

Changing Agricultural Practices in the Oases of Southern Tunisia: Conflict and Competition for Resources in a Post-revolutionary and Globalisation Context

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Abstract In Tunisia, the rise of new social demands with regard to regional and local development, particularly in the central and southern areas of Tunisia, has highlighted the conflicting and political dimensions of development strategies. In the oases of southern Tunisia, in particular, changing market conditions and growing competition for land and water, especially between old oases and new productive irrigated areas and between agricultural investors and small farmers, contribute to politicising the issue of access to resources and territorial development. In this context of a changing economic and political environment, we observe a variety of development dynamics in the oasis areas, which results in major transformations in the socio-spatial logics and functioning of these agricultural territories. Based on the field surveys with local actors and farmers in the oases of Tozeur and Gabès, this paper explores the links between new forms of valorising oasis territorial resources and political motivations behind rising demands for social and territorial justice, and the ways in which these dynamics contribute to opening up a new space for public debate about local development models. We formulate the hypothesis that changing management practices of oasis resources in a context of political and eco-environmental crisis, under the pressure of social mobilisation, contributes to new ways of integrating oasis territories into globalisation processes. These are expressed in contradictory and conflicting dynamics. On the one hand, there is a process of de-territorialisation, linked to the development of agribusiness,

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export-oriented intensive farming and mass tourism and, on the other hand, a process of re-territorialisation resulting from innovative practices, based on a heritage valuation of oasis resources, which contribute to rehabilitating diversified family farming systems.

Keywords Sustainability · Changing practices · Tunisia · Ancient oasis · Globalisation

1 Introduction

The Tunisian revolutionary process of 2010–2011 and the democratic transition phase, from 2011 to today, have revealed growing social aspirations for social and spatial justice. In the central and southern regions of the country, people have been increasingly calling for a reorientation of national policies in favour of these long-forgotten territories and for a better valorisation of their resources. Echoing the growing social demands, a new official political discourse has emerged, which focuses on the need to promote the development of rural areas of central and southern Tunisia.

In the oasis of southern Tunisia, in particular, changing market conditions and growing competition for land and water, especially between old oases and new productive irrigated areas and between export-oriented agricultural enterprises and small farmers, contribute to politicising the issue of access to resources and territorial development. The changing economic environment of oasis farm activities also leads to major transformations and differentiation of resource management practices, which result in the reconfiguration of the socio-spatial logics and the functioning of these agricultural territories. These transformations are expressed in contradictory dynamics (Carpentier and Gana 2014). On the one hand, there is a process of de-territorialisation, linked to the development of agribusiness, export-oriented intensive farming and mass tourism and, on the other hand, a process of re-territorialisation resulting from innovative practices, based on the model of heritage valuation of oasis resources. The latter contribute to rehabilitating diversified family farming systems. It should be noted that these dynamics can be integrated into productive strategies at the level of the farm unit. For example, some agrotourism projects, which are fully integrated into world markets, base their marketing strategies on the valuation of territorial resources.

In this context, the purpose of this paper is to explore the dynamics of change that characterise farm management practices and the ways in which these changes modify the socio-territorial constructions associated with oasis farming systems. Our aim is also to examine to what extent the changing economic and political environment, including new forms of integration into globalised markets and networks, opens up new opportunities for the development of innovative and more

sustainable models of oasis resource valorisation. Finally, our objective is to assess whether changes in oasis farming systems, as well as territorial dynamics associated with these changes, modify local power relationships or reinforce existing hierarchies.

Our analytical approach rests on the following assumptions:

First, we consider that the transformation of oasis farming is an active process resulting from the socio-economic strategies deployed by farmers and local actors. Very often, the links between oases and global economic processes (modernisation and globalisation) are thought of in terms of the impacts these processes have on oasis farm systems and territories, viewed as passive victims that “suffer” the consequences of these processes (Gana 1998). Rather, we suggest reconsidering this link as producing contradictory processes, which generate both constraints and opportunities, and which simultaneously strengthen and “deny” local territories (Théry 2008). Our approach is thus to take into account both processes of homogenisation and differentiation of oasis farm systems, and their differentiated outcome on oasis territories. In order to identify the socio-spatial dynamics associated with the transformation of oasian farm activities, we use the definition of the territory as “various forms of relationships to space that individuals and social groups continue to produce and process in the context of their social relations” (Alphandéry and Bergues 2004).

This paper is based on the results of interviews and questionnaire surveys conducted with a hundred farmers and with representatives of the local administration in Gabès and Tozeur, between 2011 and 2014. From the data collected, a typology of oasis farming system dynamics was developed, which integrates the elements of the national and global context.

We first analyse the processes and public policies at the origin of the deep crisis of the oasis system, whose consequences are now a threat to the survival of these environments.

Secondly, we look at how this crisis and the political upheavals have led to increased conflicts, claims and mobilisations, which are challenging development models and management policies. We show how the crisis characterising oasis areas since the 1990s is not so much an environmental one as a crisis of management models, which is closely linked to political and economic choices. We also point out that growing social mobilisations express the rise of an associative activism, which plays an increasing role in linking local demands with strategies of global actors.

In the third section, we analyse adaptation strategies of farmers to changing economic conditions and the process of social differentiation of oasian farms.

Finally, we explore the ways in which changing farm practices contributes to the production of a reticular oasian territory, which challenges the traditional boundaries of the oasis.

2 Crisis of the Oasis Farming Systems in a Context of Globalisation

The transformation and crisis of small family farms were extensively documented by rural sociologists and geographers in the 1970s and 1980s (Mendras 1967; Marsden 1991). However, they were mainly analysed as leading to the disappearance of the peasantry or to its progressive integration into capitalist agriculture. This approach tends to overlook the diversity of processes that characterise the transformation of family farming and pay little attention to the links between farmers' practices and structural changes in agriculture (Gana 1998).

In this paper, we aim to analyse the transformations of oasian systems, considering that local farmers' adaptation strategies to changes in their global environment contribute to challenging current development models. In Tunisia, the implementation of structural adjustment policies was translated into new development strategies, which sought to increase the integration of the Tunisian economy into global markets, in particular through the intensification of agricultural exports. In the agricultural sector, including in the oases, structural adjustment policies resulted in the privatisation of the management of state farms, agricultural price liberalisation, the reorganisation of the farm credit system and a reallocation of economic resources to large export-oriented farm enterprises, mainly in the irrigated farm sector, considered to be the most competitive in global markets.

In the oases, the manifestation of the negative impacts of this increased competition on resources between the different productive areas, coupled with the relative failure of economic diversification projects (Abdedaiem 2009; Report Oasis 2012), has reinforced the picture of an oasis faced with a major environmental crisis and characterised by outdated structures and management practices.

2.1 *Tozeur and Gabès: Two Examples of the Oasis Crisis*

The oasis crisis resulting from modernisation policies and the associated environmental degradation, particularly the overexploitation of water resources and the prospect of losing these historic farmlands, has been a favoured subject for social science research since the 1970s (Dollé and Toutain 1990; Abdedaiem 2009; Kassah 1996; Sghaïer 2010; Bessaoud 2013; Kilani 2014; Baduel and Baduel 1984). Located in the Jerid and Djeffara regions, respectively, Tozeur and Gabès belong to the category of traditional oases (Kassah 1996); Tozeur is a continental oasis, while Gabès is a coastal one (Fig. 1).



Territorial units of studied areas

- Governorate
- Ancient oasis
- New irrigated plantations
- Urban areas
- Touristic zone and airport
- Industrial areas

Sources : Google Earth, 2014 and Irène Carpentier, 2016.

Fig. 1 Tozeur and Gabès, traditional oases in the south of Tunisia

Historical anthroposystems, Global Important Agricultural Heritage Systems (GIAHS¹) for the FAO, green belts for southern cities, the oases of Tozeur and Gabès symbolise these historic lands, which are often fantasised (Battesti 2005). They also illustrate the specific dynamics of socio-spatial reconfiguration currently underway in the context of changing national politics and the global economy.

The development of new irrigated plantations of Deglet Nour date palms on former state lands, since the colonial era, competes directly with the ancient oasis of Tozeur.² The tourist zone, located at the head of the historical springs, as well as the development of new urban districts in the wake of the implementation of the international airport of Tozeur in the 1990s, has reshuffled the cards of local power relationships and local dynamics. In Gabès, the establishment in the 1970s of a chemical industrial complex on the coast and a cement plant upstream of the spring area have generated a similar process.

As a result of these modernisation policies, the oases of southern Tunisia have undergone profound changes that have affected the environmental and socio-economic balance on which the oasis system was historically based (Hames and Kilani 1993; Dollé and Toutain 1990; Lasram 1990; Kassah 1996). While the different territorial units that constituted the ancient oasis were complementary, the oasis territory is now under the pressure of increased competition between various economic activities and territorial units for access to and exploitation of their resources (Fig. 2). Many phenomena, such as urbanisation, desertification and environmental degradation, are putting under threat the oasis traditional farm activities and territories.

The dynamics that characterise the oases of Tozeur and Gabès today are significant examples of the variety of ways in which farming systems adapt to changes in their economic environment, especially to those resulting from globalisation processes. These different strategies are presented in the typology below.

Usually defined as an intensification of flows of goods and capital, globalisation also contributes to integrating local territories into networks of dissemination of models and practices, which go beyond national institutional and policy frameworks (Gana and Terrazonni 2014). In Tunisia and in the oases, these processes have been translated into the implementation of liberalisation policies (reduced subsidies, higher production costs), creating new conditions for access to land, water resources and markets, thus imposing adaptations that often respond to external demands.

The policy discourse, which after independence presented the oasis areas as “shadow areas” of national development (Battesti 2005), is now developing a new narrative, which underlines the need to protect the oases, considered a national heritage and a major stake in a sustainable national development.³

¹GIAHS project, www.fao.org/giahs/

²Between 1976 and 1979, irrigated areas in Tozeur grew from 4660 to 7900 ha, a 69% increase (Oasis Report 1999; Ministry of Agriculture).

³Strategic report of GIZ and Ministry of Environment, April 2012, “Tunisian oases, a need for protection against degradations and climate change impacts”.

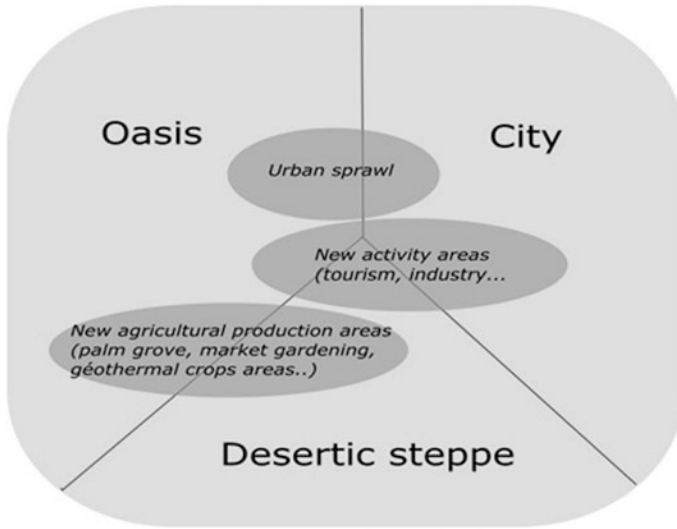


Fig. 2 Diagram of the oasian regions spatial organisation (a traditional trilogy (town, oasis and desert) is now associated with new territories: activity zone and new agricultural production areas)

3 Increasing Conflicts and Demands

3.1 *Announcing Conflicts and Social Mobilisations*

In the context of the degradation of oasis agrosystems and the crisis of regional development models (Abdedaïem 2009), rising conflicts and social demands for fair access to resources could be observed well before the revolution. Local mobilisations were mostly organised around environmental issues, as this was the only way people could exercise some freedom of expression in an authoritarian context (Battesti 2012). Thus, mobilisations around water problems were often used as an “excuse for political expression”, and oasis farmers’ discourse tended to develop a general criticism of public policies, but in the framework of local claims (Battesti 2005).

Thus, farmers’ criticisms were mainly about constraints to accessing water resources, water being the main “meeting point between the state and market gardeners” (Battesti, *op. cit.*). Poor maintenance of the network and the inequity of the management system, combined with the transfer of the control of the resource from the historic *jamaaia* (community) to Agricultural Development Groups (GDA), contributed to making the issue of access to water a recurring local demand. A farmer of the Tozeur oasis reported that, before the revolution, he had no guaranteed access to water although he was paying for his share, while the chairman of the GDA was able to irrigate his land without paying and to benefit regularly from additional irrigation hours. In fact, the chairman of the GDA very often had close ties with political authorities and could control the allocation of water

resources. The interference of influential actors and the mismanagement of water users' associations also weakened smaller farmers' access to water and triggered protest movements at the oasis scale.

3.1.1 Gabès: Social Mobilisations Against Pollution, the Beginning of a Specific Associative Activism

In Gabès as well, most protests were about environmental issues, particularly the pollution generated by the Tunisian Chemical Group, but also land degradation and the negative impacts of urbanisation. Since the colonial era, Ben Salah (2011) estimates that the oasis has lost 30% of its palm trees while the Agricultural Land Agency considers that the oasis is now losing 10 ha per month on average and that, since the revolution, urbanisation has doubled. Before the revolution, statistics were not always available and not very accurate for these sensitive issues. After the revolution, the acceleration of urbanisation, due to the release of political and legislative power, favoured the launch of new studies on these phenomena. The Agricultural Land Agency is now the best source of information to monitor land dynamics.

These dynamics of environmental degradation of the oasis have led to the development of associations whose mission is the protection of the oasis, and this associative movement expanded after the revolution. In fact, the number of associations rose from two to nine, all working for the development of the oasis and the city of Gabès and two working on the specific question of the urbanisation of the oasis. As for the associations that were active before the revolution, we can mention the example of the Chenini UNESCO Club,⁴ created in the late 1980s and the Association for the Safeguard of the Oasis of Chenini Gabès (ASOC),⁵ established in 1992. The organisation of a seminar on "The impact of pollution on the oasis" by the Chenini UNESCO Club and the Global Movement of Young Ecologists in 1989 resulted in a series of prohibitions by the Governor, who first refused the seminar and then required the presence of the police. The Tunisian Federation of UNESCO Clubs, however, enables the development of activities and mobilisations. In 1992, the Tunisian Federation organised an international meeting entitled "Oasis, heritage of humanity" in Gabès, in partnership with the UNESCO Clubs of France, at which the French agro-environmental activist, Pierre Rabhi, presented a paper on

⁴UNESCO Clubs are an associative movement that supports UNESCO ideals. They also help to spread these in various fields, and carry out activities strongly linked to the principles of the Organisation: "Contributing to peace and security by promoting, through education, science and culture, the collaboration between nations in order to further universal respect for justice, law, human rights and fundamental freedoms for all, without distinction of race, sex, language or religion, as the Charter of the United Nations recognises to all the peoples" (Constitutive Act, Charter of UNESCO).

⁵ASOC: *Association de Sauvegarde de l'Oasis de Chenini Gabès* (Association for the Safeguard of the Gabès Chenini Oasis).

“Peoples’ food autonomy”. Following this meeting, the now oldest and most established associative structure of the oasis of Gabès was created, the Association for the Safeguard of the Oasis of Chenini (ASOC). However, under political pressure, the UNESCO Club had to stop its activities. The ASOC focused initially on a project aimed at protecting the soil from environmental degradation, with the introduction of agro-ecological practices, such as home composting, conducted with “pilot” farmers. Subsequently, its activities were diversified with the creation of a Maghrebien Network of Associations for Sustainable Development in the Oases (RADD⁶) in 2001, and the building of a national collective development project for the oasis territories within the ISPO⁷ programme (Initiatives for Preservation of Oasis Heritage) linking all oasian associations in Tunisia. These projects are deployed in a regional context dominated by actors of the chemical industry, which makes it difficult to question the responsibility of the chemical group for the environmental degradation of the oasis. Claims for a “right to health”, a safeguarded environment, and the maintenance of a viable oasian territory are mobilising people beyond the strict sphere of oasis farmers. These activists are emerging without open conflicts with local institutions and central government, using a priori non-political repertoires, such as environmental and heritage protection. This enables local actors to build a critical discourse, which is actually quite radical. Since the revolution, these associations have been criticised for choosing to work with the administration.

3.1.2 Tozeur: Mobilisations for a New Tourism Model, More Respectful of the Ancient Oasis

In Tozeur, the rapid development of mass tourism since the 1990s, in connection with the scarcity of oasis resources, gave way to an early contestation of regional resource management policies and tourism development, increasingly perceived as “outrageous” by local actors. The Tozeur UNESCO Club was created as a result of a meeting between the Regional Culture Delegate of Tozeur, a native of Gabès, and the President of the Gabès UNESCO Club. It began working for the rehabilitation of the oasis and mitigation of the tourism impact on it in the late 1990s. Since 2008, the Nafta UNESCO Club, with the support of international donors, has offered an ecotourism tour in the oasis of Nafta. Over a course of 20 hectares, this tour involves 206 owners around the old river bed, which is now concrete and replenished by drilling, and part of a “visual re-enchantment of the oasis” (Battesti 2005). Tourism, with the water issue, remains the economic sector that polarises local mobilisations and dynamics. The Association for the Safeguard of the Medina of Tozeur (ASMT), founded in 2001, was for a long time the only symbol of associative action in Tozeur. It tries to promote the development of a new form of

⁶RADD^o: Réseau des Association de Développement Durable dans les Oasis.

⁷ISPO: Initiatives de Sauvegarde du Patrimoine Oasien.

tourism, more respectful of environmental constraints, more “ecological and cultural”.⁸ An educational display system in the medina, hiking trips in the oasis and raising citizens’ awareness of the negative impacts of mass tourism on the local territory are the main projects of this association. Without being in open conflict with the administration or private actors, these associative groups contribute to the emergence of a local discourse calling for the reorientation of development policies, especially in the agricultural and tourism sectors.

3.2 Post-revolution Mobilisations, the Crisis of Resource Management Policies and Their Political Implications

The Tunisian revolution significantly expanded the scope of these social and associative dynamics and discourses. Oasis sustainability and promotion has become a political issue at the regional scale. At the local level, claims have moved from the narrative of sustainability to that of social and spatial justice, echoing the opening of the national political arena and debate.

We analyse here two examples of “places” of crystallisation of post-revolutionary mobilisations: Agricultural Development Groups (GDAs), and cooperatives and farmers’ unions. These were chosen because they are representative of the movement of contestation of development models and of the politicisation of issues related to resource management, which favoured the renewal of the debate on territorial development. Social protests are now much more confrontational, mobilising the most marginalised actors among farmers. The functioning of these organisations illustrates the type of interactions between farmers and institutions. For a long time, they also symbolised the fossilisation and corruption characterising the management of resources at a local level.

It is important to recall that local debates on resource management models take place in the larger framework of the post-revolution debate on the development of southern Tunisia (oil, gas and phosphate)⁹ and participate in the critique of governmental action and policy orientations.

3.2.1 The Agricultural Development Groups (GDAs): Management Crisis and Political Expression for Fair Governance

The GDAs are the associations in charge of the distribution of water for irrigation in the oasis. In Tozeur, there are four active GDAs for four *jars* (oasian neighbourhoods) of the oasis: Hafir, Abbas, Wasat and R’bat. In Gabès, there are also four

⁸www.tozeurasm.org.

⁹As an example, we could mention the “*winou el petrol?*” (Where is the oil?) movement. For more information, see: http://www.huffpostmaghreb.com/2015/05/27/winou-el-petrole-tunisie_n_7449592.html.

GDA: Chenini, Chott El Ferik, Menzel and Jara. These associations, which include all irrigators in the oases, crystallise conflicts over management models and access to resources. Although the general distribution principle is perceived as fair by the majority of farmers (2014 surveys), criticisms of the functioning of these management structures are widespread: lack of human and financial resources, financial opacity and inefficiency in maintaining water distribution networks... In fact, these management structures, created after the policy of state withdrawal, are one of the symbols of the fossilisation of local resource management systems. In Tozeur, GDAs are indebted for an average sum of 50,000 dt (25,000 euros) to the STEG¹⁰ and 15,000 dt to the CRDA,¹¹ due mainly to political corruption, non-payment, and a lack of support from the administration for maintaining the drilling. The chairman of the GDA of Hafir also mentioned the fact that the billing system to the STEG is not adapted to a seasonal agriculture as it is a monthly payment. All oasian GDAs are today facing structural problems. The renewal of the leaders, accused of corruption, has not eliminated the crisis of governance. The rejuvenation of the GDA boards after the revolution was often accompanied by a political struggle for the control of these strategic structures. Moreover, especially in Tozeur, outdated drilling, blackouts and poor irrigation water quality have pushed irrigators to refuse to pay for their water shares, since GDA debts were not reduced. The discourse of some local actors stresses how farmers do not trust GDAs, and asserts that social injustice, which has long characterised water management institutions, is not really challenged. Small farmers are still the most vulnerable to shortages. GDA general assemblies, expected to occur once every two years, are rarely held. In Gabès, the director of the Chenini GDA has been replaced four times since 2011 but this has not been successful in resolving the governance crisis.

Contestation of GDA functioning takes place in a context of growing struggles for financial transparency and equity, and against corruption of the distribution system. Open conflicts sometimes emerge between water users and managers, GDAs and the STEG, and GDAs and the CRDA. GDAs have become favoured spaces for a political expression aimed at redefining management models.

3.2.2 Agricultural Cooperatives and Unions: Increasing Conflicts and New Political Implications

All the same, cooperatives and farmers' unions are challenged for their dysfunction, which results in more conflicts and contestations. These structures are denounced for being symbols of the monopoly of marketing channels. They are clearly identified by farmers as responsible for restricting better resource valuation opportunities for producers. In Gabès, there is only one milk collection cooperative, which operates for all the breeders of the oasis (23% of farmers). Therefore, it has

¹⁰STEG: *Société Tunisienne de l'Électricité et du Gaz*.

¹¹CRDA: *Commissariat Régional de Développement Agricole*.

control over the purchase price and terms of sale. This weakens the small farmers who are dependent on the conditions imposed by the cooperative. It is the same with the UTAP, the largest union of Tunisian farmers that controls the marketing of concentrated animal feed. Claims are not politically structured but in Gabès, farmers have tried to organise themselves to ensure the marketing of their products and to escape this pressure on prices and conditions of distribution. Furthermore, the expansion of the Libyan market opened new informal markets. A representative of the animal production service at CRDA declared that over one-third of the milk produced in Gabès is marketed in Libya and does not go through the health monitoring service.¹²

In Tozeur, the election for the renewal of the Regional Farmers' Union Office in 2012 led to a major conflict. Elections were not recognised as valid by some members, who could not present their candidacy. The presence of political lists for union elections, such as the election of a leader who is not a farmer, made things worse (2012 surveys). The Tozeur Regional Farmers' Union headquarters was even burnt in May 2012, expressing the deepening of conflicts.

These collective organisation structures, which, under the rule of the former regime, were little involved in the promotion of innovative models of oasis resource management and were relatively disconnected from the dynamics of the local territory, are now at the centre of a politicisation of issues related to the management and governance of local resources.

4 Oasian Dynamics in a Post-revolutionary Context: Differentiation of Opportunities and Strategies

These dynamics of crises and conflicts have resulted in major transformations of agricultural activity and contributed to the emergence of new adaptation strategies. The political discourse in favour of promoting a new development model takes place in a context of growing social demands and changing farm management strategies.

The analysis of the changing management practices of the "traditional" oasis territory enables us to characterise the diversity of agricultural adaptations in a context of deep economic and political changes. Local actors (civil society actors, private investors, small farmers, etc.) are the protagonists of differentiated development strategies: technical modernisation of conventional methods, adaptations of the traditional model and alternative models of heritage valorisation (Carpentier and Gana 2014).

In the following section, we examine the variety of ways in which farmers have been adapting to changes in their economic environment and how the Tunisian revolution is likely to have had specific impacts on those dynamics. These impacts,

¹²Field surveys at the animal production service at the CRDA, 2013.

particularly on social territorial dynamics, are of course not clearly visible, as the process of political change is still underway.

Let us first also stress the fact that the precise counting of each farm type is not an easy task, as there is no agricultural census in Tunisia. The following table (Table 1) is therefore built on the criteria we used to elaborate the typology. Based on the typology and the data collected at the level of the GDA regional administration, we have tried to extrapolate the proportion of each category of farm adaptation.

4.1 The Model of Oasis Agribusiness

Among this first group of oasis farms, productive strategies and innovations are based on large investments and aimed at consolidating large farm enterprises integrated into national and international markets. Characterised by very modern infrastructures, including electricity connection, wells, ponds, irrigation canals and agricultural buildings, their economic projects aim to conquer export niche markets in particular. Access to water resources is usually ensured by the presence of a well or a valve on the private plot for the autonomous management of irrigation. Crop specialisation is at the heart of the farming system. In Tozeur, this has led to almost a monoculture of the Deglet Nour date. The farms of this category are quite large (over 1.5 ha) and located mainly along communication axes that cross the ancient oasis. This type of farm is the standard in all new plantations. Agricultural profitability of such projects is important, but often part of a pluriactive economic strategy. Agriculture remains a complementary activity for entrepreneurs mainly active in other sectors and places, such as Tunis or Sfax, bigger cities than Tozeur. Nevertheless, it enables those who are native to the region to maintain a link with the local territory and ensure membership of the oasis community. This type represents approximately 13% of the oasian farmers (in Tozeur) (based on the number of farmers who have more than 3 ha) and 38% of the cultivated area of the oasis. Among them, 9 farmers manage their commercialisation themselves and 38% have a private hydraulic infrastructure. The biggest farmer in Tozeur, also a date trader, is known to irrigate his plots with one-third of the oasis water. In Gabès, it is very rare to find such entrepreneurs (0.01%) but there are a few vegetable traders who manage the biggest plots.

These agribusiness projects are fully rooted in a logic of growth based on integration into export markets and international client networks. Their productive systems and landscape models are characterised by the removal of the layering of crops and alignment of palm tree plantations. Representing a minority of oasis farmers, the promoters of these projects control almost two-thirds of the cultivated area of the ancient oasis and contribute to accelerating land concentration. More generally, they take advantage of a dominant position in the competition for access to local resources. For example, as mentioned above, one farmer alone uses one-third of all the irrigation water of the Tozeur oasis.

Table 1 Forms of adaptation to globalisation in the oases of Tozeur and Gabès

<i>Typology of forms of adaptation to globalisation</i>				
Type of valorisation	% of oasis farmers	% of the cultivated areas —spatial impact	% of the water consumption	Goals of each type of valorisation
Agribusiness	13 (Tozeur)	38 (Tozeur)	38 (Tozeur)	Economic profitability, agricultural productivity
	0.01 (Gabès)	3 (Gabès)	3 (Gabès)	
Territorial marketing	18 (Tozeur): 2% of the farmers	2–3 ha on average (Tozeur): 4.4%	4.4	Aesthetic, leisure, landscape valorisation
	12 (Gabès): 0.4% of the farmers	1–2 ha on average (Gabès): 2.2%	2.2	
Diversified and pluriactive family farming	70% of the farmers (Tozeur)	35.1	35.1	Food, family, heritage, social territory
	63% of the farmers (Gabès)	49.2	49.2	
Specialised and intensive family farms	10% of the farmers (Tozeur)	2.5 ha on average (22.5% of the oasis territory)	22.5	Productivity, specialisation, economic profitability
	23% of the farmers (cattle breeding in Gabès)	0.6 ha on average (20% of the oasis territory)	20	
Oasian activists	5 associations in Tozeur	Walking tour in the oasis		Creating new development models and collective dynamics
	137 farmers (of around 600 in Chenini; 22.8% of Chenini farmers; 4% of all the farmers of Gabès oasis) have a convention for associative projects in Chenini Gabès (organic farming and local seeds); 5 associations	60 ha of organic farming in Chenini Gabès (8% of the oasis territory)	8	
Abandoned plots	No reliable information	No reliable information	(No irrigation)	End of cultivation, urbanisation, desertification
	15%	17.25%		

These agro-entrepreneurs often also claim their contribution to the sustainability of the oasis territory and to the promotion of its heritage, which they reduce to the date palm. They point out that their activities can prevent land abandonment and preserve the environment and its productive function. These narratives, which

present the oasis agricultural activity as a local economic resource that can ensure environmental sustainability, are part of regional projects aimed at promoting models of territorial valorisation based on market logics. Quality labels or conversion to organic agriculture of recent date palm tree plantations in the governorate of Tozeur make it possible for farmers of these areas to seize new opportunities, and position themselves in the “heritage” and “alternative products” markets, responding mostly to international demand. These strategies are promoted and supported by development institutions. In Tozeur, the Ministry of Agriculture has developed a plan for the conversion of all oasis plantations to organic farming by 2030, with the aim of renegotiating the export markets, and optimising the profitability of Deglet Nour dates.¹³

The revolution seems to have had little impact on this category of farmers, at least from a socio-economic point of view. Their ability to promote a specialised farming system is based on their insertion into and mastering of national and international marketing channels, and also on their relative autonomy regarding access to resources. However, they complain about rising labour costs. The daily wage has doubled since the revolution, and this has become a problem for these agro-entrepreneurs whose farming activities are based on the use of hired labour or the traditional oasis sharecropping, the *khamessat*. The owner of a big farm expresses his concerns: “Who will climb the palm trees? These workers are acrobats, and there are no more acrobats. Maybe in five years it will be a disaster”. Another one points out: “They have become very lazy since the revolution, and ask for more money. The workforce of the mining area doesn’t come anymore, just because it is no longer profitable”. On the other hand, *khamess* and workers are trying to organise themselves in order to renegotiate their working and safety conditions. Significant changes in the work organisation in oasis farming are underway and are likely to lead to a renegotiation of local power relationships.

4.2 Territorial Marketing, a Tertiarisation of Oasian Activity?

The second group of oasis farms can be characterised as taking part in a tertiarisation of agricultural activity, which appears to be a result of a new development policy orientation. We define it as the model of “territorial marketing”, as the main activity is the supply of services, such as recreation and tourism. These activities are a means to promote the “oasian scenery” responding to the demand of national and international tourists. However, in the current context of the tourism crisis, these recreational and restoration areas are increasingly used by local people and entrepreneurs trying to adapt to this situation. This is the case of the “Sahara Lounge” in Tozeur, a tree-climbing area on a plot of R’bat, which also offers a cafe and

¹³2011 surveys.

entertainment space. Various activities are available on the same plot, in order to attract a wider clientele: restaurants, cafe, games for children, a party room and film projections. Other examples are “El Berka Park” in Tozeur and “Amine Park” in Chenini. The productive function of agriculture is marginal and is preserved just for the direct use of customers and staff (especially fruit trees, used for lemonade, orange juice and dates). The oasis area is no longer considered a food production area but a place of leisure and “marketing”. The referent landscape is that of the traditional oasis. It is maintained and recreated by gardening, in which the aesthetic dimension overpowers the others. Decorative plants, sometimes sterile and imported, are cultivated. In fact, the added value of the territory is achieved by the marketing of a historic and diverse landscape, exploited for leisure. The oasian entrepreneurs are in the process of opening up oasian territories to service activities. The diversification of oasian activities that meets international and local demand is a way for the local actors, who control most of the local economy, to seize new opportunities in the context of an increasingly tight market, in both agriculture and tourism.

The shock of the revolution hit the tourism sector severely, particularly in Tozeur, where nearly half of the hotels have closed. The promoters of polyvalent oasis leisure activities, which represent the latest generation of tourism projects within the oasis, took advantage of this crisis. The development of a family leisure activity in the oasis is a significant revolution in the *Jerid* region, where previously only the palm workers were present (Battesti 2009). In Gabès, the development of these leisure areas responds to the demands of the urban youth of Gabès city, usually more attracted by the sea and the “corniche” for their leisure activities, and finding in the oasis a renewed social space. In Tozeur, these oasis leisure areas generally attract a local and urban clientele.

4.3 Diversified and Pluriactive Family Farming

Alongside these new oasian entrepreneurs, “peasant” forms of valorisation of oasis resources persist, drawing on crop diversification strategies. With a low investment capacity, small farmers deploy their projects within the family farm unit. They represent around two-thirds of oasian farmers, but less than half of the cultivated land of the oasis, as they control very small plots. With a highly fragmented territory, the operation of the land property by small farmers varies significantly according to access to water, accessibility of the plots and soil salinity. Cropping systems are diverse and multi-layered; they are predominantly oriented towards fruit tree production or horticulture according to the local agricultural zoning; farms often have an associated small livestock activity. In the practice of the activity, as in the arrangement of plots and crop management, the “traditional” model is dominant despite the growing influence of the modernist model, under the pressure of the market. The inherited skills (shrub transplants, changes in irrigation practices and crop association) are the basis for adapting to the constraints affecting this category of farms, in

particular lack of water, restricted access to land due to the competition of industrial activities and urbanisation, and marketing problems. Self-consumption, especially of vegetables and fruits, remains one of the main functions of the productive activity. The crops are not always economically profitable but contribute to household food security. In Tozeur, it is the agricultural labour force, the *khammes*, who maintain the layering of cultures and the consumption function of the plots.

However, for small farmers to maintain their activity and stay on their land, further integration into the market is required. In Gabès, small landowners have developed an economy based on pluriactivity and the promotion of the oasis territory in order to adapt to new market conditions and opportunities. In fact, the arrival of Libyan migrants, who have specific consumption demands and habits, has led to the introduction of new crops, such as leeks and aubergines, which were traditionally absent in the oases. This is a way for small farmers to differentiate themselves in a limited and saturated local market, and adapt to water stress. Thus, market gardeners, who have to deal with the increasingly fierce competition from other productive areas, have developed a speculative agriculture. The practices of these small producers preserve the historical functions of the oasis: landscape function, feeding function and socio-economic function. The objective is to ensure the reproduction of the system and the farm unit, while preserving and promoting family heritage.

These small oasis farmers constitute the majority of the ancient oasis farmers but control land rarely exceeding 0.5 ha (0.12 ha in Gabès on average, with 90% of farmers who own 0.5 ha; 1.02 ha in Tozeur, with 59% with less than 1 ha¹⁴). Economically and socially marginalised, this group of farmers is most exposed to disruption linked to the revolution. For example, two- or threefold increases in the prices of phytosanitary products or the daily wages of the labour force are often difficult constraints to overcome for these small farmers. Security issues for herds and water infrastructures also make this category particularly fragile, in a context marked by political instability and the overall weakening of the government.

4.4 Specialised and Intensive Family Farms

Unlike the previous category, a group of small- and medium-sized farmers deploy strategies of intensification and specialisation, fostered by state-supported programmes, for the development of cattle rearing and market gardening projects (Gabès). They benefit from the stability of market prices and provide their promoters with regular income throughout the year.

Among this group of farmers, productive logics and resource valorisation are based on strategies of intensification, specialisation and integration into regional markets. In general, the oasis landscape tends to be conserved, particularly through

¹⁴According to GDA statistics (2013 surveys).

the date palm, which plays the role of preserving the ecosystem. In some cases, however, fruit tree plantations have almost disappeared and have been replaced by forage crops in order to feed cattle.

Economic projects are based on medium-sized investments that are encouraged by state-supported programmes. The hydraulic infrastructure (irrigation channels) is well maintained by the farmers themselves to optimise available resources. Cattle producers benefit from a supplementary valve that ensures water as required. They pay each year to water users' associations. The whole plot is devoted to the main business, cattle rearing or market gardening. For cattle projects, alfalfa is grown on most of the land, whereas for market gardening projects all plots are dedicated to vegetable production.

The size of this category of farms is between 0.3 and 0.6 ha and each one of the plots that constitutes the often-fragmented land property is dedicated to a specific crop according to its situation. In the oasis of Gabès, in Menzel and Chenini, the introduction of cattle breeding programmes has encouraged this type of farmer. They are not found in Tozeur. The agricultural profitability of such projects is not always very large, because of the sharp increase in prices for livestock feed. Only the biggest are profitable. Most farmers in this category are pluriactive. Being very specialised, this group of farms is heavily dependent on market prices, the quality of state support and marketing networks. After the revolution, these farmers became particularly involved in the contestation of the cooperatives and farmers' unions and in the debate about technical models of farm development and marketing-related problems.

4.5 The Oasian Activists

The political and ideological dimension of development choices is expressed in the emergence of a "new" category of farmers, the "oasis activists". They are the promoters of an alternative development model, based on the rehabilitation of the oasis environment through the use of traditional skills and the promotion of agro-ecological practices. Calling into question the prevailing modernist and liberal development model, the "alternative" movement emerged long before the revolution, but was reinforced by the new political context.

This type of valorisation of oasis resources is based on the diversification of economic activities: farm production, farm product transformation and ecotourism. Promoters of "alternative" practices are members of associative networks, which seek to provide small farmers with answers and advice to solve the problems they face at a local level: soil quality, water availability, diseases, etc. The "oasian activists" are part-time farmers. They have a specific sociological profile. They are often teachers, employees, civil servants, or trade union representatives and belong mostly to the upper middle class. Their projects are deployed in diverse collective

networks. Associations for the protection of oases bring them together in Tozeur and Gabès. Since the revolution, the proliferation of environmental protection and local development associations has contributed to a greater diversity of people involved in these networks.¹⁵ The opening of the political space and the enrichment of the associative environment have also diversified issues of debate and negotiation, from land-related issues to the organisation of cultural events, and actions aimed at strengthening the autonomy of smaller producers.

With a medium-sized investment capacity and production unit, this group of oasian “activists” practises farming on their own land using family labour and sometimes a limited number of workers. Available land is cultivated according to the traditional landscape model. Cropping systems are diversified and layered, from the palm tree, to forage, industrial and vegetable crops. Crop association, rotation and fallow techniques are promoted. Traditional skills are at the heart of the valorisation strategies, such as seed management and irrigation. These farms do not differ specifically from other forms of peasant family farming. In fact, their own practices matter less than the formation of a collective project for territorial development. From this point of view, the revolution has helped associations to reconnect with a political discourse promoting these forgotten areas of national development.

The conquest of autonomy in the management of resources is a key issue for association projects dealing with environmental problems, and induces a radical critique of situations of monopoly with regard to the commercialisation of dates and milk in Tozeur and Gabès as well as the malfunction of GDAs. The construction of an alternative model is based on the transformation of oasis practices and functions. The nourishing function of the oasian market garden is replaced by an educational one, which is the basic unit for a new development model. These actors are trying to generate, through associative projects, a new local and urban demand, sensitive to better product quality and the safeguard of the environment. Better control of prices by operators, establishment of an organic farm sector, and farm product transformation activities are the main goals around which the network for an alternative model of heritage valorisation is organised. The projects are deployed locally and sometimes via international associative networks, for example the export project of organic pomegranates from the oasis of Gabès, managed by ASOC.¹⁶ In the long run, the aim is to develop service activities related to tourism, culture and handicrafts in the oasis, which would increase the multifunctionality of the oasian

¹⁵*Association de Sauvegarde de la Medina de Tozeur (ASMT)*, Club UNESCO of Tozeur, Post-revolution: *Association de Sauvegarde de l'oasis de Tozeur (ASOT)* created in 2011, *Association des Amis du Palmier de Tozeur* created in 2011; *Association de Sauvegarde de l'Oasis de Chenini (ASOC)* created in 1992, Post-revolution: *Association Formes et Couleurs Oasiennes (AFCO)* created in 2011, *Gabès Action* created in 2011, *SOS Gabès Environnement* created in 2011.

¹⁶In 2014, 107 plots and 52 ha of the oasis of Chenini in Gabès were approved for organic farming by a convention with ASOC. Furthermore, in 2013, 178 farmers were given free fruit trees by the association to promote biodiversity in the market gardens.

territory. Alternative tourism is a key element of these diversification strategies. Educational farms, farm accommodation, eco-accommodation and organic catering are some associative initiatives redefining oasian tourism. These initiatives are viewed as likely to preserve cultural resources and the landscape of the oasis, in accordance with international “cultural” tourist expectations (Battesti 2013). The “traditional” oasis model is mobilised through its most symbolic areas: Ras el Oued in Chenini and the periphery of the Ouled el Hej district in Tozeur. The oasian associative actors aim to challenge the modernist model and propose innovations as part of the transformation of the traditional model. The sustainability of this alternative oasis model relies on the diversification of agricultural activities, considered the condition for preserving the integrity of the environment and the landscape. However, the ability of this model to counteract dynamics characterised by the disappearance of the oasian environment seems strongly linked to government support, which since the revolution appears more willing to open the debate on development models.

A process of differentiation of oasis farming systems and social groups can be observed, as a result of the following dynamics: economic marginalisation of small farms, which increasingly limit their activity to family food consumption objectives, specialisation of a group of large enterprises in leisure and tourism-related activities, intensification and development of cash-generating crops for a better integration into marketing channels. In Tunisia’s post-revolutionary context, changes in local development dynamics are increasing social disparities and modifying local power relationships. In fact, the period of political upheaval and social unrest aggravated the crisis and the constraints for farmers, such as the availability and access to water and farm inputs, and increased market and price instability, resulting in unequal opportunities for farmers to valorise available resources. In this context, contradictory trends are observed with regard to territorial dynamics associated with the transformation of farming systems and the restructuring of oasian agriculture: increased land fragmentation, farm land concentration, processes of de-territorialisation, linked to the development of export-oriented date palm tree production, reinforcement of the territorial anchoring of agricultural activity resulting from the rise of innovative practices drawing on the valorisation of the oasis heritage.

In the following section, we explore further these territorial dynamics.

5 Territorial Dynamics and Socio-spatial Disparity

According to Théry (2008), the “territory” is more than a bare support comprising inventoried and saleable resources; it is primarily an asset for the actors who practise it and try to promote it, playing more or less successfully, the great globalisation game. In the oases, the development of the monoculture of Deglet Nour has strong impacts on the landscape and cultural implications (geometric alignment of the trees, disappearance of the lower crop level and intensification of irrigation). These dynamics result from strategies deployed by the group of oasis enterprises in order to

seize new market opportunities and take advantage of the high prices of palm tree dates, especially the organic ones. Seeking a better positioning in the global competition, these strategies consolidate specialised areas within the oasis. In fact, the international date market has expanded over the past ten years with the emergence of new highly intensive and competitive production areas in the Emirates and North America. As a result, producers in the traditional oases are faced with fierce competition. In this context, the reactivation of the historical productive function of the ancient oasis is viewed as a means of being more competitive in the international date market. Nevertheless, the local territory dimension is not promoted enough in the marketing strategy. The dates of Tozeur are not labelled and marketed as ancient oasis dates, “products of oasian heritage”, but as “conventional” products of the Jerid region. Conversion to organic farming in Tozeur is not really conceived as a way of promoting a new model of production, but rather as a way of competing better in the global date market, thanks to a quality-based strategy.

However, the opening of oasian territories to worldwide competition, the emergence of a new demand for “rooted products”, and recent dynamics of promotion of “cultural” tourism by local stakeholders and the Tunisian government have increased this quest for “authenticity” and “local”, making the local territory an object of transaction (Battesti 2009). Some oasian actors have responded to this demand for “roots” to “sell” their territory better through developing projects emphasising the specificity of the oasis.

On the other hand, the opening of oasian territories to globalisation dynamics has contributed to the dissemination at a transnational scale of ideas and practices, such as the conceptualisation of a comprehensive and universal ecological issue, and the need to protect what belongs to a world heritage. For example, the objective of the FAO GIAHS programme is to label the Saharan oasis as a world heritage. In the same spirit, since the late 1990s, local actors and associations of Gabès have been working towards the registration of the Gabès oasis on the list of “Treasures of Humanity”. Local development actors in the oasis of Gabès are taking advantage of this movement, especially since the Tunisian revolution, and are seizing new funding opportunities provided by international institutions and donors. The creation of a label of oasian products (for example, pomegranates in Gabès), the establishment of collective or cooperative organisations and the development of eco-tourism projects illustrate some of the ways in which local actors in the oasis of southern Tunisia are diffusing “alternative” models of territorial resource valorisation, as well as being involved in the socio-spatial restructuring of the oasian territory.

Another illustration of how social actors and oasian farmers are reconfiguring the oasian territory is the “network of *khamess*” in Tozeur (Fig. 3). Regardless of the mesh of the plot, the *khammes* (sharecroppers), as members of a collective network, contribute, through their practices, to producing a specific territory. Each *khamess* is in close connection with his neighbour and farm work is coordinated and collectively organised. This coordination standardises choices of farm resource valorisation and creates a homogeneous landscape. Another example is provided by farm workers in the area of Abbess. Originating from the village of Sahraoui, they organised themselves to create a specific cultivated area, integrating date palm trees

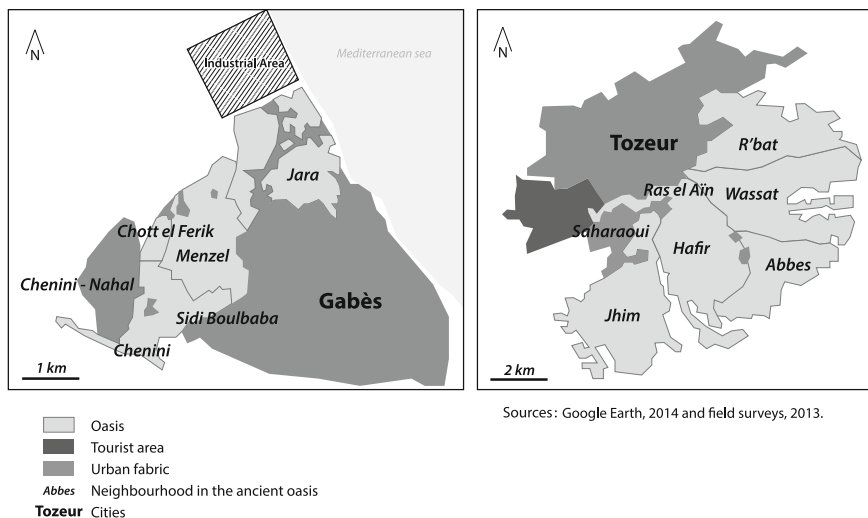


Fig. 3 Territorial organisation of Tozeur, and Gabès, an oasis in the town

and fig trees, but at the expense of pomegranates. They also invested in ground crops, such as mallow, parsley and condiments.

These strategies, which have various motivations, lead to the construction of an oasis micro-territory. Since the revolution, the emergence of a collective claim for the suppression of the social status of the *khamessat*, who have no right to land, no legal recognition or social security, has drawn on these networking spaces. Despite conflicts and difficulties, these dynamics are imposing a dialogue between these farm workers and land owners. A *khamess* expresses these difficulties: “We have to organise ourselves in workers’ unions, so far we haven’t been able to talk with our employers, they make it harder on us”. This mobilisation of *khamess* for their social recognition is one of the most striking elements of the contestation of existing power and work relationships since the revolution.

In Gabès also, the construction of a territory as a space of action is particularly visible in Chenini. The oasis of Gabès surrounds the city and the socio-spatial logics in the oasis reproduce those of the neighbourhoods from where the landowners originate (Fig. 3).

Thus, the Chmessa area, north-east of the oasis of Chenini, is “disconnected” from the rest of the oasian territory. The owners, originating from the neighbourhood of Sidi Boulbaba, do not belong to the same territory of action. For example, associative actors of Chenini do not deploy their action in this area, even though it is in the municipality of Chenini. Similarly, the neighbourhoods of Menzal and Jara, which were historically in conflict, deploy differentiated strategies of resource valorisation.

Hence, social inequalities and spatial dynamics contribute to the construction of differentiated micro-territories, which are more or less connected to networks and main axes enabling the fulfilment of development potential.

6 Conclusion

In connection with the rise in local demands calling for the redefinition of development models and strategies, the issue of the sustainability of the oases of southern Tunisia has become a political stake. So far, analyses of oasis problems have focused primarily on issues related to environmental sustainability and the protection of the oasis heritage, overlooking the social and political stakes. Since 2011, the deployment of local initiatives in the framework of collective organisation has highlighted claims for social justice and equal access to development opportunities in the oasian areas.

The opening and integration of the oases of southern Tunisia into new markets, while enabling the emergence of new actors and the development of new activities, has not resulted in a process of standardisation, but rather an increased differentiation of oasis systems and territories. In the post-revolutionary national context, the dynamism and diversity of local initiatives for the promotion of traditional oasis territories go against the fatalistic idea of the ineluctable decline of the oases, which has long prevailed in these spaces. At first, the revolutionary episode seemed to have reinforced the dominant actors and existing trends in the oases. In reality, the rise and diversification of social demands and mobilisations for a more equitable development model have contributed to a more comprehensive approach of the oases “crisis”, which considers their sustainability not only in environmental and agricultural terms, but also from a social and political point of view. Being historically crossroads territories, the oases are privileged spaces for this analysis of how local actors participate, through their initiatives and projects, in processes of social and economic change and in making a new development model, likely to answer the demands of an oasian population eager to carry out its revolution.

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