

# RURAL UNDER-DEVELOPMENT AND INTERNAL MIGRATION: the example of Tunisian agriculture

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Although the problems of rural under-development concerns the entire North African region (CIHEAM, 208), the link between these issues and internal migrations appears more striking when we focus on the case of Tunisia. Indeed, this country faces major challenges, especially in the marginalised areas of the hinterland. Economic delays and lack of employment opportunities lead to the phenomenon of major migration of populations towards the coast and its urban areas in particular, which have experienced an accelerated growth of their population throughout the past decades.

These massive internal migrations pose several problems. First of all, they empty poor rural areas of valuable resources such as human capital or even investment capacity that are necessary for their development. Moreover, these migrations increase pressure on resources located in coastal areas (water and land resources etc.) and exacerbate competition for the use of these resources between different users and different territories. These migratory dynamics could be amplified in the coming decades, especially due to climate change.

Further efforts to develop Tunisian agriculture, value chains downstream and associated infrastructure in marginalised rural areas could be levers allowing containing migration. These territorial development policies could include both bundles of goods specific to these territories, inclusive governance and value chains that favour producers in order to mitigate the factors encouraging migration.

The analysis of these characteristics of marginalised areas and the impact of migration on coastal areas, but also the potential of Tunisian agriculture in terms of employment and maintaining populations, food security and nutrition enables to establish a diagnosis of the existing possibilities to activate these levers. Through this analysis, this article then seeks to present a panel of possible solutions to prepare for a better future.

## Migration toward coastal urban areas: causes and resulting problems

Tunisia covers an area of about 16.5 million hectares and has a variety of climates: humid in the extreme northwest, Saharan in the south, semi-arid and arid in the centre. Thus, while the littoral zones benefit from less demanding climatic conditions due to the moderating effect of the sea, the west of the country undergoes the effects of a continental context which aggravate the relative geographical isolation and lack of infrastructure (Daoud, 2011).

Development policies that mainly focus on coastal areas (Requier-Desjardins *et al.*, 2018) have led to the growth of regional disparities, amplifying the geoclimatic effect and leading to a major phenomenon of population migration to the coast, especially to large coastal agglomerations where population has significantly grown in recent decades (Belhedi, 1995; INS, 2017). As indicated by the statistics of the *Institut national de la statistique de Tunisie* (INS)<sup>1</sup> presented in the *Recensement général de la population et de l'habitat 2014*<sup>2</sup>, the main cities of Tunisia are located near the coast, from Bizerte in the north to the island of Djerba in the south passing by Tunis and its satellite cities (Ariana and Ben Arous), Nabeul in the Cap Bon, Sousse, Monastir Sfax, Gabes and Médenine. These cities are governorate main towns and belong to the country's regions that are faced with the greatest increase of the population from one census to another, and with the greatest increase of their urbanisation rates that exceed the national average by far.

The development of coastal cities has taken place hand in hand with that of economic activities that generate jobs. Thus, almost the entire hotel capacity is concentrated on 250km, and the heaviest industries and the largest energy plants are also situated on the coast (or lakes in communication with the sea), which concentrates 84% of business companies and 87% of jobs (Euronet Consortium, 2012).

At the same time, the hinterland regions and those of the western fringe experience a stagnating, if not regressing population growth since the 2004 census, a demographic decline in northwestern regions. For the first time in the history of independent Tunisia, in these areas, the negative migratory balance exceeds the natural population growth in absolute value.

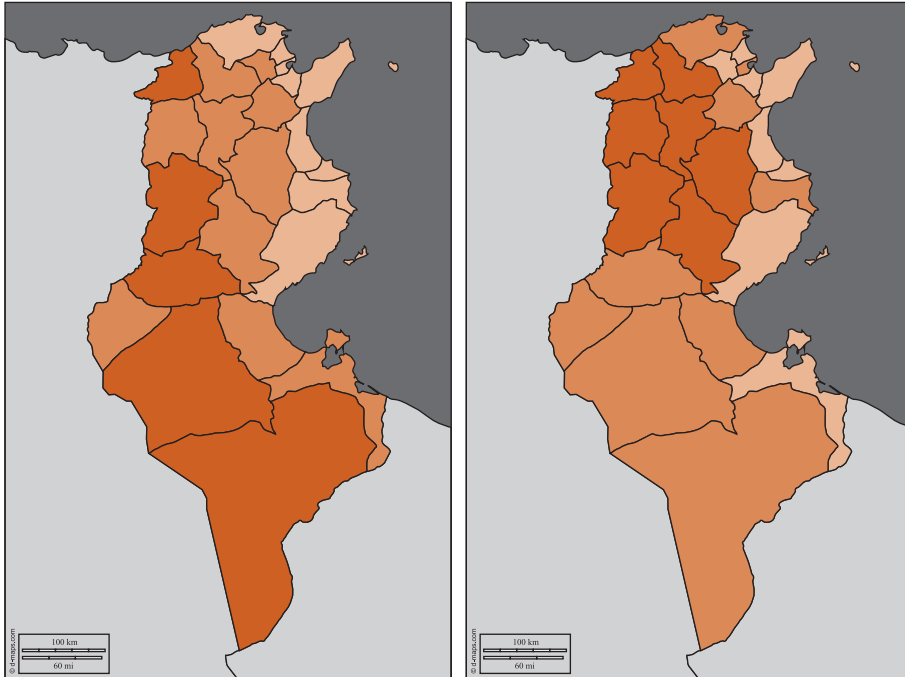
Migrations are mainly motivated by job search (Map 1). In fact, despite the significant demographic growth of the coastal regions, according to the INS data, the latter are experiencing generally lower unemployment rates. In the country, the number of unemployed in the last quarter of the year 2015, amounts to 618,800, including 361,700 men and 257,100 women, that is, an unemployment rate of 15.4% (or 22.6% women and 12.5% men). Unemployment also affects higher-education graduates, with a rate of 31.2% in the last quarter of 2017 (41.1% women and 20.7% men). The southeast and southwest are the most affected regions with respective rates of 26.6% and 22.3%, followed by the west-centre (18.7%), the northwest

1 - Translator's note: National Institute of Statistics of Tunisia.

2 - Translator's note: General Census of Population and Housing 2014.

(17.8%) and Greater Tunis (16.9%). The northeast and the centre-east are the least affected with 8.9%, and 9.9% (INS, 2015).

**Map 1 - Unemployment rates and migratory exodus by region**



Unemployment rates in 2014  
 - light orange: between 9 and 15%  
 - orange: between 15 and 20%  
 - dark orange: more than 20%

Relationship between inflows and outflows  
 2009-2014  
 - light orange: between 0 and 1  
 - orange: between 1 and 2  
 - dark orange: between 2 and 4

Source: INS (2017).

Although the INS recognises the fact that rural exodus has led to dense waves of migration during the 1960s and 1970s and has since then slowed considerably (INS, 2017), accelerated population growth in eastern urban areas is subjecting resources to strong pressure, despite the diversification of the economy. At the same time, the socio-economic resources (such as social capital or investment capacity) of inland regions are being diverted to coastal areas, while in many cases, their weakly diversified and predominantly agricultural economies are leading to overexploitation and the degradation of resources.

## Impacts of urban coastal areas

In coastal towns, the urban sprawl exacerbates the pressure on land resources and leads to the emergence of different forms of competition. This urban extension is primarily reflected in the advance of urban planning, whether as part of a growth organised by public authorities to meet the demand of new urban people or in a more informal and individual way. The phenomenon is a source of pressure on agricultural land in peri-urban areas, some of which, as in Greater Tunis, correspond to land developed for irrigation (irrigated perimeter of the lower Medjerda valley built in the 1950s). Thus, according to the report on the environmental profile of Tunisia in 2012, urban pressure would cause Tunisia to lose between 2,000 and 3,000 ha of agricultural land every year (Euronet Consortium, 2012), the equivalent of one-tenth of the total area of the city of Tunis.

A real threat to agricultural land, commuter migration is increasing due to rising rents in the city, improved transport infrastructure, but also the desire of Tunisians to live in green areas. This results in the interpenetration of rural and urban areas, which is detrimental to agriculture. Some agricultural lands located on the outskirts of cities are also poorly exploited, with landowners waiting for their passage in the urbanisation plan in order to benefit from land rent (Elloumi *et al.*, 2003; Elloumi, 2011a).

Despite strategies to mobilise and rationalise their use, water resources continue to be the subject of growing competition between the main users, particularly between the supply of drinking water and the needs of tourism and industrial activities. Currently, nearly 95% of the available potential is exploited and allows an annual per capita availability of 450 m<sup>3</sup> of water, below the water stress threshold of 500 m<sup>3</sup> per year (OTEDD, 2010). Agriculture is therefore strongly competing with non-agricultural activities, especially in peri-urban areas. Urban sprawl implies harsher competition for water resources, which are primarily allocated to domestic consumption and to industrial and tourist activities. The small share of water is destined for sectors other than agriculture, which accounts for more than 80% of the resources mobilised, and the low possibility of reducing industrial, touristic and household needs leads to the fact that irrigated agriculture is often used as an adjustment variable during years of drought. Thus, during the 2016-2017 and 2017-2018 campaigns, the share of certain agricultural perimeters was sharply reduced to take account of the quantities of water available behind the dams, as in the Sahel region of Sousse.

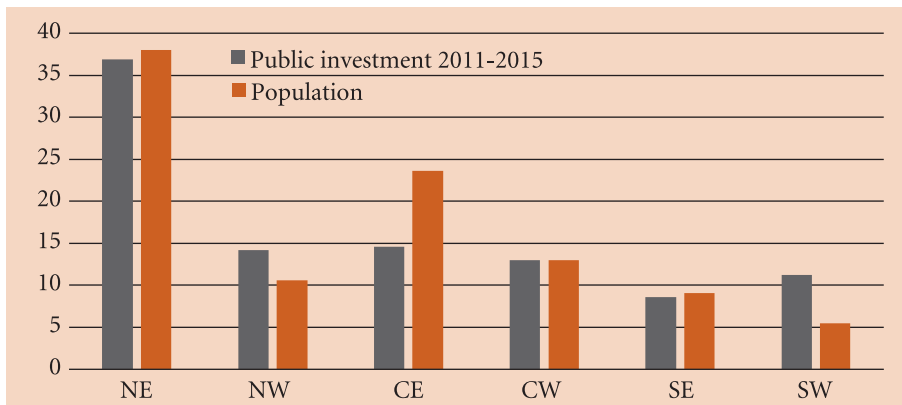
## Impacts on the rest of the territory

The pressure on water resources is also exacerbated in more distant regions, under the double effect of public investments in water infrastructure in the hinterlands of the country (such as dams that have brought significant water resources towards the coast) and the liberalisation of access to resources in the water public domain. Thus, in the interior regions, as in the governorate of Sidi Bouzid, the liberalisation of access to deep aquifers was added to the transfer of a part of these resources to the coastal regions, and put small irrigators and external investors in competition. This

intense water race has resulted in the exclusion of some irrigators from the system, due to the higher cost of dewatering or the depletion of certain aquifers (Jouili *et al.*, 2013).

By causing the migration of generally better-educated people, development policies have also resulted in emptying rural areas of their productive forces and financial resources, through an exodus of capital. Thus, while public investment seems at first glance equitably distributed among the regions (at least in terms of per capita investment) (Graph 1), those in the private sector do not follow (Map 2) and thus aggravate the investment gap between regions.

**Graph 1** - Distribution of public investment 2011-2015 and of population between the major regions (in %) (Northeast\*, Northwest, Centre-east\*, Centre-west, Southeast, Southwest)



\* Urban-dominated littoral territories.

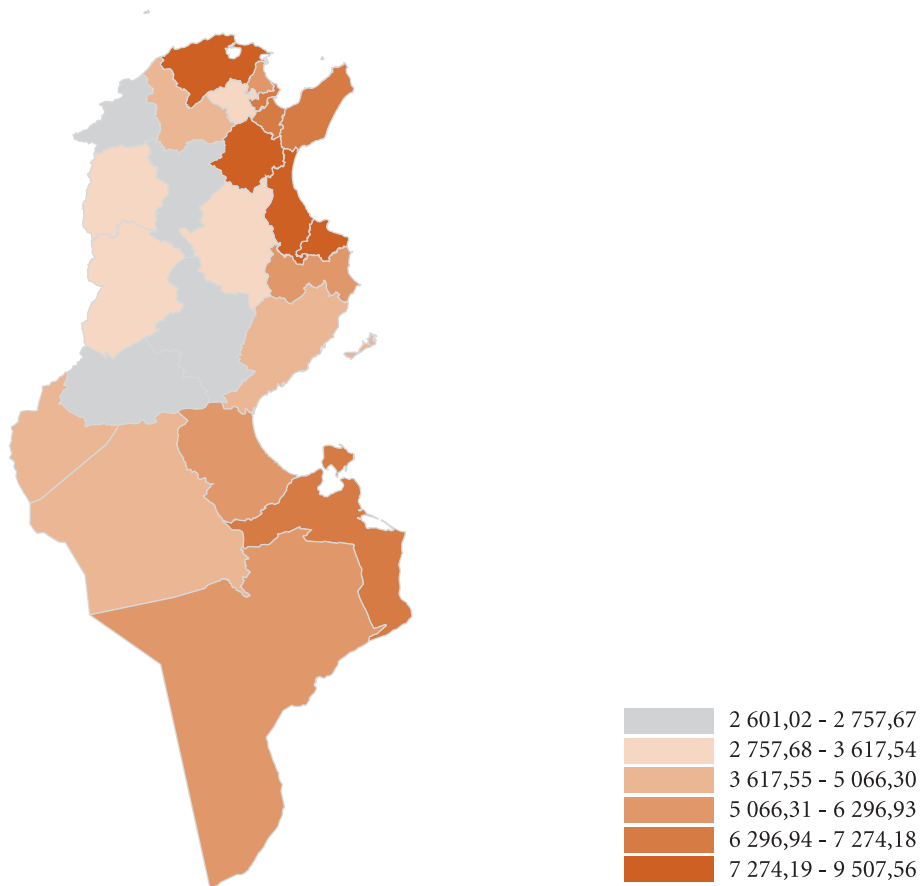
Source: Ministry of Development and International Cooperation (MDCI) quoted by Abaab (2017).

Finally, in the hinterland, the effects of migration are also strongly felt on natural resources and on activity as a whole. Economies are poorly diversified and remain dominated by agriculture: for example, the agricultural sector in the governorate of Sidi Bouzid contributes 40% to employment, against 16% at national level. In these regions, this low level of diversification increases the pressure on natural resources (water, soil, vegetation cover), with negative externalities in terms of erosion, pollution and over-exploitation of groundwater - some of which are non-renewable, particularly in the South of the country. The impact of agricultural activity on the soil in terms of erosion is particularly important, leading to losses of agricultural soil of 15,000 to 20,000 ha per year (Euronet Consortium, 2012).

The hinterland regions are also caught in a vicious circle of resource degradation and pressure on resources that cannot be broken without the establishment of a proactive policy of positive discrimination in their favour. While the new constitution of January 2014 recognised the necessity of such a policy targeted towards the least developed regions, nevertheless, the preparation of the 2016-2020 development plan resulted in

the sharing of projected investments, which remains favourable to the coastal regions that host a larger proportion of the population. Moreover, more and more voices are rising against this principle on the pretext that it does not promote growth by directing investment in regions where productivity is likely to be relatively low.

**Map 2** - Accumulated private investment per capita between 1992-2010 (dinars/capita)



Source: Ministry of Regional Development (2011).

Although the phenomenon of migration has recently slowed down, the problem of massive internal migrations to northern and eastern coastal areas is set to increase. Climate change will significantly impact the already precarious situation of economic activities – mainly agricultural – in the central and southern parts of the country. Indeed, with an annual increase in temperature of +1.1°C in 2030 and +2.1°C on average in 2050, an increase in the frequency and intensity of extreme dry years and a moderate decrease of rainfall, agriculture will be in a very vulnerable situation, especially in marginal areas with little irrigation and high rainfall.

The results of forecasts on the agricultural sector indicate that in the event of droughts, regardless of Tunisia's scenario of economic openness and trade liberalisation of agricultural products and services (slow or fast), production decline will undermine the country's normal growth (Zahar, 2013) and further intensify the phenomenon of migration to coastal areas<sup>3</sup>. For instance, the results of the Agri-monde Terra prospective exercise for Tunisia (Lattre-Gasquet *et al.*, 2017) show a worsening of regional and urban-rural imbalances in almost all of the envisaged evolution scenarios except in the case of the ecological intensification latter scenario, which is based on a new paradigm of agricultural development, takes into consideration the specific resources of the territories and the productive functions of agro systems, and highlights the fact that the main lever lies in the change in consumer behaviour and the propensity of consumers to pay for the territorial quality of products. Likewise, agronomic research must play an important role in defining the technical content of such a model built around the development of territorially anchored sectors.

## Development challenges and objectives of territorially anchored agro-food chains

In the face of problems of pressure on natural resources and economic and social inequalities that are intensifying in Tunisia as a result of migration, it has become fundamental to consider a real change in the trajectory of the economic model, which would particularly focus on thinking of new paths for the development of the agro-food system. Indeed, more and more analyses show the importance of the role played by the agricultural sector in the economy and employment in many developing countries (Dorin *et al.*, 2013) and in particular in southern Mediterranean countries (CIHEAM and Blue Plan, 2009). In recent years, like China (Schwoob, 2018) and Morocco (Stührenberg, 2016), some of these countries have reinvested heavily in agricultural development. In Tunisia, where the agro-food sector has a significant impact on the socio-economic situation of marginalised territories, it is essential to think about this trajectory, by developing agro-food chains focused on the promotion of local products through the creation of territorial competitiveness and the establishment of territorial quality income based on product specification (Campagne and Pecqueur, 2014).

### Setting objectives for environmental and socio-economic sustainability

Although a number of countries facing similar challenges (especially the degradation of resources or the socio-economic context of farmers) have today established quantified sustainable development objectives in relation to their agricultural and food sectors, few have developed a detailed outline of the conditions required to achieve these goals that can draw up paths of transition towards a real transformation of the

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3 - Already in 2017 and following the many fires that broke out during summer, the migrations from the forest areas affected by these events have accelerated, especially in the Chaambi mountains in Tunisia (field observation reported by onsite observers).

systems. In Tunisia, this exercise was conducted with local actors in 2017<sup>4</sup> and enabled the identification of three issues and priority goals for a transition of the Tunisian agricultural system: the preservation of natural resources (water and soil); improvement of food security (with its different dimensions); the development of socioeconomic services provided by the agro-food sector.

The first issue is fundamental because the sustainability of Tunisian agriculture cannot be conceived without a productive base ensuring a sustainable management of natural resources. As already mentioned, Tunisian water resources are low. In addition, the majority of foresight exercises such as ATPi (Elloumi *et al.*, 2017), Agrimonde Terra (Lattre-Gasquet *et al.*, 2017) and strategic studies (Water 2030, Water 2050...) sound the alarm on the risk of reduction in the resources available for irrigation due to the decrease in rainfall, and even if the decrease in rainfall remains limited (in particular, due to the increased needs of other sectors). Sometimes advanced as a possible solution, the desalination of seawater or brackish water would not be without negative impact on the environment and would be particularly expensive in terms of energy and public funds.

With regards to soil resources, the same studies stress the increased risks of degradation, due to the widespread adoption of agricultural practices favouring the decrease of the organic matter content, thus encouraging erosion and desertification in large agricultural areas of central and southern Tunisia. In order to cope with this degradation process, it is necessary to adopt agricultural practices adapted to the arid context of Tunisia, allowing the improvement of both the rate of soil organic matter and the resilience capacity of the systems. No-till cultivation techniques, sowing under cover crops or agroforestry would be possible alternatives.

If the agronomic dimensions related to issues of preservation of soil and water resources have been little discussed – there is a consensus on the importance of preserving these resources as well as on the solutions needed to meet them –, the objectives and solutions concerning the socio-economic impacts of agriculture have been the subject of lively debates. The current situation is characterised by the persistence of poverty in rural areas and a higher level of unemployment than in urban areas, coupled with difficult living conditions and a problem of access to different services. Farm workers and farmers remain indeed among the categories that are most affected by poverty (Graph 2). Moreover, the different prospective scenarios (Lattre-Gasquet *et al.*, 2017) predict a deterioration of the situation in the future, due in particular to the degradation of the natural resources necessary for economic activity in these environments.

In such a context, should the country abandon some territories that are located in areas that are too constrained geographically (in favour of rural areas with higher

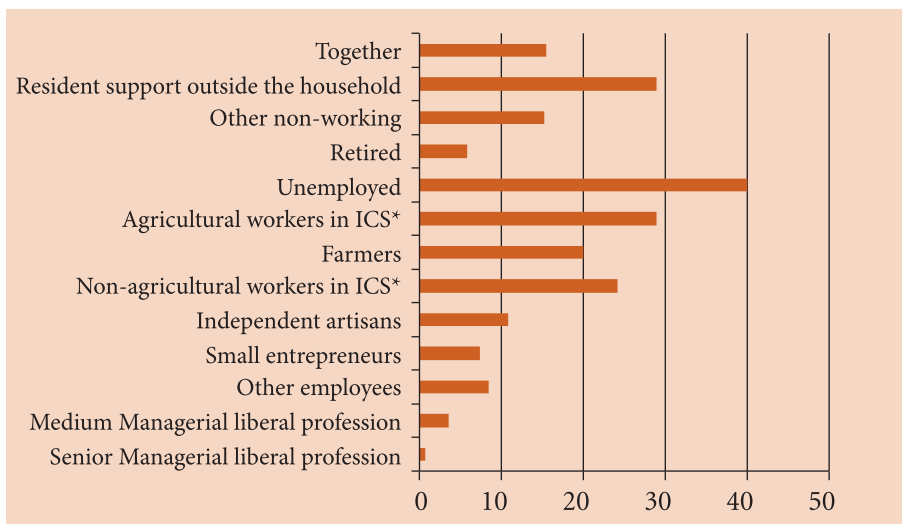
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4 - Exercise conducted in the framework of the “Agricultural Transformation Pathways” initiative (ATPi), coordinated by IDDRI and the Wageningen University, with the support of the United Nations Sustainable Development Solutions Network (UN SDSN). This initiative is aimed at providing support to countries in defining pathways and transformation strategies, mainly by supporting them, according to a methodology of participative *backcasting*: on the choice of realistic and ambitious objectives, in line with the new sustainable development goals and the development of sociotechnical roadmaps to meet the objectives chosen.



potential) or should the country settle populations in these marginal areas at all costs? There was consensus on the need to establish a minimum population in these areas, and to improve socio-economic services provided by the agro-food sector (such as poverty reduction or the provision of stable and decent jobs) through planning and territorial development projects that encourage the creation of income-generating projects and activities.

**Graph 2 - Poverty rate according to the socioprofessional group**



\* ICS: Industry, Commerce, Services.

Source : INS (2012).

The actions to be undertaken in order to achieve these objectives are strongly correlated to the achievement of food security goals, which were also discussed in 2017. The increase of agricultural production in targeted areas, adapted to the cultural context of the different Tunisian regions should reduce deficits of key products, while the reduction of budget costs related to the General Compensation Fund should provide funds that could be allocated to the development of rural areas.

## Barriers to the development of a productive and resilient agriculture in hinterland rural areas

In order to achieve the objectives identified as priority ones, the development of a productive resilient and market-integrated agriculture in rural areas of the hinterland should be encouraged. An improvement in the standard of living of its inhabitants would also help to slow down the phenomenon of migration. However, the agricultural development of these areas faces multiple challenges. In addition to the degradation of water resources, vegetation cover and soils, the agricultural sector is also characterised by a fragmentation of farms and strong agrarian dualism. In fact, a distribution by utilised agricultural area (UAA) indeed shows, on the one hand, a

large number of farms with small acreage (in 2004-2005, 54% of holdings were of less than 5 ha) and on the other hand, a grabbing of 1% of holdings by 22% of the UAA.

Moreover, fewer young people are being trained to boost the sector and create businesses: the population of farm managers is experiencing both a significant aging and a high rate of illiteracy. In the near future, this situation is likely to pose a serious subsistence problem for some farms, even though, in the case of Tunisia, the increase in the number of holdings and the decrease in the average size of holdings allow flexibility for restructuring and expansion processes.

Lastly, the lack of land titles and a dynamic market for agricultural land is a major problem, causing a significant phenomenon of abandonment of agricultural land, particularly in peri-urban areas (due to indivision or waiting for a change of land classification that would allow a land rent).

## **Territorial development as an inclusive alternative**

Beyond the agronomic dimension, solving these problems therefore requires a broader approach that takes into account the economic, social and environmental characteristics of the territorial crisis (Elloumi, 2018). Several alternatives have been sought to get hinterland rural areas of the country out of their marginalised situation. Thus, in addition to the attempts to develop agriculture, which is facing the aforementioned restraints, integrated rural development was initially favoured, with the development of rural infrastructure as a leitmotiv, and the diversification of activities and the creation of income generating activities (IGAs). Since the projects in question did not produce conclusive results, new approaches emerged under the name of “local development” and then “territorial development”. Increasingly put forward, the approach of territorial development seems to bear fruit in terms of allowing better competitiveness by taking account of the territorial quality of the products. It is in this way, in fact, that difficult rural areas can position themselves in the competition between territories and improve their competitiveness.

In this context of local development, it is first of all a question of rethinking agricultural practices by adapting the technical aspects to the physical and climatic difficulties of Tunisia, and thus moving away from the methods advocated by the Green Revolution (seeds, pesticides, fertilisers). This requires the set up of ecological intensification models adapted to the country's regional specificities, which would make it possible to reconcile increased yields, improved resilience capacities of ecosystems and practices adapted to the context of climate change. In order to achieve this, it is necessary to establish research programmes on the adaptation of these practices to the Tunisian context, but also demonstration units, especially on public lands, exchange groups between farmers, etc. The development of research programmes on dry land farming is an example to be encouraged as part of a research strategy for 2030.

At economic level, it is about ensuring an optimal valorisation of agricultural products coming from hinterlands, differentiating them on the basis of their territorial quality and integrating them to the chains of value within the framework of a new

paradigm of agricultural and territorial development. In order to do so, processing units such as oil mills, refineries, extraction units used in the olive sector should be located in rural areas. Labels should be developed and local consumption encouraged. This model could be extended to other products, such as the fig sector in the Djebba region in the Bèjà governorate, or the organic dates in the Hezoua region of southeastern Tunisia. A minimum of basic infrastructure but also the development of other infrastructures beyond the territory are required to promote the creation of local value chains integrated into the urban fabric that take into account consumer expectations, in the form of short supply chains based on the development of transport and road networks in the different regions of the country and the development of information and digital tools.

However, local development especially requires major changes in terms of governance. It cannot be achieved without considering a new organisation of the social and professional pattern of marginalised territories, confronted to the limits of their environment. The rise of farmer's groups such as the SMSA (*sociétés mutuelles de services agricoles*<sup>5</sup> of Magel Bel Abbès) has already shown its positive effects on the organisation of the agricultural professional organisation at local level. Beyond farmers, these new forms of governance must involve a wide range of local actors in the management of their territory around a common project, without however dismissing public authorities, whose role could evolve towards new functions of distribution, mediation and coordination between territories and between scales (Campaign and Pecqueur, 2014). Promoting local leadership and fostering the capacity of people to organise themselves in an inclusive local democracy are the fundamental conditions for these populations to take over the development of their territory and collectively carry a vision and a territorial project. In this regards, there are examples in Tunisia that deserve to be better analysed and enhanced for the future (Elloumi, 2011b and 2012).

## Conclusion

In recent decades, Tunisian agriculture has experienced a certain level of development with better integration into the national economy and the improvement of living conditions in rural areas. Nevertheless, this development has not benefited all regions and in some areas conditions have deteriorated following the withdrawal of the State and the reduction of transfers to the agricultural sector and the rural world. In addition, the sustainability of a development model that favours urban agglomerations – especially those on the coast - could have effects that, combined with the degradation of resources in marginal areas due to over-exploitation and climate change, would affect the country's development process and territorial coherence at national level, particularly by provoking major migration flows.

To overcome this situation, many analyses and different foresight exercises in which our teams took part argue for the adoption of a development model stressing a better link between urban demand and agricultural production. This paradigm shift calls for greater consideration of the modernisation of agriculture in marginalised

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5 - Translator's note – mutual societies of agricultural services.

territories, through the change of the technical package in these areas, the promotion of local agricultural products and the development of processing and processing infrastructure and local communications. However, these solutions cannot be implemented without the inclusion of the entire population in this transformation project and its appropriation of new governance structures - such as professional or development organisations.

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