



Bedouin Adaptation to the Last 15-Years of Drought (1995–2010) in the North Coastal Zone of Egypt: Continuity or Rupture?

VÉRONIQUE ALARY^{a,b}, FÉRIAL HASSAN^{c,d}, IBRAHIM DAOUD^c, ADEL ABOUL NAGA^{c,d},
MONA A. OSMAN^{c,d}, DENIS BASTIANELLI^a, PHILIPPE LESCOAT^f, NAEEM MOSELHY^g
and JEAN-FRANÇOIS TOURRAND^{a,*}

^a CIRAD, Montpellier, France

^b ICARDA, Cairo, Egypt

^c APRI, Cairo, Egypt

^d ARC, Cairo, Egypt

^e Governorate of Matrouh, Marsa Matrouh, Egypt

^f INRA, Paris, France

^g DRC, Cairo, Egypt

Summary. — Following the tribal allocation of land in the 1920s and the development of agriculture in the wadi area, the last six decades have seen the settlement of the majority of Bedouin tribes in Egypt. In the two last decades, the Bedouin in the Coastal Zone of the Western Desert had to cope with a severe 15-year drought combined with major changes in link with tourism, urbanization, and agricultural development. Using data collected in surveys and interviews, we show that the adaptive processes of the Bedouin are embedded in their social organization and in their ability to adopt new activities.
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1. INTRODUCTION

The Coastal Zone of the Western Desert of Egypt, CZWD, extends over 500 km from the border of Libya to the city of Alexandria and consequently plays a strategic role in Egyptian national and international policy as well as being the site of a variety of exchanges as border governorate (Pliez, 2007, 2011). The CZWD was mainly settled by a Bedouin clan, Awlad Ali, arrived from the Arabian peninsula in 950 and 951 AD (Altorki & Cole, 2006). Besides, Matrouh population includes other Bedouin clans and migrant settlers that arrived from the Nile valley over the last century. Awlad Ali community had a pastoral lifestyle on common lands assigned by tribe; this pastoral lifestyle was based on permanent grazing in the more inland areas (more than 50 km in the South) or seasonal transhumance in the North coastal zone (until 50 km inland), mainly winter transhumance according to rainfall. Settling the Bedouin has been the main goal of all the public policies and of the international and national development projects implemented in the zone since the 1950s, in order to control the borders and reduce land conflicts between the tribes and between the tribes and the state. In the 1970s and 1980s, the majority of Bedouin farming systems were based on mixed cereal–livestock breeding with some trees grown in the wadis. Only some breeders in the south continued to undertake the long transhumance with a mixed herd of small ruminants and camels. Most development projects in the 1990s (Aboul-Naga, Metawi, El Sayed, Taleb, & Gaber, 2009; El Miniawy, Mark, & Tobah, 1990; World Bank, 2003) focused on the construction of water infrastructure, including dikes, cisterns, and reservoirs. Nowadays, the most widespread Bedouin farming system is based on mixed cereal–tree–livestock systems in which horticultural crops (mainly figs and olives) have become a major source of income. Despite these structural changes, which led to social changes in the Bedouin

lifestyle (especially settlement, commoditization of crop products, and delimitation of land with trees), livestock continued to be the main safety net in the face of the recurrent two- to three-year droughts that affected the region. And ownership of flocks and migration, mainly to Libya, remained the main way for young men to accumulate some capital before starting out on a life of their own.

From 1995 to 2010, the CZWD was affected by a severe drought that is considered as ‘never seen’ or ‘never heard’ in the zone by the Bedouin community during the 20th century (testimonies from interviews). Due to the duration of the drought, all the families in the zone drastically reduced the size of their reproductive flock to cover the costs of animal feed and to satisfy the basic needs of their families, and many trees died. They were also obliged to find alternative ways to survive. Moreover the drought has caused high damage in the

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rangeland due to the erosion of bare ground by the wind, responsible for the loss of pastoral grass species, although this area was considered as the most productive rangeland with a variety of natural bushes, shrubs, and grasses (Hobbs, 1989). At the same time, the coastal region was the scene of the rapid development of tourism, started in the 1980s, and public infrastructures (school, health care centers, etc.), which have affected access to land and the panel of activities.

In parallel, the east part of the region (from El Alamein to Borg el Arab) has known a recent and deep transformation with the extension of the El-Hammam canal from the Nasr canal; this type of project is part of a strategic public policy that has started in the 1950s and exploded in the 1980s to extend cultivated land in the desert and solve problems in link with food security, overcrowding in the Nile valley, creation of job opportunity, and diversification. During this phase of land reclamation, Bedouin population established in this zone has been ejected from the territories belonging to their tribes; most of them have sold their flock and invested in business activities in small cities like Borg El Arab and El Hammam. These lands have been firstly distributed to migrants originating from the Nile Delta and valley or cities like Alexandria or Cairo, mainly by auction. Since the last decade, Bedouin have attempted to recover their land by dealing directly with the new land owners. Some have succeeded to buy what they consider their ancestral land; others rent the land or they benefit only from a seasonal access for grazing.

The changes that have taken place in recent decades were analyzed by Baer (1957), Abou-Zeid (1979), Albergoni (1990), El Miniawy *et al.* (1990), Cole (2003) and Altorki and Cole (1998, 2006) in the Matrouh region and by Abu-Lughod (1985, 1989) and Belal, Briggs, Sharp, and Springuel (2009) and Marx (2006) in other Bedouin communities in Egypt, the Middle East, and the Arabian Peninsula. These authors provided a rich documentation of agriculture and livestock activities and their importance in Bedouin societies. These studies include also a wide range of original data on social organization, land tenure, land use, the techniques and practices used for cropping and herd management, and migration up to the beginning of the 15-year drought. Our research study proposes to focus on the last 15-year drought (1995–2010) and its impact on the economics of Bedouin society and on the future of the society itself.

The aim of the research project ELVULMED: “Role of livestock activities in the process of adaptation and reducing vulnerability of Mediterranean societies facing global changes” was to better understand the impact of the drought on the economics of Bedouin society in the CZWD, and how the Bedouin society managed to survive the drought in a period that was also characterized by a wide range of other changing factors in their environment. The adaptive capacities of breeders in arid zones and how breeders manage the effects of climatic and economic uncertainties are well described in the literature (Ellis & Mdoe, 2003; Mortimore, 1989; Scoones, 1995; Thornton *et al.*, 2007; Turner & Williams, 2002). The research by Ellis and Mdoe (2003) and Thornton *et al.* (2007) referred to farm opportunities in link with asset accumulation or vector of resources that represent the asset base (mainly land and livestock) and their ability to secure nonfarm alternatives. Concerning the Bedouin communities in Sinai, Marx commented: “*Pastoralism may go hand in hand with a wide range of economic activities and, of course, these combinations may fluctuate or change dramatically over time*” (2006, p78). Turner and Williams (2002) showed the specific effects of the market and mainly price formation on livestock transactions during drought events. Other researches (Adger, Huq,

Brown, Conway, & Hulme, 2003; Scoones, 1995) emphasized the ability of these communities to adapt to long-term changes thanks to investment in social institutions as also described by McPeak and Barrett (2001) or Davies and Bennett (2007) in sub-Saharan pastoral societies. In the same way, Leach, Mearns, and Scoones (1997, 1999) emphasized the central role of institutions in mediating environment–society relationships. But the capacities to mitigate vary with the multiple external changes, like the amplitude of demographic change, the development and diffusion of technologies, and the distribution of well-being (Adger & Vincent, 2005). For instance, McAllister, Abel, Stokes, and Gordon (2006) pointed out the negative effects of post-production economies that can reduce the resilience of grazing system which depends on a complex social network. So, the magnitude of recent events such as the duration of the last drought in the CZWD that forced many families to give up their land and settle in the cities, may also affect the individual and collective capacity of Bedouin to adapt to their fluctuating climatic environment in the future.

The present paper describes the different alternatives Bedouin society chose in response to the 15-year drought and to the recent social and economic changes in the region. Our aim was to characterize the adaptive strategies of breeders and of the Bedouin society as a whole and to predict how recent alternatives may affect the Bedouin society and its capacity to continue to adapt to future changes. What is different today from the past?

2. MATERIALS AND METHODS

The primary data used to analyze the adaptive capacities of Bedouin families and the impact of social changes on Bedouin society were collected in three types of field investigations in the CZWD. The first survey, which started in January 2011, comprised open interviews with key local stakeholders, and representatives of the local society. This survey aimed to identify the views of the local stakeholders who were directly concerned by local and regional socio-economic changes and public policies. The questions concerned (i) the development of agriculture and livestock activities in the region, (ii) the main factors driving socio-economic change, especially those linked to public policies, (iii) people’s perception of the future, and (iv) the different functions of livestock in the Bedouin society. The survey was based on the interactive interview method described by Wood and Tourrand (2007) and was conducted by at least two interviewers: one Bedouin and one or two French researchers from different disciplines (a specialist in agrarian systems and a political scientist or a socio-economist) depending on the stakeholder being interviewed. The twenty stakeholders who were considered as key informants belonged to one of the following social groups: tribal leaders, livestock breeders, traders, agro-industrialists, development agency and local government technicians, and policymakers. Among this sample of representative stakeholders of the Bedouin society, we interviewed one woman, who was the first desert woman university graduate, and she was the leader of the women’s council at the Governorate of Matrouh in 2011.

The second survey was based on questionnaires. The information collected during the first visits in the region revealed considerable agro-ecological and socio-economic diversity along the Mediterranean coast from the Libyan border to the Nile delta. Consequently, for the family survey, the region was divided into five sub-regions from east (El Hammam) to west (including Sidi Barani, Nguila, Matrouh, and Debaa

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