**Journal of Alpine Research | Revue de géographie alpine**

**106-3 | 2018**
**Trajectoires de vulnérabilité des territoires de montagne face aux changements globaux**

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**Electronic version**
URL: http://journals.openedition.org/rga/4877
DOI: 10.4000/rga.4877
ISSN: 1760-7426

**Publisher**
Association pour la diffusion de la recherche alpine

**Electronic reference**
Majda Mourou, Antonin Adam, Clothilde Cardon, Mohamed Aderghal, Michel Vaillant, Lhassan Benalayat and Bruno Romagny, « Prickly Pear or Argan Tree? Agrosilvopastoral Systems of a Mountain Valley in Ait Baamrane (Morocco) Face Changes », *Journal of Alpine Research | Revue de géographie alpine* [Online], 106-3 | 2018, Online since 09 January 2019, connection on 19 April 2019. URL : http://journals.openedition.org/rga/4877 ; DOI : 10.4000/rga.4877

# Prickly Pear or Argan Tree? Agrosilvopastoral Systems of a Mountain Valley in Ait Baamrane (Morocco) Face Changes

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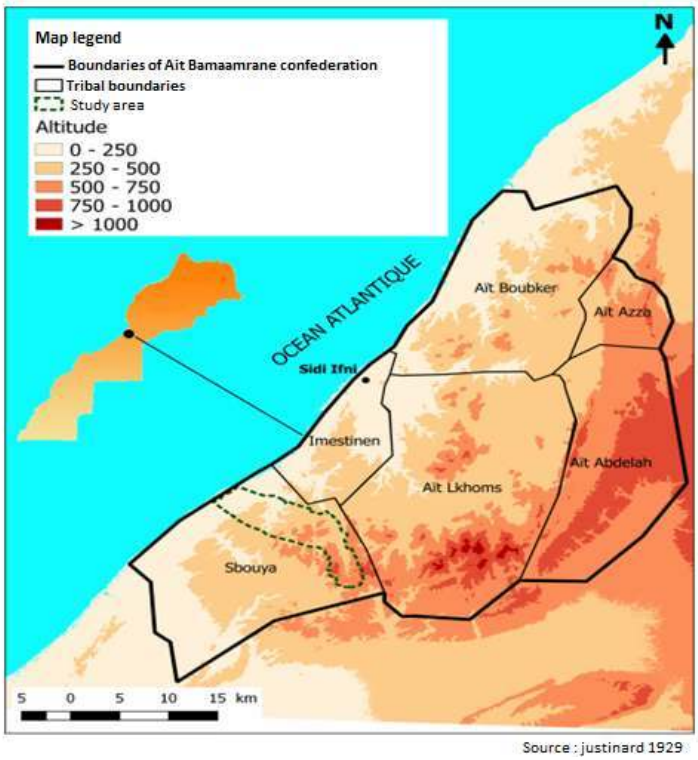
## Introduction

1 In some mountainous areas, people have developed agricultural and pastoral practices that have enabled them to build agrarian civilizations resistant to major transformations of economic systems and to upheavals induced by climatic disturbances. These practices are based on adapting technical systems of family farms to forms of land management that allow the regulation of access to resources.

2 In south-western Morocco (see figure 1), the Ait Baamrane mountains form part of the coastal massifs which, despite their southern position, do not suffer from extreme aridity thanks to the fog. Their vulnerability is rather due to poor agricultural soils, scarcely fertile and confined, and to irregular rainfall. Set up in the earth's primary crust, these lands are also poor in underground water resources (Barathon *et al.*, 2010). Over time, these mountains have been subject to several waves of settlement which resulted in shared use of space and resources by nomadic and sedentary populations. The interaction between these two lifestyles have forged an agrosilvopastoral system based on mobility and on management of grass lands, trees and water. Grounded in the cereal-livestock-argan triptych, this system relies on pluriactivity (beekeeping, fishing, etc.), on various movements (north/south nomadism and mountain/coast transhumance) and on external relations (trade, temporary migrations, etc.). Nomadic groups persist between the Saharan plains and the study area, still sporadically passing through the region (Monteil,

1948; Blanco, 2015). These connections gave rise to a society made up of communities whose relationships evolved around conflicts and negotiations about resource use.

**Figure 1: Territory of Ait Baamrane within the national territory and location of Tazrout valley**




**SOURCE: JUSTINARD, 1929.**

3 Since the 1970s, the country of Ait Baamrane has been subject to massive planting of prickly pear[1], which implies transformations in terms of agrarian structures and significant environmental impacts (Barthes *et al.*, 2016). Its fruits are particularly well appreciated in Morocco and benefit from a controlled label of origin since 2011: "Prickly pear of Ait Baamrane"[2]. In addition to the fruits, the seed oil is sold since a few years at gold price[3] on international markets of cosmetic products (Agroligne, 2016). Present since the eighteenth century in the traditional production system as a dietary supplement for men and cattle, the cactus has nowadays taken such vast proportions in terms of surface that it has become a dominant element of the agrarian landscape. From an environmental point of view, the available studies indicate a revival of biodiversity, presenting the prickly pear as a factor of ecological resilience (Genin *et al.*, 2017). Addressed from a socio-economic angle, besides the income provided to families through this crop, the spreading of prickly pears in this territory seems to have disrupted an agrarian order and a territorial organization set up by generations of farmers and cattle herders. Thus, several questions have been considered. How could the prickly pear play the role it currently holds in local production systems?

4 How have agrarian structures been (re)modeled to facilitate its diffusion? What changes has this crop induced into social relations and territorial organization on various scales? Finally, what new forms of vulnerability does this territory face today?

5 In order to answer these questions, we have chosen to focus on a coastal valley in the Sbouya territory: the Oued Tazrout wadi (see figure 1). From its 900m high peaks to its

oceanic outlet, it presents various geomorphological landscapes and bioclimatic environments: argan forest and cultivated fields on high altitudes, prickly pears on hilly plateaus in mid-altitude, rangelands on the coastal plateau. This complex landscape seemed indicative of the various agrarian dynamics within this one geographical unit. In this region where quantitative data is scarce[4], we proceeded by considering two complementary methods. Our general framework is based on the method of agrarian diagnosis[5], which focuses on the long term, giving a major place to understanding of the many "relations that exist between the evolution of social relations, the movement of techniques and the successive transformations of ecosystems" (Dufumier, 1996; originally French quote). This method, which consists of three stages[6], allows to reconstruct and establish coherency between the evolutionary trajectories of farms resulting from a process of social differentiation taking place throughout history (Cochet, 2011).

6 The first step consisted of an analysis of the valley's landscapes. It aimed to take into account the different environmental exploitation methods. The second step was intended to reconstruct the history of places, origin and trajectory of lineages, social organization as well as types of land-use and spatial management. This was accomplished through collective interviews (10 interviews) in each douar of the valley. Given the lack of quantitative data available for the area and the low population density, this first historical reading conducted at the valley's scale was completed by a second reading, at a micro scale. This almost exhaustive survey (65 interviews) concerned the valley's inhabitants according to the AGEVEN[7] file. The latter traces chronologically the life trajectory of the heads of households (migration, profession, residence, etc.) to which we have integrated key moments of the farms' trajectories (land purchase, cactus planting, cessation of an activity, etc.). Thus, we were able to characterize the agrarian transformations of a mountain territory marked by migration and pluriactivity, relying also on near and distant cities. Finally, additional interviews were conducted, following a first phase of analysis in order to validate a typology of current production systems. The development of a typology forms the third stage of an agrarian diagnosis: it seeks to highlight agro-ecological conditions (resulting from the observation of the landscape) as well as socio-economic conditions (resulting from the historical reading of past and recent agricultural developments within a small area) in which farmers evolve.

7 In Tazrout valley, social differentiation is meaningful on a lineage scale (nomadic lineages, sedentary lineages, landless lineages). As a first step, it is thus the scale chosen to present the history of successive changes in land-use induced by different waves of populations as well as the various forms of land tenure that underlie them. Secondly, based on a typology of current production systems, we study the present vulnerabilities of the territory before proposing future scenarios. The whole is part of a perspective which questions, on the one hand, individual and lineage strategies of adaptation to ongoing changes and, on the other hand, public policies inducing a development model which applies production and territorial organization standards.

## From argan tree to cactus, trajectories of land use and land development in Tazrout valley

8 Three distinct periods are identifiable in the evolution of the production systems of Tazrout valley. The first covers the end of the nineteenth century and the pre-independence period. It reflects the logic of lineage distribution of land and labour. The

second period corresponds to a phase of transformation of production systems resulting from a combination of socio-political events. As for the last (from the 1990s to today), it is characterized by a growing interest (especially economic) in the production of prickly pear and by the emergence of land conflicts. Figure 5 highlights, over the course of the stated historical events, the trajectory of both lineages and corresponding property types.

## Types of access to land ownership: origin and transmission until 1960

9 In addition to matrimonial and tribal donations and transmissions that have traditionally been used to legitimize access to property, different forms of current ownership result from interactions of successive settlements in the area. According to the interviews carried out, the right of the first occupant is understood locally either as the installation of holy figures at the origin of *chorfa*[8] lineages and the current territories bearing their names (Ouled Driss, Sidi Ouerzeg and Sidi Ali Outoul); or as the settlement of previously nomadic lineages (Ouled Dlim, M'rabtine, Rguaybat) on their rangelands, especially coastal ones. In these same territories, at a similar time scale, other human groups have obtained land rights during warlike conflicts through "dispossession".

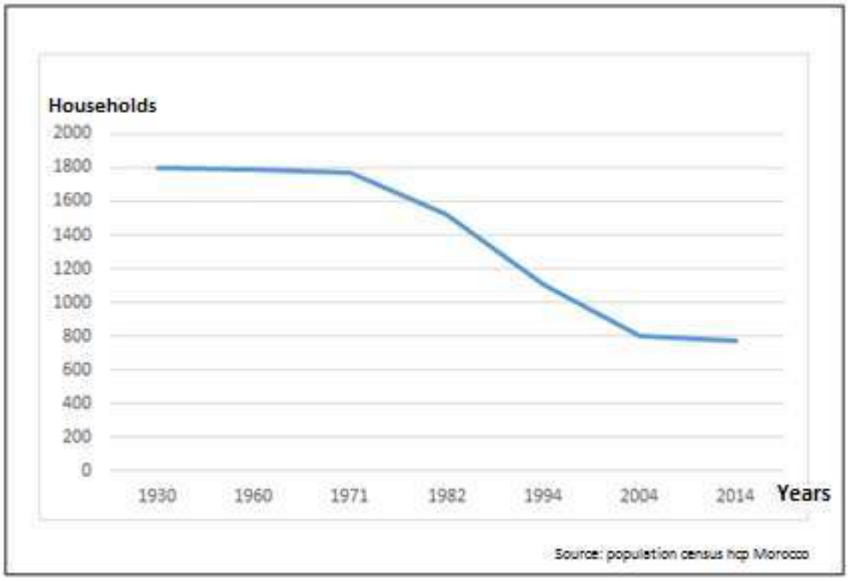
10 At the end of the nineteenth century, another form of access to land resulted from the appointment of foreign notables by the central government (*makhzen*). The latter, mastering writing and texts, question the customary laws concerning positive and religious rights to grab lands owned by different tribes and fractions. That way, they establish individual private property (*melk*) which becomes the dominant property form. However, types of indirect land ownership exist, such as the so-called *Rhan* lands which refer to a form of antichresis. It is a contract established in order to deal with large-scale events (epidemics, droughts, wars) leading to major depopulation and/or large migratory movements (Rosenberger, 1977). With the reduction of available labour, large landowners yielded land in exchange for working time to landless lineages, usually descendants of former slaves. Two types of *Rhan* are mentioned: the *Rhan hart* "cultivation *Rhan*" which assumes the obligation of cultivating cereals and concerns relatively flat lands; and the *Rhan hor* "free *Rhan*" which, as the name implies, involves no obligations and is mainly established for vast slopes of low fertility, unfavorable to cereal production.

11 As mentioned in the introduction, two major types of production systems coexist during this period. One is nomadic, the domain of southern populations, and a second is agrosylvopastoral transhumant. At the beginning of the twentieth century and during colonization, the argan forest was intensively exploited for coal, especially since its institutionalization by the Spaniards and in response to an increase in urban demand. In addition to this major resource loss, cereal farming suffered from the effects of drought and the lack of agricultural labour. Indeed, men were forcibly recruited by the Spanish army and moved to Spain and northern Morocco, while others were traders more to the South. This depopulation of the region does not result in land abandonment. Returns were frequent and solidarity between migrants and inhabitants favored the persistence of production systems. These movements did not change the distribution of land, but transhumant livestock was reduced in parallel with cereal production. The old agricultural production systems thus prevail in their logic while relying more and more on external sources.

## Emigration and expansion of the prickly pear: factors of a second agrarian break between 1960 and 1990

12 In 1969, the Spanish enclave of Sidi Ifni was recovered by the Moroccan state. Given economic difficulties and declining agricultural incomes, the Baamranis turn to the north of the country and Europe to look for work (Bennafla, 2010). Their financial contributions are first used to maintain agriculture and to temporary renew livestock until the drought of the early 1970s. After the "Green March[9]" in 1975, the Moroccan State seeked to develop the new urban centers of the Sahara (Laayoune, Essemara and Eddakhla). Multiple job opportunities consequently attracted the population of Tazrout. In the 1980s, migration became essentially national (Casablanca) and regional (Agadir, Tiznit, Guelmim, Sidi Ifni) in search of better living conditions and took on a family dimension. Thirty years were enough for the commune of Sbouya to lose more than half of its residents (see figure 2).

**Figure 2: Evolution curve of the number of households in the commune of Sbouya according to the data of the High Commission for Planning**




Source: population census hcp Morocco.

13 During this period, massive plantations of prickly pears took place even though the sale of its fruits does not yet yield income. Local landscapes were largely reconfigured by this endogenous cultural innovation that requires little work per area unit while constituting a powerful property marker. But the expansion of the prickly pear is undoubtedly a major bifurcation in the path of vulnerability in the Tazrout valley. In the 1990s, when its profitability stood out, the cactus production became a source of competition and conflict between and within families.

## Towards individualism and specialization of production systems

14 Between 1987 and 2011, the area planted with prickly pears in Sbouya commune doubled (Barthes *et al.*, 2016) (see maps figure 5). This growth was stimulated in particular by the

incomes that the crop yielded as well as by the support of various state programs: fight against desertification[10] and promotion of cash crops within the framework of pillar II of the "Green Morocco Plan[11]". But the extension of prickly pears does not concern all the lands. To this day, *Rhan hart* continues to be used for cereal farming and forbids the use of certain lands, hence the persistence of areas cultivated with cereals or lain fallow (see figure 4). Inversely, the *Rhan hor* lands, extending on the slopes, have been cultivated since a long time with cactuses. As this contract does not legally exist, the land ownership is thus claimed by custom. Previously landless, the owners of these *Rhan hor* benefited from the mass exodus and the legal uncertainty linked to the non-recognition of these leases. They became the big landowners of today (figure 3).

Figure 3: Synthesis of the characteristics of *Rhan* contracts (according to the authors)

| Land Tenure | Topography | Plots area | Modes of remuneration | Lineages of owners | Lineages of farmers | Curent occupation |
|---|---|---|---|---|---|---|
| *Rhan hor* | Slop | Important | Work | Big owners | Descendants of slaves | Prickly pear |
| *Rhan hart* | Flat | Reduced | Work + a share of harvest | The notables | Workforce<br>Trades | Grain farming or wastelands |

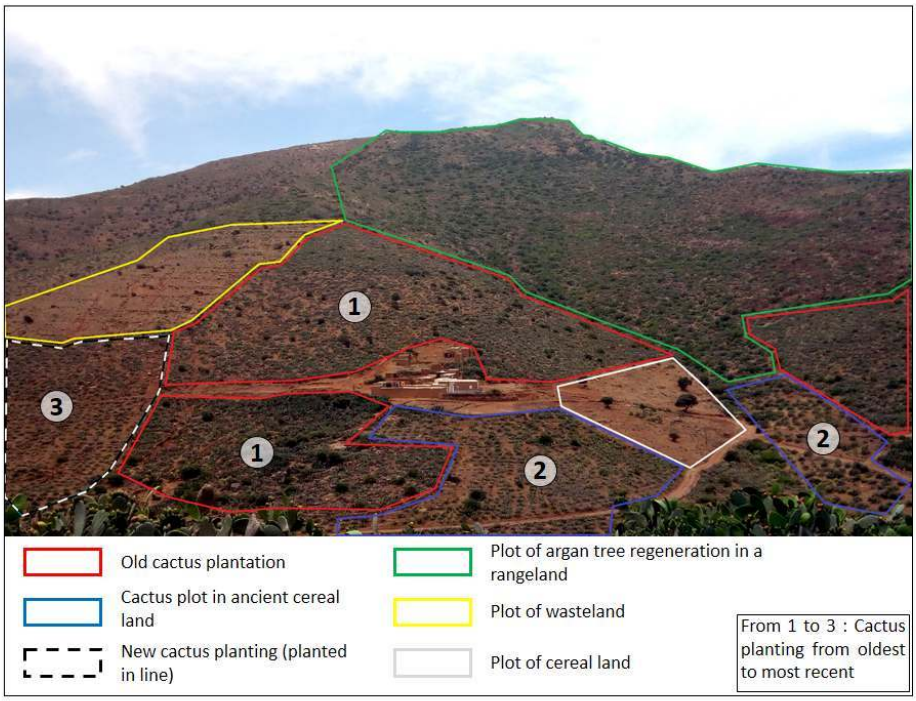
Source : Authors 2017

SOURCE: AUTHORS, 2017.

15 Long abandoned or under-exploited, lands on slopes are upgraded through the planting of cactuses, shifting thus the initial power balance of lineage. A similar shift is observed on coastal lands which evolved from an area of low agricultural capacity, serving mainly for grazing, to a space with a strong tourism and residential potential.

16 The original population of the area has increased tenfold in the city, while maintaining a territorial link whose key element is land. The conflicts resulting from these changes have multiplied, particularly with the more regular return of migrants attracted by the rising profitability of land. Within families, it is about having one's own land in order to reap the benefits. In the case of lineage, the owners of *Rhan* want to recover their lands from those who exploit them. In the case of tribes, whole sections of the coast are claimed.

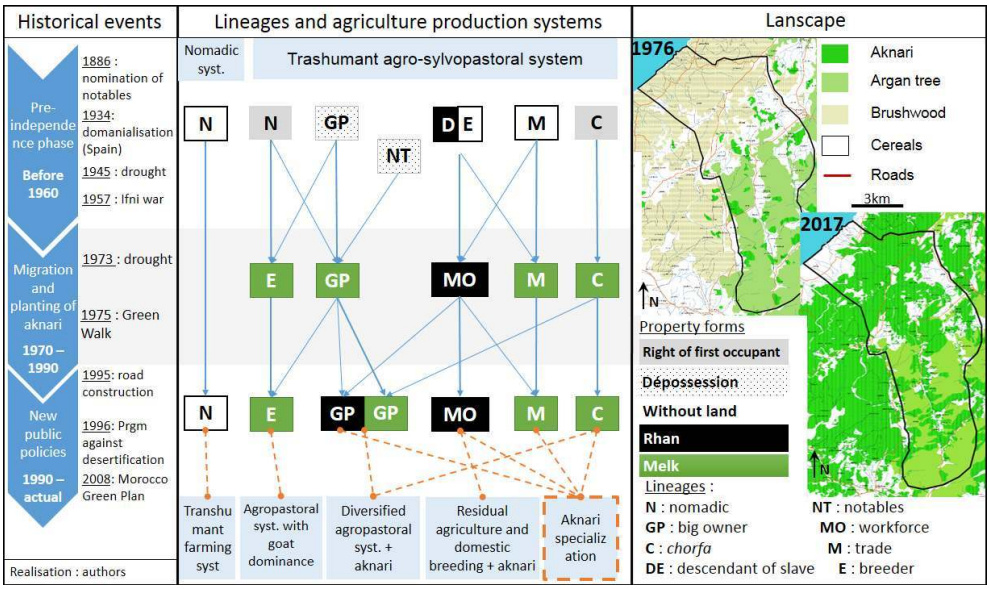
**Figure 4: Landscape showing the extension of prickly pears crop through a successive redevelopment of landscape units which were previously used otherwise**




Source: authors, 2017

17 Therefore, today's different land tenures emerge from a variety of land uses and a succession of transmissions that have evolved over time according to reference rights (customary, religious or positive) and their development. Nowadays, modern law is decisive and the allocation of title deeds is subject to major conflicts within families (*melk* lands), lineages (*Rhan* lands) and tribes (collective lands).

**Figure 5: Summary diagram on the historical trajectory of lineages and land use types (according to the authors)**




Source: authors, 2017

# Production systems and current vulnerabilities

## The cactus at the heart of production systems

18 Five different production systems have been identified in the valley today.

- The first (S1) is based on nomadic farming of dromedaries and goats practiced by tribes of the South who cross the territory periodically. It is more and more constrained in its movements by the areas of cactus plantations, which nevertheless serve as fodder during years of severe drought, under condition of agreement with the owners.
- A second system, agropastoral (S2), is mainly based on livestock and significant surfaces of land kept for grazing due to its collective status. It is located particularly on the coast where cactuses are not very productive and cereal farming is practiced easily (flat surfaces and permanent humidity). The income of resident households are supplemented by i) the wage labour during the harvest of prickly pears; ii) external financial input by migrants. Today, this system is threatened by the continuous reduction of pasture areas involving the increase of feedstock (stabling) expenses and thus the reduction of herd sizes.
- Proponents of the diversified agrosilvopastoral system (S3) are located in the mountainous areas still covered by forest. They benefit from the diversity of fodder sources to maintain small-scale herds but have converted parts of their land into cactus plantations. They live on the land but can potentially go to work in nearby cities (Sidi Ifni and Guelmim) whenever their agricultural calendar allows it. Some work as pickers during cactus fruit harvesting, once their plantations have been harvested.
- A fourth system (S4) resembles a remaining agriculture of self-sufficiency. Distributed throughout the study area, these farmers raise a few animals (sheep, goats and more rarely cows) and grow some barley to feed them in addition to grazing. Gradually, they convert their areas of cereal growth into cactus plantations, reducing thus the breeding of small

ruminants. They spend the majority of the year on the land but live off other activities (for example masonry) between peaks of agricultural works.

- Finally, the specialized cactus system (S5) is found throughout the area and occupies the majority of the land. It does not only concern households, but also extended families whose representative sometimes occupies the premises. At times, the latter manages family land by following one of the above-mentioned production systems. The main beneficiaries of the cactus crop profits are only rarely present and manage their production at a distance.

19 It should be added that the profits from prickly pears vary according to the location of the plot (access, exposure), the variety planted (early, late), the demand (price varying from one to tenfold) and the methods of fruit picking (family work, paid work, sales of standing crops, etc.). This diversity reflects a strong market logic combined with the integration of many stakeholders in the sector (brokers, wholesalers and carriers). The latter control the prices and ensure sometimes the fruit picking (obedient to various contracts), directly routed to Agadir or Casablanca. The remaining benefits, which are hardly countable, are distributed to family members according to terms of agreement specific to each.

## Current vulnerabilities

20 By its physiological characteristics, prickly pear production is particularly well adapted to the local agro-ecological conditions. However, its extension through monocultures and the method of reproduction by cuttings, gives rise to fears that a potential contamination or disease could affect all the plants, *de facto* very close genetically. As such, a cochineal ( *Dactylopius opuntiae*), which has been spreading in Morocco since 2015, poses a threat to the areas that are so productive today and on which many households rely (S2-S3-S4). On the coastal plateau, land speculation focused on tourism is in full boom. Here too, cactuses are planted, but as a property marker pending a construction permit. The increase in the population claiming their rights of access to land aggravates the conflicts based on various, unstable land tenures (*Rhan*, indivision). This favours grabbing of the most coveted lands by the most informed and wealthiest individuals.

21 This stranglehold on land is repeated, sometimes through the same actors, in the redistribution of the prickly pear profits. Indeed, the final markets are very far from the region and the intermediaries inflict their prices. The leeway of certain stakeholders is thus particularly reduced, leaving to the intermediaries the greater part of the final value of the product. Large landowners sometimes play this role by negotiating directly with wholesalers due to the importance of their production and their personal networks. Many projects (cooperatives, processing plant, sales shop in Sidi Ifni) have not succeeded in improving the situation of the populations remaining on the lands (S2, S3, S4). Like other so-called terroir products in Morocco, such as argan oil (Romagny *et al.*, 2016), the profit generated by prickly pears remains in the hands of a few (S5) and very little is invested locally. The prickly pear thus contributed to the increase in socio-economic inequalities between those who continued to live in the area and those who left.

22 The prickly pear's spatial extension has been at the expense of pasture lands who have been reduced. It has also rendered the last fallow and stubble of cultivated land inaccessible to livestock. In the same way, the seasonal link between the top of the valley and the littoral plateau is no longer applicable. By extension, the nomads (S1) as well can no longer rely on this area in their inter-annual movements imposed by climate hazards.

# And tomorrow?

23 In the territory of Sbouya, there has thus been a shift from two complementary production systems, based on scarce resources managed to ensure their sustainability and relying more or less on outside sources, to a variety of systems whose beneficiaries are little or not present on site, based on an almost unique resource, the prickly pear. The latter appears on the one hand as a local innovation particularly adapted to the context of climate change and rural exodus, contributing to the ecological resilience of the territory (Barthes *et al.*, 2016; Genin *et al.*, 2017). But on the other hand, it is the catalyst for major agrarian transformations of a system hitherto resilient from a socio-territorial point of view and presently threatened by various factors including economic and ecological (in the case of monoculture).

24 In continuation of this trajectory of vulnerability, we have imagined two possible scenarios for this territory. The first is none other than the pursuit of dynamics currently underway, without major changes in public policies and strategies of the stakeholders. The second corresponds to a scenario proposed by Genin *et al.* (2017), a scenario that favors ecological resilience through the cactus and argan tree reforestation of bare lands. Based on this, we propose other elements to reduce the mentioned socio-economic and ecological vulnerabilities.

## A policy of “laissez-faire” under cover of action

25 In economic terms, the value of the cactus fruit is interesting for improving the population's income. The State, by financing the tools of a sector (cooperatives and local valuation units), intended to promote development, agricultural recovery and the grounding of the population (CGAAER, CGDA, 2010). But reality is somewhat different. Managed remotely and partly monopolized, this production does not improve, but can even degrade the living conditions of those who live on the spot. Thus, the State promotes, through developing the sector without organizing it, the principle of the strongest under cover of a commitment to its role as territorial actor. At the heart of this dynamic, a gradual intensification in capital (increase of surfaces, use of hired labour, inter-row weeding, varietal selection, phytosanitary treatments, etc.), for the purpose of maximum economic profitability of the prickly pear, seems to be the target model. By pursuing this logic, it is likely that the points of vulnerability raised in the first part of this article will be accentuated: a greater ecological sensitivity and an uneven distribution of the wealth created by monocultures of the cactus.

26 In addition to the productive aspects of cultivated cactus land, current dynamics on the coastline suggest its potential for tourism and residential development. This valuation, pending clarification of landownership, will eventually be made by state expropriation or by people with the best resources (network, information, capital, etc.). As with beach tourism development in Morocco and elsewhere, it is likely that the economic benefits do not accrue to the local population (Berriane *et al.*, 2014).

27 We can therefore imagine a territory divided between an intensely cactus cultivated interior and an urbanized tourist coastline, without links between them. The new forms

of vulnerabilities that would result from these developments are not unknown: various types of pollution, erosion, coastal/hinterland inequalities, etc.

### Between public policies and farmers' practices: another scenario to face global changes

28 Farmer practices are evolving, they are adapted to meet the requirements of an ever new context. The reproduction of systems and the maintenance of some traditional activities, such as beekeeping and argan oil production, reflect the resilience of a system that may seem out of date. From an ecological point of view, the expansion of the cactus interacts with other elements of the agro-ecosystem, notably by promoting the regeneration of the argan tree and of a particularly rich melliferous flora (Aafi A., 2007).

29 As such, Genin *et al.* propose a scenario that would result from these ecological and human interactions with the establishment of an agro-forestry park associating mainly cactuses and argan trees in a new productive ecological balance. While this scenario is partly based on the cessation of livestock breeding, we make the hypothesis of its maintenance as an activity with a significant dimension of identity. Breeding retains its role in forest areas and certain mixed plots, especially with regard to the littoral being not very favorable to argan trees. It perpetuates the development of available fodder (argan, cactus, weeds), allows a transfer of fertility and ensures a backup during the driest years. In addition, historical links between mountains and littoral zones invite to imagine new links in terms of organizing production (varieties) and harvest (seasons). The harmful effects, ecological and economic, of a homogenization of the landscape in the form of monoculture would thus be potentially excluded.

30 However, another vulnerability of the local populations lies in their weak bargaining power when selling their products. Given the current difficulties in selling local products (oil, honey, fruit), it is likely that the same scenario of grabbing of their value will occur again. It is in this sense that public policies could act, notably through the sectors' organization and the application of the principles of a more equitable social and solidarity economy. On the other hand, and despite the many pitfalls of this type of project, the tourist vocation of the coast could be considered in parallel with the development of an interior, rural tourism which, while enriching the tourist offer of the region, would provide additional income to the local population (accommodation, purchase of products, etc.).

31 Finally, as we have seen many times, spatial mobility and family ties have structured this territory. Today, it would be conceivable to take advantage of extraterritorial links, as it is already the case for some returning migrants seeking to reintegrate the territory by financing access to water, renovations of houses, constructions of mosques and roads. Tomorrow, through their transfers of capital and knowledge, they could support the transformation of the systems in place via innovations and their financing, as it is for example already observed in the case of beekeeping.

## Conclusion

32 What would have been the trajectory of Tazrout valley without the prickly pear? Would today's landscape be dominated by a forest regaining its rights, the first consequence of

rural exodus, that would have stretched to the present day? If the prickly pear does not seem to encourage peoples' return, it appears at first sight a miraculous plant. It combines both adaptation to the valley's agro-ecological conditions and response to social needs of the moment: means of combating desertification, property marker, technical tool simplified to the extreme (a pick for harvesting), allowing a "remote control" by owners residing outside the valley, a significant source of income not only for cactus producers but also for those who benefit from these vast cultivated areas (beekeepers). All of which contributes to the transformation (mitigation?) of the vulnerability of this mountain territory.

33 This being said, the rise (for more than 30 years) of prickly pears in Tazrout valley carries in it a certain number of risks likely to modify, in more or less short term, the trajectory of this territory towards an accentuated vulnerability to changes of all kinds (climatic, ecological, health, socio-economic): in particular (i) the extension of cactus monocultures and, consequently, the extreme simplification of an ecosystem thereupon more sensitive to bio aggressors (including cochineal), (ii) the hardening of social conflicts especially around access to land and the distribution of wealth created by the production of prickly pears.

34 If the initiatives taken so far by the State to promote the prickly pear industry are to be emphasized, it would probably be appropriate to create the conditions for a development combining respect for ecological balances (prickly pear/argan tree association within agroforestry systems) and social justice (reduction of inequalities, "fair" remuneration of the producers, procedures of access to land).

## BIBLIOGRAPHY

Aafi A., 2007.– "Rôle des cactus dans la restauration de l'arganeraie et de ses composantes floristiques et faunistiques dans la province de Tiznit", in *Annales de la recherche forestière au Maroc* , vol 38, pp.69-76

Agroligne, 2016.– n°100. May-June, consulted the 30th of October 2017, https://www.agroligne.com

Antoine P., Bry X., Diouf PD., 1987.– "La fiche "AGEVEN", un outil pour la collecte des données rétrospectives", in *Statéco*, n°49, p. 33-46

Barathon J-J., El Abbassi H., Lechevalier C., 2010.– "Gestion des sols et de l'eau dans le massif d'Ifni Anti-Atlas occidental, Maroc", in Norois n°214, p. 101-111, consulted the 12th of June 2017, http://norois.revues.org/3165

Barthes A., Baudot P., Alifriqui M., Michon G., Genin D., Kamil H., Romagny B., Simenel R., 2016.– "Dynamiques d'innovations des arrières pays arides marocains. Le cas du figuier de barbarie, une ressource territoriale en émergence ?", in : Berriane M., Michon G. (dir.). *Les terroirs au Sud, vers un nouveau modèle ? Une expérience marocaine* , Rabat-Marseille, FLSH-Éditions IRD, pp.145-158

Bennafla K., 2010.– "Mobilités et politique à Sidi Ifni, ville isolée du Sud marocain", in Espace Populations Sociétés, n°2-3, consulted the 16th of October 2017, http://eps.revues.org/4144

Berriane M. *et al.*, 2014.– *Le tourisme dans les arrière-pays méditerranéens. Des dynamiques territoriales locales en marge des politiques publiques*, Université Mohammed V, Rabat, Université Euro-méditerranéenne de Fès et Laboratoire Mixte International MediTer.

Blanco J., 2015.– *Le fils du Sahara et les gens de la pluie. Gestion paysanne et conservation des socioécosystèmes à acacia au Sud du Maroc*, Doctoral thesis in ecology (Agroparistech)

Conseil général de l'alimentation, de l'agriculture et des espaces ruraux (CGAAER) et Conseil général du développement agricole (CGDA), 2010.– *Terroirs et origine : leçons d'une lecture croisée des expériences du Maroc et de la France pour une Méditerranée durable*, Ministry of Food, Agriculture and Fisheries, Morocco

Cochet H., 2011.– *L'agriculture comparée*, Quae

Dufumier M., 1996.– *Les projets de développement agricole. Manuel d'expertise*. CTA - Karthala

Genin M., Alifriqui M., Fakhech A., Hafidi M., Ouahmane L., Genin D., 2017.– "Back to forests in pre-Saharan Morocco? When prickly pear cultivation and traditional agropastoralism reduction promote argan tree regeneration", in *Silva Fennica,* vol. 51, consulted the 25th of September 2017, https://www.silvafennica.fi/article/1618

Justinard L., 1930.– *Villes et tribus du Maroc*, *Tribus berbères. Les Aït Ba'amran,* Éditions Honoré Champion

Monteil V., 1948.–*Notes sur Ifni et les Aït Baamrane*.Éditions Larose

Pasquali F., 2017.– *La structuration de la filière de l'aknari, le cas de Mesti : la portée sociale du changement agro-paysager par le figuier de Barbarie et l'inhibition au développement du territoire*. Master 1 thesis – Museum of Natural History – Marseille

Qarro, M., Sabir, M., Idriss H., 2010.– *Diagnostic de la situation actuelle des systèmes arganiers*. Institut royal de la culture amazighe (IRCAM)

Romagny B., Boujrouf S., Ait Errays N., Benkhallouk M., 2016.– "La filière "huile d'argan" au Maroc. Construction, enjeux et perspectives", in: Berriane M., Michon G. (dir.). *Les terroirs au Sud, vers un nouveau modèle ? Une expérience marocaine*, Rabat-Marseille, FLSH-Éditions IRD, pp. 271-289

Rosenberger B., 1977.– " Population et crise au Maroc aux XVIe et XVIIe siècles. Famines et épidémies", in: *Cahiers de la Méditerranée*, hors-série n°2: *Typologie des crises dans les pays méditerranéens (XVIe-XXe siècles),* pp. 137-149

Simenel R., 2010.– *L'Origine est aux frontières. Les Aït Baamrane, un exil en terre d'arganiers (Sud-Maroc)*, Collection Les chemins de l'ethnologie, Éditions CNRS – MSH

## NOTES

**1.** Tachelhit: aknari, lat. Opuntia ficus-indica

**2.** http://www.agriculture.gov.ma/node/241

**3.** Approximately 8t/ha of fruit yield in the area; 1t of fresh fruits = 1l of oil, sold between 800 and 1000€.

**4.** The last farm-scale agricultural census dates back to 1996. Population censuses are decennial (1994, 2004,2014) and carried out at municipal level and not at douar level.

**5.** This article is a continuation of a collective work started in 2012 in the region within LMI MediTer. The surveys underlying this article were carried out as part of a six-month engineering internship (C. Cardon) and three theses in geography (M. Mourou, H. Benalayate, A. Adam) under supervision of Mr Aderghal, Mr Vaillant and B. Romagny. This research was supported by the National Research Agency (France) as part of the "Med-Inn-Local" project (2013-2017, ANR-12-TMED-0001).

**6.** It includes in fact a fourth step (evaluation of technical-economic performance of archetypal farms) but, in view of the study's objectives, it has not been applied.

**7.** (Antoine, Bry & Diouf, 1987).

**8.** The saints refer to the first occupants of a place that has become iconic and sacred. Their descendants, designated as chorfa, represent a holy lineage.

**9.** Symbolic march organized by Morocco towards the Spanish Sahara to claim its ownership.

**10.** Reforestation and regeneration arrangements of the argan tree favoring systems which associate several species, including the prickly pear (Qarro et al., 2010).

**11.** National agricultural development policy launched in 2008 and based on two pillars: (i) intensification aiming urban and export markets and (ii) poverty alleviation in marginal rural areas.

## ABSTRACTS

The Tazrout valley, embedded in the Ait Baamrane area (Moroccan Anti-Atlas), is characterized by agro-ecological conditions hardly favorable to agriculture (arid climate, rugged terrain, poor soils). For a long time, people tackled these environmental challenges through the combined and concerted management of agrosilvopastoral resources and of various spatial dynamics. However climatic disturbances during the 20$^{th}$ century have resulted in the structural transformation of agrarian systems and the destabilization of the social foundations underlying the territory's organization. The widespread planting of prickly pear (cactus) seems to go hand in hand with these changes. According to studies carried out in the region, the cactus has favoured the return of a relative ecological equilibrium; being a sign of resilience. But what about socio-economic benefits? Could the cactuses' expansion not be a catalyst of the system's transformation as well as an aggravating factor of social weaknesses? Based on a systemic and geo-historical approach to agrarian structures, this article seeks to understand how successive changes in (i) modes of spatial development and occupation and (ii) public policies have lead today to new vulnerabilities. In order to propose an extension to the trajectory of the territories vulnerability, an alternative scenario to the advancements, seemingly advocated by the State today, is studied.

## INDEX

**Keywords:** argan tree, cactus, agrarian dynamics, land, mobility, landscape, resilience, Sidi Ifni, vulnerability

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