-earning activities associated with their domestic role, such as food or spice processing.

Umm Mahib, married for ten years with three children, is a housewife in Maryut. Her husband has a plot of land and grows tomatoes to provide for his family. Over the years the land has become salinized, affecting the quality and quantity of the tomato crop. Umm Mahib had to get work as service staff in an oil-refining factory near the village:

In our social class and education, men can find better work. Even if a woman earns more, the man gets the social prestige for it. With our yields declining because the land is getting salty, I had to get work at the oil factory. Honestly, I hate it, because I leave my children and my home, and when I come back exhausted after a long workday I still have to start a second shift of housework. I have to and I want to take care of my home, my children and my husband. I was much better in the years I stayed at home to care for my toddlers, when the land gave us good tomatoes. And I was valued for my role in the house by my husband and people around us. But need dictates suffering, and I had to get work. I gain money but I lose my social prestige and there is *babdala* [slander] about my running around at the factory and messing up my duty as a homemaker.

This excerpt is very revealing of the factors that affect women's preference for productive or reproductive work. A key factor delineated by Umm Mahib is the social prestige associated with women's reproductive work as opposed to the 'slandering' emanating from their 'running around' outside the village for paid work. As reported by many men and women in the villages, the norms about reputation and honour are the main factors that restrict women's mobility for employment outside the villages. Broadly, this is the acknowledged norm in Egyptian villages (Abdel-Fadil, 1975).

As perceived by men and women in the villages, women's work in the domestic sphere is more valuable and respectable than her *babdala* (slandering) working outside the village. The 'slandering' dimension is related to women foregoing their domestic role. It is also related to the sense of shame emanating from women working outside which entails them congregating with other men and making them vulnerable to harassment. This sense of shame is also a reflection of the men who cannot fulfil their provider role as the household head.

Women tend to hide their low-status jobs by giving themselves the respectable title of 'housewife', as discussed above. It is common for poor women to work as urban domestic servants, despite the low social status associated with this type of work (Chaney and Castro, 1989, Scott, 1985). Domestic service is relatively well paid at 1200-1500 EGP per month, more than the average basic salary of a government employee. In Maryut, due to livelihood stresses, mostly increasing of salinity of their family land, 15% of women work as domestic servants in Alexandria. Ninety per cent of these women would not admit this at first. They only acknowledged it later in personal discussions made possible by the rapport that I had built with them which allowed me to observe and document a more realistic livelihood history.

This shame about working as a domestic servant is a clear example of the nuances in the link between women's employment and their empowerment or agency. Driven by stresses on livelihood activities, women have to take these jobs despite their low status and respectability. This type of work is shameful to the wife and shows up the husband as a 'failing' provider, causing conflictual conjugal relations as shown in the first household case in Maryut where Sawsan's work as a domestic servant causes conflicts with her husband Halim. The money earned from such livelihood diversification driven by necessity causes more conflict than cooperation between husbands and wives. This money that 'can't buy love' is noted in Naila Kabear's (1998) study of women's access to cash in Bangladesh that produces conflictual gender relations. Notions of respectability and how they play out in the local culture are key to understanding women's agency in coping, which is not necessarily associated with paid employment (Rao, 2014). Furthermore, valuing women's work in the existing local social and cultural context necessitates an awareness of its worth, not only to the individual but also to the family and the community.

This brings us to the concept of status production as an element of respectability that affects women's choices of livelihood diversification activities.

### **Women's work as producing family status**

Another type of women's work or non-work in the villages is what Hannah Papanek (1979) calls status production work. This includes activities linked to family status that require the time, energy and skills of women. This type of women's work includes the exchange of gifts between households; conveying gossip that affects family status; the preparation and management of feasts; and adherence to religious and local rituals in the

view of others. In the family context, this type of work maintains the status of the family and its respectability in the community. The worth of status production activities is calculated on the basis of the gain in family status (ibid). Women also benefit from family status production work when household members' income is pooled.

An important characteristic of status production work in gender-segregated societies such as those of the villages is the close link between family status and women's appropriate behaviour. In such communities women's involvement in 'unsuitable' occupations or paid work outside the home and village is associated with the loss of family status. Furthermore, being engaged in such work means that a woman is forgoing her status production work for her family. The economic returns from women's work, while often necessary to support the family economically as shown in the household case studies, must be sufficient and significant enough to offset the loss to family status. To maintain their respectability and cope with slander, the women in the villages employ two main strategies: reverting to more conservative gender norms and veiling.

#### **Clinging to gender norms**

To cope with challenges to their respectability, women develop a vested interest in upholding the traditions that make men responsible for providing for the household so the women can be 'queens in the house'. This is a trend observed by MacLeod (1991) in a study of women's employment in Egypt. Women in the villages cling to their role of mother and wife which commands respect and social status/capital in Egyptian society. The women interviewed in both villages revealed that they are more comfortable and enjoy greater autonomy staying at home and in the village than in time-demanding jobs outside the home or village. This drives many unmarried educated young women to prefer to be housewives looking after their families if this is financially possible. The majority of the women in the villages agreed that if the income does not compensate for the inconvenience to the family, women's productive work is not necessary. This trend is noted by Nitya Rao (2014) in her assessment of women's preferences for different types of work in rural India.

Poorer women, who are more disadvantaged in the labour market with low pay, low status and long hours of employment, find the engrained gender norms appealing. Practically, women are less educated and possess fewer employability skills than men, hence their employment is often concentrated in low-paid, low-status activities. They are best equipped with their domestic skills, which for rural women include crop and food

processing, tailoring and handicrafts. Since the husband is the most reliable source of financial support, most women have no reason to contest the male breadwinning obligation. In many cases I witnessed village women scorning men who verbally challenged the rules of gender roles and norms. On the other hand, women who have to work also use local customs and Islamic rules such as veiling to cope with the necessities of livelihood diversification.

### **Veiling as a 'a social work permit' to cope with livelihood diversification**

Women who engage in income-earning activities outside the village and wish to maintain their respectability and minimize conflict with their husband adopt different strategies. A common strategy is to return to the conservative veil (this is different from the headscarf worn in rural villages). This echoes a national trend since the 1970s (Ahmed, 1992, Guindi, 1981, Hoodfar, 1991, MacLeod, 1991, Rugh, 1986). Little research focuses on re-veiling from the practical perspective of rural women who choose to veil as an income-earning coping strategy. To increase their chance of diversifying the household's livelihood they adopt veiling as a strategy for inclusion in the labour market rather than segregation.

Zeinab's case in Maryut illustrates this trend. She was raised in a female-headed household where her mother sold vegetables grown by her neighbour in the village and worked as a maid in Alexandria. With the increasing salinization of the land and less produce to sell, Zeinab decided to work to help her mother. She graduated from high school and now teaches at her old school, which is a 20-minute microbus ride from the village. She is engaged, and her fiancée and his parents – mainly her future mother-in-law – at first objected to her job. They justified their objection in terms of preserving the family's respectability and Zeinab's domestic duty to her future husband and children. Zeinab acknowledged their logic, but still wanted to work. She explained:

My mother worked and suffered to raise and educate my siblings and me. I studied hard and was one of the first in my class, and that's why they chose me to teach in my school. I can be a good wife and mother and yet have a job with suitable hours and good vacations. When I have children I'll quit or take unpaid leave to take care of them when they're toddlers. But what if my marriage fails or my husband's land becomes barren? My mother educated me so that I can have a respectable job and will not suffer as she did, working all the time as a maid in other people's houses.



She resolved her dilemma with her fiancée and his mother without conflict: she coordinated her times of arrival and departure with those of many of the women who leave the village for work so that they can take the same minibuses as a group. She also decided to take up the conservative veil as ‘a social work permit’ when she leaves the village.

Many young married women in Maryut also used the veil as an economic coping strategy. The veil reflects the use of gender norms to create financial security through gainful employment. This interpretation does not undermine the religious value of the veil in any way for those who believe in it as an Islamic modesty requirement (though it is widely contested by many Islamic progressive scholars). It is simply the villagers’ interpretation of the social functions of the veil. By veiling, a woman indicates that she can pursue an unconventional activity such as employment outside the village but still respects local norms of behaviour. By veiling, they manage their husbands’ insecurity by conveying to them and to society that they are not challenging them. Furthermore, some women explained that by veiling they recognize their Islamic rights which ensure that their husbands should provide for the family and not claim their wives’ earnings. The veiled woman acquires the image of a good woman, which gives her more rights such as freedom of mobility and to take paid employment, while preserving the family’s status and respectability. Zeinab’s statement of her intention to leave work when she has children highlights the influence of the family life cycle and structure on the feasibility of women’s paid work.

#### **6.5.4. Life cycle and kinship affecting men and women’s livelihood diversification choices**

Women are less able to work when their burden of domestic responsibilities is at its highest, as when they have toddlers and young children. Hence the family life cycle is an important determinant of livelihood diversification choices. Husbands and wives calculate the gains and losses incurred by their employment and its effects on the marriage and the family. Wives have higher opportunity costs than men due to the added burden of domestic work. Working outside the village in low-status jobs has a high cost for women that has to be weighed against their domestic responsibilities and childcare at different stages of the family life cycle. This effect is mediated by larger families that can assist with the childcare and domestic work.

All the women in Maryut pointed out that childcare is the major obstacle to paid

employment outside the village, where rising prices and the housing shortage force younger nuclear families to establish their households away from their kin. As explained by many young wives in Maryut, this nuclear setting deprives them of the support they could otherwise get with childcare from their kin. Instead these young mothers take shifts watching the neighbours' children. However, there are exceptional cases as Fatima's female-headed household case in Maryut where she helped her working daughter Raghda with childcare.

The family life cycle and structure also affect the difficult decision to migrate which, according to the interviewed men, is often influenced by the age and character of the wife, the number of children and the presence of other adults in the household. In the villages it is not considered acceptable for young women to live by themselves. Therefore the husbands tend to avoid migrating in the first years of marriage. Women also expressed that they preferred their husbands to stay with them in the first years of marriage until they are settled and have had children. They felt that the absence of an adult male in the household would curtail their freedom, as they would then be scrutinized more closely by the community.

From another perspective, women see the first few years of marriage as the building blocks of their relationship with their husband and the formation of their family. This desire to secure their marriage is accepted as legitimate by their husbands, families and community, and hence young husbands are often deterred from migration. They usually migrate after their engagement and before getting married, and later in the marriage after the birth of several children when there is a more urgent financial need. This trend is the opposite to what Nitya Rao (2012) observed in Bangladesh, where despite the hardship of loneliness and depression that young wives faced the families make a conscious choice that the husband will migrate in the early years of marriage in order to save money for later years. However, there is variation in the influence of family life cycle on the decision to migrate. This variation is mediated by family structure.

The strength of the social network of relatives and neighbours who provide support during the husband's absence is also a very important determinant in migration decisions. Migration to the Gulf is more widespread in Nubia (40%) than in Maryut (25%), due to kin ties that make migration a feasible option with members of the extended family to take care of the wife and children of the migrant. Hagg Asaad, a 37-year-old father of four in Nubia, iterated:

The presence of our big families here [in Nubia] allows me to leave my wife and children and go to work abroad, knowing that they are safe and well taken care of until I return. If, God forbid, something bad happens to me they will be provided for and taken care of.

Hagg Asaad's account, which is widely echoed in Nubia, reveals that family life cycle and structure are both determinants of migration decisions. In Nubia the wife stays in her house, which is attached to that of her parents, in the early years of marriage or moves to her own family house if she and her husband have built one in the village. This family arrangement makes it socially acceptable for the husband to migrate earlier in their married life. In the mostly-nuclear family setting of Maryut few people can afford to host another family in their very small and overcrowded dwellings. This delays the husband's decision to migrate until he establishes his household and has mature children. This influence of family structure on livelihood diversification decisions highlights the importance of supportive social networks, as determinants of livelihood diversification choices and possibilities.

#### **6.5.5. Social networks and ties embedding livelihood diversification choices: 'Life without people is unliveable'**

Within the framing of my conceptual framework (Chapter 2) I draw on Bourdieu (1986) to discuss social networks or embeddedness as forms of symbolic, cultural and social capital that affect livelihood diversification choices. Away from an economic instrumental perspective, I conceptualize these forms of capital from a sociological perspective where different forms of capital, which cannot be measured or separated out, are part of people's everyday life and adaptation strategies. I position these forms of capital in their relational context of gender and wider social relations to explore men's and women's livelihoods. I side with Rayner and Malone (2001) in stressing the importance of the diversity and complexity of social networks that constitute a fundamental determinant of individual and collective livelihood diversification choices.

Increasing environmental and climate-related stresses on the resource-dependent livelihoods of rural communities together with the increasing economic burden and inaccessibility of formal social services make social networks a necessary adaptation resource for individuals and households (Pelling and High, 2005). Adaptation to livelihood stresses is enabled by the daily social and economic support of bounded networks and groups (Adger, 2003, Pelling and High, 2005). Adger (2003) argues that

social networks and ties are a vital element of adaptive capacity that promotes individuals and families' ability to adapt collectively through networking..

Social networks are shaped by gender roles and relations in rural communities in Egypt (Tadros, 2010). While the communities in the studied villages are not strictly segregated, social relations are divided along gender lines. Women form their closest social relationships with other women and men have their own networks. Community social relations in Egypt have historically been dominated by women (El-Messiri, 1977, Hoodfar, 1997, Jennings, 1995, Mahfouz, 1966). In the villages, adaptive off-farm livelihood diversification in response to livelihood stresses are increasingly detaching men from their communities, while their engrained gender roles, domestic responsibilities and mobility restrictions draw women closer to their households and communities. Even when women are employed outside their village they still spend more time in their communities than the men. Therefore women's networks tend to be stronger and engender more social and economic support for themselves and their households.

In the face of livelihood stresses the villagers turn mostly to members of kin networks or family friends that they know are reliable and dependable in times of need. This pattern is most common in the Nubian extended-family community. Haggia Omayma, a middle-aged Nubian housewife spoke passionately about her networks and their benefits:

A place gets its value from the people in it and how close they are to each other. I would be miserable without my social circle of family and friends. They hold you in so many ways. They listen to you, hold you when you need it, and pour their heart out to you when they need to. They also really support you with their money, time and energy when the skies fall to the earth. You would always do the same for them too. This is how life is maintained. As we say, life without people is unliveable [a popular old Egyptian proverb].

The most prevalent and influential groups in the villages are the savings associations (*gam'eyat*). There is an absence of micro-credit assistance in the villages. Where it exists it tends to exclude poorer people and women. This has been highlighted as one of the weaknesses of micro-credit as a strategy for alleviating rural poverty (e.g. Cleaver, 2005). In the villages rotating credit savings clubs or *gam'eyat* host the most important financial

exchange resulting from village social networks.<sup>47</sup> *Gam'eyat* are most often formed by women and led by a female elder. Due to their close social networks in the villages and their reputation as 'good' housewives and household managers, women are generally considered better at forming and managing these associations. They are considered a part of daily life that they are trained to plan and manage from a very young age.

In the context of livelihood stresses people join these associations to access money. Discussing climate risk scenarios in the men's focus group in Maryut, some men said that they might ask their wives to form savings clubs to help those most severely hit by extreme climate events to rebuild their houses or to partly compensate for the loss of crops. The associations help women to raise lump sums of cash that they need without having to borrow from banks or other people.

The savings associations also help women to access social, cultural and symbolic capital in their families and communities by building a reputation as influential and honest leaders of such associations. Leading an association gives a woman the prestigious and sought-after reputation of being supportive in times of need. This is part of family status production in which a women's reputation in social circles contributes to the status of her family (Papanek, 1979).

Hagga Hamdeya, an elderly woman in Maryut articulated these sought-after economic, symbolic and social benefits from the *gam'eyat*:

I usually lead the *gam'eyat* in the village and I'm well respected for it by women and their men. I am known as the leader and manager of these services. I use my reputation to help those who are most in need in the village. When I was younger, these associations helped me a lot with raising my children and maintaining our house. Now I can help those who need it when their house cracks from the rains or their crops fail. These associations are like a bank for poor people like us. We are not beggars, so with *gam'eyat* we get to preserve our dignity.

Savings clubs are a way to fulfil a financial need without having to borrow. This is a main reason why *gam'eyat* are more widespread in Maryut than in Nubia. In Nubia borrowing

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<sup>47</sup> Women contribute a monthly fixed sum for a specified period of time. Each month the sum of all the monthly contributions is given to one of the members until every woman has received it. The order of rotation may be based on need, the age of the woman or a random drawing of names. The amount of the monthly instalment varies greatly. In my sample in both villages it ranged from 60 to 200 EGP.

from related extended family members is accepted and normal. The nuclear families in Maryut prefer to avoid the uneasiness of borrowing from non-relatives in order to avoid owing favours or risking defaulting on their debt or discrediting their social status. This attitude was repeatedly expressed in the sentence: 'We are not beggars'. Savings clubs enable friends and neighbours to help one another without any sense of humiliation or risk of conflict.

Men's networks tend to have somewhat different weights in different circles than women. Men develop networks with workmates and people in social and economic institutions that they have to deal with. Their most significant exchanges consist of the information necessary to sustain their livelihoods, such as environmental and climate projections (e.g. weather forecasts) and connections and information about employment opportunities where they can secure other sources of income. Many men in the villages are involved in farmer's groups that help to improve farming through exchanging knowledge of new farming techniques, new crop varieties, etc. There are also migrant networks where men exchange information about migration opportunities. Men's social networks assist with diversifying their income sources.

When discussing men's networks it is important to mention the phenomenon of men's teahouses.<sup>48</sup> Men often meet at local teahouses close to their village or workplace. Even men who work only in the village or who are unemployed spend much time networking outside their village. From my observation and people's accounts I realized that teahouses are not just for men's leisure or recreation, as they are commonly described. They are central to male networking and access to employment opportunities. At first I was surprised that the poorer unemployed men were the ones who most frequently spent their time and money in them until I realized that job-hunting and other forms of networking in teahouses are the main reason why those who are most in need frequent them.

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<sup>48</sup>Teahouses are most commonly exclusive for the men in the villages. This consisted a challenge for me. I had to wait a few months in the villages to get men to accept me 'hovering around them' in the teahouses to closely observe their interactions. Being an outsider to the village as discussed in Chapter 3 facilitated this acceptance.

## 6.6. Conclusion

In this chapter I have addressed livelihood diversification as a rural household coping and adaptation strategy mediated through social relations and institutions, including gender relations within the household and the social networks in the community. Livelihood diversification is shaped by change in both the natural environment and the larger economy, including change to income-earning opportunities caused by national trends. I argue in line with the findings of Ellis (2000) and Reardon (1997) that diverse rural livelihoods are less vulnerable than undiversified ones and make the case that livelihood diversification is a significant long-term issue for policy concerned with adaptation to livelihood stresses in low-income developing rural contexts.

In the villages, livelihood diversification is the main adaptation mechanism for households facing climate-related stresses among other stresses on their livelihoods and includes diversifying on-farm and off-farm activities and migration. Gender relations affect and are affected by men and women's adaptive livelihood diversification strategies in the household and community. Climate-related stresses, exacerbating environmental and socio-economic conditions, have a profound effect on villagers' income-generating strategies. Livelihood diversification as an adaptive strategy often means a greater workload for men and women which requires more cooperation but also sometimes ignites conflict in their gender relations. Women's livelihood diversification through their choice of employment is highly influenced by their domestic responsibilities, which are considered their main role in the household. They are also influenced by notions of respectability, family life cycle and structure, and social networks. Such factors are key determinants of gendered livelihood diversification choices. These gendered factors are framed within the socio-economic and cultural setting, the gendered norms of society and the what, how and who of employment, and control over the income generated.

Drawing on my fieldwork, I argue that women's paid employment does not automatically lead to their empowerment. In the mostly patriarchal patrilocal nuclear family setting of Maryut the men's role as household provider is forcibly compromised by economic hardship, and women take on more money-earning responsibility to cope with climate-related and other livelihood stresses. With lower educational levels and the gendered restrictions that affect women's employment opportunities, work is usually poorly paid, demanding and time-consuming with long working hours or long-distance travel, and is in addition to their domestic work burden. With the nuclear family receiving little or no

support from extended family the women are more likely to be objects of slander than empowered by their paid work. Such a forced change in the gender norm of the husband providing for the household, leads the men to overcompensate by assuming a more controlling attitude in household decisions and daily gender relations, which can lead them to relatively being more conflictual than cooperative. This tends to make women, men and their households less able to adapt due to the fragility of household decisions taken for the sake of male assertion rather than to address the household's needs.

In Aswan, Nubian women still face restrictions on their social mobility and access to employment, but they are creative and entrepreneurial in their income-earning strategies, making and selling handicrafts for the tourist trade or processing spices. The matrilineal extended family setting also eases the burden of the household work and the care of the children and provides social and economic support. In this patriarchal system the husband is responsible for the household's maintenance, assisted by male members of his wife's family. Even in times of economic hardship the resources of the extended family are pooled to maintain the extended household. The Nubian women also have more control over income that they earn than women in Maryut. Thus they work voluntarily in informal undemanding jobs to make their own money. The financial provision by the husband and family with women's autonomous control of their income makes Nubian women and their households more able to adapt to climate-related stresses, among other livelihood stresses.

An important finding stemming from the analysis of livelihood diversification data in the villages is the dynamic process of negotiating social relations. Conjugal relations are adapted over time to the interests of the married couple and their family, within the boundaries of the different interpretations or nuances of accepted social gender ideology. The ideology of gender roles remains largely unchallenged in Egyptian society, particularly in rural communities. Yet with the increasing livelihood stresses the reality is evolving in a contradictory direction that requires women to earn. Women are trying to adapt to the changing reality by employing new strategies such as finding income-earning opportunities with the flexibility to accommodate their domestic responsibilities, seeking social and economic support from their social networks, and soliciting respectability and social acceptance by reverting to conservative traditions such as veiling. These strategies renegotiate the implementation of the accepted norms in daily life. Future longitudinal research is needed to explore the influence of women's increased income-earning



activities on gender relations in the household and village communities through the complementarity of the domestic and public domains.

Having investigated the livelihood strategies adopted to cope with gender norms on the one hand and climate and other stresses on people's livelihood sources on the other, in the next chapter I explore gendered knowledge and perceptions as forms of adaptation in the villages. This is juxtaposed with national discourses on adaptation to climate change.

## **Chapter 7: Situated knowledge and alternative discourses of gender and climate change: Implications for adaptation**

All the trees are my brothers, the Nile is my father and my lover's napkins are the flowers ... The shores of the Nile embrace my love and my life, the shadows of the palm trees hold my memories. (Excerpt from a Nubian song by Ahmed Mounib)

### **7.1. Introduction**

In this chapter I address my third research question: how far do climate change adaptation discourses address gender-specific vulnerability and adaptive capacity? I do this by tracing and analyzing national and local discourses of adaptation to climate change in relation to the theoretical framework of this study (Chapter 2).

I define 'discourse' here as a constructed set of ideas and concepts through which meaning is given to social and physical phenomena and their linkages, leading to identifiable sets of interventions or practices (Epstein, 2008, Van Dijk, 2001). Discursive constructions emanate from and affect social identities, positions, relations and systems of beliefs and knowledge. Thereby discourses do not just reflect or represent reality or socially shared beliefs but also make meaning of it (Fairclough, 1992). Discourse analysis stresses that the meanings of concepts never solidify but are dynamic and constantly the object of contestation (Van Dijk, 2001). This politics of meaning, applied to gender and climate change, shows how these concepts and their linkages are continuously contested in a struggle about their meaning, interpretation and implementation.

A major challenge to unpacking the discursive links between gender and adaptation to climate change is the construction of the climate change discourse itself as an objective, gender-neutral and socioculturally unbound phenomenon. I examine how dominant national discourses in Egypt adopt a framing of climate change that obscures gendered dimensions. The small amount of gendered climate change research so far has mostly focused on the material impacts of climate change on women, as reflected in the National Strategy for Mainstreaming Gender in Climate Change in Egypt (Aguilar et al., 2011). This narrow focus has done little to explore the gender relations that shape climate change policies and politics (MacGregor, 2010). I challenge these discourses which set national adaptation agendas and interventions that are alien to local sociocultural development.

This chapter is positioned within national and local discourses of gender and climate change, as it is based upon the premise that promoting equitable and effective adaptation requires us to address local values, beliefs and cultural meanings. As noted by Kaijser and Kronsell (2014, p.417): ‘Investigations of the interconnectedness of climate change with human societies require profound analysis of relations among humans and between humans and nature’. Therefore I explore how men and women in the villages perceive, know, value and respond to climate change. This knowledge informs individual and collective adaptive responses in the community (Roncoli et al., 2009). By comparing conceptual models of the studied communities and climate experts, I highlight where they diverge through a discursive analysis of the link between gender and climate change. I argue that the prevailing ‘expert’ national gender and climate change discourses have little resonance with lay people. They do not represent local needs and perceptions and can lead to adaptation that lacks local specificity and effectiveness.

I frame my discursive analysis within Nancy Fraser’s (1987) framework of the politics of gender need interpretation. This analytical focus consists of three stages: recognizing the status and construction of a need, interpreting it, and assessing approaches to addressing it. My analytical choice is to study local meanings of gender and climate change and relate them to the national discourse. In the first stage (section 7.2) I identify and categorize the different types of national and local discourses and differently-situated knowledge (Haraway, 1988, Harding, 1991). I ask what knowledge, and whose knowledge? In the second stage (section 7.3) I venture to interpret how these oppositional discourses are constructed and contested. What knowledge becomes relevant or authoritative, and to whom? Knowledge informs response, and hence at the third stage (section 7.4) I discuss the implications of this forum of contestation for adaptation policy and interventions.

Through this analytical framework I elicit a spectrum of opinions from the village and policy interviewees and examine policy documents to explore the dominant national and alternative local discourses of gender and climate change. In Fraser’s (1987) politics of contestation of multiple discourses, she refers to these discourses as bureaucratic (that also represent the status quoist discourse) and oppositional. This framework is useful in reflecting local discourse – as the more general notion of how people talk – on the evolving global discourses of gendered adaptation to climate change. I argue that local cultural and social constructions should be reflected in broader epistemological discourses in dealing with climate change as a gendered discourse.

## **7.2. Multiple discourses of gender and climate change and their nuances**

### **7.2.1 Mainstream national discourses and policies**

The national bureaucratic discourse of climate change in Egypt is dominated by a positivist scientific framing of climate change and its physical impacts (Abdel Monem, 2015). The environment in this framing is presented as a distant threat to be feared, rather than embracing and protecting it as an integral part of people's livelihoods (Doyle and Chaturvedi, 2010). This framing leads to adaptation interventions that continue to respond to the symptoms – the physical impacts – rather than the dynamic and relational processes at the core of people's experiences and perceptions of climate change. In this positivist framing there is very little representation of the stories and voices of the men and women experiencing climate-related stresses.

Egypt's governmental policy arenas are focused on the physical impacts of extreme climatic events. For example, the Cabinet of Ministers hosted the National Committee for Crisis Management and Disaster Risk Reduction (DRR) in April 2006 to act as the sole technical climate change secretariat within its Information and Decision Support Centre. This committee is closely linked to the Ministry of Defence. The focus on extreme events as a national security issue enhances the masculine and scientific securitization framing of climate change (MacGregor, 2010). In the Egyptian context, this masculine framing is mostly linked to men's socially constructed roles as providers and protectors. Securitising climate change cuts it off as a discourse, distances it from people's livelihoods and positions it as a scientific problem needing only 'expert' solutions. This is particularly true in Egypt, where disaster risk reduction policies and actions do not take underlying non-climate conditions and risks at the local level into consideration, as they are mostly based on scientific assessments at the regional and national levels.

This positivist framing is reflected in the national adaptation policies of the agriculture sector (Table 7), as elicited from the policy interviews and documents (EEAA, 2010, IDSC and UNDP, 2011).

### National adaptation measures in the agriculture sector (includes fisheries)

- Improvement of scientific assessment
- Efficient crisis management and disaster reduction system
- Effective management of land and water resources such as improvement of crop irrigation
- Provision of deep wells to measure soil salinity
- Moving agriculture away from the Nile valley and delta depending on aquifers and new irrigation methods
- Assurance of sustainable political and financial support for top-down national adaptation
- Improvement of people's awareness of the impacts of climatic change on agriculture and fisheries by disseminating scientific and technical messages
- The Egyptian Environmental Affairs Agency states in its Second National Communication that 'No clear adaptation options have been defined for this important sector [fishery]' (EEAA, 2010, p. 82).

**Table 7: Main national adaptation measures in the agriculture sector**

It is evident that these national policies are based on a scientific technical discourse. Local knowledge and locally driven adaptation are almost non-existent here. Out of ten policy interviews, only one interviewee, from a governmental agriculture cooperative in Alexandria, acknowledged local individual and collective adaptive systems.

Furthermore, scientific studies have much more prominence in policy-making arenas than social livelihood studies that focus on men and women's perceptions, adaptive capacity and adaptation to climate-related stresses, among other livelihood stresses. According to an interviewee working in municipal environmental governance, there is a knowledge gap in the livelihoods socio-economic aspect of adaptation to climate change with most of the research directed towards the physical impacts. Only one interviewee in the Ministry of Agriculture and Land Reclamation (MALR) mentioned livelihoods adaptation. According to her, it is part of the ministry's strategy to identify the best practices to support the capacity of farmers in adapting to climate change. She listed a project for "transformational capacity building" in partnership with World Food Programme (WFP) to promote diversification of income in order to increase the resilience of vulnerable marginalized rural communities. However, she stated that the project is not yet implemented. Furthermore, she emphasized that such projects are "usually implemented on a very inefficient small-scale and they end with the termination of funding" with no sustainability or monitoring long-term plans.

The ten policy interviewees stated that IPCC and other scientific reports are the main source of information regarding climate change for policymakers in environmental institutions. This trend of focusing on scientific assessment is noticeable when consulting the reference lists of national adaptation reports such as the Egyptian National Communication reports on adaptation to climate change (EEAA, 1999, EEAA, 2010), which are dominated by scientific studies and assessments. And while emerging studies such as that of Attaher et al. (2009) are starting to consider people's perceptions and experiences of climate change, their work does not consider the gender dimensions of adaptation.

Egypt has signed many treaties for gender equality and mainstreaming in development policies, including those addressing environmental and climate change issues (Appendix 6). However, they have not been incorporated in national policy or implemented at national or local levels. Furthermore, they have not been very successful in promoting gender analysis and integration in national climate change policies. Neither the Initial National Communication (EEAA, 1999) nor the Second National Communication (EEAA, 2010) developed by the Government of Egypt for the United Nations Framework Convention on Climate Change (UNFCCC) have incorporated gender considerations in their assessment, analysis or recommendations. Gender in adaptation is not even included in the UNFCCC's original guidance to governments on the development of their National Communications (UNFCCC, 2009).

The absence of gender from Egypt's national adaptation plans is confirmed by policy interviewees. Two experts that I interviewed, one from the Ministry of Environment and one from an international organization, concurred that gender is not currently high on the government's national adaptation agenda. Both experts agreed that gender in adaptation to climate change is still treated by the relevant government institutions as an "international obligation" that needs to be fulfilled, through participating in negotiations or submitting national reports.

However, the EEAA is attempting to address this shortcoming by including gender as a crosscutting theme in the Third National Communication, to be developed in 2016. The National Strategy for Mainstreaming Gender in Climate Change in Egypt<sup>49</sup> (Aguilar et al., 2011) will be used to inform decision-makers on integrating gender considerations in

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<sup>49</sup>The strategy is led by the EEAA and the Gender Office of the International Union for Conservation of Nature (IUCN) and partly funded by the Government of Finland.

Egypt's Third National Communication. However, according to a policy interviewee, the strategy is not yet implemented and policies are not yet translated into actions.

Furthermore, although the strategy (Aguilar et al., 2011) acknowledges gender mainstreaming in its title and as a sought-after approach to addressing gender needs and responsibilities in national climate change policies and activities, its assessment, analysis and recommendations focus on binary male-female disparities and roles much more than on gender relations intersecting with other social categories. It still follows the women, environment and development (WED) discourse, as discussed in Chapter 2. It fails to move to the conceptualization of gender-environment relationships in line with the gender, environment and development (GED) framing which views gender-environment relationships as emerging from the social context of gender relations. This GED framing could lead to adaptation policies and interventions that focus on intra- and inter-household relations of power and access to different forms of tangible and intangible assets, moving from the framing of women as vulnerable to one of women and men interacting to adapt their livelihoods. The GED framing does not lead to imposing generic interventions but rather to learning from and enhancing local adaptation within existing sociocultural norms and contexts.

In an interview with an engineer from an intergovernmental organisation in Egypt involved in providing inputs for the strategy, he told me:

I was appointed by my organization to contribute to the women's strategy. I am an engineer, so I worked on the technical issues and national priorities for adaptation. The women experts could then add the issues that concern the impacts on women.

This view reflects the positivist ontology of some of the contributors to the strategy, which focuses on the technical scientific aspect of the impacts of climate change. Gender aspects are seen as an addition that concerns women only. This contributes to the fact that the small amount of gendered climate change research done so far in Egypt has mostly focused on the material impacts of climate change on women as reflected in the National Strategy. The national strategy mostly mentions 'women' (419 times), reflecting a 'gender means women' approach that has long been considered in feminist research to lead to ineffective adaptation interventions (Arora-Jonsson, 2011, MacGregor, 2010). Rather than theorizing gender as a social construction of masculine and feminine

identities and the relations between them, the adopted discourses of climate change focus on women as a homogenous category, with little or no mention of the dynamic relations between men and women in the context of existing local norms.

Even though the strategy is based on a multi-stakeholder process its assessment and analysis are based on only one consultative workshop with mostly male stakeholders lasting just two days in May 2011. It did not encompass context-specific case studies from different rural and urban parts of Egypt but was rather ‘drafted on the basis of an analysis of the current national priorities concerning climate change’ (Aguilar et al. 2011, p.7). This is where my contextual research can be of relevance.

The rationale of the National Strategy (Aguilar et al., 2011, p.12) states that ‘the poor, the majority of whom are women living in developing countries, will be disproportionately negatively affected.’ Without any contextual nuances, this reflects dominant international discourses of the ‘poor vulnerable woman in the Global South’ (Arora-Jonsson, 2011, MacGregor, 2010). Presenting women in the Global South as a homogenous group can exacerbate existing gender inequalities even further (ibid).

I argue that to date gender analysis of climate change in Egypt is narrow and should venture more into the analysis of gender relations rooted in sociocultural processes and norms. By focusing solely on impacts on women, it ignores deeper contextual issues and will lead to ineffective adaptation interventions in local contexts. I argue in line with Bretherton’s (1998, p.86) contention that understanding the gender-relational aspects of climate politics, which are shaped by inequalities of power and access to resources, is compromised by presenting women’s experiences ‘in isolation from the broader sociocultural content in which norms are embedded’. These norms, experiences and perceptions, embedded in their sociocultural context, construct local knowledge on people’s relationship to their environment, as discussed next.

### **7.2.2. Social construction of local situated knowledge: Oppositional discourses.**

As defined by Nancy Fraser (1989), oppositional discourses are used to contest subordinate identities and create new discursive forms for interpreting needs. These oppositional discourses infiltrate local knowledge in the studied villages. Warren et al. (1995) define local knowledge as the inherent knowledge of a culture or society developed over time. Recognition of this local knowledge and how it is exchanged and gendered can contribute to furthering the existing body of knowledge on climate change



and provide a rich resource for coping with its impacts (Rossi and Lambrou, 2008). Myanna Lahsen (2007) and Mike Hulme (2009) recognize the social construction of climate knowledge, emphasizing linkages between climate science and society that implicate the importance of local knowledge. Basic societal and ideological values, which implicate gender norms and relations, shape this knowledge.

Feminist theorists like Harding (1991) and Haraway (1988, 1991) have argued that men and women are situated, i.e. are the construct of the social and cultural context that shape their existence and knowledge. Situatedness is crucial to how men and women perceive and understand their relationship to others and to their environment. Thus situatedness gives rise to knowledge originating in specific contexts of ideational and material experiences. Situated knowledge of the local environment and of how to cope with its changes can be highly valuable in addressing climate-related and environmental stresses, among other livelihood issues in people's livelihoods.

Farmers' knowledge and experiences are increasingly recognized as valuable assets for the adaptive capacity of rural livelihoods to climate variability and change (Roncoli et al., 2009). The Fourth and Fifth Reports of the IPCC emphasize the value of indigenous knowledge systems for climate prediction, policy and adaptation and call for further research in this area (IPCC, 2007, 2014). However until recently only a few studies in the anthropological and gender literature have directly focused on climate (e.g. Crate, 2009, Roncoli et al., 2009).

People's perceptions and knowledge systems are framed by cultural contexts within which they ascribe meaning and value to what they experience (Crate, 2009). As stated by Cruikshank (2005), it is important to consider adaptive systems within the contextual cultural values of those who need it for their livelihood. This is especially essential in areas like marginalized villages in Egypt where there are varying ways of valuing the environment and its sociocultural importance. Local people perceive land and waterscapes (e.g. the Nile, the Mediterranean Sea or the Maryut wetlands) as more than resources or assets. They rather embrace them as a part of their livelihood that encompasses both human and natural systems. Their deterioration due to environmental, climatic or socio-economic changes is grieved over as a loss of cultural identity and meaning. Yet while a great deal has been written on climate change in Egypt, very little empirical and ethnographic research has been conducted on the perceptions and responses of the people who live with it and are exposed to its varied impacts.

In many communities such as the ones I studied, environment, weather and climate are embraced as part of a universe infused with spiritual significance (Orlove, 2003, Rappaport, 1979, Roncoli et al., 2001, Wolf and Orlove, 2008). In Muslim rural communities environmental perturbations are often interpreted as a divine response to the violation of religious, moral and social norms. Local accounts of environmental/climatic changes are embedded in moral and spiritual discourses based on cultural values and preconceptions that shape people's attitudes toward historical accounts and predictions of the future. Attitudes towards the environment are framed in terms of shared religious beliefs, ethical principles and social obligations to one's children. These attitudes were reflected in many accounts that I heard in the villages, particularly those of the older men and women. Many of them echoed, in different ways, Hagg Mounib's symbolic representation of his surrounding environment and its changes in Nubia:

The environment is not just inanimate land, water or air but our surrounding lived environment, God's gift to us that we need to treat well and live with its changes. This is our responsibility, not only to nature but also to our children and their children after them.

This religious and ethical construction of the environment and its changes is of wide prevalence and significance in the villages.

Personal experiences also frame perceptions and experiences of environmental and climatic change. Life-history interviews revealed how weather patterns of the past are idealized in nostalgic recollections of childhood experiences which in turn serve as a cognitive framework for remembering significant life and environmental events. This cognitive association is evident in Umm Ward's recollection of seasonal changes in Maryut:

I remember as a child, we had some lovely winters celebrating my birthday in February. Now the winter is shorter, with frightening days of rain and bone-breaking cold. I also remember July was bearable growing up, and I could easily fast in Ramadan. Now it gets very hard to fast in the summers, which are becoming hell. I also recall we had spring from mid-March till June. Now half of it is too cold and the other half is really hot. I remember this because I got married at the end of March [1985] and we chose that date because back then it was perfect spring.

Such accounts reveal the processes and phenomena that people use as evidence that their climate is changing.

As their environment is threatened, so is people's sense of wellbeing, social relations and harmony. Drawing on Nuttall's (1992) focus on the importance of drawing on folk narratives and life histories, particular those of the older men and women, to understand the social construction of local knowledge, I investigate cultural perceptions of environmental change in the villages. I allowed the interviewees to express their views and feelings about their environment and how it affects their livelihoods at length, in free-flowing interviews and life histories.

Hagga Samia, a Sufi Sheikha (an elder who is respected socially and religiously) and a widow with five sons in Nubia, provides a taste of such accounts expressing connection to the environment and its rhythms of change as well as of grief and fear about its deterioration:

Our environment is part of us. It gives us value, life and *rizk* [livelihood]. We have lived and communicated with it for centuries. The Nile – our gift of life – runs in our veins and regularly gives life to us and to our lands. It can go up and down, and we lived with its rhythm. Our lands – our honour – host us and sustain our livelihoods. This concept is engrained in us in our long history of living with the Nile and its surrounding land in the homeland behind the Dam. When we see the land going bad here [in the displacement villages] and we fear a Nile water shortage it is not only our *rizk* that we lament – we also grieve for our long emotional and almost familial connection to the Nile and its surrounding land. We grieve ourselves for their loss [...] we pray for good rains to heal them.

Hagga Samia reflects the villagers' spiritual connection to their environment as well as the folk narratives that result from it, which are widespread, having circulated in the village for generations.

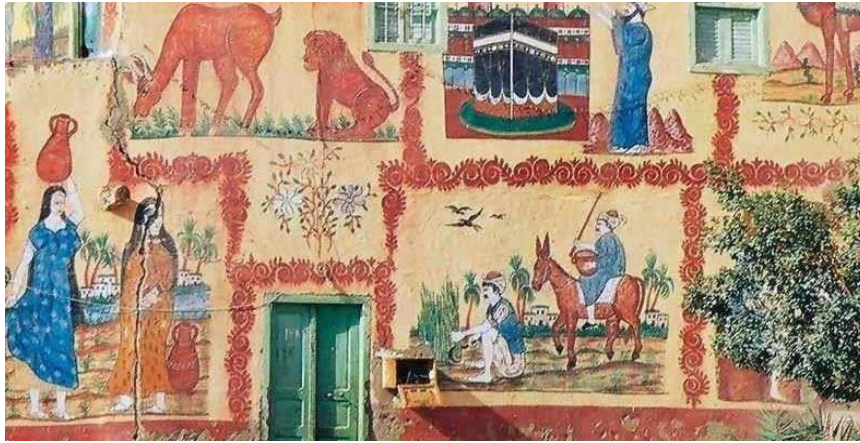
By emphasizing a human sociocultural framing such accounts give voice to folk narratives of change, expanding the discussion beyond climate change to broader spheres of environmental and livelihood changes that affect people's daily lives. Symbolic representations of the environment were particularly used and invoked by older women who had lived in the old Nubian villages south of the Dam which they called 'the

homeland'. The narrative accounts of respected Nubian elders such as Haggia Samia are widely quoted and transferred to younger generations in Nubia. Rituals held by Haggia Samia such as to pray for rain demonstrate the spiritual, mental and physical effort reflecting the religious and cultural beliefs that are upheld to cope with uncertainty and change. This interconnectedness of nature and culture are evident in the description of the Nile as 'the gift of life' and the land as 'honour' in Nubia. The Nile symbolizes an imaginative space where recollections of the past and expectations of the future meet.

The Nile and its land feature as a constant reference point in people's collective memories and oral histories. When I asked Sheikh Moukhtar, one of Nubia's imams, what he wanted to pass on to his 15 grandchildren, he said:

I want to pass on to them all the wisdom I have gained throughout my long life, starting in my homeland village behind the Dam. Most of all I want them to internalize our culture of loving people and our environment and doing good to both. When they were very young I made them stay outside for many spring days, just getting to know their environment, how beautiful God created it and how they can cohabit with it. I tell them all these folk stories about the Nile – our reason and the source of life – and about life on its shores in the homeland. They can only learn this connection through perceiving the land, the water and all the environment surrounding them as cherished gifts from God and manifestations of His grace, as having lives of their own that we cohabit with. They can only learn this through our folk stories and embracing their culture along the Nile because being exposed to modern life and media can just make them live like robots on earth.

This sense of attachment, handed-down wisdom about the environment and the importance of its constituents to livelihoods contribute to how people perceive and respond to climate and environmental change. The visual and narrative representations that people evoke and pass on when describing their environment provide unique insights into the human dimensions of climate change (Wolf and Orlove, 2008). Visual representations of the environment and people's perceptions of and relationship to it are vividly drawn on most Nubian houses. Figure 13 presents such a visualization with a man praying for the rain in front of the Islamic pilgrimage *Al Kaaba* (in Mecca), a man farming his field, women carrying water from the Nile and animals drinking from the Nile.



**Figure 13: Visualization of men and women's relation to and symbolic perception of their environment on a Nubian house**

These visual representations of nature that symbolize people's relationship to their environment are passed on through the generations and taught to young children (Figure 14).



**Figure 14: Nubian children drawing palm trees, birds and the Nile as a manifestation of their relation to and perception of their environment**

This local knowledge reveals underlying cultural notions and understanding of climate and its changes. For example, when categorizing rain events the farmers in both villages considered the duration, distribution and timing of the rain, suggesting that it is understood in terms of a process rather than an amount of rainfall, as commonly depicted in scientific climate studies. The detection of changing wind, rain and temperature patterns also highlights local understandings of time and seasonality. Seasonality is a basic indicator of people's sense of change, not only in structuring perceptions of fluctuations in resource availability but also in their adoption of adaptive responses. Seasonal calendars are often used in ethnographic research as a way of

eliciting and systematizing local climate knowledge (Roncoli, 2006). In the agricultural and fishing communities of my case-study villages, where seasonality shapes livelihoods, climatic changes are mostly understood in terms of deviations from a traditional calendar, as explored in Chapter 5. As noted by Puri (2007), by exploring the ways that people see and know seasonality and change we can detect the kinds of variations that they are able to define, interpret and adapt to within their distinctive context.

Perceptions of the environment and its changes vary according not only to gender but also with birthplace, location, age/experience and worldview. Symbolic representations of the environment and its change are most vivid in the Nubian culture following centuries of living along the shores of the Nile and adapting to the effects of its changes on their land and livelihoods. This adaptation to changing nature is engraved in the Nubian identity by the floods and droughts that they lived with before the erection of the High Dam, as expressed in Sheikh Moukhtar's account of the homeland.

In the Nubian rural culture, seeing and knowing are closely related. Elders, men and women, have authoritative knowledge that gives them symbolic capital, because those who have lived for many years have witnessed many events and changes. This respect for and authority of elders is deeply embedded in the Egyptian culture, particularly in rural villages, and the life histories of local elders, as related above, proved very informative in eliciting local knowledge and cultural memory of the environment and its changes. Powerful symbols are emblematic of the Nubian cultural identity, which claims a particular relationship to the Nile and to land. They are featured in emblems such as the Ankh, symbolizing the key of the Nile (Figure 15), which the Nubian women use to adorn their houses and wear as jewellery.



**Figure 15: The ankh: the Pharonic symbol of the key of life or the key of the Nile**

Symbols of the environment are also featured in drawings on walls, which usually include palm trees and land on the shores of the Nile (Figure 16).



**Figure 16: A typical drawing on a Nubian wall representing palm trees, camels and land against the background of the Nile**

Furthermore, as introduced in Chapter 5, environmental features are animated and given a feminine presence and linguistic connotation. When I asked people about this feminine personification, Hagg Suleyman, a 54-year-old Nubian man told me:

‘Land and water are the source of life, our life. They are revered and animated in our songs, like Mounib’s (Nubian singer) song: *We love each other ... like plants and the earth ... like the dew on roses ... like the Nile flows*. I never really thought why we give them feminine connotations but now that I think of it, it’s clear. The land is our life, our love, our honour, and we have to take care of it just like our women. The Nile water is our source of life – we would not be here without her, just like our mothers who give us life.’

The personification of environmental features such as land and waterscapes reflects a view that nature represents humanity (mostly personified as a woman or mother), relationships and culture (Nuttall, 1992). This personification embodies collective experiences and cultural knowledge about the environment and its changes which have been passed down through the generations.

In Maryut, the residents have settled there from different parts of Egypt. This heterogeneous nature (as opposed to the homogenous culture of the Nubians as discussed in Chapter 4) influenced their culture of connecting and belonging to their environment and living with its changes. Within a gradation from symbolic to positivist views of the environment and adapting to its changes, the discourse of the residents of Maryut is closer to – though still different from – the mainstream national adaptation discourse than that of the Nubians. This difference between Nubia and Maryut attest to

the fact that even at the national level, the local discourses can be multiple, depending on context, culture as well as gender.

These multiple local dimensions of connecting to the environment are highly influenced by religious consciousness that shapes perceptions of environmental consciousness, which I address in the next section.

### **Muslim environmental perceptions in the villages**

Beliefs, convictions, hopes, perceptions and emotions influence the human-nature relationship. Village culture is closely related to religiosity which in turn affects environmental perceptions, knowledge and adaptive behaviour. According to Foltz et al. (2003), understanding the religious and spiritual life that infiltrates human societies is necessary to understand how people perceive and connect to the environment and respond to its changes. In Egypt the Islamic mores of the majority Muslim population affect perception of the natural environment and the human-nature relationship (Masri, 1992, Rice, 2006). Studying environmental behaviour and perception in four rural and urban sites in Egypt, Hopkins et al. (2001) found that 95 per cent of respondents felt that religious teachings have some relevance to environmental issues.

Much of the Islamic environmental discourse focuses on deontic dimensions relating to duty and obligations of religious prohibitions or incentives, and spiritual levels of connecting to the environment (Brown, 2013). These spiritual and deontic influences founded in Quranic teachings underlie men and women's relationship to the natural environment. My fieldwork observations, individual and group interviews and life histories show that the spiritual and symbolic dimension of Muslim environmental consciousness is more prominent in Nubia, where most people embrace Sufi Islam. Hagga Samia, the Sufi Sheikha in Nubia described in the previous section, told me that Sufism teaches valuing and perceiving nature as a sacred creation that requires people to protect, learn from and live with the environment. She pointed out that this spiritual connection to the environment is more present in those who are spiritual, wise and attentive to contemplate the deeper meanings of change in life.

The deontic dimension is more prevalent in Maryut, where most people follow the more mainstream Sunni Islam. However, as generally perceived in the villages, the broader and deeper spiritual dimension underlies the ethical deontic dimension – of religious obligations and prohibitions - to different degrees. The deontic ethical dimension gives rise to the individual's accountability to the preservation of the environment. Man's



stewardship of the environment (*khalifa*), is stipulated in the Islamic more. Humans are entrusted with maintaining the balance of the environment.

Hagg Razek, an imam in Maryut mosque, explained this responsibility:

We learn from the Quran that '*And the heavens He has lifted and placed the Balance; that you not exceed the Balance. So establish just measure and do not upset the Balance*' (Quran 55:7–9). Allah made us *khalifa* [stewards] on earth to maintain that balance. This responsibility and this balance is what make us take care of our environment, which gives us life. We mess with this balance by abusing the environment, and it turns on us.'

As is evident in Hagg Razek's account, disruption to our human stewardship is perceived by many villagers as the main cause of disharmony and disaster in the environment. Climate and environmental disturbances or disasters are perceived as partly the result of poor human behaviour and actions toward the environment. When asked about the perceived reasons for climate-related stresses, many villagers in both villages recited the Quranic verse: '*Corruption has appeared in the earth and the ocean due to what the hands of men have wrought*' (Quran 30:41). This reflects people's openness to and even advocacy of the idea of anthropogenic climatic change which is still controversial in many public arenas. Their conviction emanates from the ethical dimension of environmental consciousness.

I gathered from talking to sheikhs and elders in the villages that three themes underlie the religious spiritual environmental consciousness of the villagers. The first is the perception of the environment as constituting signs of enlightenment (*ayah*) from which to draw moral lessons (*ibar*) and inferences from nature. An example of this is the perception of seasonality as a norm of change in life that people should adapt to, as reflected in the account of Hagg Kora, an elder wife and grandmother of seven in Maryut:

The changing nature of the world is symbolized in the changing of leaves and fields in fall that will inevitably be dry by summer and get blown away by the wind. Nothing lasts but morality and goodness to nature and mankind.

Furthermore, in both villages people perceived rain and crops as signs of divine will. Many villagers, when asked about the value of the environment to them, recited the Quranic verse: '*We will show them our signs on the horizons and in their very selves until it becomes clear to them that it is the truth*' (Quran 41:53). This perception is echoed in the account of

Hagg Suleyman, the Nubian imam:

When we look to the horizons, the Nile and our fields, we witness the effect of the omnipotence of God and nature. The nature surrounding us is an uninterrupted witness to the workings of *Al Khaliq* [the Creator] and His generosity. Sufism teaches us to worship and love God as if we see Him. We see God in all his creations, the most splendid of which is nature.

These accounts manifest the religious connection to the environment and nature and the accountability it entails. Digging deeper into people's relationship to their environment, I explore the second theme of perception of the environment as a site of spiritual and symbolic consciousness. Many accounts of people in the villages give the environment a symbolic or metaphysical meaning. However, as mentioned, this is particularly prevalent in Nubian Sufi culture, which is more in tune with symbolism related to the human and natural worlds. For example, the date palm in Nubia is viewed as a parable of the 'goodness tree' that is used as an analogy for people's kindness and divine giving. Many Nubian houses have drawings of palm trees with the Quranic verses reading: *'Have you not considered how Allah presents an example, a good word like a good tree, whose root is firmly fixed and its branches in the sky? It produces its fruit all the time, by permission of its Lord ...'* (Quran 14:24–26). Rain also provides an analogy for divine mercy. It symbolizes life being given back to earth as a symbol of resurrection. When it rains, people in the villages pray and show their gratitude to God. When rainstorms hit the villages they pray for forgiveness. This symbolism illustrates a reverence for and intimacy with the natural environment that gives rise to an environmental consciousness. The first two themes represent a modality of what Jihad Brown (2013, p.10) calls 'remembrance in nature'. The third theme is more of a metaphysical 'remembrance of nature'.

This third theme is the animation of nature, birds and animals and the recognition of these as possessing a life and awareness of their own. To make this point, the villagers always recite the Quranic verse: *'And there is no creature on the earth or bird that flies with its wings except communities like you. We have not neglected in the register a thing. Then unto their Lord they will be gathered'* (Quran 6:38). 'Remembrance of nature' refers to instances in Muslim modality where objects like trees, mountains and winds, or animals and birds have their own awareness, and pray and feel. Birds and animals are perceived as engaging in the remembrance of Allah (Masri 1989). In Nubia, women sit outside in the courtyard and listen to the birds singing at sunset, which they interpret as a sunset prayer. This

animation of nature reflects the Quranic verse: ‘*The seven heavens and the earth, and all things in them celebrate Him; and there is nothing except that it sings His praises, it is only that you do not perceive their celebration*’ (Quran 17:44).

These dimensions and themes of environmental consciousness in the villages arise from a spiritual connection to and engagement with the environment and its changes. They link human systems, with their physical, mental and spiritual dimensions, to the natural systems of the environment. They are governed by the overarching principles of balance and ethics to guarantee the sustainability of people’s livelihoods through connection to their environment and adaptation to its changes, and infiltrate the social construction of people’s local knowledge of their environment. These oppositional discourses are also infiltrated by multiple views of multiple ‘publics’ (Fraser, 1987) depending on positionality such as those adopted by Zar women in Nubia.

#### **The Zar as an oppositional discourse**

The *Zar*, an exorcism ceremony exclusive to women, is an evident example of an oppositional discourse in Nubia that differs from mainstream religious and cultural constructions of knowledge. *Zar* ceremonies act as a spontaneous emotional outlet (Barclay, 1964, Kennedy, 1967). They allow women to freely express their feelings of repressed aggression, anger, stress, etc. The practice of *Zar* also allows the formation of strong alliances between women based on a narrative of controlling evil spirits and a freedom of expression and motion that gives them a sense of group independence and power. As analyzed by Fatima Mernissi (1977), studying the symbolism of women dominating the sanctuaries in rural Morocco, these outlet ceremonies exemplify women’s assertion of their active role in movement, decision-making and self-determination in a women’s collective setting.

The *Zar* ceremony is traditionally important in Nubia (El-Guindi, 1966, Kennedy, 1967), as well as in some other parts of Egypt, Sudan and Ethiopia (Boddy, 1989, Lewis, 1966). The dancing and drumming ceremony is performed by a group of women led by an older woman (*sheikha*) who orchestrates the exorcisms.

Why do I include this type of ceremony in a chapter about discourses and knowledge about gendered adaptation to climate change? At first it appeared to me to be just an interesting phenomenon unrelated to my topic. However, I observed that this association creates a female bond that underlies both a quest for power and a very special type of

knowledge, communication channel and collective power to cope and adapt. In these women's groups knowledge, including environmental information about their family, land resources, and the changes occurring to them are exchanged. In this context women are able to talk about household income or financial problems.

The women involved in these groups act collectively based on this exchanged knowledge about their environment and changes to it. One clear example of this pattern is coping with the heavy rains that hit Nubia in winter 2014-2015 while I was there. The first women to open their households to families whose houses were affected were the women in the *Zar* group. They carried out a *Zar* ceremony to vanquish the bad spirits of the 'bad rains', after which much information was exchanged about the pattern of the rains in recent years and how it is changing and affecting their livelihoods and households. Based on this detailed information and projections that they calculated, the women began to plan for the next winters of bad rains and summers of destructive heat to the fields of their families. I saw this as a powerful and vivid manifestation of collective power. There was a different discourse that emanated from these women – particularly the older women leading the ceremony – to that of their households and community.

As I observed in Nubia, the women who lead the *Zar* are revered. Their high religious saint-like status puts them above many of the village gender norms. They have complete freedom of movement in and outside the village and can congregate with men and women alike without any stigma attached to their behaviour. This saint-like status of older women, studied by Fatima Mernissi (1977) in rural Morocco, was a totally new phenomenon to me in Egypt. Hagga Nariman is one such example. She is a 67-year-old wife and mother of five who regularly orchestrates the *Zar* ceremonies in Nubia. Hagga Nariman spoke about the *Zar* ceremony:

I attended the *Zar* ceremonies even before I got married. Educated people may see it as superstition; I know that it is not really about evil spirits – it's mostly a group energy. It's a source of life that runs through our bodies and spirits. You release bad frustrated energy and just feel strong, as if you've been lifted up by all the energy of the women around you. It makes a great volcanic power that forms a bond between us that only we can understand.

As expressed by Hagga Nariman, the *Zar* acts as an informal women's association that, as summarized by Fatima Mernissi (1977, p. 105) is 'undeniably therapeutic ... (and) stimulates the energies of women against their discontent and allows them to bathe in an

intrinsically female community of soothers, supporters, and advisors.’ The women involved in the *Zar* ceremonies, as related by Hagga Nariman, develop a special bond and a communication channel that is exclusive to them and transcends normative gender-based boundaries as it is based in this magical space of exorcism.

Furthermore, as related by Hagga Nariman, ‘educated people’ look down on this group from a superstitious standpoint. *Zar* ceremonies communicate a different type and realm of knowledge. They constitute a resistance to forms of ‘educated people’s’ knowledge that are widely accepted as ‘valuable’. The knowledge communicated in these groups of mostly older Nubian women who cannot read or write constitutes a type of knowledge that they can relate to and understand. It is valued by them and by the wider Nubian community. This is what Fatima Mernissi (1977, p.111) calls ‘resistance to hierarchical knowledge’, which provides women with knowledge that they consider theirs and gives them the opportunity to identify problems in their surroundings and try to collectively find solutions. However, I disagree with Mernissi’s (1977, p.112) claim that such forums of contestation ‘do not affect the system’, because in the kin-based community of Nubia these oppositional discourses transcend the groups in which they were created through the influence of the women involved in them in the household and community.

This sphere of influence brings me to the second stage of interpreting the need to analyze the forum of contestation of these different discourses.

### **7.3. How are different discourses interpreted and contested?**

How can one hear and interpret dialectical and cultural forces in local environmental discourses? And whose knowledge is privileged or influential in adaptation decisions? Responding to these questions requires going beyond the stage of exploring verbal depictions of the environment to interpret the who and how of this knowledge of the environment and its changes. This interpretation explores the positionality, value and influence of different kinds of information, by whom and how they are communicated and how they are valued in distinctive cultural and social scenes (Carbaugh, 1992).

#### **7.3.1. Interpreting the social construction of local environmental knowledge**

Szerszynski et al. (2003) assert that the static ideas about the nature–culture relationship that dominate mainstream environmental research and policy contrast with tacit local knowledge of an alternative relationship with the environment in which the environment is discursively represented, and common meanings about it and its changes are symbolically constructed. Analysis of potent depictions of the environment and its

changes implicate various social persona, modes and motives of action and relationships. They integrate discursive messages about nature and culture and how people perceive and relate to them. Borrowing the words of Carbaugh (1992, p. 141): 'To know the land is to go "there" to that physical space and experience it, but it is also to discover, while there, the symbolic place which that land holds, to those who inhabit and use it'. Failing to recognize this is to blindly impose one's own coding system onto local cultural and symbolic systems and narratives. This results in a discursive gap that hinders research, policy and interventions. For example, most residents in both villages said that the discourse and actions of environmentalists are 'insulting' and 'condescending' because they are outsiders who cannot tune into local issues and are not interested in listening to them. The relationship created through these conflicting discourses is based on competing identities, personas and motives, creating a strained social arena that inhibits local adaptation.

In the villages, as in many other indigenous rural societies, people's conceptions of how they relate to the environment are much more complex than the compartmentalization of nature and society as separate entities (Croll and Parkin, 1992). This divide manifested as a culture nuance in translating to the villagers' culturally ambiguous terms such as 'adaptation to climate or environmental change' that was best related in terms of developing their threatened livelihoods. Furthermore, perceptions of environmental change take on a symbolic perspective that affects how men and women relate to, experience (Chapter 5) and cope with these changes (Chapter 6). Roncoli's (2006) concept of 'cultured climate' is relevant here. This refers to how the meanings attached to climate impacts and causes vary across cultures and contexts, affecting how differently-positioned individuals interpret environmental information depending on local cultural preconceptions and accumulated experience of climate events.

The interpretation of local environmental knowledge can differ along lines of gender, age, hierarchy and kinship. According to Fafchamps (2003), actions, modes of exchange and access to different types of resources are affected by the relations of differently-positioned actors and their embeddedness in social and cultural structures, which create different interpretations and perceptions of local knowledge of their environment.

As discussed in Chapter 5 and noted by Davidson et al. (2003), gender shapes the processing of climate information and perceptions of climate risk. Women in the villages seemed better at describing the subtle details of the timeline of noticeable changes in the

Coptic storm and Pharonic calendars, changes in crop and fish yields and types and variations in the length of the dry and rainy periods. Men seemed better at describing larger spatial changes, such as in sea and Nile boundaries, soil erosion, loss of fertility and other physical features of direct significance to farming and fishing. Understanding this cultural and gendered construction of climate and risk knowledge is essential when assessing adaption to climatic changes, among other livelihood stresses.

The channels through which information is passed between women and men's networks are rarely dealt with in the climate change literature, especially in seemingly-segregated Muslim society. From my fieldwork in the villages, backed by other anthropological accounts in Egypt (Abu-Lughod, 1986, Hoodfar, 1997, Jennings, 1995, Singerman, 1996), I believe that the flow of information between men and women mainly takes place in the domestic sphere between husbands and wives. This is not to deny that more general information is shared publicly in segregated groups of men and women, but more personal information related to household conjugal relations, livelihoods and household adaptation mechanisms is privately shared in the home.

However, as noted by Joseph (1993) and Makhlof (1979), this sharing of information between men and women does not seem to be symmetrical. Men seem more limited in their access to information in the women's sphere. One example of this discrepancy in the flow of information between men and women that I observed in village households is that men share public information freely with one another in the presence of women, while women do not exchange information in men's presence. Also, as previously discussed, there are associations exclusive to women such as the *Zar* groups, and private and confidential information is only shared by women within their spheres. This observation of the asymmetric flow of information was noted by Abu-Lughod (1986) while studying the Bedouin Awlad Ali in Egypt's Western Desert. Furthermore, sharing Soraya Altorki's (1988) observation in Middle Eastern Muslim societies, men in the villages are socially prevented from discussing private household matters in public with other men, while women freely discuss private affairs in their women's groups and share their information with their men in the privacy of the home. Men learn from women what they cannot elicit from other men, and hence appear publicly more knowledgeable.

Male household heads are ideologically responsible for household decisions. However, my fieldwork observations and interviews found that in practice these decisions, including on adaptation, are based on information obtained mostly from the private

female domain and are only made after consulting the wives, although men may not admit it. This is illustrated in the example of the flow of information on the 'bad rain' in the circle of women in the *Zar* group, who identified the problem, analyzed its effects on their households between themselves and devised solutions for coping with it now and adapting to it in the future. These solutions, such as short term hosting of those whose houses have been destroyed, plans for rebuilding the houses with more durable materials and for changing the times of sowing in the winter season, were disseminated in the community via wives communicating them to their husbands in the privacy of their homes. This wife-husband communication channel for local situated knowledge is more prevalent in Nubia with its more closely related conjugal relations, as discussed in Chapters 4, 5 and 6, and constitutes the basis of adaptive response in the villages as illustrated by the example of responses to 'bad rains'.

Individual village and group interviews indicated that varying amounts of knowledge are exchanged between men and women in the household. Women tend to be relatively more confined to the villages, particularly in Nubia while men travel to urban areas to work, influencing the kinds of information and social networks that women and men are able to access. On the other hand, women have wider media access, particularly through watching television at home, and stronger social networks in the villages (Chapter 6) that allow them more substantive access to private household networks of information. Women's access to and use of information is evidence that their influence extends into the public arena via the domestic domain. Women use these network channels in areas at the core of family life in the community such as marriage arrangements, economic exchange, social control and flow of environmental information as explored in the *Zar* group. This flow of environmental information through different informational access mechanisms by men and women and its translation into improved adaptive capacity and adaptation depend greatly on gender relations as a medium for the communication of different types of information between men and women in the household and community.

Several accounts of women in both villages, and particularly in Nubia, echoed Haggia Salima's articulation of this knowledge exchange in her Nubian household:

Abu Razek [her husband of 20 years] has worked all over Egypt and even worked for a few months in Kuwait. He has wide knowledge of things outside the village and more scientific – as you educated people say –



information about what to expect of the environmental changes that will be bestowed upon us. I have my own knowledge circle in the village and my husband has his. When we're on good terms, we share our different versions of information and get a more complete picture of what's going on in and outside our community.

This account reflects how access to knowledge is related to the gendered roles of men and women in the family and community, and how the exchange of that knowledge depends on gender relations in the household and community.

Another very important social vector shaping perceptions and knowledge in the villages is age. Elder men and women acquire and develop situated knowledge that is passed on through generations. Such knowledge is respected and considered authoritative in the village communities due to the symbolic and cultural capital of its holders. In turn, this knowledge provides those who hold it with human, social and symbolic capital that give them a highly respected status in the community and influences people's level of trust in such knowledge, giving it value and credibility and ensuring its dissemination through the generations. Such knowledge includes the adaptation to floods and droughts of generations of Nubians living along the shores of the Nile in the homeland behind the Dam before its erection. I was very surprised when Shaker, an 18-year-old Nubian young man, told me in vivid detail about living with the Nile and adapting to floods in the homeland, a land he had never even seen but had heard all about it from his grandparents:

I learned every detail of the homeland from my grandfather. I can even visualize it and smell its beauty. This doesn't mean that it was always easy. They [Nubians living in Old Nubia] had to know their land and their Nile and their changes. The water could go down, and then they had to bring it up by *Sakia* [an old form of water pump] or it could go up and flood their fields. They knew when by following the stars, and adjusted their sowing accordingly. My grandmother always tells me about that life and how people lived together in the old villages. I guess she tries to maintain these traditions through my parents and me. Yes, life changes, but I am conscious of keeping up our good old Nubian way of life, and hopefully will also pass it on to my children and grandchildren.

Shaker's account also highlights kinship, cultural and social embeddedness (Granovetter, 1973) as very important factors that affect knowledge and perceptions. Knowledge, including environmental knowledge, situated in kinship and embedded in social and cultural scenes that men and women belong to, is highly valued and diligently passed on. This is much more prevalent among the Nubians, who maintain their old way of life, adapting to their environment, their land and the Nile, and passing on their centuries-old knowledge through their extended kinship structures.

### **7.3.2. How are national and local discourses contested?**

Village respondents identified the adaptation initiatives provided for them as mostly joint governmental and international donor interventions that appear after disasters. They characterized these activities as not sustainable or planned and responding only to immediate post-flood effects. Sixty per cent of the women interviewed in the villages observed that the initiatives targeted men as the household heads, revealing their awareness that they ignore intra-household gender relations and bargaining power. Women in female-headed or female-maintained households recounted how the technical assistance provided was beyond their capacity to implement, such as in post-disaster housing consolidation which results in weaker houses than those renovated by men. Only 25% of village respondents identified government-led initiatives in the villages; however, they find that they are 'superficial' and 'short-term' and 'do not achieve much'.

National climate change and gender framing results in adaptation policies and actions that are not fit for people's understanding or needs. This can lead to interventions that can have the opposite effect to that intended. These imposed and unsuccessful interventions also alienated and angered the interviewees in the process. This is exemplified in the account of Hagg Khattab, a 58-year-old Nubian farmer:

The government and other organizations do not help us much. Sometimes they just emerge out of the blue with these big words and imposed interventions that are usually unsuccessful and have little to do with us. For example, government officials and some foreigners came to the village a few months ago and spoke about projections and measures of irrigation and new crops. You know what? We could tell them better about the times and the crops that work. They just believe, in their high tower and with their high diplomas, that they know better.

This account reflects that many villagers realize that these interventions have little to do with them and that they do not really address their problems or consider their acquired and lived knowledge. Such interventions neither address in policy nor in practice the more pressing and bigger social and livelihood concerns presented in the interviewees' discourses. The prevailing discursive and policy framing of gender and climate change appears to misrepresent what matters to individuals and households in terms of socio-economic and environmental concerns. This suggests that in its current form, adaptation policy - using generic interventions and information to tackle highly socially-embedded issues that require contextually relevant forms of governance - will not generate real adaptive change in people's lives.

Governance is broadly defined as society's political and economic institutions, rules and relationships (Kabeer, 1994, Leftwich, 1993). At most levels of governance in my case study, and particularly at the community level, motivation and skills to address some of the people's livelihood issues are lacking. Since the late 1970s the Egyptian state has been focusing its development activities on urban areas to the detriment of rural ones (Hopkins et al., 2001). The state is almost absent from my study villages. The few governmental interventions are sporadic and tend to bypass the poorest in the villages. Governance for sustainable livelihood interventions should take the form of community action that is constantly formed around people's needs and mores (Murdoch and Marsden, 1995). Presented in this way, it is not only an issue of policy but also one of discourse and perspective.

According to the general perception of the policy interviewees, the process of involving local knowledge and gender dimensions is not very effective in the environmental sector. Five out of the ten policy interviewees reported that local knowledge is of little significance at the moment when it comes to climate change information. Some projects exist such as the SEARCH project funded by the European Union and in partnership with the Egyptian government, which works directly with communities and engages farmers. However, government efforts in the area of incorporating local knowledge are scattered and inadequate, according to one of the experts working in the municipal government sector. As she stated: "one way communication from government to people does not allow any local information to be passed on from farmers to government institutions". She emphasized that the agricultural cooperatives need to "improve their communication with the farmers and make use of their experiences". She stressed that

even in limited attempts to engage with rural communities, the gender dimension is missing. According to her, this inadequacy in incorporating local knowledge and gender dimensions “can seriously harm the adaptation process in Egypt”.

#### **7.4. Addressing gender in adaptation to climate change: Framing the issue and reshaping policy**

Based on the evidence of gender-specific vulnerability and adaptation presented in Chapters 5 and 6, addressing gender in climate change adaptation discourse ceases to be a matter of idealism and is rather manifesting as a strategic necessity. Discourses derive from epistemological positions, social relations and forms of practice, and in turn inform policy approaches (Darier, 1999, Mills, 1998, Murdoch and Clark, 1994). Gendered and cultural construction of knowledge about the environment and its changes inform the adaptive responses of men and women individually and collectively (Nelson and Stathers, 2009). The national discourse informs policies and interventions for adaptation to climate change. My main argument is that the dominant national gender and climate change discourse in Egypt has little resonance with people in the villages, who embrace other discourses, as presented in the local context. This alienates people from the policy processes of adaptation and planned interventions that aim to provide solutions to the stresses and risks of climate change.

What role, if any, do the dominant bureaucratic and alternative oppositional framings have in the lack of gender-sensitive adaptation plans? The national climate change and gender discourses can result in policies not fit for context. Alternative discourses broaden the focus away from climate change per se and into ideas of social practice and forces that enable or constrain adaptation framed by sustainable livelihoods and gender relations. The research presented in this thesis shows how adaptation processes are linked to personal histories and meanings, expressions of identity, and gender relations. Discourses that influence local adaptations stem from people’s perceptions of right ways of living and adapting their livelihoods, where the environment is presented as an integral part of social life.

The national adaptation interventions - mostly still at the stage of policy formulation and planning - that are based on a positivist and gender neutral discourse that at best adopts the gender means women approach are not proving very effective in the villages. Most of the interventions mentioned in Section 7.2 are not even known to the villagers such as the wells to measure soil salinity or raising awareness of climate change projections. In

terms of disaster response, interviewed villagers of Nubia and Maryut concur that government assistance when offered, is in the form of monetary compensation or supplies, in response to damages caused by extreme rainstorms that destroy houses and crops. These efforts, as stated by the villagers, are short-term, random and not sustainable. Furthermore, no weather forecasts are communicated to the villagers and no pre-disaster measures are implemented.

The adaptation measures that are implemented for incremental climate-related stresses in the villages are almost non-existent. In the few interviews that mentioned these measures in Maryut, the interviewees stated that government agriculture cooperatives ‘sporadically’ offer heat and salinity resistant crop varieties. However, they mention that they are offered at a time that does not suit the times of planting or crop rotation. In Nubia, a few interviewees mentioned similar interventions but stated that the heat and salinity-resistant maize and bean varieties are not grown in Nubia so farmers are not accustomed to planting them. They also said that they offer no value added for them in their processing. They mentioned that they would prefer varieties of the crops they value and process such as spices. It follows from these perceptions that the government interventions lack planning based on the needs, preferences and experiences of the villagers. These accounts also show that there is no real communication between the government authorities, whether national or municipal, and the residents of the villages. This gap in communication and discourse leads to ineffective interventions that do not suit the needs of the villagers.

An interviewee from an agriculture cooperative in Aswan acknowledged these gaps of communication and the weakness of the national policies and discourse in understanding people and their needs for adaptation to climate change. Another interviewee from the Ministry of Agriculture and Land Reclamation concurred with these views. He mentioned the ACLIMAS project, funded by the European Union, which is testing new crop varieties and the applicability of selected genotypes of maize, beans and wheat that are tolerant to salinity, high temperature and water shortage. However, he stressed that such varieties are not yet widely used in areas already suffering from high salinity and water shortage and that the farmers are still cultivating traditional varieties of their preferred crops. He highlighted the need to work directly with farmers to understand their preferences for new varieties of crops and to understand what governs planting dates, as well as training them to cultivate new crops.

In terms of gender dimensions of livelihood adaptation, all interviewed men and women in the villages expressed that they do not know of any adaptation interventions that have targeted families and members within them. The few adaptation measures that they had encountered were presented in a top down manner and were mostly technical interventions communicated to the male farmers. These measures only concern farming techniques and inputs and do not venture into addressing men and women's livelihood needs as individuals and families. When I related these views to the policy interviewees, one interviewee from the Egyptian Environmental Affairs Agency (EEAA) stated that:

Gender measures are in the policy documents now. We have the new gender and adaptation strategy but it is in the shelves and not yet translated to implementable interventions or measures. I think it is done as an international obligation but we have yet to see if it will be adopted and implemented. Furthermore, even if we venture into implementing these gendered measures of adaptation, they will not be widely accepted by local communities because they target women in isolation of the family. Hence the male family members will feel excluded and undermined and the women themselves will not accept the interventions because they can cause conflicts in the household.

This account points to two main problems in adopting gendered adaptation measures. The first is the problem of translating policy to implementation at the national and local levels when it comes to gender measures<sup>50</sup>. This is due to a lack of political will at the ministerial and municipal levels, as stated by an interviewee from a local NGO. The second problem is the absence of a gender approach that takes account of the local context, norms and culture and that focuses on the relational dimension of men and women in their families and household. An example of an unsuitable intervention is offering employment opportunities to women that do not suit them. Such interventions that are deemed empowering can cause more harm than good by heightening conjugal conflicts within households. More suitable measures can be dedicated to supporting families by offering livelihood diversification options to men and women that are suited to their needs, norms and notions of respectability, as explored in Chapter 6.

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<sup>50</sup> Other than gender measures, there are also wider problems of policy implementation that relate to governance, funding and the policy process for adaptation still being at an early stage. These wider problems are further exacerbated by the recent political turmoil and economic context (covered in the context chapter (4)).

Trying to map a one-size-fits-all adaptation approach onto a complex local pattern of meanings and practices will not lead to effective equitable adaptation (Ensor and Berger, 2009, Nielson and Reenberg, 2010). Livelihoods formed through a multitude of personal, social and historical processes are being forced into a narrow, one-dimensional frame of reference that has little to do with people's day-to-day experience. National interventions should be customised to fit the local context, based on local perceptions, experiences and knowledge communicated to policy makers.

It is important to note that opposing national and local discourses can be complementary. Local knowledge systems for coping will not easily translate into long-term planned adaptation to climate change. Scientific assessments can be communicated to village people for better planning. Those producing scientific assessments can learn from local knowledge, to improve the scientific assessments. Technical interventions based on local demand and accompanied by training can assist people with long-term adaptation. People's adaptive innovations can be endorsed and disseminated as best practice to help other communities. Valuable insights can be gained from understanding the contexts and processes in men's and women's livelihoods that contribute to their adaptation. Thus a two-way exchange of information for adaptation to climate change can bridge the gap between different discourses in a way that enhances adaptive capacity at the national and local levels.

## **7.5. Conclusion**

Understanding the interactions of climate, culture and gender, and in particular the role of perceptions, values and knowledge as elements of these interactions, brings us to focus on adaptive responses. Local experiences of how to cope favour improvised adjustments in response to climate-related stresses – referred to as autonomous adaptation as discussed in Chapter 2 - rather than the planned adaptation of the implementation of consciously and strategically established adaptation plans (Pelling and High, 2005, Smit et al., 2001). For example, as explored in Chapter 6, farmers in the villages do not formulate a strategy for crop adaptation based on their expectations of how the climate might be; they scrutinize the environment and land before planting time and then decide on their cropping patterns. It is a process that relies on a mosaic of sensory observation and intuition, cumulative experience and learned skills that are passed on through personal ties and intergenerational narratives in the community. This knowledge evokes a competence that is ingrained in the context and experience of the

men and women in the villages, whose adaptive livelihood strategies should be understood in their context and should constitute the basis of any adaptation interventions or policies.

Local knowledge in the villages is permeated by a religious and spiritual environmental consciousness that draws upon a spiritual connection to and engagement with the environment and its changes. Within this framework, the surrounding environment is perceived as a living subject that deserves recognition, respect and adaptability to dealing with its changes. This spiritual level of environmental consciousness informs more sustainable ways of coping with environmental and climatic changes. Hamed (2005) and Rice (2006) highlight the need to make use of spiritual and religious environmental ethics in designing environmental interventions in Egypt. My study confirms this view by showing the significance of spiritual and religious environmental consciousness in shaping local knowledge and responses in the villages. This influence is an important criterion to consider when devising context-specific environmental and climate-related adaptation policies and interventions.

However, it is important to note that the patterns or typologies of knowledge and perceptions in local discourses are not set in stone. They are rather in a continual dynamic process of change and adaptation to increasing stresses, changing perceptions and the experience of these stresses. They evolve with changing social and gender relations which are constantly being renegotiated. National discourses should be flexible enough to cope with these changes and incorporate them in policies and interventions. In practice, this could be applied to the development of updated national strategies for adaptation to climate change and for mainstreaming gender in adaptation in Egypt that correspond to changing local needs, social relations, perceptions and knowledge systems<sup>51</sup>.

Different worldviews about the relationship between climate and society underlie the construction of climate change discourses (Hulme, 2009). I explore the divide between national and local constructions of the gender and climate change discourse that affect adaptation. Given the changing nature of policymaking, analysis of discourses plays a

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<sup>51</sup> Here it is important to note that Egypt has only developed two national communications under the UNFCCC Non-Annex I countries. The Initial National Communication of Egypt was published on 19 July 1999 (EEAA, 1999) and the second on 7 June 2010 (EEAA, 2010). The third was to be completed in 2015 but has not yet been published. Egypt has developed only one national strategy for mainstreaming gender in climate change in 2011 (Aguilar et al., 2011).



central role in identifying and analyzing the new sites of discursive dynamics and policies that emanate from them. The hegemonic national climate change discourse in Egypt revolves around considering climate change as a global, gender-neutral and scientific environmental issue only known to ‘experts’. The emerging gendered discourse currently embedded in the climate change debate in Egypt draws upon an entrenched gender ideology that assigns women to a homogenous static category that offers little resemblance to men’s and women’s experiences of and responses to climate change. This construction can result in the adoption of culturally unfit gender-blind interventions as ‘solutions’.

In contrast, the local discourse offers an alternative framing that considers local experiences and perceptions of climate and environmental change as part of a sociocultural livelihood system. A recognition of this discourse places people in their livelihood and cultural contexts as key social actors. It emphasizes the importance of considering gender relations and wider social relations as well as people’s relationship to their environment as key factors in climate change discourse and the planning and implementation of adaptation interventions. This is what Unni Wikan (1995, p.637), writing about Egyptians, refers to as ‘cultural competence’, which she defines as ‘the arsenal of knowledge, skills, attitudes, and institutional practices that people possess and can employ in coping.’ This cultural competence, which helps to translate adaptive capacity into adaptation action, highlights the immediate need to understand the sociocultural gender dynamics that act through household, community and society structures to endorse or constrain the knowledge needed for adaptation to climate-related stresses, among other livelihood stresses. This requires holistic livelihood assessment and gender-sensitive development that is fit for the specific local sociocultural context in question.

This discursive analysis demonstrates the value of a constructivist approach and ethnographic methods such as open-ended interviews, participant observation and life histories in understanding underlying cultural models and relating them to the national discourse of gender and climate change. In studying the effects of national development on the livelihoods of a marginalized Tamang village community in Nepal, Ben Campbell (2010) demonstrates the importance of ethnography and locatedness to relating local rhetoric and perspectives to national policies and interventions. The discursive analysis presented in this chapter follows this approach by reflecting on the perceptions and

experiences of local communities and juxtaposing these with ‘expert’ discourses reflected in national adaptation documents and policy interviews. The analysis in this chapter endorses my central argument that understanding gender relations in different cultural and ecological contexts is central to the framing of adaptation policies.

## **Chapter 8: Conclusion: Addressing gendered vulnerability and adaptation to climate change through a relational and contextual lens**

### **8.1. Introduction**

Adaptation is increasingly rising on the agenda of the mainstream discourses on climate change, especially in the context of developing countries (IPCC, 2014). It is increasingly recognized that for many societies climate change is not a gender-neutral scientific problem but a social livelihood issue experienced and responded to differently according to different intersecting social and economic positionings that include gender, income, class, ethnicity, etc. (Carr and Thompson, 2014, Kaijser and Kronsell, 2014, Moosa and Tuana, 2014, Tschakert and Machado, 2012). However, the understanding of gender currently embedded within discourses on climate change still mostly draw upon an entrenched gender ideology that stresses the differences between men and women kept in separate worlds of public and private domains, rather than gender relations rooted in sociocultural categories, processes and norms.

Gender relations influence a person's conditions and the vulnerability of his or her livelihood activities. Gender relations also influence his or her adaptive capacity to livelihood stresses through opportunities, access to and use of different types of assets, including social protection and networks, as well as choice of adaptation actions. Gender relations have an undeniable influence in households and communities, particularly in traditional domestic-based rural societies such as those of my case studies. Women and men participate in different but connected ways in the social, cultural, economic and political life of their communities, in terms of their labour contributions, decisions and control. Understanding these differences and their interrelationships allows a more comprehensive analysis of what is needed when developing adaptation policies and interventions aimed at improving people's livelihoods in the context of a variable and changing climate.

The empirical research presented in this thesis follows a disaggregated analysis that provides insights into contextual specificities in order to explore and analyse the missing links between gender relations, livelihoods, climate and environmental change. I argue for a broader gender analysis that also encompasses other intersecting social categories and identities, especially location and ethnicity. This framing recognises perceptions and experiences of vulnerability and adaptation to climate-related stresses, among other livelihood stresses, as dynamic, contextual, socially differentiated, and as constructed

processes that are constantly negotiated and renegotiated. I depart from the conventional gender and climate change discourses that tend to discuss gender in terms of the male-female binary. I do this by recognising the way in which cultural context and ideological factors, particularly those concerned with gender and family ideology, play a significant role in the articulation and practice of adaptive livelihood strategies.

This concluding chapter synthesizes the findings presented in this thesis to answer my research question: ‘How do gender relations influence vulnerability and adaptation to climate-related stresses in a rural Egyptian context of multiple risks, shocks and stresses?’ In it I bring together the major factors linking gender, climate change and livelihoods that I have discussed in the preceding chapters, highlight the significance and relevance of my research, and conclude the chapter by highlighting needed further research.

## **8.2. Situating my findings within the developed conceptual framework**

I link gender to climate change through gender relations that is rooted in gendered norms, cultures and ideologies that affect the perceptions, experiences and responses of men and women to climate-related stresses, among other livelihood stresses. Climate change impacts cannot be separated from other livelihood stresses affecting men and women in the study villages such as endemic poverty, land fragmentation and national structural adjustments affecting social services. On the other hand, climate-related stresses are key factors affecting the natural resource dependent livelihoods of men and women in the villages. Rainstorms and climate-impacts on land fertility affect the villagers’ livelihoods that in turn affect the income generating prospects of men and women through their attempts to diversify their livelihoods. Given the local gender norms and masculine and feminine identities relating to household provisioning, the changes in income-earning and expenditure patterns in the households affect gender relations and create patterns of conflicts and cooperation. As I observed in the villages, reversal of provisioning roles tend to create more conflicts in conjugal relations which makes households and men and women within them less able to adapt. However in Nubia these conjugal conflicts are mitigated by the extended family structure through income pooling that cushions the effects of livelihood stresses; through the greater value and respectability accorded to the domestic sphere and family status production that give women bargaining power in the marriage; and through the accountability of husbands and wives to older members of the extended households to maintain more cooperative conjugal relations in line with the Nubian culture.

Framing my findings within my sustainable livelihoods conceptual framework (Chapter 2), I discuss my findings within a vulnerability context, livelihood context and institutional context through a gendered relational lens. In Chapter 5 I discussed the vulnerability context in terms of exposure to rainstorms and impacts on soil fertility as the main extreme and incremental climate stresses in the villages; sensitivity in terms of gendered variations of vulnerability that is rooted in local socially-constructed gender roles, norms and ideologies; and gendered adaptive capacity factors related to household bargaining, conjugality and family structure. In Chapter 6 I explored the livelihood context of on-farm and off-farm livelihood diversification activities, and discussed assets (tangible and intangible: natural, financial, physical, human and social, cultural and symbolic) in terms of access and control that shapes livelihood diversification processes and choices. In Chapter 7 I related my empirical findings to the institutional context of the family and conjugality as an arena of bargaining and agency; to the community and how men and women in it relate to each other and to their environment; and to the state where I juxtaposed national and local discourses and assessed national interventions as perceived and experienced by men and women in the villages.

As laid out in Chapter 2, within the institutional context, I framed my analysis of gender relations within Kabeer's (1994) social relations approach through adopting a socialist feminist philosophy to gender analysis that considers gender relations at several levels of analysis from the individual to the household and community and by considering other identities such as age, class and ethnicity. I critically deconstructed gender relations, drawing on inequalities in rules, activities/responsibilities, resources, people and power that are renegotiated through the family, community, labour market and state.

I focused on the household and discussed household bargaining using Sen's (1987) bargaining approach to intra-household power in his cooperative conflicts model that is based on gender differences in breakdown position, perceived responsibility and perceived contribution. However stemming from local empirical data and gender theorizing (Abu-Lughod, 1986, Ahmed, 1992, Hoodfar 1996), I contested Sen's approach in terms of basing these gender differences in strictly material terms and I rather widened the focus to discuss key social, cultural and symbolic assets in Chapters 5 to 7. This contestation was especially relevant in linking women's empowerment to gainful employment which did not prove to be the case in my case studies where women's empowerment and adaptive capacity were linked to other social and cultural

factors related to gender norms, notions of respectability and family status production that is related to the value of reproductive work in domestic-centered communities. I also contested the cooperative conflicts model's focus on separate interests within the household, and so I used Cecile Jackson's (2007) idea of creative conjugality to understand bargaining, conjugality and other aspects of household gender relations that mediate perceptions, experiences and responses to stresses and risks, that in turn affect vulnerability, adaptive capacity and adaptation.

### **8.3. Discussing the gendered sociocultural dimensions of vulnerability, adaptive capacity and adaptation**

The complex and dynamic links between gender relations and environmental and climate change become clear when examined through a gender analysis of households and family structures alongside wider social relations and in the context of changing livelihoods. However, climate/environmental change is not manifesting in isolation but rather interacts synergistically with multiple stressors. In this study I investigated people's experience of environmental and climate-related stresses and their responses to interlocking socio-economic pressures for the insights they provide into the influence of gender relations on climate adaptation and vulnerability.<sup>52</sup>

This analysis emanates from a social constructivist epistemology that considers climate change within the cultural, socio-economic, political and environmental conditions in question (O'Brien et al., 2009b). I conceptualize gender within a social and cultural construction that considers the related social categories of ethnicity, age, family structure, family lifecycle, marital status and fertility (Rao, 2014). In my study I have focused on intersecting identities of gender and ethnicity in specific ecological and cultural contexts. While I have touched on age and class, a more systematic analysis is needed in future research of these other identities.

To understand the mechanisms and pathways linking gender relations and adaptation I apply some criteria specified in the GED literature. In this research I have focused on criteria of relevance and significance to the context of the villages: income generation, social networks and sharing information, which are gendered and influenced by kinship and family settings. I compare them in two settings with differing gendered cultures and kinship/family structures.

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<sup>52</sup>I acknowledge the constructive element of my research topic. It was my decision, corroborated by my respondents' accounts that led me to privilege the gender dynamics of household vulnerability and adaptation.

In Chapter 5, I demonstrated that the majority of the people in my case-study villages regard extreme climatic events, such as damaging rainstorms, and impacts of climate and environmental change such as land salinization and temperature increase that reduce land fertility and crop yields, as serious threats to their livelihoods. Climate-related stresses compound underlying stresses such as environmental degradation, land scarcity and plot fragmentation and economic stresses such as inflation and lack of employment opportunities. It is not possible to separate out vulnerability to climate change from vulnerability to these multiple stresses. I have not come across a study of climate change and its impacts in the Middle East and North Africa (MENA) region that focuses on context-specific social vulnerability to climate change, as I do here. My analysis contributes insights into the way that sociocultural norms shape gendered experiences of vulnerability and adaptive capacity to climate and other stresses.

In Egypt, as in most Middle Eastern countries, the household and the family are at the core of society (Beneria and Roldan, 1987, Gonzalez de la Rocha, 1994, Safa, 1995, Singerman and Hoodfar, 1996). A household, marked by actual and normative gender roles, is not an egalitarian conflict-free unit but a site of different manifestations of gender cooperation and conflict (Jackson, 2007, Sen, 1987), an arena in which members try to enhance their positions of power and access to resources while promoting the household's collective social, cultural and economic interests. The gender relations in the village households affect and are affected by the processes employed in adopting adaptation strategies that respond to multiple stresses on livelihoods. The gender ideology and relations, participation in income-earning and strategies adopted by spouses in renegotiating their status within the household are integral parts of their livelihood adaptation strategies. In Chapter 6, I discussed these gendered patterns of livelihood diversification that differ in the two villages, for instance, in terms of the patterns and norms of female employment and gender relations within the household supported by kin.

Egyptian households are formed on the basis of marriage, as is the case in Maryut, and blood kinship, as is the case in Nubia. Through kinship networks and marriage as an institution, individuals and families adopt different livelihood strategies to cope with stresses and adapt to change. The institution of marriage prescribes complementary but asymmetric rights and responsibilities for husbands and wives which are normatively justified by tradition and religious mores as well as legal rights. This cultural, legal and

ideological inequality can make women more vulnerable than men within the household and society. Women employ adaptive strategies within these ideological and rigid mores, sometimes even by reviving aspects of such traditions that offer them protection in the face of rapid environmental, economic and social change. For example, adherence to certain Islamic and traditional mores enable women to retain some privileges such as complete control over their own income and property and the unquestioned right to economic support from their husbands. These strategies are perceived by women in the two villages as cooperative to ensure more secure marriages. They include holding on to the norm of the man as the breadwinner, families arranging marriages and negotiating the rights of the bride-to-be, and kinship protection and support provided by the matrilineal residence. These privileges are maintained in Nubia but missing in most cases in Maryut, where absence of kinship support was lamented by most women I interviewed. However, these conjugal adaptive strategies do not question or resist the existing inequalities inherent in the gender ideology or marriage as an institution.

In a context of gender constraints on women as well as men (Chapters 5 and 6), both choose their battles carefully. Women and men can strengthen their bargaining position through cooperative performances (Butler, 1988). This manoeuvring is what Deniz Kandiyoti (1988, 1998) defines as 'bargaining with patriarchy' in which women and men seek to serve their interests as individuals and as families within accepted social norms. Drawing on Jackson's (2007) creative conjugality and my fieldwork data, I argue that bargaining with degrees and forms of patriarchy is not done directly but rather involves a creative conjugal bargaining process of manipulating norms and their implementation for the benefit of the family and the individuals within it. Through this process men and women's behaviour can reproduce some of the sociocultural mores that lie at the root of gender inequality. While this is not to say that there is no social change in gender norms, these cooperative performances or manoeuvres tend to mean that this change, emanating from responses to livelihood stresses, is slow and not catching up with changes to people's livelihoods.

As discussed in Chapter 5, there are gendered variations in experiences of vulnerability that are highly influenced by local gender norms and intra-household cooperative conflicts. Climate-related stresses and shocks interact with the sociocultural norms and values that shape household gender relations and result in culturally-constructed gender-specific vulnerability. These gendered variations in experiences of vulnerability constitute



pressures on masculine identity that are mostly influenced by the socially constructed male role as the provider for the household. There are also pressures on constructed feminine identities relating to conjugal contestations over women's income earning activities and social norms that weaken women's bargaining power.

Better gender relations result in better adaptive capacity, mitigating vulnerability to livelihood stresses. I relate the link between gender relations and adaptive capacity to underlying context-specific gendered elements of family life cycle, marital and fertility status, and family structure. These gendered elements of adaptive capacity, which emerge from the data across the two villages, tend to play a role in intra-household bargaining and conjugal gender relations in the villages and in mitigating conjugal conflict. These elements are related to gender as well as other social categories such as age and ethnicity that affect family life cycle and family structure. They affect access to different forms of assets and capital that shapes the family's adaptive capacity. Within the existing system of social and gender norms in the studied communities, these factors influence men and women's social, cultural and symbolic capital in the form of social prestige and status in the family and community, in turn impacting their economic prospects and adaptive capacity. These elements are absent from existing discourses of vulnerability and adaptive capacity in Egypt that focus on the physical impacts of climate change (EEAA, 2010).

In Chapter 6, on-farm and off-farm livelihood diversification and migration emerge as the most significant adaptation strategies of households and members within them. Livelihood diversification as a rural household adaptation strategy is mediated through social relations and institutions, including gender relations within the household and the social networks in the community. Gender relations affect and are affected by men and women's adaptive livelihood diversification strategies in the household and community. An important finding stemming from the analysis of livelihood diversification data in the villages is the dynamic process of negotiating social relations. Conjugal relations are adapted over time to the interests of the married couple and their family, within the boundaries of the different interpretations or nuances of accepted social gender ideology.

A disaggregated analysis of individual and household profiling data illustrates key factors or drivers affecting men and women's livelihood diversification choices in the villages. Employment availability and financial assets, although significant, are not the only factors that determine the men and women's preferences for different types of jobs. Gender roles and relations as well as family life cycle and social networks also shape men and

women's livelihood diversification choices. I analyze these factors within the social and cultural context of the gender norms in the village communities. The ideology of gender roles is much more pronounced in Nubia for the greater value that Nubian men and women place on the domestic sphere of their households; the village's spatial and social distance from the urban Egyptian city centres; and the extended family structure that enhances the ability to maintain such gender norms (e.g. through providing social and economic support that allows women more choice in employment or non-employment). Social status and respectability are also significant factors that determine choice or perception of employment. The notion of respectability and how it plays out in the local culture is key to understanding men and women's agency in adaptation, which is not necessarily associated with paid employment.

In terms of livelihood diversification, local gender norms are a major influence on the income-earning opportunities of men and women in the villages. However, there is not a straightforward correlation between women's productive work and their increased adaptive capacity, capability or well-being. From my fieldwork experience in Maryut, I find that, in this mostly patriarchal patrilocal nuclear family setting, men's provision for their households is negatively affected by economic hardship, and women are taking on more responsibility for earning money to cope with climate-related and other livelihood stresses. With women's lower educational level and gendered restrictions (long working hours and long-distance travel) affecting their employment opportunities, women are usually only able to access low-paid and demanding jobs. With this forced change to the usual societal pattern of the husband providing for the household, the men in Maryut often compensate for the threat to their masculinity by assuming a more controlling attitude to household decisions and daily gender relations. This tends to make women, as well as the household, more vulnerable and less able to adapt to livelihood stresses. This is due to the fragility of household decisions taken more for the sake of male assertion than to address the household's needs.

The increased vulnerability is also due to the increasing workload and responsibility on women who are employed outside the home with no renegotiation of gender norms or roles within the household, where they remain responsible for domestic activities. Any reversal of the pattern of household provisioning whereby women become primary providers, due to emigration of male household members or other factors, can cause conflict and can become a major source of marital problems. As explored in Chapters 5

and 6, when wives in Maryut are forced to spend their own income on daily basic necessities they feel that their employment is being exploited. They would rather lead a harmonious married life based on what is perceived as the normal gender roles.

This analysis raises questions about gender parity indicators such as women's productive employment (Hendy, 2010), since, as the previous paragraph shows, employment does not automatically lead to women's empowerment. Empowerment through employment clearly depends on the socio-economic and cultural setting, societal norms and the what, how and who of employment and control over the income generated.

In Aswan, Nubian women still face restrictions to their social mobility and access, but they are creative and entrepreneurial in their home-based, income-earning activities making and selling handicrafts or processing spices and other crops. The matrilineal family also eases the burden of household work and the care of the children. The husband is responsible for the household's maintenance and treating his wife well, assisted and supported by his wife's male family members. Furthermore, Nubian women in the Aswan case study have more control over the income they earn than those in the Maryut case study. This is in accordance with the mostly homogenous ethnic culture in the Nubian village that upholds the social and religious norms which stipulate that women are entitled to their income. Thus Nubian women work voluntarily to make their own money.

This financial provision by the husband and extended family and the women's control of their own income tend to make Nubian women and men and their households less vulnerable to livelihood stresses. Even in times of hardship and migration due to environmental, economic and political conditions, the resources of the extended family are pooled to maintain the communal household, their social and economic support mitigating the strain on household livelihood resources and gender relations and allowing them to cope with and adapt to livelihood stresses.

The extended family structure figures as a significant factor of adaptive capacity in the Nubian village. Kin support is a reliable type of social network. Low-income households adopt social networking as a livelihood adaptation strategy to promote the innovative and effective use of their economic and social assets. It is especially important for women, whose lives are based in and centre on the village, to form and preserve social networks that include kinship and neighbourly networks and friendship groups. These

social safety nets play a major economic and social role in the livelihoods of most households. Nubian women's networks are much more developed than those in Maryut and generally incorporate the matrilineal family in the village.

The social networks in the Nubian case study provide a means of information sharing. Many households interact more intensely with their kin networks, and particularly with maternal kin, who provide unconditional social and economic support. Kin networks are perceived in the Nubian village to have a particularly positive impact on women's sense of security and power in their marriage and their community, and hence on their adaptive capacity and that of their household. In contrast, with the nuclear family structure and busy subsistence lifestyle, Maryut social networks are much more limited.

The climate change scholarship underlines different linkages between climate science and society that recognise the importance of people's knowledge. Societal and cultural values influence the perception and use of climate information (Hulme, 2009, Roncoli et al., 2009). Underlying cultural notions and typologies of climate are revealed when examining local knowledge of climate and the environment in the context of social relations. In my analysis of information-sharing I have paid special attention to people's connection to their environment, its symbolic representation, coloured by religious and cultural mores. I have also shed light on the relational perspectives highlighting the exchange of information between the male and female domains. My fieldwork data, endorsed by other empirical research in the Muslim world (Abu-Lughod, 1986, Hoodfar, 1997, Jennings, 1995, 2009) argues that the women's domestic domain in rural communities have more influence on community life and decisions than the male sphere. I closely observed male decisions made in the Nubian public domain being affected by and even shaped by decisions emanating from and discussed within the women's kin groups. As expressed by Jennings (2009, p.89), 'Women can use their different kinds of networks in order to influence happenings in spheres that are, ideologically, outside of their jurisdiction.' Cooperative kin and gender relations make the domestic and public spheres complementary rather than hierarchical.

As discussed in Chapter 6 and 7, women's networks and men's networks differ in the type of knowledge exchanged in these gendered networks. However, these different types of knowledges are passed between men and women in the household. This exchange of situated knowledge, including knowledge about impacts of climatic and environmental stresses and options for responding to them, enhances adaptive capacity

at the individual, household and community levels. I draw particular attention to how access to coping and adaptation measures (e.g. livelihood diversification and migration) is enabled by communication within the community using gendered social networks and within the household between male and female members.

In Chapter 7 on knowledge production, I explored alternative discourses of gender and climate change at the local and national levels. The local social construction is infiltrated by Muslim environmental perceptions and gendered situated knowledges differentiated across the two villages. Nubians embrace a more 'intimate' gendered connection with the environment, affected by years of living with its changes along the shores of the Nile. In Maryut, on the outskirts of Alexandria, the second biggest city in Egypt, it appears that residents have somewhat lost the connection to nature and they adopt a more instrumental duty-oriented perspective to their environment. These differing ways of viewing the environment affect how men and women connect to their surrounding environment and how they perceive, experience and respond to its changes. Hence, these differing constructions affect experiences of vulnerability and adaptation.

The emerging discourses currently embedded in the national climate change debate in Egypt offer little resemblance to people's experiences of and responses to the impacts of climate change and variability. This national construction can result in the adoption of culturally unfit gender-blind interventions. I argue for the necessity to bridge the gap between these alternative discourses in order to incorporate gender relations and wider social relations between people and their relationship to their environment as elements of the climate change discourse in Egypt, to be drawn on for the planning of adaptation policy and interventions.

To sum up, my main argument is that vulnerability, adaptive capacity and adaptation to climate-related stresses, among other livelihood stresses, are closely intertwined with gender and wider social relations in the household and community. These relations play-out somewhat differently in the two communities and are shaped by local gendered ideologies and cultures that are embedded in conjugal relations, kinship, and the quality and nature of the relationship of people with the environment. I present my empirical findings in terms of gendered experiences of vulnerability and adaptive capacity, adaptation strategies and knowledge production.

In the next section I discuss the policy implications for addressing gender in climate adaptation discourses and strategies. I also draw out my contribution to the scholarship on climate change and comment briefly on my investigative framework and methodological approaches.

#### **8.4. Research implications for gender and climate change and their reflection on policy directives**

My main argument is that understanding gender relations in the household and wider gender relations in the community in local sociocultural and ecological contexts is central to framing climate change adaptation discourses and policy. In this research I give voice to a local contending discourse at the nexus of gender and climate change that focuses on livelihood processes and that is informed by real world experiences of men and women in their households and communities. This discourse questions the conventional discourses about gender and climate change that take a binary men/women analysis and that regard climate change as a scienticised and securitised issue. Climate change and GED feminist scholars need to recognize this discourse that reflects different realities of differently-positioned men and women, their interrelations and their sociocultural interdependencies that affect men and women's perceptions, experiences and responses to climate change stresses. I draw attention to issues of masculinities and intra-household bargaining as two key empirically and discursively analysed issues that are seldom discussed in gender and climate change scholarship. My empirical work demonstrates that theorizing the link between gender and climate change requires an understanding of local contextual gendered roles and relations as well as local construction of masculine and feminine identities, as this can greatly assist in securing and adapting livelihoods.

Climate change and GED scholarship needs to broaden the analysis of gendered experiences from a binary category of women and men in their separate worlds to a more contextually-informed relational analysis of perceptions, experiences and responses of men and women in their households, communities and environments. My empirical findings reflect the need to present the construction of climate change as a sociocultural livelihood issue, and gender as a discursive and cultural construction of femininities and masculinities that shape social life and shape how we understand and debate climate change. Gender relations in climate change research matter because as studied in this research, the material and discursive dimensions of climate change are deeply gendered.

It is important to take into account contextual gender-specific priorities and needs and how they interrelate and coexist on the level of the household and the community. This will help to make full use of men and women's livelihood diversification capacities, community networking (Chapter 6) and traditional knowledge systems (Chapter 7) in adapting to climate-related stresses. Careful consideration should also be given to the different forms of tangible and, most importantly, intangible assets (such as local notions of respectability) that shape the adaptive capacity of individuals, households and communities. This approach requires attention to context-specific studies that are essential because understanding the general importance of gender and culture in perceptions and experiences of adaptation to climate change depends on context specific studies due to the contextual nature of gendered cultures, ideologies and relations. These empirical studies can also provide insights of a more generic nature about processes and conditions that enhance or constrain adaptation.

Local adaptations stem from people's perceptions of right ways of living and adapting their livelihoods. Local knowledge, skills and practices that constitute local 'cultural competence' (Wikan, 1995, p.637), as discussed in Chapter 7, helps to translate men and women's adaptive capacity into adaptation action. This cultural competence is ingrained in the context and experience of the men and women in the villages, whose adaptive livelihood strategies should be understood in their context and should constitute the basis of any adaptation interventions or policies. National policies that ignore this cultural competence can result in policies and interventions not fit for context.

In the studied villages, there is a lack of adaptation interventions that target the livelihoods of families and members within them, as expressed by interviewed men and women in the villages. Village accounts also show that there is a lack of communication between the government authorities, whether national or municipal, and the residents of the villages. This gap in communication and discourse leads to ineffective interventions that do not suit the needs of the villagers. There is also an absence of a gender relational approach in the national Egyptian adaptation discourses, that takes account of the local context, norms and culture. Suitable measures based on this gender relational approach can be dedicated to supporting families by offering livelihood diversification options to men and women that are suited to their needs, norms and notions of respectability, as explored in Chapter 6. Planned adaptation interventions should be customised to fit the local context, based on local perceptions, experiences and knowledge.

My data indicate that local knowledge and experiences of how to cope favour autonomous adaptation of improvised adjustments in response to climate-related stresses. Local knowledge systems for coping will not easily translate into long-term planned adaptation to climate change. Planned adaptation - through policy and interventions by different actors that include government and NGOs - based on local demand and accompanied by training can assist people with long-term adaptation. Scientific assessments, that learn from local knowledge and experiences, can be communicated to village people to allow them better planning. People's adaptive innovations can be endorsed and disseminated as best practice to help other communities. Valuable insights can be gained from understanding the contexts and processes in men's and women's livelihoods that contribute to their adaptation. Thus a two-way exchange of information for adaptation to climate change can bridge the gap between different national and local discourses in a way that enhances adaptive capacity at the national and local levels.

National discourses should also be flexible enough to cope with changing social and gender relations which are constantly being renegotiated and incorporate them in policies and interventions. In practice, this flexibility could be applied to the development of updated national strategies for adaptation to climate change and for addressing gender in adaptation in Egypt so that they correspond to changing local needs, social relations, perceptions and knowledge systems.

## **8.5. Research significance and relevance**

This section highlights the relevance of this research in terms of its focus, geographical coverage, epistemology, conceptualization and methodology in approaching climate change research.

### **8.5.1. A focus on gender relations within climate change research**

The gender analysis that I undertake in this research focuses on gender-relational aspects of climate change which intersect with other social categories that affect experiences and perceptions of vulnerability and adaptation. These social categories include family structure/kin relations, marital and fertility status and family lifecycle (implicating age) and are at the core of Egyptian society, particularly in its rural communities as observed in the case-study villages.



From the empirical assessment and analysis of these social categories, the issue of population emerges as a key element in the climate change adaptation discourse. There are complex links between cultural values and practices relating to family size, gender relations and sustainable livelihoods. These links are understood and portrayed differently in the local discourse in the villages than in the national discourse. The village participants face livelihood stresses brought on by climatic/environmental changes and poverty, however the families in the villages have a strong cultural preference for large families (4.5 and 9 children in Maryut and Nubia respectively). As discussed in Chapters 5 and 6, women's social, cultural and symbolic status as well as their security in marriage and older age are directly linked to how many children they have. The larger the families, as is the case in Nubia, the better adaptive capacity they have. Men and women in the villages do not perceive children as a burden on their scarce resources, but rather an asset that enhances social, cultural, symbolic and economic security. In domestic-centred communities, children do not only provide social, cultural and symbolic status but they also assist in domestic-related activities whether it is in the household, farming, processing or sales of vegetables, raising of livestock, retail sale in the village, etc. This discourse of fertility as an asset in domestic-centred rural villages is contradictory to the national discourse that perceives and presents fertility and population growth as a barrier to adaptive capacity and adaptation (EEAA, 2010, IDSC and UNDP, 2011). This tension between these local and national discourses is of key relevance because it reflects a wider discourse around 'population' as a contentious issue within environmental/climate debates with the recent re-emergence of neo-Malthusian discourse (Hulme, 2009) and feminist politics with the long-standing defence of reproductive rights/freedom. To what extent these cultural values around fertility are cast in stone and to what extent they are ever going to be part of adaptation discourse or strategy in Egypt in the future remains to be evaluated with more longitudinal studies in rural and urban Egypt.

I situate my research in a conception that transcends gender as an empirical category of men and women to a discursive social construction of gender that 'structurally organises virtually every aspect of social life in all cultures' (Peterson and Runyan, 1999, p.31). I argue that gender analysis should research social processes, norms and relations and investigate their discursive social constructions, which shape perceptions of and interpretations and responses to livelihood stresses, including climate change. Understanding the social and cultural construction of gender and climate change is a

critical dimension of adaptation that is based on men and women's perceptions and experiences as an integral part of their sociocultural livelihood system.

This research emphasizes adaptation as a form of discursive practice. The discourses that emerged in people's accounts in the villages were about their concerns about maintaining their resource-dependent livelihoods in the face of climate stresses and changing equity and social relations that they experience in their everyday lives. Their concerns also include social aspects of their livelihoods that include the loss of community, loss of respect for each other and their environment and social forces as part of the 'right' way of living and adapting their livelihoods. They highlight the importance of traditional rural communal life in Egypt, which I consider a very important aspect of adaptive capacity. Making the most of what they can potentially share within the community seemed to be at the heart of the villagers' concerns; this is emphasized in the differences in adaptive capacity and adaptation in the two villages. The Nubian community is better adapted because of strong kin and communal support networks that allow more cooperative gender relations at the household level and more cooperative wider social relations at the community level than the Maryut nuclear family-based community.

### **8.5.2. Shedding light on the relationship between western and indigenous narratives in researching gender, environment and development**

The participants in the villages expressed negative perceptions of feminism<sup>53</sup>, seeing it as a largely unfitting unaccepted imperial/western imposition, and about 'environmentalists' as 'insulting and condescending' (Chapter 7 - Section 7.3) as well as being critical of outsider aid agencies who are insensitive to local specificities and needs<sup>54</sup>. These local perceptions necessitate bringing to the forefront the relationship between western and indigenous narratives in researching gender, environment and development. This relationship between western and indigenous narratives feeds into the wider discussion of North-South power relations that affect practices on the ground and shape local knowledge of feminism and environmentalism as well as shape academic knowledge about climate change and gender relations.

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<sup>53</sup> There is in Egypt, as in many countries, different perceptions and levels of support for feminism according to age and place. For example, younger generations in urban settings, particularly the higher socioeconomic classes with western education, are more pro-feminism, in its western sense.

<sup>54</sup> The village participants did not seem to express the same level of negativity toward the climate change agenda, which is often suggested is seen as a minority world imposition on the global south (Chapter 3 - Section 3.8). In my analysis and understanding of the accounts of the villagers, this is due to the fact that in the recent 2 to 3 decades, climate change impacts have been 'visible' in Egypt and impact a wide spectrum of the rural and coastal populations that made the 'climate change problem' a local one, widely debated in the national circles, media and local contexts.

My main criticism of western-dominated feminist research on climate change is that it needs in-depth empirical context-specific research on people's experiences of and responses to climate change – such as the evidence-based work I present in this thesis<sup>55</sup> – to counter the flaws in the dominant feminist understandings/framings that draw upon an entrenched gender ideology that stresses differences between men and women kept in their separate worlds rather than being rooted in sociocultural categories, process and norms that are deeply context-specific. My research troubles western feminist perspectives and contributes new and different insights that serve to enrich this field of scholarship by nuancing the men-women binary, the public-private binary, the normative and actual gender norms and ideologies (e.g. the use of gender norms such as veiling and male provisioning to actually serve the interests of the underprivileged), and the influence of factors such as ethnicity (manifesting in family structure/kinship), age (manifesting in family lifecycle) and culture on gender relations. These insights that are key to situating feminist perspectives in local contexts to ensure the acceptance and affectivity of the interventions stemming from them can only be done through ethnographic work that challenges existing literature in the fields of gender and climate change, GED or feminist political ecology in specific under-researched settings.

The relationship between western and indigenous narratives in researching gender, environment and development also manifests in the obvious tensions that exist between researching gendered subjects (women and men) in a culturally sensitive and non-judgemental way and seeing one's topic through a western feminist lens. For example, the 'practical-needs/strategic interests' dichotomy (Molyneux, 1985) presented in Chapter 2 is a case where there is tension between the desire to improve the material conditions of women's lives and the normative commitment to improving women's status in society, along with the trade-offs that might be involved. In my opinion, gender strategic mainstreaming ought to be complemented by targeted action of practical needs through a dual strategy that will contribute to the mutual reinforcement of the two approaches. However, this dual approach in a local Middle Eastern and Muslim society raises many questions. How does one address 'strategic' feminist interests in a Muslim society? Or are the interests just different? What kind of social transformation is sought after?

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<sup>55</sup> As a local researcher, I could surpass some of the western research barriers such as language, men researching men and women researching women, not fully understanding cultural norms and how they play out, which puts me in a good position to critique western feminism when it comes to Muslim and/or MENA cultures and contexts.

Gender justice as indispensable for the development of any society and adaptation to any threat to it. From an Egyptian feminist perspective I see that the conceptualisation and enforcement of this gender justice should be rooted in the local religious and sociocultural norms of the people or else it would be resisted and rejected and would ultimately lead to a deterioration of gender rights. In my opinion as an Egyptian feminist researcher, there is a need to acknowledge and enforce the importance of the domestic sphere, particularly in rural settings, and the key indispensable role of women in it. This valuing of the domestic sphere gives due acknowledgement and visibility to domestic/reproductive work and all types of work related to it such as vegetable and spice processing, handicrafts, as discussed in Chapter 7. There is also a need to enforce existing gender equality laws that are by default compatible with religious and cultural norms in Egypt (it is a constitutional imperative) and ‘broadcast’ them widely in urban and particularly rural Egypt. These laws include land ownership rights, family laws, equal pay, working conditions suitable for women in terms of maternity leave, working hours, etc. In my opinion, advocating gender equality that is fit for the local sociocultural and religious context is the only way for social transformation. Outsider western feminist ideas not fit for context can only trigger more resistance by the people (men and women) to any change, which can only harm gender equality in norms and practice. More holistic/integrated ‘non-judgmental’ understanding and conceptualisation of gender equality based on local notions and cultures is needed to bridge the gap between western and indigenous feminism to advance gender equality that is rooted in local culture.

### **8.5.3. Geographical significance**

Many scientific studies have dealt with climate-related impacts in Egypt at the national level (e.g. Fahim et al., 2013, ElRaey, 2010, Frihy, 2010). However, the experience and processes of vulnerability and adaptation take place within a social and cultural context of class, ethnic and gender disparities, among others, as studied in the two villages. Little attention has been paid to the way these impacts and stresses affect the everyday livelihoods of men and women as individuals, and their gender relations in the household and community. In this study I have focused on the ways in which low-income rural households and their individual members are affected and respond to these changes by exploring the economic and social strategies that they adopt to adapt to climate-related stresses, among other livelihood stresses.

My findings on vulnerability, adaptive capacity and adaptation to climate change can be

applicable to many other locations in the MENA region, an under researched context in this field. These insights can be used as starting points for research in other traditional communities in the region that are likely to be disproportionately affected by the impacts of extreme and incremental climate change (AFED, 2009).

#### **8.5.4. New epistemological approach: towards a constructivist analysis**

This thesis demonstrates the value of a constructivist approach and ethnographic methods such as open-ended interviews, participant observation and life histories in understanding underlying gendered cultural models and relating them to the national discourse of gender and climate change. Through using this approach, I could present my central argument that understanding contextual gender relations is central to knowledge about adaptation and livelihoods. This constructivist approach – used to research complex and dynamic relations depending on context, culture and time - is rarely used in climate change social research (Kaijser and Kronsell, 2014). This constructivist ethnographic approach also ventures beyond the habitual domain of climate change research by reflecting on local communities' perceptions and experiences.

I do not discuss the phenomena of climate change and gender in themselves but how society, community and individuals make sense of them, and the linkages between them. This contextual and relational analysis is situated in the interpretative social constructionist tradition that assumes the existence of multiple socially-constructed realities rather than a single truth (Guba and Lincoln, 1989). Because reality is perceived as socially-constructed, the analysis of meanings and their discourses becomes central. Considering reality as socially-constructed also implicates attention to the historical, sociocultural and political context in which a particular construction of 'truth' develops. This politics of meaning, applied to gender and climate change, shows how vulnerability and adaptation discourses are constructed and reconstructed, and how different actors – at the local and national levels - actively position themselves within it.

#### **8.5.5. Linking gender and climate change through social relations within people's livelihoods, and connection to the environment**

In this research I explicitly link gender relations with the adaptation of people's livelihoods. I examine the conception of climate change with socioculturally loaded meaning and terms, as highlighted in people's perceptions of the threats and changes to 'their' Nile, and their village land and community. This conception raises the questions iterated by Beck (1995, p.36): 'whose nature?' and 'which nature?' This is understood

better in a framing of climate and environment as a sociocultural livelihood medium rather than as an ‘out there’ ecological construct (Carbaugh, 1992). I position my research in this narrative which places people as key social actors in achieving sustainable livelihoods for themselves that foster respect for social and environmental resources, spaces, networks and relationships, equality and daily experiences.

One of the advantages of viewing livelihoods as an integrated whole rather than a collection of separate issues is that it facilitates the identification of indirect development strategies for reducing climate vulnerability such as developing income-earning opportunities by providing small and microcredits for families to diversify their livelihood sources; an adaptation need identified and discussed in Chapter 6. It has also allowed me to adopt a contextual view of social dynamics and gender relations at different institutional levels, from the household to the community and the state, related to social, economic and environmental livelihood pressures and changes. My analysis from the case studies reveals that the impacts of climate change are not experienced in isolation from other social and environmental stressors that affect the villages such as endemic poverty, land fragmentation, poor housing and healthcare services, national structural adjustment policies, rapid migration and urbanization. Long-term climate change is likely to compound vulnerabilities to these multiple stresses.

Adaptation, as proposed in this research, tackles these pre-existing development issues that contribute to vulnerability. Adaptation in this context is integrated with sustainable development (Olhoff and Schaer, 2010) and focuses on social equity and relations, including gender. My insights into the complex influences of culture on climate adaptation – framed within the ‘culturally imaginable’ (Terry 2011, p. 228) – in the villages are useful both because they draw attention to this underemphasized aspect of adaptation and because they may be applicable to other traditional societies or societies in transition in the region that are similarly exposed to climate-related stresses and threats. Since as explored in this thesis, social context is key to the influence of gender on vulnerability and adaptation, the transferability of lessons learned from the case studies might be more processual and methodological rather than being directly transferable, as discussed in the methodology chapter (3). Within this framing my analysis engages with cutting-edge research and debates on the sociocultural dimensions of adaptation (Attaher et al., 2009, Cannon, 2008, Carr, 2008, Roncoli et al., 2009, Terry, 2011).

### **8.5.6. Gendered adaptive capacity lens**

‘The time is ripe to replace narrow-minded vulnerability studies with a contextualized understanding of our mutual fragility and a commitment to enhanced livelihood resilience’ (Tschakert and Machado, 2012, p.275). In this research I pursue a shift from researching vulnerability to gendered adaptive capacities and embodied livelihood experiences, highlighting complex and context-specific social and cultural relations and norms. Climate-related stresses and impacts are experienced differently by different people due to their distinct roles, which are determined by gendered roles and culturally-rooted norms, practices and power structures.

This approach contests the long-prevailing focus on impacts in climate change adaptation (Alaimo, 2009). Methodologically, this has meant moving away from a descriptive gendered vulnerability assessment to exploring the underlying social and cultural gendered norms, relations and livelihoods of individuals, households and communities. It has also meant discussing individual and collective agency and adaptive capacity in embodied experiences of adaptation. In my analysis I have moved through looking at why climate change impacts are gendered to focusing on why the investigation of social differentiation is crucial to evaluating the processes and conditions that perpetuate gendered vulnerability and enhance the adaptive capacity of individuals, households and communities in my study context.

I have explored adaptive capacity as shaped by a set of determinants, including perceptions, access to social networks and family and kinship characteristics. As noted by Tschakert and Machado (2012), this shift from impacts to capacities lies at the heart of climate justice discourses. Such a focus pays close attention to social biases and differentiation in the feminine and masculine identities, relations and workloads of individuals and families that risk impeding rather than enhancing adaptive capacities. I focus on adaptive capacity as embodied relations and experiences in relationship to others and the environment and contingent on gendered social and cultural norms and practices. Stressing men and women’s agency and adaptive capacity rather than material deprivation and powerlessness is critical.

### **8.6. Further research**

In contextualised analyses of gender and climate change, there are many emergent questions from this study that remain unanswered. In this section I focus on three main related areas that need further exploration.

### **8.6.1. Gender and adaptation to climate change: Beyond needs to rights**

My research explores the importance of gender relations in adaptation to climate change but it raises interesting questions about social change in gender rights and relations. Therefore further research on this social aspect of change in the Egyptian society would be useful for formulation of gender-just adaptation policy. As noted by Tschakert and Machado (2012), there is a need for a shift in perspective from needs to rights, to provide room for more engagement for social change. Building on this exploratory research in which I have adopted a relational and contextual approach, further research is needed to focus on the rights, not just the needs, of men and women with knowledge, skills and agency. I have highlighted local autonomous (improvised or culturally passed on) adaptive capacities developed through experimentation and self-organization in the absence of pro-poor national adaptation plans. While such findings confirm that adaptive capacity is differentiated as well as complemented along socially and culturally embedded gender and social lines, further policy research is needed to more critically assess the very dynamics that propagate gender inequalities. There is a need for a further research that adopts a transformative approach to challenge the deep-rooted power structures inhibiting the lives of men and women; i.e. there is a need for gender justice as an obligation for adaptation.

In this respect I draw attention to Arnall et al.'s (2010) call for adaptive social protection, which aims to build resilience among the poor by countering intrinsic poverty and vulnerability and promoting sustainable livelihoods. Several adaptation initiatives (e.g. Oxfam, CARE International and Practical Action) have emerged that adopt adaptive social protection to link social security/ safety nets and environmental issues (Ibid). Yet explicit gender dimensions are still underemphasised in this narrative and the resulting initiatives. This kind of initiative has potential relevance to Egypt but would need to take more of a gender relational approach to address issues of gendered experiences of vulnerability and gendered strategies of livelihood diversification that emerged from my research.

### **8.6.2. Gender and climate change: Other intersecting identities**

In this study I mainly explored gender and ethnicity as dimensions affecting experiences of vulnerability and adaptation to climate change. I broached other social categories such as age in discussing respectability and intergenerational knowledge, and class in



discussing household income and livelihood diversification. However, these social categories and others need further exploration, as to how they interact with gender.

### **8.6.3. Longitudinal view**

Longitudinal research can be used to capture change in social and gender relations over time as well as capture changing perceptions of the environment, experiences of climate stresses and how suitability of current adaptive strategies in the villages might change over time when/if climate impacts become more severe. Within the time and resources available for this research I have tried to capture the history of men and women's experiences of vulnerability and adaptation to climate-related stresses, among other livelihood stresses, in the villages through life history interviews. However, this is an area that needs a longitudinal study to assess and observe these lived experiences. As noted by Ann Whitehead (2002), tracing changes over time in men's and women's livelihoods is an important tool in livelihood analysis. This is especially true in the case of Nubia, where it is necessary to follow up on the 10-year plan for the resettlement of Nubians displaced from their homeland behind the High Dam according to Egypt's current constitution.

### **8.7. Concluding remarks**

Feminist empirical research is beginning to uncover the ways in which experiences of climate change are differentiated across individuals and communities along gender, ethnic and income lines (Moosa and Tuana, 2014). However, discursive gender analysis has not been dominant in this empirical literature. My main approach in this research is the use of relational and contextualized analysis to understand the gendered experiences, perceptions and adaptive livelihood responses to climate change and other stresses.

I argue that women and men's different and cooperative or conflictive adaptive capacities are brought about by social, financial and informational factors that are directly and indirectly linked to gender relations, cultures, and ideologies embedded in family, kinship and relationship to others and to the environment. This analysis endorses sensitivity to the varied and complex contextual forms of social organization and gendered cultures in order to avoid falling into the trap of unexamined assumptions that could separate men and women as social categories from the social and natural context in which they are embedded.

Climate change research often lacks a deeper understanding and analysis of complex social relations and structures (Alaimo and Hekman, 2008, Kaijser and Kronsell, 2014).

Although studies are increasingly emerging on gender and climate change, these mainly take a binary (man-woman) instrumental perspective (Hemmati and Röhr, 2007, Masika, 2002). As MacGregor (2010) points out, there is a real need for broader insights into the construction and interrelationship of social categories and human–environment relations. To fulfil this need I have argued that in order to study experiences of vulnerability and adaptation to climate change it is necessary to understand the relationships among people as individuals and families and their relationship to their environment and its changes. These issues are by no means marginal: they are at the heart of adaptation to climate change.

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## Appendix 1: Comparisons of analytical frameworks and their suitability to my study

Framework (seminal sources)	Strengths	Weaknesses	Relevance for my research
<b>Gender Analysis</b>			
Social Relations Approach Kabeer (1994)	<ul style="list-style-type: none"> <li>analyzes social relations and gender relations</li> <li>does not represent women or men as homogenous groups but considers several levels of analysis and identities as age and class</li> <li>deconstructs social gender relations and links them to institutions and policies</li> <li>focuses on development as increasing human well-being (human well-being seen as concerning survival, security, and the ability to shape one's choices and life chances, at both the personal and the collective level)</li> <li>uses concepts rather than tools to concentrate on the relationships between people and their relationship to resources and activities and how these are renegotiated through institutions (the state, market, community and family/kinship)</li> <li>links social gender relations to access to tangible and intangible resources</li> <li>gives importance to social capital/assets such as social networks</li> </ul>	<ul style="list-style-type: none"> <li>complex and difficult to conceptualize</li> <li>puts greater emphasis on institutional structures as international community, the state and the market than family and its intra-household dynamics (that is why it is complemented by frameworks that deals specifically with intra-household relations)</li> </ul>	<ul style="list-style-type: none"> <li>takes into account strategic and practical gender needs and interventions</li> <li>considers gender relations as a main focus that influence and is influenced by gender inequities and roles which is very useful to the analysis of my research</li> <li>regards social gender relations as a key mediating factor to access to financial and social resources and activities</li> <li>frames development and by the same logic adaptation as a path to well-being</li> <li>provides many concepts that are useful to analyse and interpret data to answer the research questions</li> </ul>
Cooperative conflicts	<ul style="list-style-type: none"> <li>presents a paradigm shift from the traditional representation of the household as a harmonious unit with an 'altruistic head'</li> </ul>	<ul style="list-style-type: none"> <li>complex in terms of overlaying layers and levels of analyses and conceptualization of rights from</li> </ul>	<ul style="list-style-type: none"> <li>problematizes the household as a unit of analysis and deals with gender intra-household dynamics that provides a deeper</li> </ul>

Sen (1987)	<ul style="list-style-type: none"> <li>• deals with intra-household bargaining power, relations and dynamics</li> <li>• analyses factors that determine fall-back position in intra-household bargaining</li> <li>• links the intra-household bargaining position to the social structure and agency in society through livelihood factors as assets</li> <li>• focuses on ‘perceptions’ of needs, contributions, gender relations (drawing on elements of roles and rights) and how they are constantly negotiated and renegotiated in societies</li> <li>• establishes links between perceptions, well-being and agency (how the perception of well-being determines agency)</li> </ul>	<p>different perspectives as perceptions, claims and capabilities</p> <ul style="list-style-type: none"> <li>• still focuses on separate interests and individual autonomy within the household using notions of individual/personal welfare and gender/sexual division of labour and dichotomizing the domestic and public spheres more than the perspective of family well-being in traditional cultures</li> <li>• stresses the idea of false consciousness (I do not adopt this idea but nevertheless do not dismiss perceptions of ‘legitimate behaviour’ and the need to ‘perform it’ or ‘manipulate it’ for the best interest of men and women. It can also be interpreted as a gap between the normative and actual practice)</li> </ul>	<p>analysis linking gender to adaptation</p> <ul style="list-style-type: none"> <li>• offers the potential to use many concepts for household gender analysis and not necessarily pinpointing exact way of analysis or solutions. These concepts include: actual and perceived contributions, interests, fall-back positions and game structure (developed in creative conjugality by Jackson (2007))</li> <li>• “politicises” gender and considering strategic and practical gender needs</li> <li>• dynamic and offers the possibility of change</li> <li>• useful with reservations for this research that focuses on gender relations but draws on elements of gender roles and norms that influence intra-household negotiations. Therefore it will be critically complemented by more discursive interpretation of gender relations within the household</li> </ul>
<p><b>2. Vulnerability</b></p> <p>Adger (2006)</p>	<ul style="list-style-type: none"> <li>• well established and widely used</li> <li>• developed in the social sciences and thus addresses environmental risks and hazards from a more social perspective</li> <li>• focuses on the exposure to, sensitivity and adaptive capacity of people in the society, to multiple stressors</li> <li>• tends to be context specific as locations and</li> </ul>	<ul style="list-style-type: none"> <li>• very complex to measure vulnerability</li> <li>• very difficult to conceptualize perceptions of risk</li> <li>• does not explicitly address governance and community-policy linkages</li> <li>• difficult to draw inferences or</li> </ul>	<ul style="list-style-type: none"> <li>• suitable to gender analysis of adaptation that emanates from a social perspective</li> <li>• considers both agency and structure</li> <li>• context-specific framework that makes it relevant to my constructivist paradigm</li> </ul>

	<p>communities may experience differential vulnerability to the same hazard.</p> <ul style="list-style-type: none"> <li>• dynamic as vulnerability is in a constant state of flux</li> </ul>	<p>generalize on a specific case study</p>	
<p><b>3. Livelihoods Approach</b> Ellis (2000, 2006)</p>	<ul style="list-style-type: none"> <li>• establishes context by focusing on people’s social and economic activities and places them at the centre of the analysis</li> <li>• adopts a broad view of development (adaptation) that encompasses economic, institutional, social and environmental dimensions of sustainable livelihoods</li> <li>• takes a holistic approach of analysis that transcends occupation such as fisheries or agriculture, and incorporates cross-cutting social issues of access, political representation and judicial services</li> <li>• links micro–macro levels establishing explicit links between local issues and wider policies</li> <li>• promotes a dynamic, flexible and responsive approach to development and adaptation</li> <li>• builds on strengths of adaptive capacity and does not only focus on vulnerability through encouraging ways of adaptation that make the most of peoples’ existing capabilities (e.g. local knowledge, vocational skills and diverse livelihood strategies)</li> </ul>	<ul style="list-style-type: none"> <li>• Although it facilitates awareness of differences among people in terms of gender, ethnicity, etc. and recognizes how it differently affects access to assets, vulnerability and livelihood strategies, it focuses primarily on collective community characteristics and does not fully incorporate gender social relations at the intra-household level. This was added in this research.</li> <li>• Lacks conceptualization of perceptions of risk. This dimension was added in this research.</li> </ul>	<ul style="list-style-type: none"> <li>• grounds vulnerability analysis in theories of social change and thus allows for the provision of a holistic and integrated view of how people sustain their livelihoods within evolving social, institutional, political, economic and environmental</li> <li>• adopts an appreciative approach to social vulnerability and identifies what the poor/vulnerable have and tries to develop their local livelihood strategies rather than undermining them and imposing foreign unsuitable ones</li> <li>• tends to be context-specific as communities may experience differential vulnerability to the same hazard on account of their income, gender, and ethnicity</li> </ul>

## Appendix 2: Ethical application and approval forms

COMPLETE ALL SECTIONS IN **PART A** AND APPLICANT INFORMATION IN **PART B**

### APPLICANT INFORMATION

Forename	Mona
Surname	Daoud
Gender	Female
Student ID number ( <i>if applicable</i> )	4469488
Contact email address	m.daoud@uea.ac.uk
Date application form submitted	July 2013
1st application or resubmission?	Resubmission

### PROJECT INFORMATION

Project Title	<p><b>Missing links: Gender and climate change</b></p> <p>How do gender relations influence vulnerability and adaptation to climate-related stresses in Egypt?</p> <p>Case studies: Two villages in Alexandria and Aswan</p>
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*\* DEV/DEVco faculty or DEVco research associate applications only:*

* Project Funder	
* Submitted by SSF or DEVco?	
If yes – Project Code:	

*Postgraduate research students only:*

Date of your PP presentation	23 May 2013
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### PERSON(S) SUBMITTING RESEARCH PROPOSAL

Name(s) of all person(s) submitting research proposal. <u>Including main applicant</u>	Status (BA/BSc/MA/MSc/MRes/ MPhil/PhD/research associate/faculty etc.) <u>Students: specify your course</u>	Department/Group/ Institute/Centre
Mona Daoud	PhD	School of International Development

### SUPERVISOR AUTHORISATION

*In the case of undergraduate and postgraduate research, please give details of supervisor(s). The Supervisor is asked to certify the accuracy of the following account. If the supervisor is out of the country at the time of submission they should send an email to the Chair of the ethics committee ([j.seeley@uea.ac.uk](mailto:j.seeley@uea.ac.uk)), copied to [dev.ethics@uea.ac.uk](mailto:dev.ethics@uea.ac.uk) stating that they have seen and approved the application.*

Name of supervisor(s)	Position held
Prof. Nitya Rao	Professor of Gender & Development
Dr. Marisa Goulden	Lecturer in Climate Change

## 1. OVERVIEW OF THE STUDY

Describe the purposes of the research/project proposed. [Detail the methods to be used and the research questions](#). Provide any other relevant background which will allow the reviewers to contextualise your research or project activities. Include questionnaires/checklists as attachments, if appropriate.

The study aims to develop understanding of the gender dimensions of how communities in Egypt perceive, are affected by and respond to the risk of climate impacts. This may be useful for informing effective and just adaptation-related policy.

Research questions:

My main research question is: “How do gender relations influence vulnerability and adaptation to climate-related impacts in Egypt?” My premise is that vulnerability of livelihoods to incremental and extreme impacts of climate change, people’s adaptation strategies and their perceptions of and responses to climate risks are closely intertwined with gender and wider social relations. I explore this premise through a gender analytical framework that sees gender as a social and cultural construction, among other stratifiers as ethnicity and class, within a broader context that also positions climate change within larger political, social, cultural, economic and environmental influences in people’s livelihoods.

The research sub-questions identify the ‘what’, ‘why’ and ‘how’ of gender need interpretation and categorizes them in three consecutive levels of establishing, interpreting and addressing the needs in question as follows:

1. Does climate variability and change affect men and women differently?
2. How do gender relations affect vulnerability and adaptation of individuals, households or communities to climate and livelihood stresses?
3. How to best address gender-specific vulnerability and adaptive capacity in adaptation to climate change?

### **Analytical framework:**

To operationalize my research question, and unpack the vulnerability of livelihoods to climate impacts, I mainly use a gender conceptual framework based on ideas of gendered intra-household and wider social relations. The analysis starts with the individuals within the household as a unit of analysis and expands out to the household and community, exploring also the inter-linkages between them. It aims to transcend the superficial representation of gender roles adopted in mainstream climate change and gender literature and focus on gendered cultures and relationships.

### **Research design:**

I will use an interpretative context-specific methodology based on two case studies in two villages in Alexandria and Aswan, Egypt. Data will be collected over a period of 10-12 months using multiple methods to ensure internal validity and authenticity. These methods include: documentary archival data of policy documents on climate parameters (temperature, precipitation, extreme events, Nile catchment, etc.) and socio-economic conditions to provide context for the case studies; field observation; semi-structured interviews in the villages and policy interviews and focus groups. I will also conduct a household survey of wider sample in each village (100 households). It will be based on the preliminary analysis of the interviews and focus groups to capture and correlate emerging variables such as gender, income, type of household, livelihood parameters and perceptions to vulnerability and the ability to adapt to climate-related stresses.

The methodology is based on an empathetic interaction with the participants who, to me, are not ‘research subjects’ but are knowledge makers who hold the key to my research.

Purposive sampling of participants will be done to identify the respondents according to

stratifiers set in the methodology and revised during fieldwork. These characteristics include gender, household income (Average monthly or wealth ranking), types of household (female-headed, female-maintained or male-headed), and livelihood characteristics (e. g. employment). Existing contacts will be used as gatekeepers in both villages to establish trust as a point of entry to the communities. The gatekeepers in the village in Alexandria include the key informant the village sheikh who knows all the households and is respected by the whole community. They also include contacts I personally know there from doing My MSc fieldwork in the same village in 2011. In Aswan, I know an old acquaintance from the village and his family and I will also identify an elderly respected figure who knows the community. The choice of gatekeepers is based on their knowledge of the community, their respected status in the communities and their non-political affiliation.

## 2. SOURCES OF FUNDING

The organisation, individual or group providing finance for the study/project.

Self-funded

## 3. RISKS OR COSTS TO PARTICIPANTS

What risks or costs to the participants are entailed in involvement in the research/project? Are there any potential physical, psychological or disclosure dangers that can be anticipated? What is the possible benefit or harm to the subject or society from their participation or from the project as a whole? What procedures have been established for the care and protection of participants (e.g. insurance, medical cover) and the control of any information gained from them or about them?

There are no anticipated direct risks to participants as a result of their involvement in the research. Through respect, responsibility and reciprocity to the participants and people in the villages, any anticipated or unanticipated cost can be minimised to the best possible way. There is the cost of the time of the participants and their energy and attention that I am very appreciative of. I will be very mindful of the participants' time and attention constraints, their daily routines and where their activities take place.

There might be a risk of recalling painful incidences that I will be very mindful of in asking questions in terms of what I ask and how I ask it as well as being very sensitive in my responses. I will also strive to minimize any risks or costs associated with the participants interacting with me as researcher through reciprocity and establishing rapport and trust. Staying six months in each village will allow me to personally connect to people and share with them information about myself, my life and my family. This is expected in Egyptian local culture where it is normal for people to ask personal questions in the first encounter. I will be open to respond and share as the participants and people in the village are sharing parts of their lives, life histories and thoughts with me. However, I will be conscious of not revealing culturally or religiously controversial or unacceptable information that might alienate me from the people.

To prevent any possible harm that could affect participants as a result of their involvement in the research, careful considerations will also be followed about addressing the infringement of the rights, anonymity and sensitivities of participants, giving truthful and very clear information about the research (in Arabic) so that they are able to give informed consent. All information from participants will be anonymised with codes as well as the name of the villages. No pictures of identifiable people will be included in the research. I will keep all records and written or visual documents safe and private. I will be interviewing couples separately, in order to not only expose differences, but also to explore how they construct shared livelihoods.

There is also the issue of responsibility of how I represent the people, their lives and their accounts. I will also strive to provide a credible and authentic account of the research



### 3. RISKS OR COSTS TO PARTICIPANTS

participants and interpret their ideals and norms for what they are and what they represent to the people who bare them. Sensitivity to anonymity, privacy and values while questioning will be maintained and respondents will be reminded of their right to refuse to answer questions or withdraw should they wish at anytime. It is also very important to emphasize to participants that there are no right or wrong answers but that I am rather interested in their own views and accounts. Special consideration will be given to local social and cultural norms in relation to the conduct of the study in order to minimize disturbance for the respondents and their relationships with others.

There is a possibility for conflict between people of the community, where there is concern about an individual's involvement in my research or where they are jealous or upset that they themselves are not included in the study. To overcome this, I will be in the villages on daily basis and will be happy to talk to everyone to allay this feeling. Also, I will be always very clear about the purpose of the research and the ways that I am carrying it out. Respondents must feel able to withdraw if they feel under pressure because of their involvement and will be made clearly aware of that. Any issues will be addressed transparently and comprehensively such as the criteria for selection and the purpose of the research.

Studying intra-household relations implies extra consideration in case of household conflicts. I will pay special attention not to interfere in sensitive tension within the household in a way that can exacerbate it. If I am interviewing a couple, I will have to explain to them jointly the purpose of the research, seeking their permission both individually and jointly and then interview each of them separately. This also implies a particular sensitivity about any hints that imply the presence of tension within the household and not asking any sensitive question that could make it worse. I can approach the topic from an angle of cooperation and family shared interests. Or if I feel that even the mention of household relations will harm relationships in the family, I can drop the discussion on intra-household relation altogether and just chat casually with the family without including it as an interview because my first priority is not to cause harm to participants.

I will be spending six months in each village and this will give me time to build rapport with the people and get to know the families in the villages. This will make them feel comfortable around me and by the time I will start my in-depth interviews, I will have personally known them and they will be able to freely express their wishes to participate on record or not or withdraw whenever they want to up to the time I finish my fieldwork in each village. Having trusted elderly gatekeepers in the community will also help me gain people's trust and have a personal point of entry.

### 4. RECRUITMENT/SELECTION PROCEDURES

How will study/project participants be selected? Is there any sense in which participants might be 'obliged' to participate – as in the case of students, prisoners or patients – or are volunteers being recruited? If participation is compulsory, the potential consequences of non-compliance must be indicated to participants; if voluntary, entitlement to withdraw consent must be indicated and when that entitlement lapses.

#### 4. RECRUITMENT/SELECTION PROCEDURES

Participation in the study is completely voluntary.

Selection of participants will be done through sample framing devised through village informants and gate keepers, and contextual census or secondary census records to identify the respondents according to stratifiers set in the methodology and revised during the preliminary exploratory phase of the fieldwork. As mentioned in question1, the gatekeepers in the village in Alexandria include the key informant the village sheikh who knows all the households and is respected by the whole community. They also include contacts I personally know there from doing My MSc fieldwork in the same village in 2011. In Aswan, I know an old acquaintance from the village and his family and I will also identify an elderly respected figure who knows the community. The choice of gatekeepers is based on their knowledge of the community, their respected status in the communities and their non-political affiliation. However I will be careful not to identify myself as closely tied or linked to any authority figure in the communities because this can affect my positionality within the community.

Purposive sampling will be used to represent these characteristics that include gender, household income (Average monthly or wealth ranking), types of household (female-headed, female-maintained or male-headed), and livelihood characteristics (e. g. employment and possibility of livelihood diversification). I will also talk to people who are willing and happy to talk to me or have interesting stories to narrate.

Respondents will be reminded of their right to refuse to answer questions or withdraw from the research should they wish to anytime before I complete my field research.

I will make it very clear throughout the fieldwork that my research is not part of any project and does not entail any funding.

#### 5. PARTICIPANTS IN DEPENDENT RELATIONSHIPS

Specify whether participants will include students or others in a dependent relationship (this could affect their ability to decline to participate). If such participants will be included what will you do to ensure that their participation is voluntary etc.?

The research will not include participants in a dependent relationship with me. However, it may include several adult members of the same family with differing degrees of dependence. This would possibly be the husband and wife to study intra-household relations. I will make sure to first ask privately people to participate while giving them all the information about the research and their participation in it. If I am interviewing a couple, I will have to explain to them jointly, rather than do it in secrecy, but then interview each of them separately. Also sometimes I will talk to them jointly because following this kind of ethnographic work, I will try to build general familiarity/friendship with the household. I will pay special attention to talking to people privately, especially if they are from the same household, to avoid any influence on their choices to participate or withdraw or any harm that could affect their relationship with others.

I will also conduct the policy interviews with researchers or experts in organizations working in the field of gender, climate change and development and NGOs. Therefore I need to consider the power relations and dynamics in these organizations between researchers and managers; government and municipality officers and policy-makers. I worked for 7 years in the field of environment and development in Egypt, so I have a large network of contacts in this field governmental and non-governmental and I am aware of the complex relationships in the governmental, municipal, inter-governmental and non-governmental institutions and will be very careful in considering and accommodating them.

## 6. VULNERABLE INDIVIDUALS

Specify whether the research will include children or people with mental illness. If so, please explain the necessity of involving these individuals as research participants and what will be done to facilitate their participation.

The research will not include children or people with mental illness. However, I might encounter participants with any form of mental illness as depression. I will be very sensitive about people's psychological conditions as a person before being a researcher. The priority for me is always is not harming people in anyway and being sensitive.

## 7. PAYMENTS AND INCENTIVES

Will payment or any other incentive, such as a gift or free services, be made to any participant? If so, please specify and state the level of payment to be made and/or the source of the funds/gift/free service to be used. Please explain the justification for offering payment or other incentive.

I will not give financial payment to the participants for their participation because this will cause harm to other people in the community who are not participating. However, I may provide non-monetary personal and culturally relevant gifts to households for giving me their time and effort and most importantly opening up to me as person and a researcher. This is especially important in Egyptian culture if I am being invited into people's homes. For long and repeated interviews, it may also be appropriate to buy a respondent some refreshment, tea or coffee. It will be made clear that this is brought out of custom and friendship and not as payment for research.

## 8. CONSENT

Please give details of how consent is to be obtained. A copy of the proposed consent form, along with a separate information sheet, written in simple, non-technical language MUST accompany this proposal form (do not include the text of the form in this space, attach with your submission as a separate document).

Verbal and written consent will be obtained. The written form will be provided in Arabic and even when the respondent is non-literate, I will give him/her the written form if he/she wants to have it revised by a family member or friend who can read the consent form information to them (attached is a copy of the proposed consent form and information sheet in English and Arabic).

A clear information sheet (attached) will be provided with the consent form in simple local language formulation. There will be a different information sheet and consent forms for the policy interviews (attached).

## 9. CULTURAL, SOCIAL, GENDER-BASED CHARACTERISTICS

Comment on any cultural, social or gender-based characteristics of the participants which have affected the design of the project or which may affect its conduct.

Special consideration will be given to local social and cultural norms in relation to the conduct of the study in order to minimize disturbance for the respondents and their relationships with others. This is especially critical in my research studying gender relations and how it influences vulnerability and adaptation to climate impacts.

I am Egyptian who was brought up and lived in Egypt for most of my life, so I am part of the local culture that I intrinsically respect. However, I will also be very aware of the specific culture and

## 9. CULTURAL, SOCIAL, GENDER-BASED CHARACTERISTICS

norms of each community I work with. This also applies to the norms of every household that I will try to understand and accommodate.

In this gender-based research, I will interview both men and women of different ages (all adults). Interviews will be conducted in Arabic (my native language) and transcribed into English. In interacting with the communities and conducting interviews and focus groups, I will consider local norms such as taking the permission of the male members of the family (e.g. husbands, fathers or brothers) before talking to women. Not being from the community will give me greater freedom to talk to men and interview them. However, I will interview men in public places (private one-to-one interview but in a public place) to respect the local norms of not being with a stranger male alone in a private premise.

In terms of culture and ethnicity, I will be doing fieldwork in two villages with different specific culture and ethnicity to assess the impact of culture and social norms on gender relations and how it influences vulnerability and adaptation to climate impacts. The village in Alexandria will be studied as a “representative” case of mainstream Egyptian society. Since I am originally from Alexandria, there will not be big differences in culture or social norms between myself and the participants. However, I acknowledge the differences in social class and what it entails from education and position in society. I will be very mindful of that in my words, actions and attire.

The Nubian village in Aswan is a “unique case” for my research. The Nubians have an African ethnic background and Nubian heritage, culture and language (however, they all speak Arabic). I have always been fascinated by their history and culture and know a lot about it through reading, friends and colleagues. I will be very mindful about their culture and try to develop a deeper understanding of it. Although all Nubians in Egypt speak Arabic but I will also learn basic Nubian as a respect for their culture and language. I will still mainly conduct the interviews in Arabic to fully understand their accounts, but in daily interactions I will try to use the Nubian language and develop my knowledge and practice of it.

## 10. ENVIRONMENTAL IMPACT

Identify any environmental impacts arising from your research/project and the measures you will take to minimise risk of impact.

The environmental impacts arising from my research are mainly associated with transport. This include flights between UK and Egypt that is unavoidable but and I will look into the possibility of offsetting my carbon footprint. There are also environmental impacts associated with local travel such as trains between Alexandria and Aswan and local transport within each city. I will minimise my travels and plan my fieldwork well to save time and minimize environmental impacts. I will take trains internally instead of internal flights between Alexandria and Aswan where possible. Locally I will try and travel by foot as much as possible and will respect the communities’ environment and land.

It will be important for me to be respectful to the local practices of environmental protection of the communities I will be working with.

## 11. CONFIDENTIALITY

Please state who will have access to the data and what measures which will be adopted to maintain the confidentiality of the research subject and to comply with data protection requirements e.g. will the data be anonymised?

Only I as the researcher will have access to the primary data. I will share them after anonymising them with my supervisors. The document that contains the information of the respondents and

## 11. CONFIDENTIALITY

their codes will only be seen and accessed by me and will be kept in a password protected file on my lap top. Any written notes will not include the name of the participant.

I will transcribe the tapes myself to prevent any person from identifying any of the participants and nothing identifying the name of the participants will be on the transcription.

Any paper notes will be kept securely with me where they cannot be read by people who may be able to identify the respondent. The names of the participants will not be written anywhere in the notes.

## 12. THIRD PARTY DATA

Will you require access to data on participants held by a third party? In cases where participants will be identified from information held by another party (for example, a doctor or school) describe the arrangements you intend to make to gain access to this information.

For the purposes of this research, I will seek socio-economic information about the households in the villages and information about climate/environmental impacts and how and who they affected and what humanitarian and rehabilitation aid was provided to the villages. These include: national surveys by research organizations, government departments and non-governmental organizations, municipalities, and researchers in the universities in Egypt.

I have contacts in the University of Alexandria where I did my post graduate diploma and the American university in Cairo where I did my BA. These universities are prominent research centres with local researchers and researches on communities in Egypt as in Alexandria and Aswan. With the rapid change of government employees in Egypt, a lot of my contacts in the municipalities have changed but I will re-establish contacts in them to get access to national and sub-national surveys. I will also establish contacts with NGOs working in the field of gender, environment, climate change and development in Egypt particularly those working in Alexandria and Aswan. I still retain many contacts with these organizations particularly those working in Alexandria as the Friends of the Environment NGO and I will explore other relevant ones. I will also contact Nubian organizations and local researchers working on Nubia in the universities I mentioned or others. I will also try to access municipal data on socio-economic indicators in the villages and the environmental impacts and how they affected and affect them as well as the rehabilitation activities that took (or are taking) place. These third party data and contacts are alongside my key informants as policy makers or experts and key informants in the villages as school teachers and social workers.

Other archival data as climate parameters or socio-economic data are public available.

### 13. PROTECTION OF RESEARCHER (APPLICANT)

Please state briefly any precautions being taken to protect your health and safety. Have you taken out travel and health insurance for the full period of the research? If not, why not. Have you read and acted upon FCO travel advice (website)? If acted upon, how?

As an Egyptian, I have national insurance in Egypt where I will do my fieldwork. I also have family and friends in time of need or sickness. While in the field precautions will be taken to avoid medical problems.

Regular breaks will be taken from the research site in order to reflect and get some perspective as well as recuperate when necessary. In these breaks, I can visit family and friends, and get contacts with research institutes, academics and practitioners in the field to brainstorm, reflect and get feedback on my research. These breaks will also be needed to take time out since I will always be under scrutiny in the communities I'm working with and all my steps and actions will be well calculated and thought of.

### 14. PROTECTION OF OTHER RESEARCHERS

Please state briefly any precautions being taken to protect the health and safety of other researchers and others associated with the project (as distinct from the participants or the applicant).

Other people helping me with this research include a note-taker, my gatekeepers and people in the village that will assist me in the introductions and building rapport in the villages.

The gatekeepers or mediators may encounter risks of disturbance in their relationships to people in the community due to my closer connection to them or jealousy from the people who might think I am giving them incentives and not to other people. For this reason I will try to balance my relationship with everyone in the village including the gatekeepers and not associate myself with any position of authority. I will also make it clear that they get no special incentives. Nevertheless, I'll repay them for any financial expenditure they uptake for my sake as transportation etc. but in confidence. Any incentives will be given as mentioned in question 7 as symbolic gifts to all the families that host me in their houses (an Egyptian norm and tradition).

For my assistant who is a close friend, I will be considerate of her time schedule and her capacity to be with me on the field. She will only assist me in the focus groups. So I will set them and be precise with her about timing and organizations. I will accompany her during her time assisting me and I will explain the research to her in detail so that she will be aware of all the issues and risks. She also has health insurance in Egypt and car for safe transport. I will reimburse her for any expenditure she spends for this research.

### 15. RESEARCH PERMISSIONS (INCLUDING ETHICAL CLEARANCE) IN HOST COUNTRY AND/OR ORGANISATION

The UEA's staff and students will seek to comply with travel and research guidance provided by the British Government and the Governments (and Embassies) of host countries. This pertains to research permission, in-country ethical clearance, visas, health and safety information, and other travel advisory notices where applicable. If this research project is being undertaken outside the UK, has formal permission/a research permit been sought to conduct this research? Please describe the action you have taken and if a formal permit has not been sought please



## 15. RESEARCH PERMISSIONS (INCLUDING ETHICAL CLEARANCE) IN HOST COUNTRY AND/OR ORGANISATION

explain why this is not necessary/appropriate (for very short studies it is not always appropriate to apply for formal clearance, for example).

No permissions are necessary because I am an Egyptian and I am doing my research in Egypt.

## 16. MONITORING OF RESEARCH

What procedures are in place for monitoring the research/project (by funding agency, supervisor, community, self etc).

There will be self monitoring of the research that relate to providing authentic accounts of participants and awareness of my personal reflexivity through the research process, being always conscious of my own gender bias, political views and cultural preconceptions. This challenge will be managed through working systematically on the project design, data collection and analysis; challenging my own ideas and findings and considering alternatives; and working ethically to guarantee that the project brings no harm to participants as well as provides reliable and authentic findings. I will also keep a daily research journal as a measure of progress and documentation of my reflections. A gap of a month will be taken half way through the research in order to carry out preliminary analysis that will focus the second stage of the research, to reflect on the research and to do any needed reading.

There will also be monitoring by my supervisors that I will involve in the different stages of data collection and analysis. Regular updates will be organised with both supervisors in order for them to monitor my progress, discuss work to date and future plans. This will assist me in the process of conducting focused and considerate data collection and brainstorming on credible interpretation of the participants' accounts. Also, one or two of my supervisors may visit me during the fieldwork.

## 17. ANTICIPATED USE OF RESEARCH DATA ETC

What is the anticipated use of the data, forms of publication and dissemination of findings etc.?

The data findings will primarily be used for the PhD thesis. It may also be used as data for peer-reviewed academic publications or books.

## 18. FEEDBACK TO PARTICIPANTS

Will the data or findings of this research/project be made available to participants? If so, specify the form and timescale for feedback. What commitments will be made to participants regarding feedback? How will these obligations be verified?

Participants will be made aware of what I will use the data for. I will relate preliminary analysis during my fieldwork and preliminary findings after the fieldwork to participants and get their feedback on it. This will be through explaining it verbally to the participants who cannot read or write and providing a summary in Arabic for those who can.

I will always make it very clear that I am a student and I will be as accurate as possible in providing information about the length of time it will take me to analyse and write up the data.

## 18. FEEDBACK TO PARTICIPANTS

After I complete my research, a full copy of my thesis will not be supplied but I will prepare a short Arabic summary document of the research to give to the participants. It can be distributed to anyone who is interested in having a copy of my research findings.

As the knowledge makers of this research, I will provide them with copies of anything I publish emanating from the research together with an Arabic summary. This will be done mainly through personal visits to not favour the likely very few members in the communities who have access to email.

## 19. DURATION OF PROJECT

*The start date should not be within the 2 months after the submission of this application, to allow for clearance to be processed.*

Start date	End date
August 2013	July 2014 (extended to April 2015)

## 20. PROJECT LOCATION(S)

Please state location(s) where the research will be carried out.

The project will be carried out in a village on Lake Maryut in Alexandria and a Nubian village in the South of Aswan in Egypt.



## APPLICANT INFORMATION

To be completed by the applicant

Forename	Mona
Surname	Daoud
Student ID number (if applicable)	4469488
UG, PGT or PGR (if applicable)	PGR
Supervisor (if applicable)	Prof. Nitya Rao – Dr. Marisa Goulden
Project Title	Missing links: Gender and climate change How do gender relations influence vulnerability and adaptation to climate change and variability in Egypt? Case studies: Two villages in Alexandria and Aswan

## REVIEWERS RECOMMENDATION (✓)

To be completed by the Ethics Committee

Accept	<input checked="" type="checkbox"/>
Request modifications	<input type="checkbox"/>
Reject	<input type="checkbox"/>

## REVIEWERS' CHECKLIST

Delete as appropriate

Risks and inconvenience to participants are minimised and not unreasonable given the research question/ project purpose.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
All relevant ethical issues are acknowledged and understood by the researcher.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Procedures for informed consent are sufficient and appropriate	<input checked="" type="checkbox"/>	<input type="checkbox"/>


## REVIEWERS' COMMENTS

The points raised in the 29<sup>th</sup> June 2013 review have been addressed adequately.

## COMMITTEE'S RECOMMENDATION

Ethical approval granted.

## SIGNATURE (CHAIR OF THE INTERNATIONAL DEVELOPMENT ETHICS COMMITTEE)

Signature	Date
	12 <sup>th</sup> July 2013

### Appendix 3: Themes for the fieldwork methods covering main points of the research

Study context questions – What information do I need?	How can I obtain the information?
<p><b>Household sampling frame:</b></p> <p>How are households defined? (nuclear or extended units)</p> <p>How many households are there in the study location?</p> <p>What are the variations in the type of households in the study location? (male-headed, female-headed (de jure), female-maintained (de facto), single adults (marital status of household head)</p> <p>What are the ways in which households differ from each other?</p> <p>What are the defining ethnic/cultural differences and perceptions?</p>	<p>Key informants (elders, village sheikh, social workers, school teachers)</p> <p>Exploratory focus groups</p> <p>Documentary analysis/ethnographic literature</p>
<p><b>Characteristics of local gender relations:</b></p> <p>Socio-cultural norms regarding:</p> <p>Intra-household interactions and decision-making</p> <p>Control of income within the household</p> <p>Type and form of family structure/kinship (patriarchy and locality/focality)</p> <p>Gender roles, responsibilities, expectations, norms</p> <p>Access to resources and physical mobility</p>	<p>Participant observation</p> <p>Documentary analysis/ethnographic literature</p> <p>Interviews with key informants</p> <p>Semi-structured interviews</p> <p>Focus group discussions</p>
<p><b>Livelihood characteristics/daily life</b></p> <p>How do men and women make and sustain their livelihood?</p> <p>What is the range of livelihood activities available to men and women?</p> <p>Which type of work men and women prefer and can/cannot do?</p>	<p>Participant observation</p> <p>Documentary analysis/ethnographic literature</p> <p>Interviews with key informants</p> <p>Semi-structured interviews</p> <p>Focus group discussions</p>
<p><b>Exposure/ Facets of change:</b></p> <p>What types of incremental and extreme weather/environmental/climatic impacts and stresses have affected the village in the past recent years? Meteorological data as temperature, rainfall, extreme events, Nile gauge and sea level rise data, seasonal changes, indirect environmental impacts (salinization, land subsidence, impacts on soil fertility/crop patterns and fishing)</p> <p>What are the social, economic and political (collective movement and bargaining culture) stresses facing the people in the study context?</p> <p>What are the main historical developments/events (to map social memory particularly regarding livelihoods and climate</p>	<p>Secondary data:</p> <p>Meteorological data</p> <p>Second national communication plan and other governmental and NGO reports</p> <p>Interviews with key informants</p> <p>Semi-structured interviews and life histories</p> <p>Focus group discussions</p> <p>Life history interviews</p>

changes)?	
<p><b>Adaptation</b></p> <ul style="list-style-type: none"> <li>Enabling/disabling Social, economic and political conditions</li> <li>Livelihood coping strategies/Livelihood diversification</li> <li>Mechanisms of access (e.g. social networks, local knowledge, livelihood diversification)</li> <li>Relocation lessons of drastic adaptation of the hydroelectric dam and forced migration in Aswan to possible relocation in Alexandria</li> <li>Gender-sensitive initiatives</li> </ul>	<ul style="list-style-type: none"> <li>Participant observation</li> <li>Interviews with key informants</li> <li>Semi-structured interviews</li> <li>Focus group discussions</li> <li>Life history interviews</li> </ul>

## Appendix 4: Sampled households and interviewees in the villages

### Maryut sampled households

Household type	Names of interviewed members	Ages of husband & wife	Livelihood job(s)	Years of marriage	Children	Assets
1. Male-headed nuclear	Halim, Sawsan & eldest daughter	42 & 36	Husband: Farming – truck driver – mechanic Wife: Housework – sale of vegetables and chicken eggs – domestic service	19	2 daughters & 1 son	Brick house - land
2. Male-headed nuclear	Abu & Umm Jobran, & Jobran & mother of husband	64 & 47	Husband: Farming – government job – migrant work in Bahrain – fishing & sale of fish Wife: Housework - government job – retail sale	30	2 daughters & 2 sons	Brick house fortified by cement – land – small restaurant (sold)
3. Male-headed nuclear	Abu & Umm Ward & eldest daughter	56 & 49	Husband: Farming – fishing & sale of fish - electrician Wife: Housework - government job – retail sale	31	3 daughter & 2 sons	Brick house – small (less than 1/5 feddan) land - fishnets
4. Male-headed nuclear	Hagg Razek & Hagg Rashida & daughter	68 & 45	Husband: Farming – fishing - imam Wife: Housework – vegetable and fish sale	27	4 daughters	Brick house – small land - fishnets
5. Male-headed nuclear	Hagg Mamdouh & Hagg Samira & son	59 & 44	Husband: Farming – retail sale - plumber Wife: Housework – sale of vegetables – domestic service	26	3 daughters & 1 son	Brick house – small land
6. Male-headed nuclear (Polygamous marriage)	Abu & Umm Ragab (& Karima, the other wife)	46 & 39	Husband: Farming – migrant work in KSA – fishing Wife: Housework - fish & vegetable sale	21	2 daughters & 2 sons	Brick house – small land - fishnets
7. Male-headed nuclear	Hagg Samir, Umm Seif & Seif	65 & 60	Husband: Farming – fishing & sale of fish – construction Wife: Housework – vegetable & fish sale – domestic service	41	3 daughter & 2 sons	Brick house – small land
8. Male-headed nuclear	Abu & Umm Goma & daughter	52 & 45	Husband: Farming – fishing – fish & retail sale Wife: Housework – sale of vegetables – domestic service	27	2 daughters & 2 sons	Brick house – small land
9. Male-headed nuclear	Abu & Umm Karim & Karim	46 & 35	Husband: Farming Wife: Housework – domestic service	15	1 daughters & 2 sons	Brick house – land
10. Male-headed nuclear	Abu & Umm Ashraf & eldest daughter	59 & 54	Husband: Farming – fishing – parking services in Alexandria Wife: Housework – fish & vegetable sale - domestic service	34	3 daughters & 2 sons	Brick house – small land
11. Male-headed nuclear	Abu & Umm Bekhit & daughter	49 & 43	Husband: Farming – retail sale Wife: Housework – sale of vegetables	22	3 daughters & deceased son	Brick house – land
12. Male-headed	Marwan, Salima &	36 & 30	Husband: Farming – fishing – hotel service in Alexandria	9	1 daughter	Brick house – small

	nuclear	mother of Marwan		Wife: Housework – sale of vegetables & fish		& 1 sons	land
13.	Male-headed nuclear	Abu & Umm Mahib & son Mahib	34 & 29	Husband: Farming – sale of tomatoes – Alex private hospital Wife: Housework – petroleum refinery factory	10	2 daughters & 1 son	Brick house – small land
14.	Male-headed nuclear	Abu & Umm Samir & daughter	41 & 35	Husband: Farming – migrant work in UAE Wife: Housework – managing shop of bean & falafel	17	3 daughters	Brick house – a shop of bean and falafel
15.	Male-headed nuclear	Hagg Samir & Hagg Samira & son	54 & 45	Husband: Farming – migrant work in Kuwait Wife: Housework - government job – retail sale	28	2 daughters & 2 sons	Brick house fortified by cement – land
16.	Male-headed nuclear	Abu & Umm Gomaa & son & daughter	45 & 35	Husband: Farming – government job (white collar admin job) – sale of crop produce Wife: Housework – vegetable sale – domestic service	18	2 daughters & 3 sons	Brick house - land
17.	Male-headed nuclear	Abu & Umm Mohsen & daughter	35 & 29	Husband: Farming – migrant work in Kuwait – fishing Wife: Housework - fish sale	10	3 daughters	Brick house fortified by cement – small land
18.	Male-headed nuclear	Abu & Umm Shaker & son	65 & 60	Husband: Farming – construction work Wife: Housework – sale of vegetables	40	2 daughters and 3 sons	Brick house – small land
19.	Male-headed nuclear	Hagg Mortada, Hagg Kora, brother of wife (visiting) & son	79 & 75	Husband: Farming – retail sale Wife: Housework – sale of vegetables and chicken eggs – domestic service	59	2 daughters and 4 sons	Brick house – small land
20.	Female-maintained nuclear	Umm Karkar, son & daughter	45	Husband refuses to provide – domestic service – vegetable and fish sale	23	2 daughters & 1 son	Brick house
21.	Female-headed nuclear	Shokria & daughter	33	Divorce: Housework – retail & vegetable sale	6	1 daughter & 1 son	Brick house
22.	Female-headed nuclear	Hagg Gamila, eldest daughter	40	Widow: Housework – hiring farmers – domestic service	17	3 daughters & 1 son	Brick house – small land
23.	Female-headed nuclear	Hagg Hamdeya	64	Widow: sale of fish & vegetables – domestic service – leader of saving associations <i>gam'eyat</i>	15	2 daughters & 1 son	Brick house
24.	Female-headed nuclear	Fatima & eldest daughter Raghda	45 & 27	Widow: Housework – farming – domestic service	7	2 daughters	Brick house - land
25.	Female-headed nuclear	Umm Zeinab & Zeinab	42 & 22	Widow: Housework – domestic service – vegetable sale Daughter Zeinab: high school teacher	8	1 daughter & 2 sons	Brick house

Number of total interviewees n=72

## Nubia sampled households

I included the extended families in Nubia because kinship was an important sampling criterion. The 5 prominent families are Ahmed Ali, Khaledan, Sourouh, Gwadab and Karar (there are few members of the families of Shifi and Hagueen). Ahmed Ali and to a lesser extent Khaledan fall into the wealthier groups in Nubia. They are the first families to settle in new Nubia. They ascribe a higher 'respected' status that puts heavier responsibility on them when the village is in stress.

Household type	Names of interviewed members	Ages of husband & wife	Family of husband	Family of wife	Livelihood job(s)	Years of marriage	Children	Assets
<b>1. Male-headed Extended</b>	Abu Waleed, Hagg Mayar & mother of wife	64 & 55	Khaledan	Sorouh	Husband: Farming Khaledan land – tours on Khaledan boat Wife: Housework – processing of spices – raising goats – making cheese & selling it	36	3 daughters & 3 sons	Land of Khaledan wife's family & extension to their house
<b>2. Male-headed Extended</b>	Hagg Suleyman, Hagg Nasda & Grandmother of wife	54 & 37	Khaledan	Khaledan	Husband: Farming – tourism using family boat Wife: Housework – processing of spices – handicrafts (baskets)	20	3 daughters & 2 sons	Land - boat - Family house
<b>3. Male-headed Extended</b>	Hagg Khattab & Hagg Nevine & son	58 & 50	Ahmed Ali	Ahmed Ali	Husband: Farming – tourism using family boat Wife: Housework – various handicrafts	32.5	3 daughters & 4 sons	Ahmed Ali family land, house & boat
<b>4. Male-headed Extended</b>	Hagg Ghareeb, Hagg Somaya & daughter Umm Mohsen (divorced)	61 & 44	Khaledan	Ahmed Ali (hosting the couple)	Husband: Farming – tourism tours on family boat Wife: Housework – processing of spices	25	4 daughters & 3 sons	Land - family house - boat
<b>5. Male-headed Extended</b>	Hagg Alaa, Umm Selim & Grandfather (Ahmed Ali Chief)	49 & 38	Ahmed Ali	Ahmed Ali	Husband: Farming Ahmed Ali land – tours & fishing on Ahmed Ali boat Wife: Housework – processing of spices – Nubian handicrafts	18	3 daughters & 2 sons	Land (communal farming of family land) - Family house & boat
<b>6. Male-headed Extended</b>	Abu Razek, Hagg Salima & daughter	45 & 36	Khaledan	Khaledan	Husband: Farming – tourism tours on family boat – migration to Kuwait Wife: Housework – processing of spices	20	5 daughters & 2 sons	Family land - extended family boat - Family house
<b>7. Male-headed Extended</b>	Sami & Eisha & mother of Sami	35 & 26	Khaledan	Ahmed Ali	Husband: Farming Ahmed Ali land – fishing & tours on Khaledan boat Wife: Housework – processing of spices – Nubian handicrafts	7	2 sons	Sharing Ahmed Ali land, house & family boat
<b>8. Male-</b>	Abu & Umm	33 & 27	Sorouh	Sorouh	Husband: Farming Sorouh land – sale of	8	2 daughters	Sharing Sorouh land &

<b>headed Extended</b>	Dorra & daughter				sugarcane & spices Wife: Housework – processing of spices – Nubian handicrafts		& 2 sons	house
<b>9. Male-headed Extended</b>	Hagg Mounib, Umm Mahmoud & Grandmother of wife	57 & 40	Sorouh	Khaledan (hosting the couple)	Husband: Farming Khaledan land – Nubian cultural centre in Aswan – tours on Khaledan boat Wife: Housework – processing of spices – Nubian handicrafts	23	3 daughters & 4 sons	Land of wife's family – house extension to wife's family
<b>10. Male-headed Extended</b>	Hagg Shoukri & Umm Sokar	38 & 32	Khaledan	Sorouh	Husband: Farming Khaledan land – limousine driver in Aswan – tours on Khaledan boat Wife: Housework – Nubian handicrafts	6	2 sons	Land of Khaledan husband's family – small house next to Sorouh wife's family
<b>11. Male-headed Extended</b>	Anwar, Umm Mansour & Mansour	37 & 26	Sorouh	Gwadab	Husband: Farming - migration to Saudi Arabia Wife: Housework – processing of spices - handicrafts	7	1 daughter & 2 sons	Small house of Gwadab family & land
<b>12. Male-headed Extended</b>	Hagg Abdelrehim, Umm Seif & mother of wife	55 & 46	Karar	Karar	Husband: Farming – clerical government job in Aswan - fishing Wife: Housework – processing of spices - handicrafts	21	3 daughters & 3 sons	Karar family land, house & boat
<b>13. Male-headed Extended</b>	Hagg Badawi & Hagg Noha	46 & 38	Karar	Khaledan	Husband: Farming Khaledan land – Hotel service in Aswan – spice sale Wife: Housework – processing of spices – care of pigeons	21	4 daughters & 4 sons	Land of Khaledan wife's family – house extension to wife's family
<b>14. Male-headed Extended</b>	Abu & Umm Sami & aunt of wife	34 & 28	Khaledan	Sorouh	Husband: Farming Khaledan land – petty trading Wife: Housework – processing of spices – care of cattle	10.5	1 daughter & 2 sons	Land of Khaledan husband's family – house close to the Sorouh wife's family
<b>15. Male-headed Extended</b>	Hagg Ahmed & Umm Haytham & daughter	41 & 34	Sorouh	Sorouh	Husband: Farming Sorouh land – chef in Aswan Wife: Housework – processing of spices – Nubian handicrafts	14	3 daughters & 2 sons	Sorouh land & house
<b>16. Male-headed Extended</b>	Hagg Farid, Umm Maged & son	42 & 33	Gwadab	Khaledan	Husband: Farming Khaledan land – fishing on Khaledan boat Wife: Housework – processing of spices – Nubian handicrafts	16	4 daughters & 2 sons	Land of Khaledan family – house close to Khaledan household

<b>17. Male-headed Extended</b>	Hagg Shaker, Umm Selim & Selim	50 & 41	Hagueen	Hagueen	Husband: Farming Hagueen land – fishing - retail sale Wife: Housework – processing of vegetables & spices	24	3 daughters & 3 sons	Hagueen land & house
<b>18. Male-headed Extended</b>	Yehia & Umm Hussein & mother of husband	59 & 47	Gwadab	Gwadab	Husband: Farming – service government job in Aswan - fishing Wife: Housework – processing of vegetables - handicrafts	19	3 daughters & 4 sons	Gwadab family land, house & boat
<b>19. Male-headed extended</b>	Sheikh Mokhtar, Umm Ayman & grandson Shaker	75 & 61	Karar	Shifi	Husband: Village imam – farming Karar land – fishing Wife: Housework – processing of vegetables – Nubian handicrafts	45	4 daughters & 6 sons	Land of Karar family – house – family boat
<b>20. Male-headed Extended</b>	Hagg Hassan & Hagg Nariman & father of wife (uncle of husband)	78 & 67	Karar	Karar	Husband: Farming Karar land – construction work in Aswan Wife: Housework – processing of spices – Leading <i>Zar</i> ceremonies	50	2 daughters & 3 sons	Land of Karar family – house
<b>21. Male-headed Extended</b>	Hagg Asaad & Hagg Eisha & father of wife	37 & 29	Sorouh	Sorouh	Husband: Farming - migration to Saudi Arabia Wife: Housework – processing of spices - handicrafts	11	2 daughters & 2 sons	Sharing in Sorouh house & land
<b>22. Male-headed extended</b>	Hagg Hosni & Hagg Omayma & son	55 & 47	Hagueen	Gwadeb	Husband: Farming in Gwadeb land – Electrician Wife: Housework – processing of spices - handicrafts	30	4 daughters & 2 sons	Sharing in Gwadeb family house & land
<b>23. Male-headed Nuclear</b>	Sabry & Ebtehal & daughter	30 & 25	Shifi	Shifi	Husband: Farming in Abu Ali land with profit sharing of the produce - Migration to Saudi Arabia – work on felouka Wife: Housework – processing of spices	7.5	2 daughter	Small house – small felouka (small motor-less boat)
<b>24. Female-maintained Extended</b>	Hagg Samia & son	75	-	Ahmed Ali	Housework – processing of spices – handicrafts	Son	5 sons	Extension to Abu Ali family house
<b>25. Female-headed Extended</b>	Umm Sorayah (Somaya) & daughter Sorayah	37	-	Karar	Housework – processing of spices – wedding party ‘planner’	3	1 daughter	Small house as extension to her extended family house

Number of total interviewees n=72



## Appendix 5: Indigenous Coptic and Pharonic calendars

### Alexandria Coptic storm (Nawwat) calendar

Date Day/month	Name of storm	Duration Days	Wind direction and strength	Rain
1/1	Ras El Sana (New Year)	2	Western/ North Western 28-33 Knots	Rainy
9/1	El Faida El Kabeera (The Big Flood)	5	South Western/ Western 28-33 Knots	Rainy
18/1	El Gheitass	5	South Western/ Western 28-33 Knots	Rainy
27/1	El Karam (Generosity)	6	North Western 25-33 Knots	Rainy
3/2	El Karam (Generosity)	7	North Western 28-33 Knots	Rainy
14/2	El Shams El Sagheera (The small Sun)	2	North Western 28-33 Knots	Rainy
4/3	El Saloom	3	North Western 25-33 Knots	Sometimes Rainy
8/3	El Hessoum	6	North Western/ North Eastern 28-33 Knots	Sometimes Rainy
14/3	El Hessoum	2	Western 28-33 Knots	Sometimes Rainy
22/3	El Shams El Kabeera (The Big Sun)	3	Western/ Northern 28-33 Knots	Sometimes Rainy
29/3	El Awa	3	North Western 28-33 Knots	Sometimes Rainy
2/4	El Awa	2	North Western 28-33 Knots	Sometimes Rainy
20/11	El Moknessa (The Broom)	4	North Eastern/ Western 28-30 Knots	Rainy
26/11	El Moknessa (The Broom)	2	North Western/ Western 18-30 Knots	Rainy
4/12	Kassem	4	South Eastern/ North Western 18-30 Knots	Rainy
10/12	Kassem	2	North Eastern/ North Western 25-30 Knots	Rainy
13/12	El Faida El Sagheera (The Small Flood)	2	South Eastern/ North Western 25-30 Knots	Rainy
21/12	El Faida El Kabeera (The Big Flood)	2	South Eastern/ North Western 25-30 Knots	Rainy
25/12	Eid El Milad (The Birth of Christ)	2	South Western 25-30 Knots	Rainy

Source: Alexandria Guide Establishment, 2008.

## Pharonic/Ancient Egyptian calendar

In their calendars (Gardiner, 1945, Nicholls et al., 2008, Hawas, 2003), the ancient Egyptians divided:

- The lunar year into twelve months and relied on the lunar calendar to determine the date of alignment of stars with the crescent to foresee floods (as well as determine rituals and religious occasions).
- The solar year to 360 days,
- The solar year into three seasons each chapter consists of four months,
  - Chapter I *Akhet* of flood or (drought)
  - Chapter II *Perth/ Peret* (winter) of the mean displacement of water from land
  - Chapter III *Shomu/ Chemo* (the summer) of the mean water shortage

They calculated the days of the solar year by Hrouguin Canis Major as the brightest star in the constellation of Sirius. The reason for their interest in the star that it is linked to the date of flooding of the Nile, where monsoon rains falling on the highlands of Abyssinia floods raises the Nile water level and the annual flooding occurs. The Pharaohs noted that the flood occurs at sunrise Sirius Vatakduha hours. One of the important foundations in the Pharonic calendar to schedule an impending flood is when the star Sirius rises from the eastern horizon at sunrise during the flood, making monitoring difficult because of the sun.

## Appendix 6: Mandates on Gender in Egypt

The current Egyptian Constitution guarantees equal rights to all citizens, men and women in several articles. Article 40 of the 1971 Constitution that was eliminated in the 2012 Constitution and reinstated in Article 9 in the 2014 Constitution states that “citizens are equal in front of the law and equal in rights and duties, and that there shall be no discrimination between them based on gender, origin, language or belief.”

<b>Article 9</b>	Equality for all citizens
<b>Article 11</b>	<p>The State shall ensure equality between women and men in all civil, political, economic, social and cultural rights</p> <p>Discrimination on the basis of gender in employment in the public sector, public business sector and private sector is banned (also Law No. 12 of 2003)</p> <p>The State shall protect women against all forms of violence and shall enable women to balance family duties and work requirements</p> <p>The State is required to guarantee women’s right to hold public and senior management offices in state, judicial bodies and authorities without discrimination</p> <p>The State shall take the necessary measures to ensure the appropriate representation of women in the houses of representatives</p> <p>Recognizes female-headed households and the State’s duty to protect them</p>
<b>Article 53</b>	Bans discrimination based on religion, belief, sex, origin, race, colour, language, disability, social class, political or geographic affiliation
<b>Article 180</b>	Establishes that one quarter of the local council seats must be allocated to women
<b>Article 214</b>	Establishes the National Council for Women

However, to date, laws emanating from the 2014 constitution have not yet been drafted.

The Government of Egypt is also a signatory to a number of key international gender rights’ agreements that commits the country to gender mainstreaming in its development agenda. These include chapter 24 of Agenda 21 (United Nations Conference on Environment and Development 1992); the Johannesburg Plan of Implementation (World Summit on Sustainable Development 2002); the Beijing Platform for Action

(1995); the Millennium Declaration (2000); and the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW).

Egypt ratified the CEDAW in 1981. The most relevant provision to adaptation issues in rural areas includes CEDAW committing the signatory countries to take “all appropriate measures to eliminate discrimination against women in rural areas in order to ensure, on a basis of equality of men and women, that they participate in and benefit from rural development” and “participate in the elaboration and implementation of development planning at all levels and in all community activities” (Article 14.2).

The “National Strategy for Women Empowerment” in Egypt was developed in 2004 by the National Council for Women and endorsed by the Cabinet of Ministers to be integrated in various governmental policies including environmental policies.

A Gender Unit was established in the Egyptian Environmental Affairs Agency (EEAA) in 2002 with the objective of mainstreaming gender in environmental issues through improving equal access to education, employment and community development.

The National Environmental Action Plan (NEAP) of Egypt (2002-2017) acknowledges the importance of women as an integral part of Egypt’s social structure and recognizes that the environment affects men and women differently mainly due to cultural reasons. It also states that the endorsement of women’s participation in community and social life is a major premise for social and economic development. It emphasizes the need to create an enabling environment for women to play an effective role in adaptive livelihood activities to support their families and adapt to their changing environment.

The “National Strategy for Sustainable Development” adopted in 2008 in Egypt addresses women’s challenges in activities related to sustainable development and identifies some needed actions to strengthen women’s role in community and social development

The National Strategy for Mainstreaming Gender in Climate Change in Egypt 2011–2016 identifies and analyses the interconnectedness of gender and climate change, stating that: “Climate change and gender inequality are inextricably linked” (Aguilar et al. 2011, p.2). The strategy focuses on the national priority sectors that are most vulnerable to climate change. According to the Initial and the Second National Communication (EEAA 1999, 2010), these sectors include: water resources, agriculture and coastal sectors as presented in the context chapter and assessed through the two case studies.