



Interaction between Migration,  
Land & Water Management and Resource  
Exploitation in the Oases of the Maghreb

## **General Introduction to the Todgha Valley**

### **Population, Migration, Agricultural Development**



**Hein de Haas**  
**Hassan El Ghanjou**

(University of Amsterdam)  
(Université Mohammed V Rabat)

**IMAROM Working Paper Series no. 5**  
**January 2000**

IMAROM is a research project  
funded by the EC (DG XII)  
INCO-DC programme 1994-1998  
contract number IC18-CT97-0134  
<http://www.frw.uva.nl/IMAROM>  
E-mail: [imarom@frw.uva.nl](mailto:imarom@frw.uva.nl)

IMAROM project coordinator  
AGIDS  
University of Amsterdam  
Nieuwe Prinsengracht 130  
1018 VZ Amsterdam, The Netherlands  
Tel. + 31 20 5254063 Fax 5254051

## TABLE OF CONTENTS

Introduction: Localising the Todgha valley.....	iii
1. Population history .....	1
2. Demography and habitation.....	13
3. Migration: Continuing and shifting patterns.....	23
4. Land and water resources .....	36
5. Agriculture .....	55
6. Role of migration in socio-economic and agricultural changes .....	70
References.....	75
Appendixes: Basic data on the population of the qsour of the Todgha.....	78

## INTRODUCTION: LOCALISING THE TODGHA VALLEY

The Todgha is one of the river valleys on the southern slopes of the High Atlas mountains that drain the melt- and rainwater captured in the high mountains south and eastward to the Sahara desert. In spite of the arid conditions reigning south of the Atlas climate divide, the melt- and rain waters continuously recharge aquifers feeding numerous sources and rivers. This explains the existence of a concentration of oases south of the Atlas. With its chief town Tinghir at 169 km east of Ouarzazate and 162 km west of Errachidia, the Todgha is centrally located in between Morocco's main oasis regions, the Draâ valley and the Tafilalt. These are the two principal catchment basins south of the High Atlas, to which all smaller rivers drain. The Todgha makes part of Tafilalt catchment basin. The Todgha consists of three geographical units. The mountainous area north of the valley makes part of the High Atlas (*calcaire jurassique*), and forms the most elevated relief in surrounding the Todgha. South of the Todgha we find the Jebel Saghro, an ancient mountain chain which is a continuation of the Anti Atlas. Between these two mountain chains, extends the pre-African fault where the Todgha basin is located.

From its sources some twenty kilometres north of Tamtetch, the Todgha<sup>1</sup> winds its course steeply into the mountains for about forty kilometres southwards through a mostly dry river bed, until reaching the steep and spectacular gorges of the Todgha. The canyon reaches here its narrowest point, with rock-faces towering some 300 metres above the river bed. At this point, is also the main source of the Todgha (Sidi Mhamed ou Abdellah), which significant flow is perennial. From here on, the Todgha starts running above-ground. Immediately downstream of the gorges, the actual oasis of the Todgha begins. From here on downstream, the valley gradually widens itself, and the Todgha follows its course in south-eastern direction. After having passed Tinghir, the valley widens itself dramatically, and the Todgha continues its course eastward between the mountain chains of the High Atlas and the Saghro mountains.

From the gorges near to the village of Zaouïa Sidi Abdelali, the ancient oasis of the Todgha stretches out about thirty km downstream on both banks of the river. Upstream, water continues to flow, and several dams in the river ensure the irrigation of the fields. Further downstream, the flow of the Todgha gradually decreases, until the streams get entirely subsurface after Tinghir. In the lower Todgha<sup>2</sup>, therefore, more and more use has to be made of *khettara* techniques in order to tap underground water. Further downstream, after the easternmost point of the old oasis, stretches out the Ghallil plain over a length of about ten km on the right bank of the Todgha. Being

---

<sup>1</sup> North of Tamtetch the Todgha has several affluents. The main affluent is known as Akka n'Tarhifist. Between Tamtetch and the gorges the Todgha is known under the local name Akka n'Irhenjaoune.

<sup>2</sup> A distinction between the lower and upper Todgha will be made throughout this text. This terminology should be made explicit. The upper Todgha refers to the most elevated and water-rich part of the Todgha north of Tinghir. This upstream part is largely hemmed in by mountains. After passing Tinghir, the Todgha leaves the mountainous area and widens its valley dramatically. From here on downstream, water is becoming increasingly rare. The upper Todgha globally comprises the communities of Todgha Oulya and Tinghir, the lower Todgha those of Todgha Soufla and Taghzout n'Ait Atta.

formerly collective pasture land<sup>3</sup>, this plain is now increasingly reclaimed for relatively large-scale agriculture. Here, farmers are dependent on the use of Diesel engines to pump up the underground water.

Further downstream, east of Jebel Asdaf (Tisdafin in Tamazight Berber), the Ghallil plain comes to an end. Conventionally, this is the end of the Todgha valley, although geographically it continues its course further eastwards toward the oases of Tinejdad, where the Ferkla and Todgha meet to form the Rheris, which, besides the Ziz, is one of the main tributaries of the large Tafilalt oasis. West of the Todgha valley, at Imiter, is the watershed between the main catchment basins of the Tafilalt and the Draâ. Some fifty km west of the Todgha, the Dadès valley follows a similar southward course through the Atlas, but after it has left the mountains, it follows its course westward, where it forms an important affluent of the Draâ river oasis.

The Todgha is a medium-sized river oasis, with a cultivated area of almost forty km length, and a width varying from one hundred metres just down the gorges up to four km more downstream. It is situated on a relative high altitude from 1420 m in the gorges to 1100 m in the Ghallil. In 2000, the valley housed more than 70,000 inhabitants living in more than 64 qsour (traditional fortified oasis villages) and their modern extensions. Its perennial source and its important agricultural resources, and its location on an important caravan route, have given a strategic importance to the valley. The age-old struggle for dominance over the valley and the numerous armed conflicts between ethnic groups and tribes, is reflected in the diverse ethnic composition of the valley.

Formerly based on a largely self-sufficient subsistence agriculture, the valley has been increasingly opened up to the outside world in the course of the 20<sup>th</sup> century. Nowadays, the Todgha is firmly integrated in national and international economic systems. This is most clearly reflected in a strong migration towards big cities and foreign, mostly European, countries. In this light, and speaking of oasis areas in general, one often makes reference to the ‘marginalisation’ of the valley, which would be accelerated by a ‘rural exodus’ and a ‘brain drain’ from the valley to the big cities and foreign countries. However, being a concentration of agriculture and people on a limited space, the Todgha is not only a region of departure, but also attracts people from the wide surroundings.

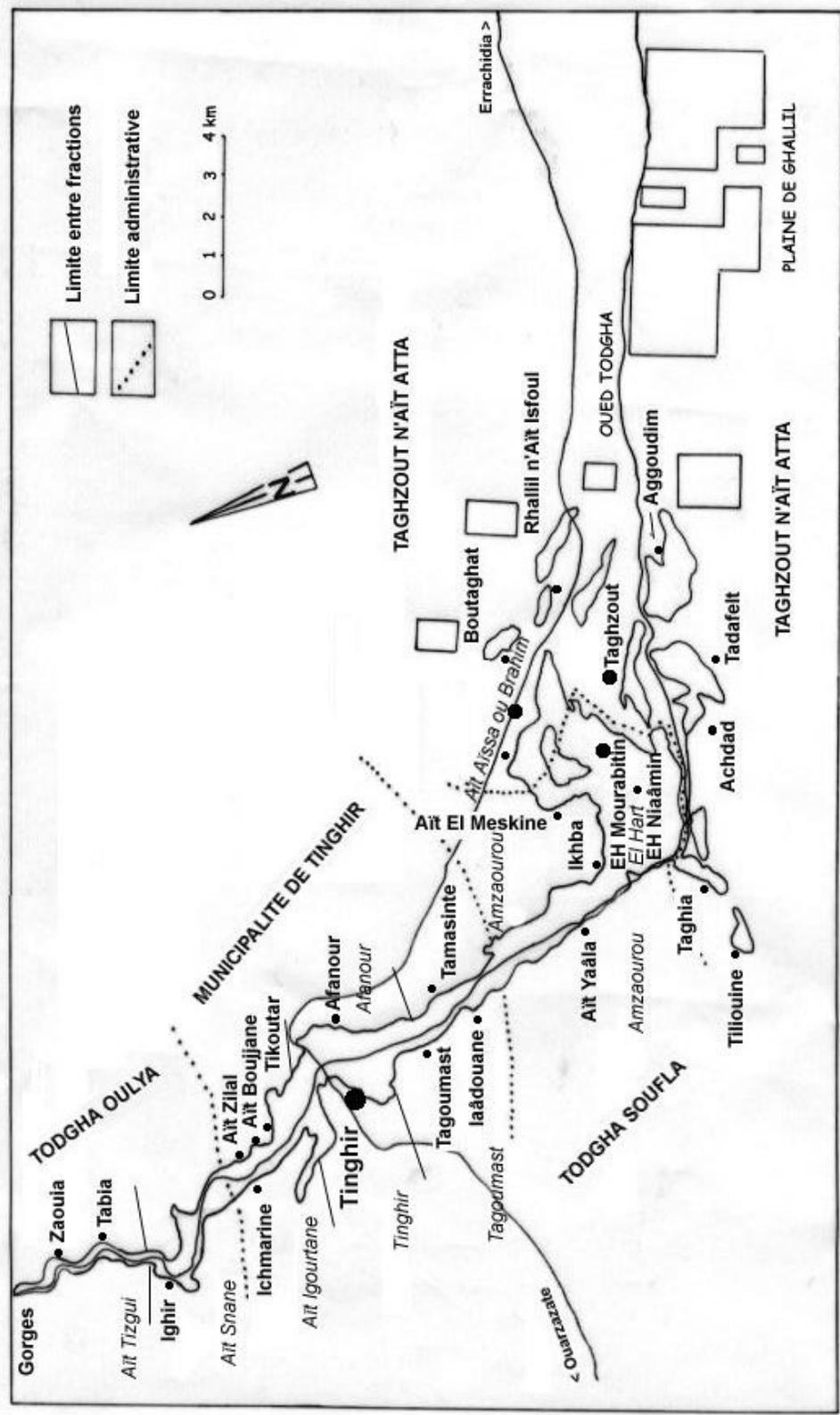
Being an ancient but small trading centre, the old qsar of Tinghir has been expanding at a spectacular rate in the past few decades. It has become one of the south’s booming centres. Tinghir has become a veritable urban centre, with important commercial and administrative functions as well as an important crafts sector. Not only the city itself is expanding, also the neighbouring qsour are rapidly urbanising and are becoming more and more part of the urban system of Tinghir itself. The agricultural terraces of the Todgha get increasingly hemmed in by urban structures. In the downstream part of the Todgha, a second semi-urban cluster seems to develop around the axis Aït Aïssa Ou Brahim - Taghzout, a large area, where the several modern extensions of ancient qsour seem to cluster.

---

<sup>3</sup> In rainy years, this plain has also been partly used for rain-fed agriculture (so-called *bour*), mainly of barley.

Many inhabitants of the valley's qsour are working and building second houses in Tinghir centre. The town has become a magnet not only for people within the Todgha valley, but for large parts of the provinces of Errachidia and Ouarzazate. Tinghir itself has become the destination of intra-valley and intra-regional migration, whereas the Todgha itself is a major emigration region to Europe. So, if it would be correct to speak of a marginal region at all, Tinghir itself is becoming the very centre within this margin. Summarising, the Todgha valley and its chief town Tinghir are witnessing rapid transformations towards increasing de-ruralisation and increasing diversity of activities. Nevertheless, the Todgha continues to be highly migration-oriented. The Golden Age of Migration of the 1960s and 1970s may be over, that is not to say that people do not emigrate anymore. So, people are streaming in and streaming away, pointing at the high complexity of migration patterns in the Todgha valley. These migration movements have a fundamental impact on Todgha's society in general and its agriculture in particular. This impact has several dimensions, as its stimulating impact on local economy and agricultural transformations may also comprise dangers, especially concerning the sustainability of these developments. The complex nature of this impact will be the constant focus of the following analysis.

Map1. Map of the Todgha valley



# 1. POPULATION HISTORY

## 1.1. Legends on the Origin of Todgha and Tinghir

Like other population groups, the inhabitants of the Todgha have developed their own legends about their origins. The most common legend is that of an ancestor called Aâd, who came to live in the valley once upon a time. This person had two children, a girl, Touda, and a boy, Chedad. Before the death of their father, Aâd divides the greater valley between his children. The upstream part was granted to his daughter and the downstream part to his son. These names were corrupted to become part of the names Tinejda (‘belongs to Chedad’) and Todgha (‘belongs to Touda’). Others believe that ‘Todgha’ is related to the term ‘tadrout’ or ‘toudrt’, which means ‘life’ in Tamazight Berber. This would refer to the Todgha river, which is literally the source of life for the inhabitants of the valley. The Todgha valley is also known as ‘the valley of Tinghir’, which is the name of the administrative centre and chief centre in the valley. The name ‘Tinghir’ is composed of ‘tin’, which means ‘belonging to’, and ‘ighir’ which has the double meaning of shoulder and mountain. Inhabitants of Tingir explain this name by saying that men from Tinghir would be those with the strongest shoulders. It seems more likely that the name refers to the mountain dominating the valley and Tinghir.<sup>4</sup> The actual qsar of Tinghir is located at the foot of this mountain and would therefore have adopted its name.

## 1.2. Origin and settlement of the different ethnic groups

### 1.2.1. Introduction

The Todgha valley is characterised by its complex ethnic composition. Like other oases, it has been an ethnic crossroads for many centuries. Three main ethnic groups make up the population of the Todgha valley: Ahl Todgha, the Iqabline of El Hart, and Aït Atta. They live in three neatly segregated zones of the valley (see map). Although all these groups speak Tamazight Berber<sup>5</sup>, these groups have different identities, and don’t intermarry. Especially in the lower Todgha, tensions between these groups are still intense, and regularly develop in open hostility and small-scale warfare, especially concerning the control and division of land and water resources.

Several local traditions exist on the origin of the different groups, often focusing on the prestige question ‘who was first’. Of course, these accounts differ according to the ethnic background of the narrator. Apart from very brief and general descriptions by early travellers like Leo Africanus and Marmol, no ancient reliable sources have been uncovered which may throw a light on the ancient history of the Todgha. However, on the basis of some uncontested local traditions and the general historical and ethnic literature on southern Morocco, some general patterns can be derived. Moreover,

---

<sup>4</sup> It was on this mountain top, where Pasha El Glaoui constructed his famous kasbah in 1919, and where hotel Saghro is located.

<sup>5</sup> Tamazight is the Berber language spoken mainly in the Middle Atlas, the eastern High Atlas, and in the desert south-east of these mountains. Each of the three main socio-ethnic groups in the Todgha can be recognised by some distinct differences in the pronunciation of Tamazight.

some hypotheses on the settlement history can be derived from the actual spatial distribution of the different ethnic groups and their varying access to resources.

Given the scarcity of water resources in this arid environment, it is highly likely that population groups have contested each other since ancient times over the control of the sources of the Todgha, as well as the agricultural land irrigated by this water. The actual settlement pattern of the different ethnic groups should be seen in the historical light of the continuous struggle and wars for the control of the important water and land resources

### 1.2.2. The Ahl Todgha

The upper and middle parts of the Todgha, the water-rich ‘heart’ of the oasis, is inhabited by the Ahl Todgha<sup>6</sup>, which literally means ‘people of the Todgha’. The first six qsour downstream of the gorges form part of the Aït Tizgui fraction, who are not considered as Ahl Todgha by themselves and others. From Ighir in the upper Todgha to Aït El Mesquine, some sixteen kilometres further downstream, the Ahl Todgha control much of the water and the fertile parts of the valley.

The exact origin of the Ahl Todgha is not clear. Although authors like Spillman (1931: 211) suggest that their origins can be traced back to the Maâquil Arab tribe and the Zenata Berber tribes, it is highly probable that the Ahl Todgha do not have a single origin as such. Compared to the other ethnic groups inhabiting the Todgha valley, it is among the Ahl Todgha that the ethnic dimension is the least strong. It is not even possible to speak of a ‘tribe’ (as Steinman 1993 suggests), since the internal ethnic stratification is remarkable, and the Ahl Todgha lack something of a mythical common ancestor and a strong group identity. The Ahl Todgha are an ensemble of different groups, who do not share a single ethnic background, but whose common identity is first and foremost determined by the geographical space they share and defend. This is already implicit in the name of the group, which does not refer to a common ancestor or the like, but to a geographical entity.<sup>7</sup>

The Ahl Todgha themselves are highly stratified. This stratification has two main dimensions. The first is the purely ethnic dimension, in this case, largely based on skin colour and descent. The Ahl Todgha are made up of several ethnic groups. Numerically, two groups are dominant. The most numerous group is formed by the *Imazirhene* (i.e. the free ones), who inhabit almost all of the qsour within the Ahl Todgha territory. This group has a relatively fair complexion. The second biggest group is that of the *Iqabline*<sup>8</sup>, the darker-skinned population group of the Ahl Todgha. This stratification between ‘white’ and ‘black’ populations is typical for most of southern Morocco’s oases. In contrast to popular belief, these Iqabline populations are

---

<sup>6</sup> Aït Todghot in Tamazight.

<sup>7</sup> Ethnic groups with a common ancestor and a strong group identity, i.e. ‘tribes’, often have names which refer to a common (mythical) ancestor. The name ‘Ahl Todgha’ or ‘Aït Todghot’ is primarily a reference to a geographical space (i.e. the Todgha). The territory of the Ahl Todgha (including the Iqabline of El Hart) exactly coincides with the land irrigated by the surface waters of the Todgha in the winter.

<sup>8</sup> This group is often designated as *haratin* or *issouqin*, but these are rather pejorative classifications, used by outsiders. Büchner (1986:93) wrongly classified Iqabline as Imazirhene.

among the oldest populations of the Todgha valley. They are commonly believed to be descendants of former slaves and sharecroppers who worked at the service of the Imazirhene, to whom they would have been subordinated until recent times. Nowadays, the hypothesis that they are descendants of former slaves is highly contested, and seems to be largely incorrect. The Iqabline are probably among the oldest population groups of southern Morocco.<sup>9</sup>

The exact origin of both groups in the Todgha is unsure, as we know nothing about the early settlement history of the Todgha. The Iqabline and Imazirhene often live together in the same qsour, but are always segregated in separate quarters.<sup>10</sup> There is a taboo on marriage between members of these two groups.

Another distinct group is formed by *mrabtin*. These are people who are believed to be descended from local saints (*marabouts*), or from families of followers close to this marabout, who have adopted his identity in the course of time. Mrabtin can be either Imazirhene or Iqabline in origin. This religious classification is thus an ‘extra’ classification, which runs through the first classification based on skin colour. Their (ascribed) descent from a holy man gives them a religious superiority over other people. Some qsour of the Todgha are uniquely inhabited by mrabtin.<sup>11</sup> The main origins of the mrabtin of the Todgha are the Tafilalt, the Draâ valley and Ouezzane (region of Fes).

Even higher in religious status are the *shurfa*, descendants of the prophet Mohammed. They are not very numerous, and their social role is limited compared to other regions in Morocco. However, they have played a role as *fqihs* (Koranic teacher), intermediaries in religious affairs, as well as *aâdouls* (traditional religious notaries). Todgha’s shurfa mainly live as separate lineages and in distinct quarters in the qsour of Aït Zillal, Aït Yaâla, and Aït Mhamed. The shurfa of the first two qsour probably originate from the Tafilalt (those of Aït Yaâla of Idrissid origin), those of Aït Mhamed from the Draâ.

Four qsour of the Ahl Todgha (especially Tinghir and, to a lesser extent, Taourirt, Aït Ourjdal and Asfalou<sup>12</sup>) have had an important Jewish population, which left in the 1950s. The presence of Jews in southern Morocco dates back more than 2,000 years.<sup>13</sup> Their economic role in the oases was often important. Like other ethnic groups, they

---

<sup>9</sup> See, for further discussion, the paragraph on the Iqabline of El Hart.

<sup>10</sup> In mixed qsour, the Iqabline generally live in a central quarter of the qsar. The dominant Imazirhene would not tolerate their presence near the gates, since this would imply the possibility that the Iqabline would defend the qsar (and the Imazirhene) as first in the case of an outside attack. Such a situation would be seen as highly dishonourable for the Imazirhene.

<sup>11</sup> Zaouiâ Sidi Abdelali (near the gorges in Tizgui) and El Hart Mourabitin (in the lower Todgha) are the most important mrabtin villages of the Todgha. The tombs of their marabouts (*koubbas*) are still the centre of annually organised pilgrimages (*moussems*).

<sup>12</sup> Local oral traditions say that the inhabitants of Aït Lahcen ou Ali (south of Tinghir) are descendants of converted Jews. A marriage taboo therefore used to exist between them and the rest of Ahl Todgha.

<sup>13</sup> The Jews of southern Morocco form part of the so-called Plishtim group. They form the oldest Jewish population of Morocco and are believed to have immigrated from Palestine from the sixth century BC on. The Sephardi Jews came to Morocco in the late fourteenth and fifteenth centuries, fleeing the Spanish reconquista and Inquisition, and settled later in the larger cities of Morocco (cf. Zafrani 1998).

lived in separate quarters (known as *mellahs*), and occupied distinct professional classes, and were especially active as traders, silver and goldsmiths, and artisans.

The basic unit of socio-political organisation is the so-called *âadam*, or the ethnic lineage. Each qsar is composed of several lineages. Most qsour comprise, depending on their size, two to eight lineages. Each lineage, in its turn, is composed of several extended family groups. Some qsour are uniquely inhabited by either Imazirhene or Iqabline, but often both Iqabline and Imazirhene lineages exist within one qsar. There are mostly several Imazirhene lineages within one qsar. The number of Iqabline lineages is mostly limited to one or two, except for some homogenous Iqabline villages (mainly Taourirt). If only a small number of families of Iqabline inhabit a qsar, they do normally not form a separate lineage, but adopt the identity of one of the Imazirhene lineages, with which they have been associated. They actually form a specific sub-lineage, since intermarriage between Iqabline and Imazirhene remains taboo. Intermarriage between lineages does exist within the main ethnic groups of Iqabline and Imazirhene in the Todgha.

The qsour of the Todgha have been politically independent of each other. It is important to observe that the existence of lineages is generally limited to one qsar, so no strong inter-qsour solidarity between different sub-strata (i.e. lineages) of the qsour exists. For example, Iqabline of different qsour do not organise themselves against Imazirhene. Regardless of their ethnic background, people identified and still do identify themselves strongly with the qsar they inhabit. The qsar is, thus, after the lineage, the second and most important level of socio-political organisation. The qsar's *jemâa* (traditional village community<sup>14</sup>) annually elected a chief (*amghar*), who was usually responsible for settling conflicts between families and lineages over land, water and other issues, ensuring the maintenance of the irrigation system, as well as for representing the qsar's interests vis-à-vis other qsour. In some qsour, besides a supreme *amghar*, there exists an annually elected *amghar n'tamazirt* (land and water chief), who is responsible solely for all agricultural affairs. The mutual independence of the qsour is further accentuated by the fact that there has reportedly been a chief for the whole of the Ahl Todgha (Beaurpère 1931: 217). The traditional political organisation within the qsour Iqabline of El Hart and the Aït Atta resembles that of the Ahl Todgha.

In the absence of a central power and legal institutions at the central level, conflicts between qsour over, for instance, the distribution of water and land could easily result into armed conflicts between qsour, and these were, indeed, frequent (cf. De Foucauld 1885: 222). Given the internal stratification and the apparent lack of internal cohesion among the Ahl Todgha, it may seem surprising that they always have been successful in defending the valley, with its important land and water resources, against invading tribal confederations, in particular, the Aït Atta. As far as we know, the Ahl Todgha have always remained independent from the 'protection' and tribute of conquering tribes. Looking at the ethnic map of Morocco, the Todgha stands out as a rectangular 'ethnic enclave' among the large tribal confederations of southern Morocco. Confronted with a common external enemy, however, the different qsour of the Ahl Todgha united in the defence of the territory, protected by the fortress-like habitation

---

<sup>14</sup> More precisely, this is the 'council' of village notables, normally with representatives from each lineage.

of the qsour and aided by a chain of watch-towers as well as their warrior traditions (cf. Büchner 1986).<sup>15</sup>

### 1.2.3. The Iqabline of El Hart

In the centre of the lower Todgha valley, where the oasis reaches its greatest expanse, immediately east of the area inhabited by the Ahl Todgha, we find the biggest qsour of the entire Todgha valley, El Hart Mourabitine and El Hart Niaamine (in 2000, together almost 9,000 inhabitants). These two villages form a kind of ethnic enclave between the Ahl Todgha of the upper Todgha and the Aït Atta of the lower Todgha. These two qsour are inhabited by a distinct group of Iqabline. White Imazirhene do not populate these villages. One can argue at length whether the Iqabline of El Hart form part of Ahl Todgha, but it is clear that they form a very distinct group. Intermarriage between El Hart and Ahl Todgha is taboo, interestingly enough also between Iqabline from the Ahl Todgha and El Hart. Like the qsour of the Ahl Todgha, the Iqabline of El Hart are also stratified in different lineages and represented by the qsar's jemâa. All inhabitants of El Hart Mourabitine are mrabtin, associated with the marabout Sidi Hajj Âamer, whose tomb is located in the central mosque of the village and the object of a grand *moussem*.

The Imazirhene of the Ahl Todgha and Aït Atta often claim that the Iqabline of El Hart, as well as the Iqabline living with them in the qsour of the upper Todgha, are descendants of slaves imported from West Africa through the caravan trade, especially during the reigns of Saadian and Alawite dynasties. This descendance is often accentuated in order to illustrate their inferior status. This is indeed the popular explanation of the presence of a sizeable dark-skinned population in southern Morocco, which is often naively reflected in old scientific and popular literature. Nevertheless, recent research has shown that the origin of the Iqabline population of southern Morocco is probably very ancient. The existence of Iqabline in the Moroccan oases was described before the great age of trans-Saharan slave trade, and their presence might even date back before the arrival of other population groups in southern Morocco.<sup>16</sup>

Population groups that arrived later than the Iqabline population have gained military control over the oases and reduced the indigenous black population to small-scale subsistence farming, sharecropping and servitude. In feudal relationships, the Iqabline became the tribute-paying clients of the ruling class of invading Berber or Arab nomadic or semi-nomadic tribes, mrabtin and shurfa, depending on the region. It is possible that the Iqabline of El Hart are among the oldest settlers in the Todgha. They possess a certain independence and power, as they have direct access to the water

---

<sup>15</sup> This is in line with the famous study of Evans-Pritchard (1940) on the Nuer, on the basis of which he developed the segmentary theory of tribal organisation. According to Evans-Pritchard, 'Fission and fusion' of tribal segments (i.e. lineages, clans, tribes) occur depending on the level on which a conflict exists. For the Aït Atta, Hart (1981: 75) has described this as follows: "I and my brothers against our cousins, ourselves and our cousins against the rest of our clan, and our clan against the other clans of our tribe, and our tribe against the world." For the Todgha it could mean 'my lineage against your lineage', 'our qsar against the other qsar', and 'all our qsour against the other tribe' (cf. Pascon 1979)

<sup>16</sup> For further discussion on the origins and position of the Moroccan Iqabline population, see: Ensel, Remco (1999) *Saints and Servants in Southern Morocco*. Leiden, Boston, Köln: E.J. Brill.

resources of the Todgha and they possess land.<sup>17</sup> They have possibly been marginalised at a later stage by newly arrived population groups, which occupied the upper Todgha valley, near the sources of the Todgha. It might even be possible that the still existing Iqabline population, forming part of the Ahl Todgha, form the remnants of this indigenous population of the entire Todgha valley.<sup>18</sup>

#### **1.2.4. The Aït Atta of the lower Todgha**

The Aït Atta are without any doubt the last settlers in the Todgha. This is already apparent from the fact that they live in a crescent-like ensemble of qsour at the downstream fringe of the Todgha oasis, more or less encircling the qsour of El Hart as a protecting ring. In his study of the Aït Atta, David Hart (1981: 3-16) demonstrates that the origin of this tribal confederation can probably be traced back to the mid-sixteenth century. From their heartland in the Saghro mountains, the five main fractions of this semi-nomadic tribe began their conquest of the surrounding plains from the seventeenth century. Thanks to their sound political and military organisation, the Aït Atta succeeded in dominating large areas of south-eastern Morocco, either by direct conquest or by ‘protection agreements’ (*raâya*) with sedentary (Iqabline or Imazirhene) oasis inhabitants.

It appears that the Aït Atta settled in the Todgha at a relatively late stage. When the first Aït Atta settled in the Todgha is not completely sure, but study of oral and written sources seems to indicate that they did not settle before 1750-1800. It is possible that at least some of the current Aït Atta qsour already existed before the Aït Atta expansion, that is to say, that they are not newly founded qsour as such. This information, collected through open interviews conducted by the authors, seems to be confirmed by other evidence. In the early 1930s, Beaupère (1931: 218) mentioned that the Ahl Todgha of Amzaourou and the Iqabline of El Hart still preserve title deeds to land occupied by the Aït Atta. This confirms that their military strength and the imposed protection relationships with the qsour in the lower Todgha, gave the Aït Atta the power to intrude to some extent on the territory of Ahl Todgha and El Hart.

A second indication that at least some of the Aït Atta qsour may have been populated before, is the existence of a population group called Aït Sekoukou in some of the Aït Atta qsour close to the Ahl Todgha territory (e.g. Ighrem Aqdim and Aggoudime). Living in Aït Atta territory, they are considered to be members of the Ahl Todgha, possessing land in Aït Atta territory, forming separate lineages, and marrying only with Ahl Todgha. The Aït Sekoukou are possibly the descendants of people living in these qsour before the arrival of the Aït Atta.

Corresponding with Hart’s (1981: 214-5) general description, oral traditions from both Aït Atta and El Hart testify that the settlement of Aït Atta at the downstream ‘agricultural frontier’ of the Todgha was made possible by protection agreements

---

<sup>17</sup> Levi-Provencal (1927) suggest that, at a later stage, the Iqabline of El Hart would have mixed with escaped soldiers from Sultan Mulay Ismail’s famous black army. There is, however, no convincing evidence for this hypothesis.

<sup>18</sup> Steinman (1993:68) states that “all black populations live, segregated from other tribes, in two ksars; El Hart Niaamine and El Hart M’rabtine”. This is not correct, since other Iqabline live in many of the qsour of the upper Todgha. However, these two Iqabline groups are ethnically distinct.

between the qsour of El Hart and fractions of the Aït Atta. In exchange for protection against depredations from other hostile tribes (such as the Aït Morghad, but mainly against other fractions of the Aït Atta itself<sup>19</sup>), the Iqabline of El Hart allowed them to settle at the fringe of the oasis, even giving them land. According to Aït Atta witnesses, they were invited by El Hart to protect them, but it is known that Atta protection was often more or less imposed. In this way, the Iqabline of El Hart have been hemmed in by the qsour of the settling Aït Atta from three sides.

Hart (1981) states that the general relation between the Aït Atta and their Iqabline clients was that, in exchange for their protection, the Iqabline worked for them as agricultural workers, well and khattara diggers and sharecroppers. However, such a relationship did not exist in the Todgha valley, according to both Aït Atta and Iqabline sources. For example, the Aït Atta of the lower Todgha employed and do still employ people from other regions, such as the Draâ (cf. Otte 2000) for digging their khattaras. Again with agriculture, the Iqabline do not work on the Aït Atta fields. The same holds for the Aït Atta, who do not render services to El Hart, and they also have a strict taboo on selling land to El Hart. Both groups refuse to render services to each other, which is considered as dishonourable on both sides. The few Iqabline who live and work with the Aït Atta, originate from other regions (e.g. Aghbala, Tazzarine).

In spite of their reported military strength, the Aït Atta power dominance in the Todgha must not be overestimated. Although they considered themselves superior to the Iqabline and Ahl Todgha, they never gained direct access to the river water. In order to irrigate their fields, they were obliged to dig laborious khattara systems, a dangerous work of specialists, which they normally had done by other people. As the sources of the various khattaras are often on Ahl Todgha or El Hart territory, the Aït Atta themselves were dependent on maintaining an equilibrium with their neighbours. In brief, they apparently gained less grip on the Todgha than on many other oases in southern Morocco.

Relations between Aït Atta and the Ahl Todgha, but especially between them and the neighbouring El Hart qsour, were and are very tense. On this ethnic frontier, mutual resentment is paramount. Conflicts over land, in particular, still sometimes result in violent clashes, indicating that former protection arrangements were neither uncontested nor completely voluntary. According to inhabitants of El Hart, land was given to the Aït Atta only for the duration of the protection. The Aït Atta, in their turn, do not even think of rendering land to people they regard as their former clients.

The current population composition of the Ghallil plain can also be explained from the existence of former protection agreements between El Hart and different fractions of the Aït Atta. The last protector of El Hart Mourabidine was the Aït Atta fraction of Aït Aïssa ou Brahim (to which belong the qsour of Boutaghat, Tloul and Ighrem Aqdim). In exchange for protection against attacks by other Aït Atta fractions, the Aït Aïssa ou Brahim could settle in an area immediately north of El Hart Mourabidine. During the French protectorate, both groups claimed the eastern Ghallil plain. This eventually led to a settlement in which both villages acquired half of the territory, which was divided into many rectangular strips.

---

<sup>19</sup> The dominant contesting Aït Atta fractions in the lower Todgha are the Aït Isfoul and Aït Aïssa ou Brahim.

### **1.2.5. Conflicts as a struggle for land and water resources**

As in all irrigation societies, the population history and actual settlement patterns in the Todgha should be seen in the light of a continuous struggle for land and, especially, water resources. This was at the basis of conflicts between different ethnic groups and individual qsour within these ethnic groups. Control over the water resources was of vital importance. The Ahl Todgha, despite their internal diversity and their lack of tribal identity, always succeeded in defending their qsour, fields and irrigation works against foreign intruders, and they managed to organise irrigation at the valley level. However, violent inter-qsour struggles over land and water were frequent. The two large Iqabline villages of El Hart at the southeastern end of the territory, are the two last villages that receive surface water of the Todgha, although only during the winter half year. The Aït Atta from the Saghro mountains were the last settlers, who gained only limited influence by extorting *ra'ya* arrangements with sedentary oasis inhabitants. This enabled them to settle in a ring at the fringe of the Todgha oasis in a pattern which resembles a crescent, protecting the El Hart qsour in the last three or two centuries. However, they never gained access to the surface waters of the Todgha river.

## **1.3. Economic and political history**

### **1.3.1. Pre-colonial history**

Only a few written sources exist on the early history of Todgha. Most existing information is knowledge derived from historical sources which principally treat the major Draâ and Tafilalt oases. As oases are not isolated spots in the desert, but linked which each other through trading networks, the history of the Todgha should be interpreted in the context of the economic and political fortunes of these main oasis centres and of Morocco in general.

The Moroccan oases have historically been important junctions and halting-places in an extensive network of trading routes, including the trans-Saharan trade, which linked the areas north and south of the Sahara. This trade, in which salt, gold and slaves were most important, created intensive contacts between southern Morocco and the current Sahel zone, and linked all the important population centres in north and west Africa. These age-old contacts have partly contributed to the ethnically very diverse population of southern Morocco.

The Todgha valley also belonged to *bled es-siba*, as it remained independent from central state power, apart from some short periods in history. It was difficult for the sultans in their capitals west or north of the Atlas mountains to control this backward area. The Todgha valley was of lesser economic and political importance than the Morocco's principal oasis centres, the Draâ and the Tafilalt. The last two areas were of primary economic importance, not only through their important agricultural produce, but also through their position as important markets and halting places on the long-distance caravan trade, which extended into West Africa. Control of these

two areas was important in order to guarantee the sultan's important trade interests. It seems not coincidental that most of the Moroccan dynasties originate either from the Draâ or from the Tafilalt.

Although the Todgha remained largely beyond control of the central state power, it was the subject of a limited number of *harkas*, military campaigns of the sultans, which were an effort to gain control over trading routes and to collect tribute. In the early 17<sup>th</sup> century the Saadians, under Moulay Slimane, conquered the Todgha valley. The reputedly ten villages surrendered quickly, with the exception of the Iqabline qsar of El Hart Niaamine. In order to punish the inhabitants for their resistance, the sultan deported the entire population to Meknes, where they worked as slaves in his palaces (Spillman 1931: 214). One year later, a shurfa, named Sidi Larbi of Ouezzane, acted as intermediary for the villagers and persuaded the sultan to free them. In exchange, the inhabitants of El Hart Niaamine promised to send fifteen workers to Ouezzane each year to help during peak agricultural periods (Racolt 1936: 104). This tradition existed until French occupation. Interestingly, many families in El Hart Niaamine still have relatives living in Meknes (Steinman 1993).

Besides this campaign of Moulay Slimane, there was another reported harka of Moulay Hassan I in 1892. Nevertheless, these harkas did not have a lasting influence. As in the rest of southern Morocco, nomadic or semi-nomadic tribal confederations tried to control the oases by extorting *ra'ya* (protection) agreements from the sedentary populations. But even the rapidly expanding and powerful Ait Atta semi-nomads did not succeed in gaining real control over the Todgha. Until the early 20<sup>th</sup> century, the Todgha always kept a remarkable degree of independence from *makhzen* and Ait Atta power. The *makhzen* tried to nominate *caïds* (appointed representatives of central *makhzen* state power), who had to collect taxes. In the Todgha, these caïds were mostly foreign to the region and lived in distant places (Middle Atlas, Marrakech). Nevertheless, until the 20<sup>th</sup> century, they never gained total control over all the qsour of the valley, and this control was only temporary.

Historical sources suggest that the qsar of Tinghir, which is centrally located in the Todgha valley, was one of the most important trading places of the central Moroccan preSahara, at least until the end of the 19<sup>th</sup> century (De Foucauld 1885: 224, Beurpère 1931, Harris 1895: 313, in Büchner 1986: 129). Tinghir was located along the important trading route through the pre-African fault between the High Atlas and the Saghro mountains, which linked the Tafilalt with Marrakech<sup>20</sup> and was much frequented by caravans. Immediately west of Tinghir, this route crossed the Todgha river. The *suq* (market) of Tinghir had the status of neutral territory between the different ethnic groups. The independence of the Ahl Todgha, who neither belonged to, nor were allied to any of the contesting tribal confederations, boosted trade and made Tinghir to the centre not only of the Todgha, but also of parts of the nearby Saghro and High Atlas (Ubach/Rackow 1923: 128-134 in Büchner 1986: 132).

### 1.3.2. Colonial penetration and the French 'Protectorate'

---

<sup>20</sup> The location of this route more or less coincided with the course of the current paved road between Tinghir and Erfoud, passing other important oases.

The signing of the Fes treaty in 1912 marked the formal beginning of the French and Spanish occupation of Morocco. However, it took two decades of bloody war to defeat the numerous inland tribes, who did not intend to respect the treaty signed by the sultan and revolted against central power. The resistance was the fiercest in the northern Rif mountains and the southern oasis areas. In the Todgha, the French colonial penetration was preceded by the attempts of the Glaoui family, who cooperated with the French, to install its power in the Todgha from the end of the nineteenth century. The *caïd* Touzounini from the Drâa, who contested the power of Glaoui, also tried to gain influence over this region, and sent Ali ben Thami Tazarini (well known in the south as Ba Âli) who subdued almost all the qsour in 1919 except for those allied to the Glaoui (Asfalou, Tinghir, and Afanour). In the same year the pasha of Marrakech, Thami Glaoui, reconquered the Todgha with French military aid. However, he did not succeed in subduing the whole valley and, some years later, his authority did not extend beyond a few qsour surrounding Tinghir.

In January 1931, after many years of military stagnation, the French finally conquered Agdz in the upper Draâ valley. This was an important advance as, in this way, they made an important breach in the 'Atlas front'. In the same year, the colonial army advanced from Ouarzazate and Ksar-es-Souk (currently Errachidia) in the direction of Todgha, and occupied the valley on 18 and 19 November 1931, without meeting any significant resistance. In January 1932, the French army conquered Zagora in the Draâ valley, but the Aït Atta of the Saghro were the last Moroccan tribe to resist the French. Some Aït Atta qsour (such as Taghia) of the lower Todgha, left their villages after the French conquest, where they joined other Aït Atta in their struggle. In the Bougafer war, in 1933, the Aït Atta were finally defeated in their native Saghro mountains.

After the conquest, the French established a 'Bureau des Affaires Indigènes' (Office of Indigenous Affairs, the current *caïdat*), which fell under the authority of a French officer. The colonial authority created the Annexe de Tinghir, which comprised the Ahl Todgha, El Hart and Aït Atta of the lower Todgha. One administrative level higher, the Annexe de Tinghir fell under the Cercle du Dadès-Todgha. The Todgha was further subdivided in several *fractions* (administrative districts) which, with some changes, continued to exist in the post-colonial era. These fractions do not always represent existing ethnic groups, but follow ethnic boundaries, where possible. Aït Tizgui, which is farthest upstream, represents a separate ethnic group with the same name. Further downstream we find successively the fractions of Aït Smane, Aït Igourtane, Ahl Tinghir, Aït Wamast and Harratin. Except for the last fraction, these all belonged to Ahl Todgha and are administrative rather than ethnic entities. Each of these fractions was represented by a sheikh at the fraction level and by several moqaddem at the village level.

The French extended the old caravan trading route to join an unpaved road, which linked Tinghir to the main road between Ouarzazate and Errachidia, with further connections to Marrakech and Meknes. Shortly after the conquest, the colonial authority established such services as a post office, a court and a basic health clinic. The selection of the ancient market town of Tinghir as administrative centre had important implications, as this boosted its further growth and definitively marked its future as Todgha's capital.

The colonial authority tried to stimulate the commercial position of Tinghir, which had been suffering under the penetration of El Glaoui and the colonial conquest. A new market place was created (the current 'old suq') probably in the late 1930s. The ancient elite, as well as many Jews of Tinghir, realised the commercial opportunities of Tinghir's favourable location and position as administrative centre. They capitalised on new developments, and rapidly established new businesses (cf. Büchner 1986: 134).

Colonisation meant the introduction of effective state power. With the 'pacification', the *siba* period came to an end. Central state institutions and representatives now held effective power and enforced formal state law. This marked the end of the effective power of the traditional village jemaâ, which was replaced by an elected municipal council. It had the same name, but had absolutely nothing to do with its nominal forerunner. It also heralded a new era in which traditional village institutions, such as the jemaâ and the amghar, which organised village life and the maintenance of the agricultural and hydraulic infrastructure, were gradually undermined. As we shall see, this had fundamental implications for agriculture and socio-ethnic relations.

### **1.3.3. Independence and the Moroccan state**

After Morocco gained independence in 1956, the administrative structures which were developed by the French changed only slightly. With the Moroccan administrative reform in 1958, the Todgha was divided in two 'communes rurales'. The commune rurale de Tinghir governed most of the valley, including all Ahl Todgha and El Hart. The administrative subdivision into fractions remained largely intact as it was designed by the French. This division was only slightly changed, by dividing the former Harratin fraction into Amzaourou (i.e. the qsour belonging to Ahl Todgha) and Haouari, representing the Iqabline of El Hart. The commune rurale de Taghzout governed most of the Aït Atta qsour of the lower Todgha. Only the qsar of Achdad fell under the commune rurale of Imiter, and Tadafelt and Taghia came under the authority of the commune rurale of Ikniouen, governing the Aït Bou Iknifen. All these four communes, one for the Ahl Todgha and El Hart, and three for the Aït Atta, fell under the authority of the caïdat of Tinghir which, in its turn, formed part of the Annexe de Boumalne and the province of Ouarzazate.

Colonisation was the beginning of a modernisation process, which comprised the development of a road infrastructure, the introduction of the monetary economy, modern administrations and new sources of income. After Moroccan independence, the socio-economic and political changes initiated in colonial times were continued. In the early 1970s the main road linking Tinghir to Ouarzazate and Errachidia was paved, as well as the road linking Tinghir to the Todgha gorges. This meant a radical 'opening up' of almost the entire upper Todgha, the qsour around Tinghir, as well as the qsour of Aït Aïssa ou Brahim, Ghallil n'Aït Isfoul and Tabsebest. The radically improved accessibility of most qsour boosted the further regional economic integration of the Todgha, with a parallel growing orientation on Tinghir, which extended its position as administrative and commercial centre.

The weekly market (on Mondays) of Tinghir grew rapidly, was twice relocated to a larger place, and is currently one of the biggest of the Moroccan preSahara. Monday is [heyday the high point of the week] in Tinghir, when a large part of the population of the entire valley and surrounding regions (Tamtetoucht and Aït Hani in the High Atlas, Aït Atta villages of the Saghro) visit its weekly suq. Besides the weekly market, the number of shops, coffee houses and handicraft shops has been growing rapidly. Its commercial functions, combined with the presence of administrative services, banks, and a small hospital, make it one of the more important central places in the preSahara. At the commercial level, it can compete with the main southern centres such as Ouarzazate, Zagora, Errachidia, and Erfoud.

#### **1.3.4. Current administrative situation**

In 1992, the administrative situation changed for the second time after independence. In that year, Tinghir acquired the status of ‘municipalité’, a recognition of its de facto urban status. The old area of the commune rurale of Tinghir was split into three zones. In the upper Todgha, the rural commune of Todgha Oulya (‘upper Todgha’) was created, comprising the fractions of Aït Tizgui and Aït Snane. Downstream, the new municipalité of Tinghir comprises not only the actual urban centre, but also the neighbouring qsour of the Igourtane, Afanour and the Tagoumast fractions, which are becoming increasingly integrated into the urban system of Tinghir.

Downstream from Tinghir, the commune of Todgha Souffla (‘lower Todgha’) was created, comprising the qsour of El Hart, Aït M’hamed and Amzaourou. The commune of Taghzout n’Aït Atta, which governs all the Aït Atta qsour of the Todgha, continued to exist, but was extended with the villages of Achdad, Tadafelt and Taghia, which were formerly parts of other communities. The municipality is governed by a pasha. The three rural communes fall under the authority of a single caïd, whose office is in the caïdat in Tinghir (the ancient Bureau des Affaires Indigènes). The entire Todgha falls under the authority of the Annexe de Boumalne, which makes it part of the province of Ouarzazate. The Todgha is located in the eastern extremity of this province, 169 km east of its capital, Ouarzazate. This is a major inconvenience, since many of the main administrative services are found only in Ouarzazate and necessitate a two to three-hour bus or taxi drive. In contrast to its commercial functions, Tinghir’s location is marginal in administrative terms.

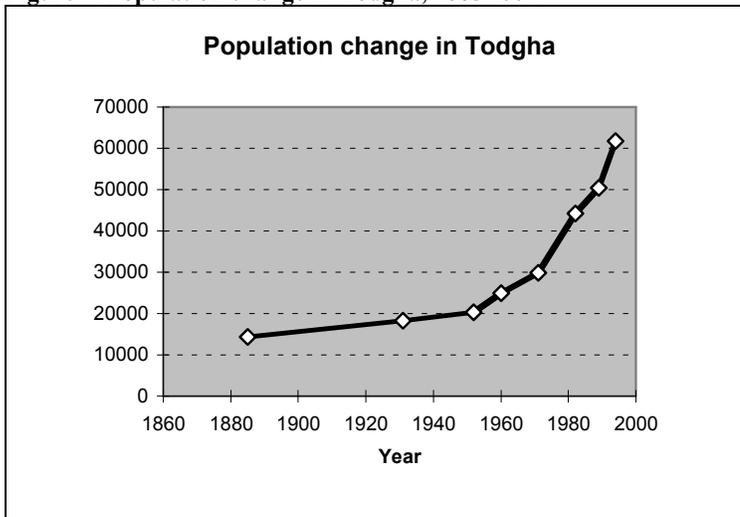
## 2. DEMOGRAPHY AND HABITATION

### 2.1. Recent demographic developments

#### 2.1.1. Population growth

In the last century, the Todgha valley and, especially, its centre Tinghir witnessed a high population growth. Rough estimates dating back to 1885 and 1931, assess the total population of the valley at 14,300 and 18,216, respectively. From 1952 on, we possess more accurate data. As Figure 1 clearly shows, the relatively slow growth has accelerated, especially since the late 1950s. Between 1952 (20,258 inhabitants) and the 1971, when the population reached 30,000, we witness an increase of almost 9,500 persons, i.e. 50% in twenty years. The population growth seems to have further accelerated in the 1980s and '90s, as the next 50% increase was reached only 11 years later, in 1982, after which there was further rapid growth to 61,713 in 1994. Thus, the population of the Todgha tripled between 1952 and 1994. On the basis of the growth rate between 1982 and 1994 (the last two censuses), it can be estimated that the total population reached 70,000 in 2000.<sup>21</sup>

**Figure 1 Population change in Todgha, 1885-1994**



Sources: De Foucauld 1885, Beaurpère 1931, National Censuses 1960, 1971, 1982, 1994<sup>22</sup>

#### 2.1.2. Redistribution of population within the Todgha

<sup>21</sup> Assuming linear growth, the population reached 70,000 in 2000, and will reach 85,000 in 2010, rising to 100,000 in 2020. If we take the different growth rates of the four communities separately into account, population estimates are even higher, which can be explained by the rapid growth of populous Tinghir. However, in view of the falling birth rates in Morocco, growth might slow down.

<sup>22</sup> Data supplied by the municipality of Tinghir have been used as well as official census data. The figures include the population of the entire valley, i.e. of the actual 'communes' of Todgha El Oulya, Todgha Soufla, Taghzout and the municipality of Tinghir. Since 1992, the three villages of Taghia, Tadafalt and Achdad, which now form part of Taghzout n'Aït Atta, belonged to other communities for the censuses of 1971 and 1982.

The population growth is not equally distributed over the whole valley. Although all four municipalities at least doubled their populations between 1952 and 1994, two municipalities show a far higher growth rate. The growth of the municipality of Tinghir was 230% and given, its sheer size, the rapid urban growth of Tinghir contributed most in absolute numbers to the total population increase. With more than 30,000 inhabitants in 1994, the municipality of Tinghir contains half of the population of the Todgha. It should be noted, however, that the municipality of Tinghir also comprises neighbouring qsour which are becoming increasingly ‘swallowed’ by rapidly expanding Tinghir. These semi-urbanised qsour make up more than half of the population of the municipality.

An even more spectacular growth was reached in the ‘commune rurale’ of Taghzout n’Aït Atta (which governs the Aït Atta qsour), which grew at a rate of 260% in 42 years. This growth may be explained by three factors. Firstly, more and more Aït Atta from the Saghro mountains seem to have preferred to settle in the Todgha valley, given the better infrastructure, the proximity of administrative services and the possibilities for wage labour. Many of them settled in Aït Aïssa ou Brahim, where they are active as merchants, have bought land and practice agriculture. Secondly, much of the growth can be attributed to the colonisation of the Ghallil plain, which is increasingly used for agriculture. The settlers include not only people from the old Aït Atta qsour, but also Aït Atta who have descended from the Saghro mountains and Iqabline from El Hart Mourabidine, as well as others. Finally, the creation of a market place (with a busy week market) in the early 1960s, as well as a post office, a high school and an administrative centre in Taghzout has attracted many people from outside, who have constructed their houses there. A certain urban growth also occurred in Aït Aïssa ou Brahim, along the paved road to Errachidia, which is only two km from the centre of Taghzout. These two growth poles (Taghzout and Aït Aïssa ou Brahim) seem to be growing together and already form the second semi-urban centre in the valley.

**Table 1 Population increase between 1952 and 1994 for the Todgha**

Municipality	1952	1971	1982	1994	Increase in %
Todgha El Oulya (1)	2,804	3,774	5,686	5,953	112.30
Tinghir (2)	9,226	14,498	18,247	30,471	230.27
Todgha Souffla (3)	4,976	7,054	11,686	13,594	173.19
Taghzout n’Aït Atta (4)	3,252	6,091	8,481	11,695	259.62
<b>Total Population</b>	<b>20,258</b>	<b>31,417</b>	<b>44,100</b>	<b>61,713</b>	<b>204.64</b>

Sources: Authors’ own calculations based on the national Censuses of 1971, 1982, 1994, and Büchner 1986.<sup>23</sup>

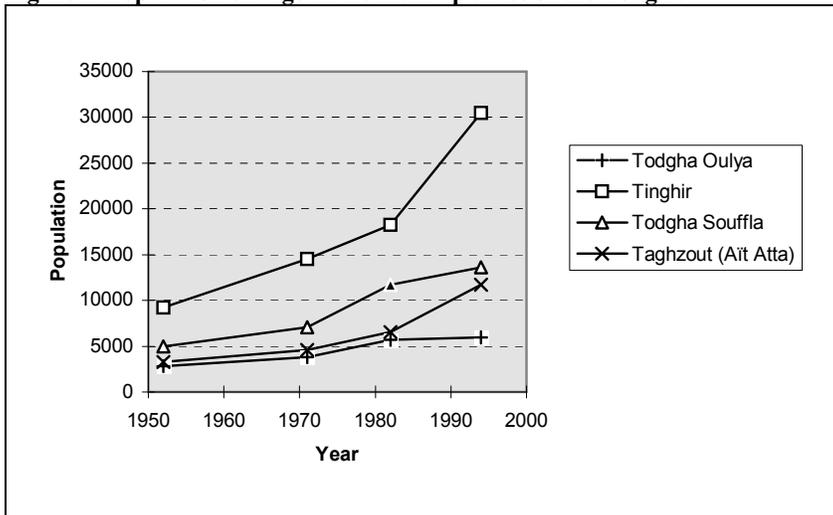
The rapid growth of Tinghir and Taghzout should thus be seen in the light of a rapid growth of the two ‘urban’ centres in the Todgha valley. They attract intra-valley migrants from more remote qsour, which may explain the relatively slow increase of Todgha El Oulya and Todgha Souffla. But Tinghir especially also attracts people

<sup>23</sup> Administrative divisions have changed over time. In this table, we have used the current boundaries. Data from older censuses was available at the qsour or at least fraction level, so that it was possible to recalculate these data on the basis of current administrative divisions. Since the villages of Achdad, Tadafelt and Taghia belonged to other non-Todgha municipalities during the 1971 (1523 persons) and 1982 (1965) censuses, their population in these years has been added to in order to better study real population growth in the actual municipality of Taghzout n’Aït Atta.

from outside the Todgha valley. The total population growth cannot be attributed only to natural increase, certainly taking into account the fact that the Todgha is an important emigration zone as well. A closer look at the data per qsar has shown, that the more closer to the centre, the more rapid the population growth, the slowest growers being Tizgui near the gorges and some marginal Aït Atta qsour (Taghia, Ghallil n'Aït Isfoul) and the fastest grower the actual urban centre of Tinghir (312% between 1952 and 1994). The most important conclusion appears to be that immigration, emigration and intra-valley migration occur simultaneously, and that the growth rates realised by the municipality of Tinghir are rather spectacular. Secondly, with half of the population living in urban or semi-urban environments, one can hardly speak of the Todgha as a purely rural region.

The mean annual growth rate between 1982 and 1994 was (2.28) 3.45% as compared with 2.2% for the entire province of Ouarzazate (1.1% in rural areas, 9.2% in urban areas). In this period, growth differences between different qsour have become more extreme, with almost zero or negative growth for 'rural' areas such as Aït Snane and Amzaourou, and mean annual growth rates of 16.0% for Tinghir centre and 6.6% for Taghzout, reflecting provincial and national patterns of slowing rural growth and accelerating urban growth. The phenomenon of almost zero growth of the Todgha Oulya can probably be explained by the combined effects of the lack of space for house construction, the high land prices in the upper Todgha, and the intra-valley migration to Tinghir.

**Figure 2 Population change in the municipalities of the Todgha**



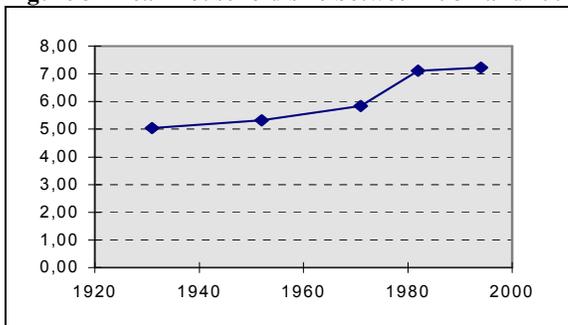
Sources: National Censuses 1971, 1982, 1994, Büchner 1986.

### 2.1.3 Actual demographic characteristics

Table 2 gives an overview of basic demographic characteristics of the Todgha valley, according to 1994 census data. Throughout the 20<sup>th</sup> century, the mean household size for the entire Todgha valley steadily increased from 5.05 in 1931 to 7.23 in 1994 (see also Figure 3), and showed little difference between the different communities, although households in Tinghir centre are considerably smaller than those in some remote qsour in the lower Todgha. This seems to be related to the steep fall in death rates combined with high birth rates, which increased the size of families.

International migration may have also contributed to the increase in the number of people living in one household, as migration generally leads to a delay in the split-up of extended families. Most Todghaoui, however, live in nuclear families and those who still live in extended families, will generally wish to do so in due course.

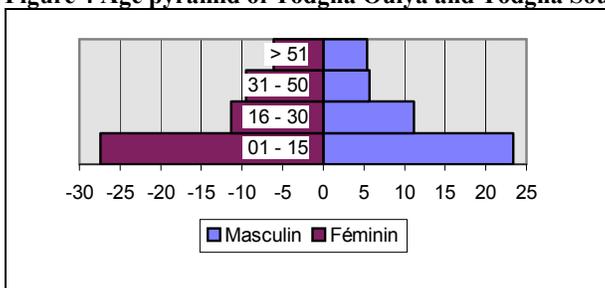
**Figure 3 Mean household size between 1931 and 1994**



Source: Beurpère 1931, national censuses (1952, 1971, 1982, 1994)

The effects of migration appear to be visible in the age structure of the Todgha (Figure 4). According to 1994 census data, in the communities of Todgha Oulya and Todgha Souffla<sup>24</sup>, 45.6 percent of the total population was male, and 54.4 percent female. The difference is especially noticeable in the 31 to 50 age group, in which only 37.4 percent are males, as it is in this age category that we find most labour migrants.

**Figure 4 Age pyramid of Todgha Oulya and Todgha Souffla (1994)**



Source: 1994 national census

The Todgha has also a very young age profile, with 44.5 percent of its population under the age of 15 years. The mean number of living children per married woman is 4.6. However, the differences between the different communities are remarkable. In Todgha Oulya and Tinghir, the mean number of children per married women is relatively low at 3.5 and 3.9 children, respectively. This seems to reflect the more modern, urban and wealthy character of this part of the valley, especially of Tinghir centre itself. The Aït Atta qsour of Taghzout and the El Hart qsour within Todgha Souffla are remarkably poorer, as well as being more rural (i.e. agriculture-oriented) and traditional than those of the upper Todgha. This seems to explain the high number of children per women in Todgha Souffla and Taghzout (5.29 and 6.16). These

<sup>24</sup> These figures have been obtained from direct examination of the household questionnaires for the 1982 and 1994 censuses at CERED Rabat. Figures of the two other communities, Tinghir and Taghzout were not available.

figures seem to suggest that fertility levels in Tinghir and Todgha Oulya are almost half those of Taghzout.

Illiteracy rates are the lowest in Tinghir (39.7 percent of the population of ten years and older) and the highest in the lower Todgha, with rates of 55.5 percent in Taghzout and 56.7 percent in Todgha Souffla. In the whole Todgha, differences between male and female illiteracy are high. One quarter (25.8 percent) of all men are illiterate, whereas two thirds (67.1 percent) of all women are illiterate. The mean illiteracy level of whole valley is 47.3 percent. The younger generations, however, seem to be more literate. Thanks to the presence of primary schools nearby virtually all villages, the official 1993-94 school participation level was 84.8 percent of all children between 7 and 12 years old. But whereas the participation rate of boys fluctuates at around 90 percent in all parts of the valley, girl participation rates show greater differences. Here again, Tinghir girls participate more intensively than girls in the lower Todgha. However, with an average participation rate of 78.0 percent for the whole valley, the present situation seems much more favourable than that of one or two generations ago, when virtually no girls went to school. Even in the more conservative qsour of Taghzout, 68.8 percent of the girls between 7 and 12 years attend school. Former socio-cultural obstacles hindering primary school attendance, seem to be gradually fading away.

With the exception of Tinghir centre, girls' participation in secondary education, however, is still very limited, which can be explained by traditional attitudes, as well as the fact that the secondary schools are often rather far away. In most villages of the lower Todgha, local attitudes still oppose the idea of a girl travelling to school and staying outdoors from dawn until sunset. Popular belief is that this is too dangerous and may negatively effect a family's reputation, and that is simply unnecessary to further educate future housewives and mothers. The Tinghir municipality is the only exception, where girls represent 28 percent of the pupils at the *collèges*, and 32 percent at the *lycées*.

**Table 2 Basic demographic characteristics of the Todgha (1994)**

Municipality	Todgha Oulya	Tinghir	Todgha Souffla	Taghzout	TOTAL
Population	5,953	30,471	13,594	11,695	61,713
Household	819	4380	1735	1606	8540
Mean household size	7.27	6.96	7.84	7.28	7.23
<i>Age structure</i>					
< 15 year	38.26	43.07	47.32	47.91	44.46
15-59	53.09	50.81	45.57	44.78	48.73
>- 60	8.63	6.12	7.12	7.31	6.81
<i>Fertility</i>	3.52	3.85	5.29	6.16	4.57
<i>Illiteracy rate (10 years and older)</i>					
* Male	27.11	20.2	31.7	32.97	25.82
* Female	67.92	58.48	77.91	76.42	67.07
* Mean	48.13	39.71	56.68	55.46	47.25
<i>School participation rate (7-12 year)</i>					
* Male	92.85	91.56	90	89.85	91.02
* Female	77.77	84.47	68.77	71.96	77.99
* Mean	85.59	88.1	80.24	80.98	84.78

## **2.2. Habitation and infrastructure**

### **2.2.1. Habitation: the construction boom**

Parallel with the high population growth, we witness another important development, i.e. the movement of people out of the traditional qsour and the concomitant spread of modern habitation. This movement started in the 1940s and '50s, when the first people left the qsar of Tinghir and some other qsour and constructed large houses in the direct environment of the old qsar. This movement spread to all the qsour of the valley and further accelerated in the 1960s and 1970s. Today, the vast majority of the 64 traditional qsour of the Todgha valley, have been almost totally abandoned and these traditional fortified villages are falling prey to rapid degradation. The loam structures of the traditional qsour are highly sensitive to erosion during rain showers. The degradation is further accelerated by the fact that many people have removed beams of the old qsour to use in the new constructions. Nowadays, only a few qsour in the Todgha still have a sizeable population, notably Tinghir, Afanour, Taourirt (all three in the Tinghir municipality), and Zaouïa Sidi Abdelali (in the upper Todgha), that is to say, in places where free building space is lacking and land prices are high. Some other qsour are inhabited by only a few families, while others are totally abandoned. Remarkably, the population inhabiting these old qsour is mostly not the original population, but recent poorer immigrants, who filled up the relatively cheap empty spaces of these qsour.

Most of the people who left the qsar settled in the immediate surroundings of the old qsar. People resettled in new qsour, respecting the divides between traditional villages. Thus one can speak of a transfer or regrouping of the entire village to a new location. Sometimes new villages are created further away. This is the case with many villages on the left bank of the Aït Snane fraction of the upper Todgha. Most people preferred to construct houses on the right bank of the Todgha valley, near the paved road which runs between Tinghir and the Todgha gorges (see photo on the front page). In the case of the large and more differentiated qsour of Tinghir and El Hart Mourabatine, people resettled in several neighbourhoods. The building material of the new houses is mostly locally-produced concrete bricks. But the poorer families, especially in the lower Todgha, still often use loam. In the narrow upper Todgha, most houses are made of concrete bricks. Most of these new houses are quite large and include basic amenities, such as lavatories, bathrooms and a modern-style kitchen.

This resettlement and the rapid extension of new habitation structures is a development that can be observed in the entire valley. The main causes of the exodus from the old qsour can be summarised as follows. Firstly, the traditional houses are very small and narrow and their arrangement renders hygiene difficult. Standards and expectations of comfort have clearly changed over the past century, while purchasing power has increased. Moreover, resettlement in new, large and spatially separated compounds guarantees a greater degree of privacy, which was unthinkable in the packed qsour. Secondly, the socio-political background for the qsar habitation has fallen away. In *siba* times, i.e. before the central colonial state gained a final and

complete grip on the Todgha in the early 1930s, settlement in these fortified, concentrated villages was necessary to protect the villagers from attacks by other villages and invading nomad tribes. This need has now fallen away. Thirdly, the spectacular population growth of the last century (due to high birth rates, falling death rates and immigration) and the accelerated growth of the number of households have created a demand for more and bigger houses.

With some exceptions, this exodus from the qsour was fully completed in the 1980s and the '90s. This is a general development, as virtually every family has constructed a new house over the past few decades. Construction of new houses is thus not only reserved to migrant families. However, the latter were generally the first to construct such houses, and they built 'bigger and faster'. More spacious and luxurious housing is felt as a general need, but migrant families generally have more financial resources to realise their wishes. The typical pattern for poorer, mostly non-migrant families, is to construct a more simple and smaller house in several stages. Their houses often contain only one floor, and if they contain more, they have been constructed at intervals of several years.

Richer, mostly migrant, households can afford to build more quickly and in a more pompous style. Often, they even construct two or more houses. A typical pattern for richer households, especially in the upper Todgha, is to construct one new house in the qsar and a second one in Tinghir centre as a kind of investment project. Migration and migrant remittances have undoubtedly contributed to the acceleration of this development. In oasis regions with less migration to foreign countries, such as the Draâ or the Bani (Tata province), many qsour are still partly inhabited. The strong emigration may explain why the 'exodus' from the old qsar is remarkably complete in the Todgha valley.

There is an ongoing development of construction in the Todgha valley. New constructions are visible everywhere, especially along the paved road running through the upper Todgha between Tinghir and the Todgha gorges. Tinghir itself is the very centre of the construction boom. From Tinghir upstream, in the narrow upper Todgha, there is a serious lack of space. Most space has been used either for agriculture or for habitation. The valley is becoming full and land prices have skyrocketed. Hardly any new building space is available, and this has led to increasing conflicts between adjacent qsour and fractions on the scarce land that remains to be divided. As the upper Todgha becomes increasingly packed with houses, the divisions between the different villages are often hardly visible. A ribbon development follows the paved road directly linking the upstream villages with the urban centre of Tinghir. The local employment effects of this construction fever should not be underestimated. Research by the authors has made clear that a substantial part of the non-migrant population works as bricklayers in the construction sector.

From Tinghir downstream, in the lower Todgha, more space is available, but here, too, the river banks are becoming increasingly packed with houses on both sides of the valley. In the lower Todgha, strong inter-village and Ahl Todgha-Aït Atta competition exists over the division of land along the main paved road to Errachidia (between Tinghir et Aït Aïssa ou Brahim). The actual Todgha valley, i.e. the actual

terraces of the Todgha on which agriculture is practised, are not used for construction, as the risk of floods is too high.

In general, a pattern is visible by which the Todgha valley is becoming increasingly hemmed in by a continuous band of urban structures, which have now completely replaced the old nodal settlement patterns in physically separated qsour. Especially around Tinghir, the Todgha valley has become a broad green artery running through the different quarters on both sides of the river. The concentration of new habitation along the two paved roads in the valley, as well as in the urban centres of Tinghir and, to a lesser extent, Aït Aïssa ou Brahim - Taghzout, gives important advantages in the form of easy access to semi-public transport and, hence, better and cheaper access to administrative services, schools, and markets.

The urban centre of Tinghir is becoming increasingly physically linked with surrounding villages, i.e. they increasingly form part of the urban system of Tinghir (notably Taourirt, Aït Boujjane, Tikoutar, Tagoumast, Afanour). More and more people in the Todgha valley work, trade and meet other people in Tinghir. An intensive transport system, consisting of privately-run vans (so-called *transits*, after their Ford Transit prototype) and shared taxis, link all villages of the villages with Tinghir. This situation is reflected in the recent extension of the municipality of Tinghir in 1992, by which several qsour have also become administratively part of the municipality. These qsour are increasingly assuming the character of quarters of Tinghir.

**Table 3: Characteristics of habitation and facilities in the Todgha (1994)**

Municipality	Todgha Oulya	Tinghir	Todgha Souffla	Taghzout	TOTAL
<i>Size of the rooms in %</i>					
* 1-2 room	10,89	15,54	16,09	20,13	16,07
* 3 rooms	17,82	26,64	18,97	24,21	23,78
* 4 rooms	26,24	23,59	27,3	23,9	24,66
* 5 rooms and more	45,05	34,23	37,64	31,76	35,50
Occupancy per room	1,61	1,58	1,78	1,79	1,66
<i>Ownership in %</i>					
* Property	92,57	73,4	89,34	80,31	79,78
* Rent	0	16,31	0	5	9,31
* Other	7,43	10,29	10,66	14,69	10,92
<i>Basic facilities in %</i>					
* Electricity	36,14	73,64	50,14	37,69	58,51
* Drinking water	0,5	48,55	1,15	1,25	25,42
* Bath and shower	10,89	30,91	20,63	9,35	22,85
* WC	41,58	65,36	40,4	33,96	52,10

Source: authors' calculation based on the 1994 national census

The 1994 census data (Table 3) demonstrate that about 60.2 percent of all Todgha households occupy houses with four rooms or more. Most Todghaoui, even the poorer ones, can afford to construct large houses, as most new construction takes place on old communal land. Recently, this land has been claimed by the whole qsar and, once this claim has been recognised by surrounding qsour and possible conflicts are resolved, the land is distributed between all households of the qsar. This means that

there are no costs of land purchase. This situation is naturally different for newcomers in Tinghir and Tazghout. Houses in the upper Todgha are visibly more luxurious than in the lower Todgha, and contain several storeys. Also in the lower Todgha, qsour with relatively high foreign migration contain more houses with two or three storeys. There seems to be a direct relation between migration, wealth and the number of storeys..

The vast majority, i.e. 79.8 percent, of the Todgha households own the house in which they live. The highest ownership rates are encountered in the predominantly rural communes of Todgha Oulya and Todgha Souffla, where 92.6 and 89.3 percent of the households own the houses they inhabit. In the municipality of Tinghir, house rental is relatively important, with 16.3 percent of the households renting the house in which they live. This reflects the more urban nature of Tinghir and the high number of immigrants to Tinghir. Many government workers and other highly-skilled professionals prefer to rent a house, since they do not intend to stay permanently. Another category is formed by poor immigrants to Tinghir, who cannot afford to buy or construct a house. To a lesser extent, the same holds for Taghzout, where 5.0 percent are renting a house. The market for rented houses for habitation and business seems to be growing, and many Todghaoui, especially migrants, are speculating on this development by constructing houses in Tinghir centre.

### **2.2.2. Infrastructure and services**

In 1994, 58.5 percent of the Todgha households had access to electricity, either by a direct connection to the state network, or by a connection to a village generator. These generators, however, have many inconveniences since their capacity is limited and they generally function only between sunset and midnight. Tinghir has the best electricity infrastructure, with a household connection rate of 73.6 percent. Other qsour have rates of 50 percent or lower. It should be noted that, in the late 1990s, an important state-dependent electrification schedule was implemented in the Todgha valley (Programme d'Electrification Rurale - PERG). This led to the electrification of the entire upper Todgha in 1998 and of important parts of the lower Todgha in 1999, including the important qsour of El Hart and Amzaourou. Apart from a small number of more remote Aït Atta qsour (Ghallil n'Aït Isfoul, Tiliouine, Aggoudime) the electrification of the Todgha valley was almost entirely completed before the turn of the century.

In recent years the ONTP, the national telecommunications organisation, has been extending the telephone network, partly through the extension of the fixed network, partly through the installation of wireless transmitters in the valley. Almost the entire Todgha Oulya, Tinghir, and central parts of Taghzout and Todgha Souffla now have access to telephone services. Téléboutiques [call shops] can be found at several places in the upper Todgha on the road from the gorges to Tinghir, as well as in Aït Aïssa ou Brahim and Taghzout.

There is an important differentiation in the presence of basic sanitation facilities in the different parts of the Todgha valley. Houses in Tinghir generally have the best facilities (such as bath, shower, lavatories, drinking water), and Taghzout has the

worst facilities. Here, too, the presence of these facilities seems to be directly linked to poverty, with the relatively poorer households and communities lacking basic sanitation facilities.

By southern Moroccan standards, the Todgha disposes over a relatively well-developed infrastructure, with an almost completed electrification, an expanding drinking water system and telephone network. However, road connections in a part of the valley are bad, especially in parts of the lower Todgha. The construction of new houses in the valley is therefore strongly oriented towards the paved roads, which guarantee rapid connections with the 'Todgha capital' of Tinghir. With regard to habitation, in the more wealthy and migration-oriented qsour of the upper Todgha we find far more concrete houses, which are more luxurious, possess basic hygienic facilities, and consist of two or three storeys. Farther downstream in the poorer qsour of El Hart and Aït Atta, people generally live under more difficult circumstances.

### **3. MIGRATION: CONTINUING AND SHIFTING PATTERNS**

#### **3.1. Introduction**

People have the tendency to see the present time as the age of migration and to view the past as a static time, with stable peasant societies, in which movements were rare. However, this is a false image. Historical research from various continents has shown that traditional peasant societies are highly mobile (cf. Skeldon 1997: 7-8). This seems also to be the case for southern Moroccan oasis societies, which were not isolated islands in desert seas but, instead, were integrated into long distance trade networks. As contact zones between different populations and civilisations, oases have probably witnessed strong population movements throughout their history.

A quick look upon the ethnic composition and population history of oases demonstrates that oasis societies are the very products of migration movements, with immigration and emigration existing side by side. Migration is definitely an ancient phenomenon in the oasis world. Throughout history, Iqablina, Jews, Arabs and Berbers travelled to and settled in oases. The last important immigration movement in the Todgha was that of the pastoralist Aït Atta tribe who left their heartland in the Saghro mountains to settle in the lower Todgha from the late 18<sup>th</sup> century onwards. This immigration wave continues until the present time, as Aït Atta are still settling as ‘frontier peasants’ in the Rhallil plain or directly in the new neighbourhoods of Tinghir (such as ‘Bougafer’).

Besides being poles of attraction, oases have also been emigration regions since ancient times. Ancient patterns of seasonal or more permanent migration to other regions in and outside Morocco have been described as a response to the limited means of subsistence and high population densities in oasis areas. The existence of ancient migration patterns to other areas in Morocco has also been demonstrated for the Todgha. Although international migration is a more recent phenomenon, it did not start in the 1960s and 1970s, but existed at least from the end of the 19<sup>th</sup> century. This early international migration was mainly directed at Algeria. Moreover, we will see that international migration has not nearly ceased, as many believe, but that each year Todghaoui are still leaving their region in the search of work and fortune in the big Moroccan cities and in Europe.

Although migration patterns are continually shifting, international and domestic out-migration has been a constant feature of the Todgha valley in this century. It is important to observe that migration in the Todgha means not only that people are leaving the region, but also that the region has become an important destination area for regional migrants.

#### **3.2. Migration history**

##### **3.2.1. Population movements before 1880**

Although information is scarce, some sources indicate that migration from the Todgha valley did exist in earlier centuries. Throughout southern Morocco, people from the

Todgha (Ahl Todgha and/or El Hart) were known as specialists in the digging and maintenance of *khettara* irrigation systems (Monts de Savasse 1950:6 in Büchner 1986:111). There is evidence that people from the Todgha worked as specialists on the *khettara* systems of Marrakech at least from the Almohad period (1140-1269), where they were probably organised in a guild and lived in a distinct neighbourhood (Deverdun 1956:87). Berque (1954:149 in Büchner 1986:111) mentions the employment of Todghaoui as *khettara* diggers in a village in the western High Atlas mountains. Moreover, Todghaoui were known as specialists in the construction of traditional loam buildings in other regions.

Tinghir was an important market place on the caravan trading route between the Tafilalt oasis region and Marrakech. This gave rise to a class of ambulant traders who operated as far as the Moulouya region in northeastern Morocco (cf. Büchner 1986: 112). Although this traditional trade no longer exists, Tinghir is currently one of the most important trading centres of southern Morocco and many Todghaoui earn their bread in the domestic trading and transport business. Whether the Todghaoui were also involved in early seasonal migration patterns as agricultural labourers in more humid regions in Morocco is not clear.

**Table 4 International migrants as a percentage of the total population**

Administrative divisions	1954	1975	1982	1998
Tizgui (1)	7.25	9.24	NA	5.61
Aït Snane (1)	8.35	13.39	NA	6.81
Igourtane (2)	6.86	9.68	NA	NA
Tinghir (2)	6.23	4.09	NA	NA
Tagoumast (2)	8.95	8.65	NA	NA
Amzaourou (3)	13.23	11.64	NA	6.56
El Hart (3)	5.02	5.38	NA	2.98
Taghzout n'Aït Atta (4)	1.94	4.53	NA	8.57
<b>Total</b>	<b>6.55</b>	<b>7.41</b>	<b>6.66</b>	<b>6.02</b>

Sources: Authors' own calculations based on: Caïdat Tinghir, Büchner 1986, National Censuses 1971, 1982, 1994<sup>25</sup> Numerals following fraction names refer to municipalities: (1) Todgha El Oulya (2) Tinghir (3) Todgha Souffla (4) Taghzout n'Aït Atta. NA = not available.

### 3.2.2. Migration in the colonial era

Colonial penetration entailed the imposition of a central state power, the introduction of a capitalist economy, a radical improvement of infrastructure, as well as the creation of and access to new labour markets. This has fundamentally changed traditional migration patterns. Although the French did not gain effective control over the Todgha until 1933, the occupation of neighbouring Algeria in 1830, one century earlier, marked the beginning of colonialism-induced migration in Morocco. The subsequent establishment of modern farms by French *colons* (settlers) in the 19<sup>th</sup> and 20<sup>th</sup> centuries created a demand for agricultural labour, especially in the region of Oran and Sidi Belabes, which was felt far into Morocco. This created an early

<sup>25</sup> As the estimates of the total number of international migrants from 1975 and 1998 date from non-census years, the percentages have been calculated on the basis of intra- en extrapolated total population figures from censuses for the entire Todgha, as growth rates per fraction were not available. Since growth rates in the different fractions differ, this may have created some inaccuracy.

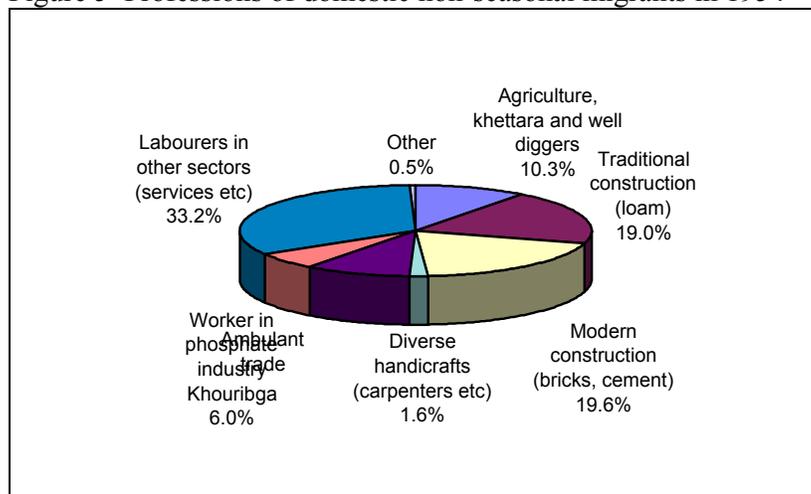
migration to Algeria from the oases of south-eastern Morocco, partly due to their relative proximity to Algeria. The Todgha participated in this migration from at least the turn of the 20<sup>th</sup> century (Büchner 1986:113). It mainly took the form of the circular migration of young men, who returned home regularly.

Until the 1960s, migration to Algeria dominated international migration from the Todgha. This type of migration came to an end with Algerian independence in 1962. Figure 6 gives an overview of the numbers and destinations of Todgha emigrants in 1954. In that year, an estimated 1326 Todgha migrants were living in Algeria, i.e. 6.6 percent of the total population. At that time, only 22 migrants were working in France.

In colonial times, two main types of domestic migration existed. These were a continuation of existing, pre-colonial migration patterns, but that changed its character and destination. The first type is seasonal migration to agricultural areas in northern and western Morocco, such as the Moulouya, the Middle Atlas, the Gharb, the Tadla, and Doukkala. In 1954, an estimated 1294 Todghaoui, i.e. 6.4 percent of the total population, participated in this seasonal migration.

The second type was long-term domestic migration to the regions on the Atlantic coast. This is the economic heartland of Morocco and many poor Todghaoui were attracted by the employment opportunities offered by the growing economy. This type of domestic migration has a more long-term character than seasonal migration, since these migrants generally stay away for a longer period, varying from several months to several years. This migration was mainly directed to big cities such as Casablanca and Rabat. In 1954, about 1108 persons or 5.5 percent of the total population of the Todgha was involved in this type of migration. About 40 percent were construction workers. This was and is the most typical profession of Todgha migrants. About 10 percent of these non-seasonal migrants were working as agricultural labourers, sharecroppers or khettara and well diggers. Another 10 percent was active in ambulant trade. The phosphate industries in Khouribga attracted 6 percent of the migrants. The other 34 percent was working in other, mainly service, sectors in the big cities, notably Rabat (Büchner 1986:116).

Figure 5 Professions of domestic non-seasonal migrants in 1954



Source: French army archives in Paris-Vincennes cited in Büchner 1986: 116

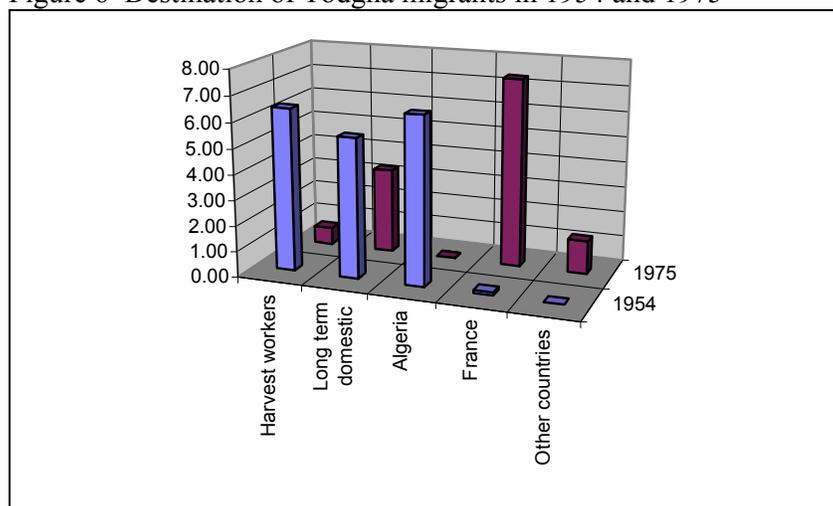
The migration to Algeria was mainly ‘circular’ in nature. Many migrants returned home for several months per year. Others stayed for longer periods, but never permanently. After the early 1960s, almost no Todghaoui remained in Algeria. Some of them moved to France, others returned to Morocco. For domestic migration, it is impossible to make a sharp distinction between temporary and permanent migration. Although many migrants part with the idea of returning, a ‘temporary’ stay may become a permanent one. The transfer of family members generally confirms this shift to permanent migration (cf. Park 1992:205). No figures are available of the number of domestic migrants who eventually stayed. Retrospective interviews by the authors showed that an important part of these ‘temporary’ migrants never returned, but settled with their families in the big cities. A distinct form of permanent out-migration was the departure of almost the entire Jewish community of Tinghir in the 1940s and the 1950s, numbering at least 150 households.

In sum, in 1954, about 6.7 percent of the total Todgha population was living in Algeria and a few in France, while 11.9 percent were participating in seasonal or long-term domestic migration. This means that 18.5 percent (3750 persons) of the total population was involved in some kind of migration. This is almost equal to the total number of households counted in the 1952 census (3804). Although many households will have contained several migrants, it can be stated that, as long ago as the 1950s, a sizeable proportion of the households in the Todgha was affected by migration.

Almost all forms of labour migration in the Todgha valley concern the migration of men. Table 4 shows that the Ahl Todgha participated most intensively in the migration to Algeria. The mean migration participation rate for the Ahl Todgha was 8.2 percent, with percentages varying from 6.2 percent for Tinghir and 13.2 percent for the Amzaourou fraction. The villages of El Hart participated less, with 5.0 percent of the total population. But most remarkable is the very low migration participation of the Aït Atta, with only 1.9 percent migrants in Algeria, and no migrants in France. Almost the same pattern holds for domestic migration. There is, therefore, a strong ethnic differentiation as far as participation in migration is concerned, with the Ahl

Todgha showing the strongest participation in international and domestic migration and the Aït Atta the lowest involvement.

Figure 6 Destination of Todgha migrants in 1954 and 1975



Source: Authors' own calculations based on 1952 and 1971 national censuses, French army archives in Paris-Vincennes cited in Büchner 1986: 117. The values show the total number of migrants as a percentage of the total population of the Todgha.

### 3.2.3. The 'Golden Age of migration' (1960s and 1970s)

The 1960s were characterised by a great shift in international migration patterns originating from the Todgha, i.e., the end of the Algerian migration and the boom in the labour migration to France. The first Todghaouis who went to France were soldiers recruited into the French army. Several Todghaouis fought in the Second World War at the European fronts. Between 1948 and 1952, about twenty Ahl Todgha were recruited to work in the coal mines of the French northern departments Nord and Moselle. Some of these first labour migrants left to work in the automobile industry (D'Achon 1952).

A second wave of migration to France occurred after the independence of Algeria in 1962. Many Todghaoui worked there for the industries and agricultural enterprises of the French colons. Virtually all colons left Algeria shortly after independence. This led to a rapid economic downturn and deteriorating or disappearing employment opportunities for Moroccan workers. To this was added the political hostility between Morocco and Algeria which marked this period. Although many returned to Morocco, there are several cases of Todghaoui being invited by their bosses to work in the new enterprises they established in France (Büchner 1986:120). Others went on their own initiative from Algeria to France, as the employment market conditions in France improved rapidly in this time. They generally worked in the construction sector, industry or as agricultural labourers, the traditional professions of domestic as well as international migrants from the Todgha.

The migration from Algeria to France was merely the forerunner of the great boom of direct labour migration from Morocco to Europe that took place in the late 1960s and

early 1970s, in which the Todgha took a full part. In the Todgha, most migrants were initially directly recruited. Besides official labour recruitment, many acquired contracts themselves through family members already working in France. Others went on a tourist visa, and sought work on their own initiative. The great demand on the European employment market and easy immigration policies, ensured that most of these ‘anarchic’ immigrants succeeded in finding jobs and obtaining residence permits. As for Moroccan migration in general, migration by official recruitment channels was less important than migration by informal channels, such as family and village networks. Between 1954 and 1975, the number of Todghaouis working in France rose from 22 to 2,504. The most intensive labour migration took place in the late 1960s and early 1970s, with an absolute peak in the period 1968-1970.

Labour migration from the Todgha was predominantly directed at France, especially to the region of Montpellier, where many were employed as construction workers. Other important destinations are the Nice and Paris regions. Until the beginning of the 1970s, French state and private companies recruited in the Todgha. Other countries did not recruit in the Todgha. Nevertheless, a small number of Todghaoui migrated to other countries, in particular, to the Netherlands. Some villages, like Aït El Mesquine and Tadafelt, have a relatively high number of emigrants to the Netherlands, where most settled in the cities of Amsterdam or Alkmaar. There were mainly domestic migrants staying in Morocco’s big cities, where they responded to official Dutch labour recruitment. In their case, domestic migration served as a ‘trampoline’ for international migration. Others migrated from France to other European countries, or managed to obtain labour contracts for Libya and Middle East countries (Saudi Arabia, Iraq) in Rabat (Büchner 1986:120).

There is a strong inter-ethnic variation in this labour migration to Europe. As in the migration to Algeria, the Ahl Todgha participated most in the migration to France, with 8.5 percent of the total population working in foreign countries in 1975<sup>26</sup>. There was considerable variation between the different fractions, with migration participation rates varying between 4.1 (Tinghir) and 13.4 (Aït Snane in the upper Todgha). The Iqabline of El Hart participated considerably less, with a participation rate of 4.9 percent. The Aït Atta partly made up their arrears. In 1975, 4.5 percent of the Aït Atta population was working in foreign countries, which is considerably higher than the 1.9 percent in 1954. Migration exhibits a clear intra-valley gradient. A declining migration participation rate is observable going from the upper to the lower Todgha. The Ahl Todgha participated much more in the European migration boom, except for the urban centre of Tinghir, whose rates are much lower. This can be explained by the fact that the centre of Tinghir itself is a destination for intra-valley and regional migration.

In the aftermath of the oil crisis of 1973, the changed economic and labour market situation forced the western European countries to drastically change their immigration policies. Economic recession and growing unemployment caused labour recruitment to come to a rather drastic stop (cf. Müller 1998). From then on, regulations for obtaining visa and residence permits for these countries became increasingly difficult. In 1976, however, the Dutch government recruited 48 migrants

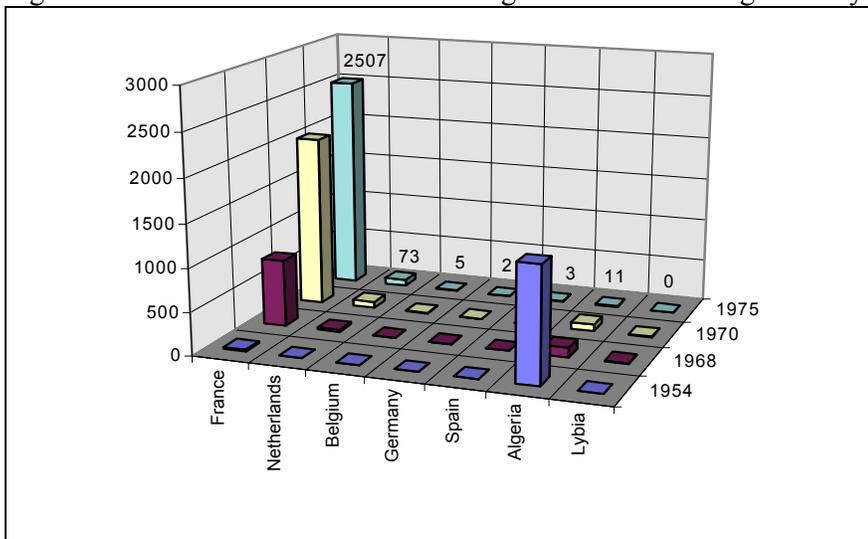
---

<sup>26</sup> To calculate these figures, the numbers of migrants were divided by interpolated population figures, based on the mean annual growth rate between the 1971 and 1982 censuses.

from the Todgha (Büchner 1986:124). This was the last official labour recruitment in the Todgha.

In the same period, domestic migration became relatively less important. This was mainly due to the drastic fall in the number of seasonal agricultural migrants (mainly harvest workers) to other regions. Between 1954 and 1975, the ratio of people participating in this migration dropped from 6.4 to 0.7 percent of the total population. Only the poorest households still participated in this migration. This meant the virtual end of seasonal migration, which had characterised the Todgha valley for a long time. In the same period, the long-term domestic migration to the cities of the Atlantic coast dropped from 5.5 to 3.4 percent, but remained almost stable in absolute numbers. Unlike international migration, domestic migration patterns do not show considerable inter-ethnic differences.

Figure 7 Destinations of international migrants from the Todgha valley 1954-1975<sup>27</sup>



Correct Lybia to read Libya

### 3.3. Current migration patterns

#### 3.3.1. Persistence of international migration

With the end of official labour recruitment and the gradual tightening of immigration controls, the possibilities of legal labour migration to north-western Europe dropped drastically after the mid-1970s. Economic stagnation and rising unemployment in Europe seemed to stop the need for new labour migrants. However, that is not to say that migration to Europe stopped. Migrants from the Todgha valleys developed various strategies to continue migration. The second half of the 1970s constitutes the beginning of the period of family reunification. From the mid-1980s, the dominant factor of emigration became family formation, i.e. the migration generated by the

<sup>27</sup> We have not yet been able to give the distribution per country for the total number of migrants in 1998, but we hope these figures will be available in the final report. In general, France has remained the main destination, but other countries gained in relative importance, mainly the Netherlands and, recently, Spain.

marriage of migrants legally residing in Europe to family members or a partner living in their village of origin (cf. Müller 1998, King 1993).

If we consider migration patterns over the entire post-independence period, the most remarkable development is the rapidly increasing participation of the Aït Atta in international migration. Whereas they hardly participated in the Algerian migration, they partly caught up in the 1970s, although to a lesser extent than Ahl Todgha. Whereas labour migration slowed down for Ahl Todgha and El Hart after the mid-1970s, the emigration of the Aït Atta of the lower Todgha only gained real momentum from this period, reaching the highest emigration levels of the whole Todgha in the 1980s and 1990s. Because to the rather delayed nature of Aït Atta emigration, they had to adopt other strategies to leave. This has to be seen in the context of the restrictive immigration policies of traditional destination countries such as France and the Netherlands, and the parallel rise of the southern European economies.

This explains why the Aït Atta have participated intensively in illegal migration movements, which were partly directed at the traditional destination countries, but an increasing number opted for the new immigration countries in southern Europe, notably Spain and, recently, Portugal. As all of these countries have regularly legalised illegal migrants, many of them obtained residence papers. The agricultural areas in north-eastern Spain (Catalonia) are the main destination for these migrants. Family reunification for these countries started only in the 1990s.

Legalisation of illegal migrants continues to encourage youngsters to leave illegally. It is striking that this illegal migration is predominantly an Aït Atta affair. Many Aït Atta left relatively late and to more diverse destinations than other ethnic groups populating the Todgha valley. At the end of the 1990s, each year an estimated number of fifty to hundred young Todghaoui (among whom the vast majority were Aït Atta) illegally left Morocco in search of work. This explains why the age profile among Aït Atta labour migrants is much younger.

The combined effects of family reunification, family formation and illegal labour migration, explain why emigration from Morocco to European countries did not decline significantly in the 1980s and 1990s, and even demonstrated a slightly positive trend (Eurostat data, in Müller 1998). The same holds globally for the Todgha valley. As Table 4 clearly shows, the number of labour migrants abroad as a percentage of the total population only slightly decreased after the 1970s. In 1998, international labour migrants still accounted for 6.0 percent of the total population. In total contrast to the 1960s and the 1970s, the Aït Atta now have the highest percentage of migrants of the whole Todgha valley, i.e. 8.6 percent, which is double the 1975 rates. The actual figures might be still higher, since the numerous illegal emigrants among the Aït Atta are mostly not counted in statistics.

The sharp rise in international migrants among the Aït Atta largely counterbalances the drop in the migration participation rate from the Ahl Todgha and, in particular, El Hart. On the other hand, it should be noted that the actual figures for the whole valley are probably lower than estimated, since figures for the populous urban centre of Tinghir were not available for 1998. The estimated migration participation rate for

Tinghir in 1998 was derived from the decrease in migration participation for the entire Ahl Todgha. However, it is possible that the participation rate in international migration in Tinghir has decreased more rapidly than in the other fractions, as Tinghir itself is a immigration destination.

It is important to note that the migration statistics of the caïdat of Tinghir generally include only male migrants who have left their families behind. Those who transferred their family to Europe normally 'disappear' after some time from the statistics, as their entire household is 'lifted' from the oasis. Most Ahl Todgha and El Hart migrants from the 'golden age of migration' are approaching or have already reached the age of retirement. Many of them either remigrated (and, therefore, are no longer counted as migrants) or have rooted themselves permanently in Europe by family reunification. These categories have therefore largely disappeared from the statistics. In other words, the group of classical first generation migrants that is still working in France without their families, is rapidly decreasing. The same statistical 'invisibility' problem exists for Todghaoui who married migrants in the context of family formation. As they reunite themselves with their partners in Europe, they will also disappear from the statistics. These processes partly explain the decline in the number of international migrants in the official migration statistics. These days, people continue to leave each year from the Ahl Todgha and El Hart, but they do so in a more or less hidden way which remains less visible in the statistics, i.e. by illegal migration and family formation.

### **3.3.2. Domestic migration**

Whereas seasonal domestic migration of harvest workers came to a virtual end in the 1970s, other types of more long-term domestic migration persisted. Although no exact figures are available, research in eight qsour of the valley clearly demonstrated that most (poor) households that are not involved in international migration, participate in domestic migration. In general, domestic migration is an option for poorer oasis households who did not participate in international migration. Since local labour demand is limited, and agricultural income is generally too limited, many people are obliged to seek work in other regions of Morocco.

Two main domestic migration patterns exist nowadays. The first is the migration to the big cities of western Morocco (Rabat, Casablanca, Marrakech, Agadir), where most are working in the informal service sector, industry or construction. If they are successful, migrants often end up by taking root in these cities through family reunification. The second pattern is the rather short-term migration to cities in the northern Rif region (notably Nador, Tétouan, Berkane, Al Hoceima). This domestic migration movement itself is partly an effect of the massive international migration from the Rif region to north-western Europe. Partly thanks to the investments of international migrants, these cities are have been experiencing an enormous construction boom. It is in this very construction sector in the Rif where the Todghaoui find temporary employment. In the majority of families that do not participate in international migration, because of their limited financial resources, at least one man is working in this sector as a bricklayer, plasterer or in some other

profession. They may work nearby in Tinghir centre itself, in the cities of the Atlantic coast or in the migrant cities of the Rif.

Tinghir is an ancient trading centre and is nowadays known for its very lively commercial sector. This means that a rather large number of Todghaoui are active in the ambulant trade or working as truck drivers. There is an intensive trade in fruit and vegetables with the Agadir region. More and more Todgha merchants are active in the Rif region (in particular Nador), from where most clothes, electronics and luxury goods sold in Tinghir originate. Many of these products, in fact, originate from the contraband trade with the Spanish enclaves of Ceuta and Melillia on the Mediterranean coast. Some Todghaoui are directly involved in this trade. Trading is also largely an activity of poor families. Many merchants work on an individual and occasional basis, and travel only seasonally. Others are more structurally involved in these trade networks, and often own their own transport. In nearly every qsar, there are a few merchants who have accumulated considerable wealth, which often exceeds that of the international migrants.

A final form of 'migration' that should be mentioned is the increasing number of youngsters who are studying in the big cities of Morocco, notably Marrakech and Agadir. Although it does not count as labour migration as such, its importance should not be underestimated. The experience of moving to and living in a big city in western Morocco for several years has a fundamental mental impact, which makes it difficult for young people to readapt to living in the qsar. The employment possibilities for highly skilled personnel in the Todgha are, in fact, very limited. However, with the high unemployment among university graduates, a substantial number of jobless graduates are forced to return to the Todgha through a lack of means. However, they remain focused on finding a job elsewhere in Morocco or, beyond a certain state of despair, on moving illegally to Europe. Yet each year some of them succeed in obtaining enrolments at French or German universities. 'Educational migration' can therefore be seen as the first step towards long-term professional migration, as many do not return eventually.

### **3.3.3. Immigration and intra-valley migration**

The Todgha is not only a region of departure, but is increasingly becoming the destination of immigration itself. Two patterns should be distinguished: intra-valley migration to Tinghir and immigration to Tinghir at a regional level. The intra-valley migration concerns the movement of people from the diverse qsour to Tinghir. A secondary growth pole seems to be developing in the Taghzout-Aït Aïssa ou Brahim cluster. The main reason for this intra-valley migration are the employment opportunities to be found in the rapidly growing service and handicraft industries. Besides international and domestic long-distance migration, many Todghaoui find employment closer to home, i.e. in Tinghir centre. They work in the important construction sector, services (shops, restaurants, coffee houses, hotels, call shops), car repair shops, and the numerous workshops of carpenters and welders, who mainly produce furniture, equipment and utensils for the local market.

If their qsar is located near Tinghir centre, these workers become commuters, turning the qsour around Tinghir increasingly into 'dormitory villages', as most household heads are absent during daytime. People who live further away, stay overnight in Tinghir, where they rent an apartment or construct a house themselves. In the longer term, this often leads to permanent settlement in Tinghir with their families. Besides the existence of a rather large employment market, living in Tinghir has several other advantages, such as the concentration of shops and other services, water and sewerage systems, the presence of administrative services, high schools (*collèges* and *lycées*) and professional education (*centre de formation professionnelle*), and direct road connections with Errachidia and Ouarzazate.

The increasing concentration of services, commercial activities and investments in Tinghir centre, attracts also an increasing number people from outside the Todgha (referred to as *berrani*). The majority of these immigrants are Aït Atta who come from the Saghro mountains south of Tinghir (Aït El Farsi, Alnif, Ikniouen), others come from places in High or Middle Atlas (notably Aït Hani, Tamtetch, Imilchil, Rich, Midelt) or from other oases, such as Tinejdat, Errachidia, the Tafilalt, and the Dadès valley. They settle in the new quarters south-west of the Tinghir centre (Bougafer, Wafa, Tichka). Another type of migrant are government workers, school teachers, highly-skilled employees of the nearby Imiter mine, and other professionals.

Some immigrants do not settle in Tinghir, but in or nearby the qsour. In Zaouïa Sidi Abdelali in the upper Todgha, newcomers are increasingly occupying the old qsar, which is being gradually abandoned by its original inhabitants, who are fleeing the narrow, moist and unequipped houses. The same phenomenon of 'ghettoisation' of the old qsour is visible in several places, such as Tinghir and in Boutaghat (Aït Aïssa ou Brahim). The few traditional qsour which are still inhabited, are concentrations of abject poverty. In Boutaghat, some *berrani* live in a separate quarter just outside the new qsar. They are often poor ex-nomads from rather distant regions, such as Aghbala, Tazzarine and the Draâ, who cannot afford renting a house in Tinghir. Moreover, they lack work experience outside agriculture and cattle-breeding. These new settlers in and around the old qsour are among the poorest inhabitants of the valley, and often do work that the original inhabitants nowadays often refuse to do, such as the digging of wells, maintenance of *khetaras*, and ploughing. The original Ahl Todgha and Aït Atta qsour dwellers regard them as outcasts.

Figure 8 Absolute numbers of international labour migrants in the Todgha valley

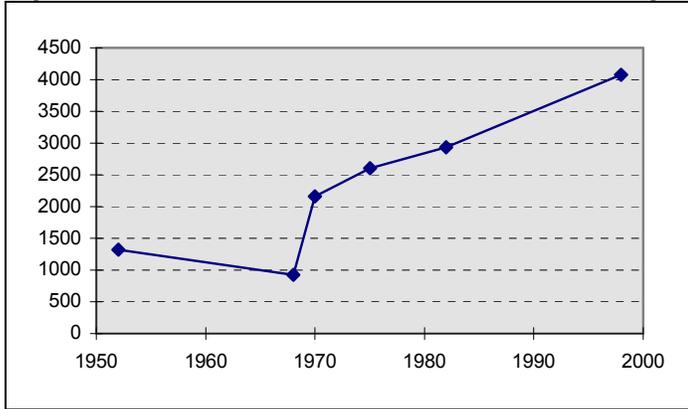
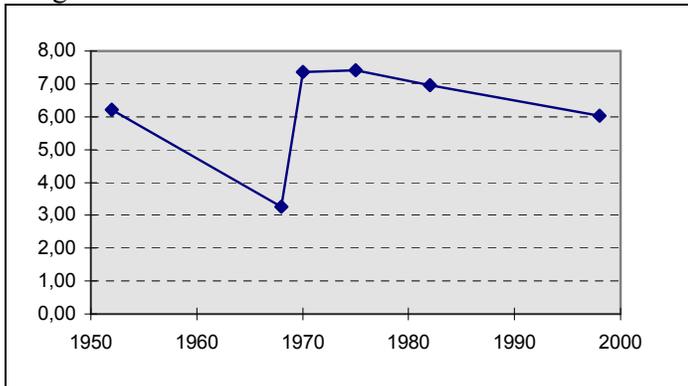


Figure 9 International labour migrants as a percentage of the total population in the Todgha



### 3.4. Conclusion

International and domestic migration has been a permanent phenomenon in the Todgha. Throughout the 20<sup>th</sup> century, people continued to leave the Todgha. Between 1954 and 1998, the absolute number of Todghaoui working and living abroad increased so sharply that it globally kept pace with population growth throughout the second half of the 20<sup>th</sup> century. In this period, the percentage of Todghaoui involved in international labour migration remained remarkably constant at a high rate of around 6.5 percent of the total population.

The 1980s and 1990s were characterised by a diversification of migration strategies as well as destinations. Although the already established Todgha communities in such cities as Montpellier, Nice, Paris, and Amsterdam continue to attract many ‘chain’ migrants, and France still is the main focus of emigrants, other destinations, such as the Netherlands, Belgium and, more recently, Spain, Italy, and Portugal, have grown relatively in importance. Besides international migration, domestic migration remained important, especially for poorer families who did not participate in international migration.

The coexistence of regional immigration movements towards the Todgha, intra-valley migration, with the continuing emigration from the valley to Morocco's economic heartland and Europe, clearly demonstrates the complexity of the current migration patterns. It also demonstrates the degree to which migration is rooted in the traditions and culture of the Todgha. Nowadays, almost any Todghaoui household is in some way affected by international and domestic migration. Some families count four to five generations of migrants. This has created a mentality which some authors have described as a 'culture of migration' (Massey et al 1993, De Haas 1999). For the Todgha, migration does not seem to be a passing, temporary phenomenon, but is an essential part of its identity.

## 4. LAND AND WATER RESOURCES

### 4.1. Introduction

This chapter will treat the land and water resources and their management in the Todgha.<sup>28</sup> The chapter will give an overview of the different irrigation systems existing in the Todgha, explicitly linking their development with the important social, political and economic changes which marked the 20<sup>th</sup> century. In addition, patterns of soil occupancy, as well as recent changes, will be described. Besides this time dimension, the spatial analysis, i.e. the diverging developments between the upper and lower parts of the valley will be central to this chapter.

To explain agricultural developments in the Todgha, it is necessary to comprehend the socio-political organisation of the valley, as it is through collective socio-political institutions that the main resources of water and land are allocated to qsour, fractions and individuals. The Todgha is what we might call a ‘hydraulic society’, in which water management is the main focus of political village institutions. The maintenance of a complex system of dams, irrigation channels and the distribution of the water among a large number of land and water owners, requires of necessity a collective organisation and a strong hierarchy (cf. Wittfogel 1957). In the Moroccan oases, the village *jemâa* also functions as the ‘water and land boards’ which enforce common law and ensured maintenance of the irrigation systems.

Recent societal changes such as individualisation, increasing ‘free-rider’ behaviour, and the imposition of central state power to the detriment of the effective power and influence of the traditional *jemâa*, must have had a clear impact on agriculture. In order to identify the causes of current agricultural developments, it is necessary to understand the fundamental impact of these social and political changes, besides other factors such as markets, labour costs, knowledge and capital availability.

### 4.2. Irrigation modes in the Todgha

As an agricultural region in an arid environment, access to water was crucial for agriculture and, hence, survival. The history of the Todgha should be interpreted as a continual struggle for water at its sources, which is the main cause of conflicts between ethnic groups, the different qsour and individuals. The principal life source of this region is the Todgha river, one of the most important tributaries of the Gheris catchment basin. In the Todgha, we can distinguish three principal forms of irrigation, which all depend on the surface or subsurface waters of the Todgha. The perennial surface waters of the oued Todgha and its tributaries supply a complex irrigation system, composed of dams and irrigation channels (plural: *souagui*, singular: *seguia*, *tarhga* in Berber). It is mainly the upper Todgha which profits from this irrigation type.

---

<sup>28</sup> For more details of the bio-physical context of the Todgha valley, please refer to the general introduction on the physical geography of the Todgha valley by El Harradji (1999).

Moving downstream from the sources, the river water gradually becomes less abundant, especially in summer. The qsour of Amzaourou and El Hart receive river water only in the winter half year, and the Aït Atta qsour receive no surface water at all, except during floods. This has forced the inhabitants of these qsour in the lower Todgha to exploit the underground water resources, by using the traditional *khettara* techniques, which have existed for many centuries. Since the 1970s, we have witnessed a steep increase in the number of motor pumps in the ancient oases of the lower Todgha. This technique has also made possible the creation of large new agricultural extensions around the Aït Atta qsour and in the alluvial plain of Ghallil. Nowadays, motor pumping is by far the most important source of water in the Todgha and has made possible a significant increase in the irrigated area.

### **4.3. River irrigation**

#### **4.3.1. Introduction**

The Todgha's three main sources supply irrigation water for the entire upper Todgha all year round and a considerable part of the lower Todgha in winter. These perennial sources are Aghbalou n'Tizgui (between 700 and 980 litres/second), Aghbalou n'Cheikh sidi Mhamed ou Abdellah (less than 100 litres/second), and Aghbalou n'Imareghen (the source of 'the poissons sacrés', 180 litres/second). They are all located in the upper Todgha near to the gorges. A complex system of dams and souagui transport water over distances up to more than twenty kilometres downstream. Besides the permanent irrigation with the Todgha's surface waters, the importance of irrigation by floods should not be underestimated. Although they are phenomena of short duration, they represent considerable quantities of water for agriculture. During each flood, all the *souagui* of the Todgha are opened to capture the flood waters, which are immediately used to irrigate all fields. The flood waters contain high quantities of sediments, which contribute to soil fertility.

#### **4.3.2. Irrigation systems and irrigation techniques**

All *souagui* originate from one of the dams which are located at several places in the Todgha. In the upper Todgha, the dams are built of natural materials, such as branches, soil and stones. This weak construction makes them vulnerable to damage by floods, but also easy to repair. In the Todgha we can distinguish three types of souagui. The primary souagui are those which take the water from the dams. The Todgha has a total of 34 primary souagui. A primary seguia consists of two parts. The part which transports the water from the several dams in the Todgha river to the first fields is called the 'dead head' (*ras miyit*), followed by part consisting of diverse ramifications to secondary souagui, which transport the water to the different agricultural sectors. From the secondary channels, the water is directed in tertiary channels, which serve to irrigate the plots. Irrigation does not necessarily take place from a tertiary channel, but is also possible from a secondary channel, depending on the exact location of the plot.

Most irrigation channels are directly dug into the soil. In the rare cases that concrete is used as building material, it is mainly concerns for channels. The only irrigation technique used in the Todgha, including the *khettara* and motor pump zones, is the submersion of flood basins (*guemmounes*). Each plot is divided into small flood basins to facilitate this type of irrigation. The size of the flood basins varies considerably, but does normally not exceed 100 square metres. No other irrigation techniques are used in the Todgha, except by a few farmers in the Ghallil plain who use drip irrigation. The earthen irrigation channels and the submersion techniques cause high water losses through infiltration and evaporation.

#### **4.3.3. Irrigation management: The *nouba* system**

The necessity to share the water from one collective source, the Todgha river, between different qsour and between the different ethnic lineages and individuals within each qsar, has led to the development of a water distribution system based on the *nouba*, which means ‘water round’ or ‘water cycle’. During the total length of the *nouba*, the right to use the water of the river circulates among all the peasants entitled to irrigate. Water rights are measured in time units, and the length of each individual turn is exactly known and, nowadays, often documented. The *nouba* passes among all the peasants, following a strict order and, after completion of the cycle, it repeats itself. In view of the high number of qsour and peasants involved in the Todgha, this water division system is organised at several levels. At the valley level, the first division is between the seven administrative fractions of the Ahl Todgha, including El Hart. Each fraction has a well-defined right on a certain number of days within each *nouba*. These water turns are subdivided between the different qsour of each administrative fraction. In each qsar, the *nouba* is subdivided between the main ethnic lineages (*âadam*) and, finally, among the individual peasants.

Irrigation generally takes place by successively submerging all plots located along a tertiary seguia. Subsequently, all plots located along the following tertiary seguia are irrigated, etc., until all the plots located along the secondary seguia have been irrigated. Thus, the irrigation follows a spatial system, and water rights are generally not individualised to the extent that the water owner has the right to irrigate a plot which is located at another spot. In the water-abundant upper Todgha there is generally more freedom to irrigate plots in the area of another primary or secondary seguia, and peasants often enter into informal arrangements to change the order within the *nouba*. This flexibility enables them to surmount the fixed and imposing nature of the *nouba*, in order to better respond to the agricultural requirements of each plot. In the lower Todgha, this flexibility does not generally exist, as water is scarcer and its quantity is generally insufficient to irrigate all the plots.

Water rights in the Todgha are directly linked to the possession of land. The ownership of a plot in the ancient oasis automatically brings with it the right to irrigate this plot. In Moroccan terms this means that ‘water is married to the land’. It is only recently that some Todghaoui have started to sell their land without water rights, or the water rights without the land. This phenomenon is generally limited to a few qsour in the lower Todgha dominated by motor pumping. In several Moroccan oases, water rights are often sold without land, which can lead to a uneven

distribution of land and water, with some peasants possessing much land, but little water, and the reverse. The ‘land and water marriage’ system used in the Todgha prevents such a situation.

#### 4.3.4. The role of the *jemâa* in collective water management

The maintenance of the irrigation system can be divided between collective labour, in which the whole qsar participates, as well as individual labour. As the whole irrigation system depends on the good state of the dams, the latter have to be maintained frequently. Collective maintenance is obligatory at least once a year and after each flood. The dams in the upper Todgha (in the administrative fractions of Aït Tizgui and Aït Snane), because of their fragile construction, demand a more frequent maintenance than the dams of the lower Todgha, which are mostly constructed of concrete. The maintenance of the vital ‘dead heads’ of the primary souagui, as well as the secondary souagui, is performed by collective labour. The maintenance of tertiary souagui and the plots is the responsibility of individual peasants and is not controlled by the qsar’s *jemâa*.

Participation in collective labour is organised according to the rule that each adult man<sup>29</sup> in the qsar is obliged to participate. This collective labour is organised by the qsar’s *jemâa* without reference to the agricultural or other property of the participants. The collective works are organised under the authority of an *amghar-n-tamazirt* (also known as *amghar-n-taqbilte*) or ‘land chief’, who is elected each year by the lineages’ representatives of the traditional *jemâa* of the qsar to manage all water and land affairs. This chief supervises the works and divides the tasks between the participants, allocating the heavy tasks to the young men and the light tasks to the older men. For the maintenance of souagui, for example, the older men assume tasks like cutting and removing branches and twigs along the seguia which hinder the free water flow and the maintenance works. The younger men assume the heavier tasks, such as removing accumulated sediments from the irrigation channel. For this work, the chief divides the seguia into three-metre sections (the *asfil*), in which each section has to be cleared by two persons. Specific tasks are sometimes performed by specialists (*mâalmin*) in return for payment

A person who is not able to participate to collective labour has to pay the labourer replacing him or he has to prepare a meal for all the workers. If somebody refuses entirely to contribute, he can be fined by the *amghar-n-tamazirt* or punished by the *jemâa* by social exclusion. Nowadays, with the erosion of the effective power of the traditional *jemâa* and the decreasing economic role of agriculture, more and more people are evading their collective obligations. Common law, which used to regulate collective work, is becoming increasingly difficult to enforce. Although the river irrigation system is still in a good state, the maintenance of the irrigation system is becoming increasingly difficult to guarantee.

---

<sup>29</sup> This system of labour participation is called *had-saïm*, a term which refers to the rule that each adolescent who is old and strong enough to fast during Ramadan, is considered to be an adult.

#### 4.3.5. The *nouba* as a political instrument

The *nouba* is the principal collective instrument for regulating the distribution of water from one source between the different *qsour* of the valley. The power differences between Todgha's *qsour* are reflected in the actual water distribution, in which some *qsour* have disproportional water rights in relation to the size of their agricultural area. In general, the *qsour* of the upper Todgha, whose agricultural area is small, have benefited relatively more from this water than those of the lower Todgha, even though the agricultural area and water needs of the latter are higher.

As a political instrument, water distribution has undergone constant changes throughout Todgha's history, depending on the power relations between the main ethnic groups and the different *qsour*. Although there are no accurate historical records over the period until the 20<sup>th</sup> century, it seems certain that the control of and access to these scarce water resources has been the cause of numerous conflicts between the *qsour* of the lower and upper Todgha. The valley's oral traditions abound with accounts of violent conflicts and coalitions between different *qsour*. Water was an important instrument for enabling the upper Todgha *qsour* to exert political pressure on the downstream *qsour*, and *qsour* did not hesitate to use military force to defend their interests (cf. De Foucauld 1885, Büchner 1986). In the absence of a central (state) authority, access to water has been the main focus of inter-*qsour* struggles. The group controlling the water sources also controlled power in the Todgha.

In the 20<sup>th</sup> century, too, political developments in the Todgha have had a clear impact on the organisation of the valley's *nouba*. A good example of 'water power games' is the arrival of *caïd* Ba Âli in the valley in 1919 (see Chapter 1), who deprived *qsour* which refused to surrender of access to the Todgha water. As elsewhere in Morocco, the French understood the importance of water in the political and economic life of the *qsour*. This life source was an intelligent means of controlling the *qsour*, who often contested each other. In the name of realising an equilibrium between the upper and lower Todgha, the French authorities intervened in the division of water. It was in 1942, under supervision of the colonial authorities, that the *chioukh* (the representatives of the administrative fractions) of the *qsour* of Ahl Todgha and El Hart assembled to decide on a procedure for a new division of water. As there are no documents about the division of water before the colonial era, it is not possible to determine the exact nature of the change in the distribution imposed by the French. According to oral sources, however, the new division favoured the *qsour* which had aided the establishment of the colonial authority in the Todgha. The most important allied *qsour* were Tagoumast, Halloul and Tinghir. The division (*nouba*) established under the French was the following:

**Table 5 Division of water (*nouba*) between the administrative fractions from 1942**

Administrative divisions	Quantity of water (in days)
Tizgui	2
Aït Sname	3
Igourtane	7
Tinghir & Afanour	6
Aït Ouamast & Aït Mhamed	6
Amzaourou	7
El Hart Mourabitine	5
El Hart Niaamine	6
Total	42

Source: Fieldwork

**Table 6 Division of water (*nouba*) between the administrative fractions after independence**

Administrative divisions	Winter <i>nouba</i> (in days)	Summer <i>nouba</i> (in days)
Tizgui	permanent	permanent
Aït Sname	3	5
Igourtane	7	5
Tinghir & Afanour	6	5
Aït Ouamast & Aït Mhamed	7	7
Amzaourou	7	0
El Hart Mourabitine	5	0
El Hart Niaamine	6	0
Total	41	22

Source: Fieldwork

It was probably the first time in Todgha's history that a *nouba* was formalised and documented. This new division also marked the beginning of a new era, in which the central political power would henceforth dominate water politics in the valley, at the cost of the power and independence of the qsour' *jemâa*. After independence, the official local authority intervened a second time to establish a new division, which is still in force. The most important change was the creation of two seasonal *noubas*: a summer *nouba* and a winter *nouba*.

The winter *nouba* is in force over a period of six months between 15/21 September and 15/18 March. During this season, all the qsour of the Todgha except those of Aït Atta, receive water from the Todgha river. The total duration of each winter *nouba* is 41 days. Downstream qsour have right on more days of irrigation than those of the upper Todgha, as their agricultural area is larger. However, the rights of the qsour of El Hart are disproportionately low, as they have a much larger area to irrigate. Thus it was again the qsour of the upper Todgha who profited disproportionately from the new winter *nouba*. However, with the establishment of the summer *nouba* this bias was further increased.

The summer *nouba* is in force from 15/18 March until 15/21 September, and is almost half as long as the winter *nouba*, i.e. 22 days. Only the qsour in the upper Todgha as far as Tinghir and the qsour of the Tagoumast fraction (Aït Ouamast) receive water during summer. Although the flow of the Todgha is almost constant all year round, the extremely high temperatures and the high evaporation in summer significantly increase the water needs of crops. This new *nouba*, which doubles the irrigation frequency in the upper Todgha in summer, made it possible to cultivate the fields all

year round in this part of the valley. The qsour of Aït Tizgui even gained the right to unlimited irrigation during the whole year.

However, this new *nouba* undoubtedly constituted a deterioration for the Amzaourou and El Hart qsour, who were now excluded from any water rights during six months of the year.<sup>30</sup> Again, the *nouba* seemed to reflect the power relations within the valley. The *nouba* favoured the qsour of the upper Todgha, and especially those around Tinghir. This new situation would further encourage the peasants of the lower Todgha to exploit the underground water resources of the Todgha, initially by *khettara* techniques, but from the 1970s mainly by the rapidly increasing number of motor pumps.

It is the *caïd*, in consultation with the *chioukh* of the administrative fractions, who decides on the exact date of the beginning of the winter and summer *noubas* (between 15 and 18 March for the winter *nouba* and between 15 and 21 September for the winter *nouba*), and who intervenes in conflicts between the different qsour. Although the establishment of this new *nouba* has meant a deterioration for the downstream qsour, the state-supervised divisions of the 20<sup>th</sup> century have also marked the end of the violent conflicts between the qsour on the control of water. It is now the local authority representing the central state, which assures the application of this formal contract between the qsour.

Notwithstanding this relative peace, the management of the inter-qsour water division is highly complicated and remains a source of tensions and inter-qsour conflicts up to the present. These tensions tend to become more severe during periods of drought. Each qsar, during its turn within the *nouba*, closely watches over the correct execution of the division and makes sure that other qsour do not receive more than they are entitled to. For instance, during their turn, the qsour of El Hart send people to camp close to each dam along the Todgha, in order to guard the passage of their water from the dams to their fields. It is an endless struggle against deceit. The Todgha valley has known a great violent confrontation which opposed the qsour of the lower Todgha, especially El Hart (which suffered the most under the new post-colonial *nouba*), to those of Ait Snane and Igourtane in the upper Todgha. The state has responded to this conflict by sending military forces. Several other conflicts over water and, to a lesser extent, land have been reported.

#### **4.4. *Khettara* irrigation**

##### **4.4.1. Introduction**

The *khettara* represents an ancient, but sophisticated, technique which enables underground water resources to be tapped for irrigation. Originating from what is now Iran, it has spread over the Middle East and North Africa and can be found throughout

---

<sup>30</sup> A study of aerial photographs taken in the summer of 1964, i.e. before the introduction of agricultural motor pumps, clearly shows the consequences of this new water distribution. A large part of the fields of Amzaourou and El Hart lie fallow during summer, apart from a few parts irrigated by *khettaras*, while the fields of the upper Todgha are green even in high summer. In contrast to Amzaourou and El Hart, the fields of most Aït Atta qsour are relatively green, as their *khettaras* mostly have a perennial water flow.

semi-arid and arid Morocco. The system taps the groundwater table by means of a nearly horizontal tunnel which is dug from the well to the surface over a long distance. At regular distances, vertical shafts are sunk which enable access to and maintenance of the tunnel. As the *khettara*'s tunnel is constructed in such a way that it has a lower gradient than the terrain under which it is constructed, the tunnel transporting the water becomes gradually shallower until it emerges above the ground at a distance of several kilometres from the first well, which mostly lies at a depth of 10 to 20 metres. In many oases, the water flowing out of the *khettara* is stored in a reservoir. In the Todgha, the water is directly conducted from the outlet of the *khettara* into a system of *souagui* to irrigate the fields.

The *khettaras* of the Todgha have been dug in the alluvial plain of the river, exploiting the important underflow of the river. In the 1970s, the total flow of the *khettaras* of the Todgha amounted to 12.5 Mm<sup>3</sup>/an, which represents one quarter of all water resources in the valley. According to Ruhard (1977) "Les khettaras tendent à surexploiter les nappes en dépriment progressivement de leurs réserves. A long terme, leur exploitation est de moins en moins rémunératrice, car elle est grevée par l'entretien d'une galerie adductrice de plus en plus longue et l'obligation de foncer des puits de plus en plus profonds". *Khettaras* mainly exist in the lower Todgha in the qsour of El Hart and Aït Atta, and are either the property of one qsar or of certain lineages. According to oral tradition, the water flow belongs to the descendants of the families who participated in the construction of the *khettara*. The water rights of each household would be equivalent to the individual's contribution in labour or capital.

In general, the Aït Atta, whose agriculture used to be entirely dependent on this technique, neither dig, nor (if possible) maintain, their own *khettaras*. They regard it as an inferior activity and generally do not master the technique. Digging and maintaining *khettaras* is a dangerous activity, which demands a high level of expertise. The Iqabline of El Hart also master this technique, but generally refuse to work for their hostile Aït Atta neighbours. This explains why the Aït Atta mostly employ non-Aït Atta specialists from outside the Todgha, who often come from relatively distant regions, such as the Drâa.

#### **4.4.2. Collective management and maintenance of the *khettaras***

As is the case with the river irrigation, the management and maintenance of the *khettara* is the responsibility of the *jemâa* of the qsar, which elects an *amghar-n-tamazirt* each year. The principal difference is that in the Todgha, a *khettara* generally belongs only to one qsar. Consequently, there are no *noubas* between different qsour, which makes the distribution of water less complicated. However, because of their lengths of several kilometres, the first parts of most *khettaras* cross the territory of other qsour, a situation which requires peaceful relations and, hence, settlements with neighbouring qsour. This necessity explains the existence of 'passage rights', implying that other qsour have the right to use a part of the water of the *khettara* in exchange for the guaranteed passage of the water towards the qsar owning the *khettara*.

Each individual *khettara* water owner has the right to exploit the water in the way he wishes, and has the right to sell, rent or to mortgage the water to others. The distribution of the water is organised according to a *nouba*, which is different in each qsar, according to distribution methods, the water flow and the number of ethnic lineages and persons entitled to irrigate. The distribution of water rights (*tagourt-n-aman*) was previously based on measurement by the *tanast* (pl: *tinassen*), a small dish with a tiny hole which was placed in a bucket of water. The time needed to fill the *tanast* with water and to sink it was equal to one *tanast* (cf. Otte 2000). The length of a *tanast* could differ slightly from qsar to qsar, but it normally lasted from seven to ten minutes. The *tanast* was especially useful during the night and on sunless days, when shadow measurement was not possible. The traditional measures have now been completely replaced by clocks.

As in the case of river irrigation in the upper Todgha, all persons owning water rights are obliged to participate in the collective maintenance of the *khettara*, regardless of the amount of land and water owned. This maintenance is necessary at frequent intervals, since sediment accumulations in the *khettara*'s tunnel quickly lead to a decrease or halt in water flows. If the maintenance is done by outsiders, all owners are expected to contribute to their payment. The maintenance generally consists of removing sedimented soil from the *khettara* and main *souagui*. In some cases, qsour extend the *khettara* in an upstream direction or construct a second tunnel in order to increase the water flow.

#### 4.4.3. The decline of the *khettaras*

Out of a total of 39 *khettaras* in the valley, 21 have ceased to function or contain only a negligible flow in relatively wet years. Most of the *khettaras* that are still functional have suffered a decrease in their flow. The importance of *khettara* irrigation has therefore significantly decreased in most qsour. In the 1970s and 1980s, thanks to state intervention by the agricultural extension office, ORMVA, of Ouarzazate, some of the remaining *khettaras* have been reinforced by concreting their tunnels. This has proved to be an effective way of reducing the infiltration of water and the accumulations of soil in the tunnel, thus drastically reducing the need for maintenance and had rendering the vertical shafts superfluous. Nowadays, only a few *khettaras* have significant water flows, notably those of El Hart Mourabitine, Tadafelt, Aggoudime and Boutaghat. In the course of the 20<sup>th</sup> century, the majority of the other qsour lost almost all their *khettara* water, which has in some cases led to the abandonment of agricultural fields (notably in Taghia and Ghallil n'Aït Isfoul), but has usually accelerated the development of motor pumping.

Two main developments seem to underlie the decline of the *khettaras* in the Todgha. Firstly, the erosion of the effective power of the traditional authority of the *jemâa*, the growing autonomy of households vis-à-vis this institution, and the declining motivation for agriculture have contributed to a deterioration in the collective maintenance of the *khettaras*. The maintenance of *khettaras* is highly laborious, dangerous and requires a certain degree of expertise. This makes *khettara* irrigation more susceptible to bad maintenance than river irrigation, which takes water in large quantities by a system of dams and *souagui*, which is relatively easy to maintain and

can even be restored in the case of a total breakdown. This explains why *khettara* irrigation in the lower Todgha has suffered more than the river irrigation in the upper Todgha from the general 'collective maintenance crisis'. A second factor contributing to the decline of the *khettaras* appears to be the migration-related installation of numerous motor pumps from the 1970s in the lower Todgha, which appears to be causing a lowering of groundwater tables.

The extent to which the decline of the *khettaras* can be explained by each of the above factors is not entirely clear, and this question can be answered only by specific hydrological study. However, it seems highly probable that both factors have played a simultaneous role and have reinforced each other as, with the lowering of the flow in the *khettaras* and their subsequent decreased agricultural importance, the motivation to maintain them will further decrease, and motor pumping will be further encouraged. Apart from the question of to what extent motor pumping has contributed to the lowering of groundwater tables, the rapid rise of motor pumping and agricultural extensions have in any event reduced the relative importance of *khettara* irrigation, and owners of motor pumps tend to be less motivated to contribute to the maintenance of the *khettara*.

Conflicts occur between different ethnic lineages over their contribution to the maintenance of the *khettara*. An increasing number of community members, especially those who are involved in migration or other non-agricultural activities, are not motivated to participate in collective works. Besides a decreasing motivation for agriculture in general, many people refuse to participate, since they do not agree with the rule that anybody should participate equally, regardless of land and water ownership, as this rule favours those owning a lot of land and water. Migration has certainly accelerated this development, since it has contributed to the importance of non-agricultural revenues, the rise in motor pumping and the greater autonomy of individuals vis-à-vis the traditional authority of the *jemâa* and the *amghar*, which have lost their former status in any event.

## **4.5. Motor pumping**

### **4.5.1. Rapid development in the lower Todgha and the Ghallil plain**

The motor pump was the last water-winning technique to appear in the Todgha. The traditional method of winning water from wells by the use of human or animal traction, the *aghrou*) was intended for domestic needs and for the irrigation of small plots. With the arrival of the French, the first motor pump for drinking water was installed in the valley near Tinghir and a second pump in the Ghallil plain to irrigate the farm of the only French *colon* who ever settled in the Todgha.

It was only from the 1970s, that the Todgha peasants started to install motor pumps at increasingly rapid rates, a development which gained further momentum in the 1980s. Although motor pumps had become common in the lower Todgha, the number of motor pumps further increased in the 1990s. There are two principal causes for the rapid rise of motor pumping in the lower Todgha. Firstly, the *qsour* of the lower Todgha have historically suffered from a lack of water. With the establishment of the

new post-colonial *nouba*, this situation was further aggravated. The *khattaras* on which the Aït Atta qsour entirely and El Hart partly depend, provide only weak and decreasing flows. Especially during periods of drought, this could lead to an acute lack of water. In general, the traditional gravity water resources were insufficient to irrigate the whole agricultural area throughout the year. A second factor is the international migration from the Todgha to Europe, which rose in the late 1960s and early 1970s. It was mainly the migration remittances which permitted a large number of Todghaoui to pay labourers to dig a well<sup>31</sup> and to buy a motor pump.

The investment in motor pumping was a relatively easy way to increase agricultural production on the same area, and even enabled peasants to produce two harvests per year. It also 'freed' the peasants from collective restrictions associated with river and *khattara* irrigation. Although many motor pumps were initially installed to increase production in the traditional oasis, the rise of motor pumping coincided with the creation of new agricultural extensions near the Aït Atta qsour and the extreme downstream part of the Ghallil alluvial plain, east of Aggoudim.

According to estimates by the CMV at Tinghir, the total number of agricultural motor pumps in the Todgha amounted to 1100 in 1999, with a clear concentration in the lower Todgha and the Ghallil plain. The motor pumps are principally individual enterprises, as only five percent of all pumps have been installed by groups of peasants. In most of the upper Todgha, there are no agricultural motor pumps, as river water is abundant and there are no extensions.<sup>32</sup> The motor pumping area begins near the qsour of Taourirt and Tikoutar. Most of these upstream pumps were installed in the 1980s, when the valley suffered under a long-term drought, which drastically reduced the flow of the Todgha. At the end of the 1990s, most of these pumps were not in use. Going further downstream from Tinghir, the density of motor pumps increases rapidly.

The *communes rurales* of Todgha Soufla and Taghzout alone comprise 94 percent of all motor pumps and 89 percent of the total are irrigated by motor pumps. The irrigation in the recent extensions and the Ghallil plain (which are included in the Taghzout *commune*) is almost exclusively based on motor pumping, where about 21 percent of all motor pumps in the Todgha are located. Nowadays, approximately 79 percent of all agricultural land in the Todgha is principally irrigated by motor pumps, thus demonstrating the current importance of this irrigation mode.

---

<sup>31</sup> In the Todgha, almost all wells, which may reach depths up to 20 metres, are dug manually.

<sup>32</sup> It should be noted however, that many households in the upper Todgha do own small electric motor pumps, which serve to pump water for domestic use, but also frequently to irrigate the *ourti*, gardens located within the compounds, which are rather small, but often produce a significant quantity of vegetables and fruits for domestic consumption. As the houses are located at a rather elevated position, the river water cannot reach them, which necessitates this small-scale pumping.

**Table 7 Apportionment of the irrigated area by irrigation modes**

Irrigation mode	Number of motor pumps	Area irr. by motor pumps	%	Area irr. by river or khattara	%	TOTAL	%
Todgha Oulya	0	0	0,00	150	100,00	150	100.00
Tinghir	60	280	56,00	220	44,00	500	100.00
Todgha Souffla	315	450	69,23	200	30,77	650	100.00
Taghzout & Ghallil	605	1850	93,91	120	6,09	1970	100.00
<b>TOTAL</b>	<b>980</b>	<b>2580</b>	<b>78,90</b>	<b>690</b>	<b>21,10</b>	<b>3270</b>	<b>100.00</b>

Source : CMV Tinghir and CMV Taghzout 1996

#### 4.5.2. Durability of motor pumping

The rise of motor pumping has been an anarchic development, which is not subject to any control or planning by the local authority or the local agricultural officers of the CMV. The peasants receive neither assistance from these bodies in choosing suitable sites to dig the wells or the right type of motor, nor financial aid. Peasants do need formal permission to install a motor pump, but in practice it is an uncontrolled development. At the valley level, there is increasing competition between peasants, who continue to install new pumps and dig increasingly deeper wells, without taking into consideration the availability and quality of the water beforehand. Especially in zones which are not directly located on the terraces and aquifers of the Todgha, peasants often dig up to twenty metres deep, without finding any water or finding only water of bad quality.

According to the peasants themselves, the pumping adversely affects the level of the water tables, leading to the desiccation of *khattaras* and of the very wells used for motor pumping and forcing peasants to dig deeper, but several desiccated wells are also being abandoned (for example, in Boutaghat, Taghia and Ghallil-n'Aït Isfoul). Qsour tend to accuse upstream qsour of causing the desiccation of their *khattara* and wells by over-pumping, while the downstream *qsour* accuse them of doing the same thing to them. In reality, all the qsour are participating in the presumed over-pumping which has become a self-reinforcing process, so that it is a case of the pot calling the kettle black. Several conflicts over water have been brought to trial. The pumping competition both provokes the increase in the depth of the wells and presumably lowers the groundwater tables. Although it must be stressed that these are hypotheses which still need confirmation or refutation by detailed hydrological research, it seems correct to assume that the increase in the number of motor pumps cannot be continued without causing an overexploitation of water resources in the long term. The advent and introduction of motor pumping has undoubtedly contributed to the intensification and extension of agriculture in the lower Todgha and the Ghallil plain, but its own success now risks turning against itself.

## 5.6. Land resources

### 5.6.1. Landownership

Privately owned land (*melk* in Arabic) represents more than 97 percent of the total agricultural area in the entire Todgha valley. Although the possession of land is generally linked to that of water, this is not automatically the case for the fruit trees (i.e. date palms, olive or almond trees) on the land. Deeds of sale have to specify what is sold with the land, thus it is possible to buy a plot without the fruit trees. This ‘double possession’ makes farming even more complicated, as the owner of the trees profits from the water used by the landowner to irrigate the seasonal crops on the same plot. Moreover, there are numerous conflicts over the shade of the trees, which hinder the growth of the annual crops.

Land with the *habous* status is given, let or conceded during their lifetime by devout individuals to religious foundations (a mosque, a *zaouïa*, a *marabout*), and which are nowadays administered by the Ministry of Islamic Affairs. *Habous* plots are generally characterised by their extremely small size, and represent merely 2.9 percent of the total agricultural area in the Todgha. They are mostly rented during five years to private persons, who are free to choose the crops and cultivation methods they prefer.

**Table 8 Legal status of the agricultural land**

<i>Communes rurales</i>	Private		Habous		Total	
	Area	%	Area	%	Area	%
Todgha Oulya	145	96.7	5	3.3	150	100
Tinghir	485	97.2	15	2.8	500	100
Todgha soufla	625	96.2	25	3.8	650	100
Taghzout	1560	97.5	40	2.5	1600	100
Total	2815	97.1	85	2.9	2900	100

Source: CMV 1996 [Are the area figures hectares, or what?]

The traditional *rhan* system or land mortgage, involves the transfer of land use rights to another person during a determined period, in exchange for a pledge in the form of a fixed amount of money on which both parties have to agree. The landowner is free to use this money as he likes for the duration of the *rhan*, but he has to return the entire amount at the end of the mortgage period. Field research showed that a very small amount of land is mortgaged and that *rhan* is limited mainly to the upper Todgha. Peasants generally refuse to confirm that they have mortgaged the land they own or they hide the fact, fearing social criticism, as mortgaging land to another person is interpreted as a sign of poverty. Most owners who mortgage their land have financial problems and many have lost their land, as they were unable to refund the pledge.

As with mortgaged land, research has indicated that the rental of land is rather rare in the Todgha, and that it is limited to the traditional oases irrigated by the river or *khetaras*. Rental of land in the new extensions is almost impossible, since agriculture necessitates investments in the digging of a well and the purchase of a motor pump. This is not attractive for the hirer, in view of the short term of land rental in the Todgha, which rarely exceeds one or two years. Rental of land including motor

pumps does not exist. The only real option for starting a new agricultural enterprise in the desert is land purchase.

### 5.6.3. Farm size and distribution of the plots

The majority of households in the qsour of the Todgha own land.<sup>33</sup> There is not a large class of landless households and, according to fieldwork data, the percentage of households without land does not exceed ten percent. The households who do not own land are generally impoverished (and forced to sell their land) or families originating from other regions. The possession of land has not only an agricultural significance, but also represents a high emotional value, since it symbolises the membership of the ethnic group and the rootedness in the Todgha.

Despite the fact that most households own land, the mean size of the agricultural enterprises is very small and landownership is unequally distributed. Farm holdings smaller than 0.5 hectare represent 41 percent of all enterprises in the valley. The smallest holdings are found in the extreme upstream part of the valley, near the gorges. In the *commune rurale* of Todgha Oulya, no holding is bigger than 0.5 hectare. Going downstream, we observe a clear gradient in which, with the gradual widening of the valley, the mean size of the enterprises becomes remarkably bigger (see Tables 11 and 12). There is a high inequality in land ownership. In the *commune rurale* of Taghzout n'Ait Atta, for example, the enterprises smaller than 0.5 hectare represent together only 27 percent of the total cultivated area, but represent 67 percent of all agricultural enterprises. In the same *commune*, enterprises bigger than one hectare represent 59 percent of the total area, but only 16 percent of all enterprises. In the lower Todgha, the enterprises in the old oasis are bigger than in the upper Todgha, and many of the peasants of the first zone have considerably extended their enterprises by colonising new lands in the new extensions around the Ait Atta qsour and in the Ghallil plain.

Each enterprise is divided into numerous small plots, which are generally scattered over the territory of the qsar within the oasis. As with the size of the total enterprise, it is also in the upper Todgha where we find veritable micro-plots, ranging between 100 and 1000 square metres. This phenomenon has to be explained by successive inheritance resulting in the splitting up of plots in a very limited space. Here too, there is a clear intra-valley gradient, with increasing mean plot sizes as we proceed downstream. However, the plots remain fairly small throughout the valley and rarely exceed 0.5 hectare, except in the recent extensions and the Ghallil.

The rarity of land is reflected in the elevated prices, which increase going upstream. In the ancient irrigated zones, land mobility is very low, i.e. land sales are rather rare, even by owners who hardly exploit their land. Selling land is considered to be a dishonourable act and a sign of poverty, which demonstrates the high emotional value attributed to land. In the upper Todgha, this 'land crisis' forms an important obstacle for agricultural development. Peasants wishing to invest in agriculture or to increase the size of their holdings are unable to do so. The small plot size hinders the

---

<sup>33</sup> Our discussion of agriculture in the Todgha excludes the urban centre of Tinghir, whose households are often immigrants themselves and are generally not active in agriculture.

mechanisation of agricultural activities. Agriculture is literally trapped here, since all the land in the narrow valley has already been exploited. Plots are so small that conflicts over the shade given by fruit trees in neighbouring plots are paramount and often lead to increasing 'shade competition', with everybody planting trees and reducing several zones to unproductive forests. The enormous complexity of land and water tenure systems makes reallocation unrealistic.

This deadlock situation has forced ambitious peasants of the upper Todgha to buy land in the Ghallil plain or in other regions, especially in the neighbourhood of Beni Mellal, the Middle Atlas, Rich and Tinejdad. In these places, the access to relatively large areas is easier and cheaper and a certain degree of mechanisation is possible. An important advantage is also that, in these places, the 'modernising' farmer is not bound to collective regulations and restrictions which govern agriculture in the traditional oasis (cf. Bencherifa 1993, De Haas 1998).

### **5.6.3. Recent divisions of collective land and extensions in the desert**

In the whole Todgha, ancient collective land is increasingly being claimed and divided by the qsour. Qsour claim the land immediately around their habitation as their private property and divide the land later between all households of the qsar. A distinction should be made between land claimed for habitation and land claimed for agriculture. In both the upper and the lower Todgha almost all communal land between the old qsour along the Todgha valley and along main routes was privatised between the 1970s and 1990s for the building of new houses outside the old qsar. This process has been completed in almost the entire valley. The new qsour now form a nearly continuous band of houses following the course of the Todgha and its oasis on both banks from the gorges via Tinghir as far as the lower Todgha qsour of Ikhba and Aït Yaâla (Amzaourou).

Further downstream, the inhabitants of the two qsour of El Hart have settled in five new villages around the new centre of Taghzout, and the inhabitants of the three qsour of the Aït Atta fraction of Aït Aïssa ou Brahim (Tlout, Boutaghat, Ighrem Aqdim) have settled along the road to Errachidia, which runs through their territory. This new centre has adopted the name of this fraction. The other Aït Atta qsour of the lower Todgha have also developed sizeable new settlement extensions. There seems to be an ongoing 'land claiming fever', since a second phase of land division apparently started in the 1990s, under which the last empty spots of the upper Todgha are being claimed for housing, as well as the land between Halloul, Afanour and Aït Aïssa ou Brahim.

Whereas settlement extensions are a general phenomenon in the whole valley, agricultural extensions are absent in the qsour of the Ahl Todgha. This seems to be purely related to geomorphologic factors. In the upper Todgha, between the gorges and Tinghir, the terrace (i.e. cultivable and irrigable area) of the river is very narrow, and hemmed in by steep mountains. In the more upstream part of the lower Todgha, in the fractions of Tagoumast and Amzaourou, the valley is not closed in by mountains, but the terrace remains fairly narrow and is hemmed in by high escarpments. The land beyond these escarpments is generally not suitable for irrigated

agriculture because of the virtual absence of soils. All the qsour of the Ahl Todgha, therefore, claim and extend their territory only for housing.

The qsour of Aït Atta and El Hart are more fortunate as far as agricultural extensions are concerned, as they are located in the wider part of the Todgha valley, where much of the fertile land on both banks of the valley is still uncultivated. Moreover, the important and fairly shallow underflow of the Todgha river provides rather abundant water resources. With the advent of the technique of motor pumping, exploitation of these plains was a logical development. In the course of the 1970s and 1980s, these extensions were largely developed and have considerably expanded the irrigated agricultural area of the Todgha.

Two types of extension can be distinguished. Firstly, almost all Aït Atta qsour and El Hart Niaamine have colonised barren land immediately adjacent to their qsour. Although the majority of these extensions are directly located on the terraces of the Todgha, some of the more marginal qsour have located their agricultural extensions on the banks of tributaries of the Todgha (Assif n'Taghia, Assif n'Tadafelt). These extensions vary in size between approximately 100 and 400 hectares<sup>34</sup>. The second type of extension is that of the important Ghallil plain, which is located at the eastern extremity of the old oasis and which occupies the right bank of the Todgha. It extends over a length of more than 10 kilometres and has a mean width of 4 kilometres. The land of this fertile plain located above important water resources has been claimed and divided between the inhabitants of El Hart Mourabitine and the three Aït Atta qsour of Aït Aïssa ou Brahim (Tlout, Boutaghat, Ighrem Aqdim).

Although the first modern exploitation in the Ghallil was established by a colon during French occupation, it was only from the 1970s and, especially, in the 1980s and 1990s that this development gained real momentum. Most of the current extensions were claimed and divided up in the 1970s, although new land is still being divided, e.g. north of the Aït Aïssa ou Brahim qsour and in Tangerfa.<sup>35</sup> The claiming and division of new land generally proceeds as follows. Firstly, a qsar or a group of qsour (as in the case of Ghallil) claims a piece of land. Normally it is ancient collective pasture land that has fallen more or less under the control of this qsar. As the status of this land is often uncertain and it is in any case not documented at all, land claims are mostly contested by surrounding qsour. This often leads to high inter-qsour tensions and small-scale warfare. Current divisions are the result of a deadlock in which qsour cannot reach agreement on division of the land. It is often only after many years of tensions and negotiations, that agreements are reached with other qsour, following which, recognition of the claims has to be sought from the local authorities.

Once the claim of a qsar has been recognised, the land is divided between the different households of the qsar. Among the Aït Atta, this division follows a system known as *tagourt*, in which the new land is divided into rectangular strips. The width of the band allocated to individual households is determined either by the area they

---

<sup>34</sup> Rough estimates. These figures need to be revised for the final report.

<sup>35</sup> The Tangerfa plain is a new extension zone on the High Atlas piedmont, north of Tinghir. This former pasture land has been claimed and divided between several Aït Atta qsour. As this plain is located outside the Todgha basin, it will not be treated in this text.

owned in the old oasis (as is mostly the case around the old qsour) or by the number of (adult) men in the household (as in the Ghallil). The most recent extensions tend to follow the latter system, since the first increases existing inequalities in land property. More and more people within the qsour are now arguing for an even more egalitarian system which also takes into account the number of women in the household, i.e. the total household size.

**Photo 1 Recent 'tagourt' extensions in Boutaghat<sup>36</sup>**



**Aerial photograph (16 February 1987)**

The new extensions are closely linked to motor-pumping, since water from the Todgha river and the *khettaras* does normally not reach these fields, and the water derived from floods is not sufficient. Only in some oases, such as Tadafelt and Boutaghat, has the *khettara* network been extended to irrigate part of the new extensions. Not all the land being divided is actually being exploited by households. The actual pattern is that some strips have been intensively cultivated, and others lie fallow. However, each year, more land is taken into cultivation. The households that

---

<sup>36</sup> In the photograph, the old oasis is visible at left bottom. The rectangular bands of the *tagourt* system are clearly visible. Note that the new extension zone is located between two dry water courses.

pioneered in this extension movement in the 1970s and 1980s, where generally directly or indirectly<sup>37</sup> involved in international migration. With some exceptions, it was mainly such households which afford the financial risks of digging a well and buying a motor pump. Nowadays, many non-migrants also possess a motor pump and the phenomenon is becoming increasingly general.

In the Ghallil plain especially, many owners of new plots who did not intend to practise agriculture, sold their land to outsiders. This led to the settlement of outsiders in the Ghallil plain. These new settlers are mainly Aït Atta from the Saghro mountains or Ahl Todgha. The latter, in search of land outside the enclosed upper Todgha, also buy land in the Bour Tinejdad (the downstream continuation of the Ghallil) or in more distant regions.

**Table 10 Extension zones of the qsar of Aït Atta and El Hart in the lower Todgha**

Qsar	Ethnic group / fraction	Location of extensions	Start of real colonisation (→ = ongoing)
El Hart Mourabitin	Mrabtin (Iqabline)	Ghallil plain	1980s →
El Hart Niaamin	Iqabline	Achdad	1970s
Aggoudim	Aït Atta	Mourambou (east of old oasis, west of Ghallil)	1970s →
Taghzout	Aït Atta	East of old qsar	1970s →
Ighrem Akdim	Aït Atta / Aït Aïssa	Ghallil plain	1980s →
Tlout	Aït Atta / Aït Aïssa	Ghallil plain	1980s →
Boutaghat	Aït Atta / Aït Aïssa	(1) Ghallil plain & (2) two zones north of old oasis	1970s & 1980s →
Tabsebest	Aït Atta	East of old qsar	1970s →
Ghallil N'Aït Issfoul	Aït Atta	None	-
Tiliouine	Aït Atta	West of qsar between Tiliouine and Ouaklim	1970s
Achdad	Aït Atta	North and west of qsar	1970s
Tadafalt	Aït Atta	East of the qsar on the other side of Assif n'Tadafelt	1960 →
Taghia N'Illemchane	Aït Atta	East of the qsar on the other side of Assif n'Taghia	1960 →

Source: Fieldwork

**Table 11 Total area in hectares of all the land by size of holding**

Area in ha	< 0.5	0.5-1	1-2	2-5	5-10	10-20	TOTAL
Todgha Oulya	150	0	0	0	0	0	150
Tinghir	300	200	0	0	0	0	500
Todgha Souffla	300	200	150	0	0	0	650
Taghzout	400	220	150	320	240	170	1500
TOTAL	1150	620	300	320	240	170	2800

Source: CMV 1996

<sup>37</sup> Households that are not themselves involved in international migration, may have close family members working in Europe. The latter often financially support their family members in setting up new enterprises.

**Table 12 Number of enterprises by the size of each holding**

Size in ha	< 0,5	0,5-1	1-2	2-5	5-10	10-20	>20	TOTAL
Todgha Oulya	500	0	0	0	0	0	0	500
Tinghir	800	390	0	0	0	0	0	1190
Todgha Souffla	650	390	120	0	0	0	0	1160
Taghzout	1200	320	106	120	37	13	4	1796
<b>TOTAL</b>	<b>3150</b>	<b>1100</b>	<b>226</b>	<b>120</b>	<b>37</b>	<b>13</b>	<b>4</b>	<b>4646</b>

source: CMV 1996

## 5.7. Conclusion

In the Todgha, land and water resources are unequally distributed over the upstream and downstream parts of the valley. The upstream qsour of the upper Todgha experience hydrological and biophysical conditions which are rather different from the downstream qsour of the lower Todgha. Whereas water is abundant in the upper Todgha, land is very scarce, while in the lower Todgha, the situation is the opposite, with relatively abundant land resources, but with scarce and less accessible water resources. This had led to diverging patterns of agricultural development, in which the recent introduction of motor pumping now seems to be boosting agricultural development in the lower Todgha.

The current situation is paradoxical in that the new agricultural developments are mainly located in the lower Todgha, historically the most marginal zone in terms of water resources. Although the upper Todgha has abundant water resources, this zone is also characterised by a lack of land resources. In the lower Todgha and, in particular, around the qsour of Aït Atta, land is relatively abundant, while water constitutes the principal limiting factor to agriculture. With the introduction of the motor pump, however, this limiting factor can now be surmounted, provided that enough investment capital is available. This has made possible the intensification of agriculture in the ancient oasis of the lower Todgha and in the new extensions. With the availability of the new techniques of motor pumping, land resources seem to have become the main limiting factor to agriculture in the Todgha. Whereas the agriculture of the water-rich upper Todgha is more or less stagnating, the genuine agricultural development is actually taking place in the lower Todgha and, especially, in the extensions around the qsour and in the Ghallil plain. However, this development also contains a serious shadow side. Although the Todgha boasts important renewable water resources, they are not quite unlimited. The anarchic growth of agricultural motor pumping is putting increasing stress on these resources and threatens, in the absence of government intervention, to lead to a overexploitation of this vital resource.

## 5. AGRICULTURE

### 5.1. General cropping patterns and ‘oasis myths’

In the Todgha valley, agriculture is characterised by the small size of agricultural holdings, a situation which has pushed peasants to produce intensively in order to profit optimally from the scarce land and water resources. The wide variety of crops is another characteristic of traditional oasis agriculture, as it responded to the need for self-sufficiency. We are currently witnessing the rise of some crops and the decline or disappearance of others. With their rather different biophysical environments, the upper and lower parts of the valley show different cropping patterns, as well as divergent recent transformations.

The literature on oasis agriculture often refers to the ‘oasis ideal type’, represented by agriculture in three vegetation layers. The upper layer is that of the date palms, the very symbol of oasis agriculture. The second layer consists of less high fruit trees, such as the fig, almond, olive and pomegranate. The third and lowest layer is that of the mostly annual crops, such as cereals (barley, wheat, sorghum), alfalfa and various vegetables. The oasis literature often refers to the ‘oasis effect’, in which the first two tree layers create a subhumid micro-climate, favouring the growth of annual crops by protecting them from the strong radiation, low humidity and high temperatures of the sub-Saharan climate (Riou 1990, Larbi 1989). In this way, the oasis is said to be a rather ‘ideal’ agricultural system, optimising production in this arid environment.

However, this ‘oasis myth’ should be seriously called into question (cf. Crossa-Raynaud 1990: 319-20). First of all, the three vegetation layers described above do not often exist on one plot, as most contain only two layers or are open. Where two or three vegetation layers do exist, the competition for light, nutrients and water is enormous. For example, research has shown that the planting of alfalfa in a date palm grove results in a significant decrease in date yield (cf. Skouri 1990:333). Traditional oasis agriculture therefore seems ‘irrational’ from the standpoint of pure production maximisation (De Haas 1995).

Moreover, the ‘oasis effect’ hypothesis wrongly starts from the climatic conditions prevailing in high summer. The extremely harsh summer conditions prevail during only three or four months of the year. The winter half year (October - April) and not the summer constitutes the main cultivation season for annual crops, especially cereals, in most oases. In winter, the temperatures and light intensity are not extreme at all and shade will seriously reduce yields. Cultivation of a large variety of crops in several layers should therefore not primarily be seen in the context of production maximisation.

The cultivation of a large variety of crops on a limited area should be seen primarily in the light of the need of self-sufficiency of oases (cf. De Haas 1995: 39). Until the 20<sup>th</sup> century, oases were obliged to produce most of their dietary needs themselves.<sup>38</sup> Cultivating only one or a small number some (best-adapted) crops was therefore not possible. A great variety of crops had to be produced on a limited area.

---

<sup>38</sup> Despite the existence of intensive trade (e.g. with nomads), the oases were the only important crop producers in sub-Saharan Morocco.

Diversification of production should also be seen in the light of risk spreading. For example, a monoculture of dates would theoretically be more productive in terms of weight and market value than the mixed cultures of the traditional oases, but date harvests show large annual variations depending on weather conditions or diseases. By cultivating several crops at once and in various periods, the risks of crop failure are spread, and the risk of one-sided nutrient depletion decreased. In absence of fertilisers, it was also absolutely necessary to cultivate fodder crops and to keep livestock for the production of manure (De Haas 1998). Alfalfa, the main fodder crop of oases, has the extra advantage of its nitrogen-binding, soil-enriching capacities. Thus, the crop associations were vital in order to maintain the fertility and viability of the traditional oasis system.

Nor is the cultivation of three vegetation layers the prevailing type of crop associations in the Todgha. Most plots are semi-open, with two layers of vegetation, mostly combining date palms or almond trees with alfalfa or cereals. This seems to be the most typical pattern of the traditional oasis of the Todgha. As in other oases, the existence of this multi-cropping pattern should be seen in the light of the peasants' (i.e. households) need for self-sufficiency and risk-spreading. The tree cover on this kind of plot is generally not very dense, with the trees being located mainly at the fringe of the plots, so that one can often hardly speak of a 'layer'. If many trees are planted on the plots themselves, the second layer of annual crops visibly suffers from the lack of light and nutrients. In the upper Todgha especially, several zones are densely planted with one layer of mainly olive trees, which lack any undergrowth.

The most intensive and highest-yielding agriculture of alfalfa and cereals is practised on open treeless plots, which can be found in the whole valley, but especially in the lower Todgha and the recent extensions. Open plots contain a large variety of crops, with a domination of alfalfa and cereals, but also a large variety of vegetables. If enough water is available, open fields carry two crops per year, typically wheat in the winter half year and maize or vegetables in summer. Differences in water availability explain why the fields of the upper Todgha are cultivated all the year round, while in the lower Todgha many fields lie fallow in the summer half year.

However, the 20<sup>th</sup> century brought several changes to Todgha society, the most important being the growing importance of migration and non-agricultural income in general, the integration of the Todgha into a national and international economic and political context, and the advent of the technique of motor pumping. These changes also had important implications for oasis agriculture in the Todgha, which caused important changes in ancient cropping patterns and led to the recent specialisation in certain crops. These patterns will be described in the following chapter.

**Table 13 Distribution of annual crops in hectares**

	Common wheat	Durum wheat	Barley	Maize	Alfalfa	Tomatoes	Potatoes	Onions	Turnips	Carrots	Melons	Water melons	Pumpkins	Peas	Broad beans	TOTAL
Todgha Oulya	0	45	5	10	80	8	2	5	2	3	0	0	0	0	0	160
Tinghir	0	200	50	100	240	0	1	1	6	2	0	0	0	0	15	600
Todgha Souffla	0	500	30	0	100	10	10	4	2	4	0	0	0	0	20	660
Taghzout	20	1105	25	10	250	10	10	10	5	25	35	15	10	5	25	1530
<b>TOTAL</b>	<b>20</b>	<b>1850</b>	<b>110</b>	<b>120</b>	<b>670</b>	<b>28</b>	<b>23</b>	<b>20</b>	<b>15</b>	<b>34</b>	<b>35</b>	<b>15</b>	<b>10</b>	<b>5</b>	<b>60</b>	<b>2950</b>

Source: CMV de Tinghir 1996

**Table 14 Distribution of annual crops as a percentage of total cultivated area**

	Common wheat	Durum wheat	Barley	Maize	Alfalfa	Tomatoes	Potatoes	Onions	Onions	Turnips	Carrots	Melons	Water melons	Pumpkins	Peas	Broad beans	TOTAL
Todgha Oulya	0,00	28,13	3,13	6,25	50,00	5,00	1,25	1,25	1,88	1,25	1,88	0,00	0,00	0,00	0,00	0,00	100
Tinghir	0,00	33,33	8,33	16,67	40,00	0,00	0,17	0,17	0,00	1,00	0,33	0,00	0,00	0,00	0,00	2,50	100
Todgha Souffla	0,00	75,76	4,55	0,00	15,15	1,52	1,52	0,00	0,61	0,30	0,61	0,00	0,00	0,00	0,00	3,03	100
Taghzout	1,31	72,22	1,63	0,65	16,34	0,65	0,65	0,00	0,65	0,33	1,63	2,29	0,98	0,65	0,33	1,63	100
<b>TOTAL</b>	<b>0,68</b>	<b>62,71</b>	<b>3,73</b>	<b>4,07</b>	<b>22,71</b>	<b>0,95</b>	<b>0,78</b>	<b>0,10</b>	<b>0,58</b>	<b>0,51</b>	<b>1,15</b>	<b>1,19</b>	<b>0,51</b>	<b>0,34</b>	<b>0,17</b>	<b>2,03</b>	<b>100</b>

Source: Author's own calculations based on CMV de Tinghir 1996

**Table 15 Distribution of fruit trees in numbers and as a percentage of the total number of fruit trees**

	Olives	%	Almonds	%	Date palms	%	Apples	%	TOTAL	%
Todgha Oulya	7000	28.00	5000	20.00	13000	52.00	0	0.00	25000	100.00
Tinghir	34000	65.38	8000	15.38	10000	19.23	0	0.00	52000	99.99
Todgha Souffla	13000	23.21	18000	32.14	25000	44.64	0	0.00	56000	99.99
Taghzout	45000	43.27	38000	36.54	19000	18.27	2000	1.92	104000	100.00
<b>TOTAL</b>	<b>99000</b>	<b>41.77</b>	<b>69000</b>	<b>29.11</b>	<b>67000</b>	<b>28.27</b>	<b>2000</b>	<b>0.84</b>	<b>237000</b>	<b>99.99</b>

Source: Author's own calculations based on CMV Tinghir 1996

## 5.2. Annual cultures

### 5.2.1. Cereals

Cereal crops occupy more than two thirds of the total cultivated area in the Todgha, with durum wheat representing 88 percent of all cereals (62 percent of the total area). Except for maize, all cereals are cultivated in the winter half year. This importance is explained by the essential role of this product in the daily bread consumption of the population. Although durum wheat occupies an important place in agriculture, most families have to buy wheat produced in other regions in great quantities, as most households do not produce enough cereals to meet basic needs, due to the small holding sizes.

Within the valley, a clear gradient can be identified, with a prevalence of durum wheat in the lower Todgha, where it represents three quarters of the total area (see tables 13 and 14). Cereals are especially dominant in the zones of Amzaourou and El Hart, who receive river water during the winter cultivation season, and who possess relatively large plots. Barley represents less than 5 percent of the total agricultural area, and is used as fodder for the livestock, especially for fattening sheep. Wheat and barley are the principal winter crops in the Todgha. After tillage in autumn, sowing generally takes place in November and December. Many peasant await the first rains before sowing. The harvest takes place in April and May. In the Todgha, cereal yields are rather low compared to potential yields.

As of the 1960s, durum wheat has the tendency to disappear from the upper Todgha in favour of alfalfa. In 1999, it had already totally disappeared from the entire zone between the gorges and Tinghir<sup>39</sup>, and this development seems to move gradually downwards in the valley. Also in the lower Todgha, where cereals are still dominating agriculture, peasants seem to prefer more and more other crops (especially vegetables and almonds), as they are more interesting in commercial terms, and there is now the possibility to buy cheap cereals at the local market, whose price is often lower than the local production costs.

Maize, which is used as a fodder crop, is the only cereal cultivated in the summer half year, and represents 4 percent of the agricultural area. As maize has high water needs, it is mainly cultivated in the upper Todgha, which is included in the summer *nouba*, and receives river water all year round. More than 83 percent of the area occupied by maize is located in the area of the municipality of Tinghir.

**Table 16 Mean yield of annual crops per hectare**

Yield in kg*100/ha	Wheat	Durum wheat	Barley	Maize	Alfalfa
Todgha Oulya	NA	32	25	16	750
Tinghir	NA	35	20	18	600
Todgha Soufla	NA	30	20	NA	600
Taghzout	30	36	26	15	750

Source: CMV Tinghir 1996

<sup>39</sup> According to official CMV statistics dating from 1996, wheat would represent 28 percent of the agricultural area of Todgha Oulya. This statistics are erroneous, as wheat has entirely disappeared from this part of the valley at least from the 1980s.

### 5.2.2. Vegetables

The large variety of vegetable crops which are cultivated in the Todgha mainly serve to meet the Todgha families' daily food needs. The range of vegetables include (in decreasing order of importance) broad beans, melons, carrots, tomatoes, potatoes, onions, turnips, pumpkins and peas. A variety of cabbage (*zegzaou*) is also common in the valley, but is only cultivated at the margins of fields or irrigation basins, and rarely occupies entire plots. Carrots and turnips are also often cultivated in association. The different types of vegetables represent more than six percent of the agricultural area throughout the valley, but are especially concentrated in the two extreme upstream and downstream parts of the valley, where production is partly market-oriented. In Todgha Oulya, vegetables represent thirteen percent of the agricultural area. The prevailing vegetables in the upper Todgha are tomatoes and green mint, of which a large part is traded at Tinghir's markets.

The prevalence of vegetables in Todgha Oulya can possibly be explained by the extremely small size and scattering of plots, which make them less attractive for the cultivation of cereals and other annual crops. Moreover, winter temperatures are relatively low compared with those of the lower Todgha, which makes the cultivation of cereals less productive. Since agriculture is no longer based on the strict need to achieve self-sufficiency and, as cereals can be bought at relatively low prices, peasants search for and tend to specialise in crops which are the most adapted to the local circumstances.

The downstream end of the lower Todgha is another zone where vegetable growing is prevalent, especially in the new extensions and in Ghallil. The principal vegetables here are carrots, melons, water melons and onions. In the *commune rurale* of Taghzout, vegetables represent almost ten percent of the total agricultural area, which makes up 66.7 percent of all vegetables in the whole valley. Some of the peasants in the Ghallil plain specifically produce for local or regional markets. Vegetables are typically cultivated on fields where water is permanently available, as they are not resistant to periods of drought. This explains their presence near the gorges and in the motor pumping zones.

Vegetables are frequently cultivated on very small plots, known as *ourtan* (singular *ourti*, 'garden' in Tamazight Berber), gardens enclosed by walls, which used to be located in fields near the qsour. They served for the production of fruits and vegetables for family needs. As most walls have crumbled down, many ancient *ourtan* have lost their enclosed character. Although several ancient *ourtan* still exist in the upper Todgha, newly created *ourtan* are often located inside compounds throughout the valley, hence close to water pumps, and easy to guard as the production of vegetables and fruits easily falls prey to thieves. Although *ourtan* tend to be small, their role in domestic food production should not be underestimated. The phenomenon of theft partly explains why many peasants refuse to cultivate vegetables in open fields.

### **5.2.3. Alfalfa**

Besides fodder crops such as barley, maize and [weeds], alfalfa is by far the most important fodder crop in the Todgha.<sup>40</sup> Alfalfa represents 22.7 percent of the total agricultural area, with a concentration in the upper Todgha. In Todgha Oulya and Tinghir, alfalfa covers 50 and 40 percent of the agricultural area, respectively, whereas it represents no more than 15.2 and 16.3 percent of all crops in Todgha Souffla and Taghzout, respectively. This prevalence in the upper Todgha is partly explained by the all-year-round availability of 'cheap' water. As alfalfa is a semi-perennial crop which remains in the field for three or four years, it does not resist extremely long periods of drought. Good yields are achieved only under permanent irrigation. As its water needs in summer are high, alfalfa is not very prevalent in the new extensions, as water winning by motor pumps is relatively expensive. In the upper Todgha, the 'free' river water is abundant all year round, and this explains partly why alfalfa is by far the dominant crop in this zone.

In recent decades, alfalfa has gained ground in the upper Todgha, at the cost of cereals, which have largely disappeared. Among the numerous reasons for this transformation, migration seems to play an important role. Migration has led to the absence of a high proportion of the young adult men during a part or the entire year, while non-migrant men are increasingly active in non-agricultural sectors. This has considerably increased the women's share in agricultural tasks. In most households, it is the women who are responsible for the functioning of the agricultural holding. Women assume most agricultural tasks and also visibly dominate the fields.

Alfalfa is a crop which is well adapted to the present female character of agriculture, as far as the strict labour division between men and women is concerned. Firstly, alfalfa is a semi-perennial crop which can remain on the field for three to four years. This means much less tillage, which is a typical male task, than the annual tillage required for the growing of cereals. All other activities related to the cultivation of alfalfa can be assumed by women. Only the tillage is done by male household members or paid labourers. Secondly, the growing of alfalfa combines perfectly with the presence of small domestic livestock, consisting of a small number of bovines, which is again an activity which can be assumed by women (and children) alone. Under permanent irrigation, alfalfa can be cut up to eight times a year, with a near stop of growth only in the cold months of December and January. Some households stock their production to feed their animals in winter, others trade it at Tinghir's markets.

## **5.3. Fruit trees**

### **5.3.1. Introduction**

The area covered by fruit trees in the Todgha is difficult to calculate, as fruit trees are mostly grown in association with annual crops, such as cereals and alfalfa. This explains why they are counted in numbers, and not in area measures. Besides open

---

<sup>40</sup> Although alfalfa is mainly a fodder crop, it is also used as ingredient in local dishes, such as the *ifnouzen*.

treeless plots which are intensively cultivated with alfalfa, cereals and vegetables, the majority of plots in the Todgha can be classified as semi or half-open, with annual crops as well as fruit trees, often located on the plot borders. The last type is the plot entirely covered by trees, which render the cultivation of annual crops entirely impossible. In the upper part of the valley, tree-covered plots tend to concentrate along the course of the Todgha river, which together make the impression of a gallery forest of mainly olive trees.<sup>41</sup> The same applies to the line of plots right under the escarpments enclosing the oasis. In the extension zones of the lower Todgha, new plantations are being realised in rather modern orchards which cover 63 hectares. At valley level, the mean density exceeds 80 trees per hectare, but shows a remarkable variation between the different parts of the valley.

### 5.3.1. The date palm

Notwithstanding its general presence in the entire valley and its visual dominance (due to the height of its top), the date palm is not the dominant fruit tree and, with a total estimated number of 67,000, it occupies only the third place after the olive and almond tree. Traditionally, dates play an important role as a staple food and, in the case of the bad quality dates, as animal fodder. Moreover, the palm-leaves are used for basket-work and the trunks are used for construction of the traditional qsour and houses. In the Todgha, the main date variety is the Saïr<sup>42</sup>, and the principal improved varieties are Boufeggous, Oultouakdim, Hafssa, and Bouzkri.

In order to obtain good yields, the date palm requires a relatively specialised and laborious maintenance, which necessitates climbing the palm at least twice a year (for pollination as well as for gathering the dates and lopping). In the qsour of the Ahl Todgha, this work is often done by specialised labourers, mainly from the qsour of El Hart. The remuneration amounts to ten dirham per ascent, plus a part of the annual production of the palm. However, the younger generations generally lack the expertise of the older generation in this domain, which has coincided with a decreasing interest in agriculture in general and in the date palm, in particular.

In the Todgha, the date palm is in clear decline and suffers from a lack of maintenance and interest. In the traditional oasis, new plantations are rare except for certain particular qsour, such as Boutaghat. Although some peasants are planting new improved date palms in the new agricultural extensions, increasing preference is being given to the cultivation of olives and, especially, the almond tree. Between 1980 and 1994, the share of date palms in the total number of fruit trees decreased from 34 percent to 28.3 percent. Most palms are old and give only meagre yields.

The decline of the date palm relative to other cultures (especially almonds), but also compared with other oasis regions, can partly be explained by the mediocre yields and the poor quality of its dates compared with those of the Drâa and Tafilet regions,

---

<sup>41</sup> The main reasons for the concentration of trees on the banks of the upper Todgha river seem to be that the frequent floods would ravage annual crops and that the trees also protect the land against erosion. Besides fruit trees, poplars are also grown for timber production.

<sup>42</sup> Saïr comprises all the date palms grown from seeds, which means it is heterogeneous and is therefore not a genuine variety. All improved date palm varieties are propagated by cloning.

which makes them unsuitable for trade. The poor quality and low yields of the Todgha dates are partly related to poor maintenance, but a number of biophysical factors may also play a role. Research is needed into whether the climatic conditions of the Todgha are a factor in the decline. Compared with other date palm oases, the climate of the Todgha, which is located at an altitude of between 1100 and 1420 metres, is relatively cold and humid. The frequent night frost in winter and the early autumn rains are factors adversely affecting date yields.

As in other Moroccan oases, some of the date palms suffer from the *bayoud*<sup>43</sup> plague, for which no remedy has yet been found, and which the peasants vainly try to combat by setting fire to the lower part of the trunks. The peasants themselves explain their preference for other fruit trees such as olives and almonds mainly with reference to this plague. However, the *bayoud*, which incidentally appears not to be extremely frequent in the Todgha, is not the only operative factor, as it cannot explain the decline of the date palm in comparison with other Moroccan oases, where *bayoud* is present as well.

### 5.3.2 The olive

The olive tree is the dominant fruit tree of the Todgha. According to official estimates, the total number of olive trees increased from 72,000 in 1979/80 to 99,000 in 1996, representing 41.8 percent of all fruit trees. In the 1980s, the local agricultural extension office (CMV) organised a campaign to encourage peasants to plant olive trees instead of the date palms, which were suffering from *bayoud*. The olives are primarily destined for the production of olive oil for the peasants' own consumption, but a significant part of the olive production is traded at Tinghir's markets, either in the form of unprocessed olives or in the form of olive oil. The peasants are tending increasingly to produce olive oil themselves in order to trade it on the local markets. Part of the production is sold to migrants returning for holidays, who sell it in their turn to other Moroccans residing in Europe.

The oil production takes place in traditional mills, which are found in almost every *qsar* and which work with animal power (donkeys or mules). By this method, some 2.5. to 3 litres of olive oil are extracted from one *abra*<sup>44</sup> (13 kg) of olives. With the electrification of the majority of the *qsour*, several electric mills have been established, but most people prefer the olive oil produced by the traditional mills, as it is believed to be of a better oil quality. In the Todgha, the olive trees are hardly maintained and not lopped at all. Olive yields could be improved if the peasants better maintained and lopped the trees. Moreover, the trees are generally planted too densely. In the olive groves of the upper Todgha, in particular, the production has been almost reduced to zero as a result of the competition for light between the trees.

---

<sup>43</sup> *Bayoud* is a date palm disease caused by the fungus *Fusarium Oxysporum Albedinis*, which leads to the gradual desiccation and death of the palm and causes widespread damage in Morocco's oases.

<sup>44</sup> The *abra* is a local volume measure. One *abra* of olives is the equivalent of approximately 13 kg.

### 5.3.3 The almond tree: a rising ‘cash crop’

In the entire valley, but especially in the lower Todgha, the almond tree is rapidly gaining ground at the cost of other trees. The total share of almond trees amounts to 29 percent of all fruit trees, and showed a steep increase after the 1980s, when an extended period of drought ravaged the almond trees. Almonds tend to occupy the first place in the lower Todgha, as they do not require a specialised or laborious maintenance and have relatively reduced water needs compared with olives or dates. This makes the almond an ideal tree to combine with motor pumping. According to the peasants, three or four irrigations per year are sufficient to produce a reasonable harvest. Moreover, almonds tolerate a mediocre soil quality. What seems more important is that the almonds produced in the Todgha are of good quality and are traded at attractive prices, which enable the growers to make a reasonable profit.

Almonds constitute the principal cash crop of the Todgha. Almost the entire production is traded locally and regionally, except for a small part destined for the growers’ own consumption. The increasing market-orientation of peasants partly explains the recent success of the almond tree. The vast majority of new plantations in the Todgha consist of almond trees. The rise of the almond tree is closely linked to the development of motor pump extensions around the Aït Atta qsour of the lower Todgha and the Ghallil plain. In contrast to the dense olive plantations, almond trees are regularly cultivated in association with winter cereals.

### 5.3.4 Other tree crops

Besides the olives, dates and almonds, the Todghaoui cultivate other fruits such as peaches, apricots, grapes, figs and quinces. They are mainly found in the water-rich parts of the traditional oasis, where they used to be cultivated in the *ourtan*, but are now grown inside the family compounds. These fruits are produced only for domestic consumption and the quantity is limited and decreasing. New plantings of these trees are very rare. This development seems to be related to the fact that subsistence agriculture has lost its former imperative of self-sufficiency and that agricultural production in the Todgha seems to be gradually specialising. The only exception is the apple tree, which is a newly introduced tree, planted on some farms in the Ghallil plain.

**Table 17 Distribution of livestock (number per household)<sup>45</sup>**

Communes	Sheep	Cattle	Goats	Donkeys	Camels	Bees
Todgha Oulya	944 (1.15)	73 (0.09)	218 (0.27)	299 (0.37)	0 (0.00)	14 (0.02)
Tinghir	3966 (0.91)	2003 (0.46)	0 (0.00)	824 (0.19)	0 (0.00)	71 (0.02)
Todgha Soufla	2137 (1.23)	657 (0.38)	55 (0.03)	458 (0.26)	0 (0.00)	22 (0.01)
Taghzout	4198 (2.61)	827 (0.51)	1648 (1.03)	332 (0.21)	30 (0.02)	131 (0.08)
TOTAL	11245(1.32)	3560 (0.42)	1921 (0.22)	1913 (0.22)	30 (0.00)	238 (0.03)

**Source: Authors’ own calculations based on CMV Tinghir 1996 and the 1994 national population census**

<sup>45</sup> The official statistics from the CMV seem to be unrealistic, i.e. they underestimate the actual numbers of livestock. For example, according to the questionnaire data, the majority of the households in the upper Todgha possess one or two cows, which is in total contrast with these statistics. The authors will therefore include questionnaire data on livestock in the final report.

## 5.4. Livestock

Livestock have always played an important role in the agricultural system of oases. This role varied between an additional activity of the sedentary populations (but a crucial one, since their manure was the only nutrient provider) and the principal activity of ethnic groups practising a seasonal *transhumance* between mountains and plains. One of the characteristics of the livestock in the Todgha is the small size of the herds, which varies between 1.1 and 1.4 for cattle and 3 and 9 for sheep and goats. Nowadays, the activity is limited to sedentary livestock, except for some camels. Livestock breeding is practised in byres which house cattle and sheep as well as goats. Sheep represent more than two thirds of the total number of animals in the Todgha, the other third is shared between cattle (21.2 percent), goats (11.2%) and less than one percent for the camels.

Cattle breeding is practised in small byres inside the houses, except for some modern byres in the Ghallil plain. The cows feed mainly directly on the fodder produced by the agricultural holding, in particular alfalfa. However, the peasants' own production is mostly insufficient and additional fodder is obtained by buying straw, hay and beets from other regions. The presence of a cow is considered essential for a family and is a sign of wealth. Most households produce uniquely for their own consumption, with the exception of some peasants who introduced pedigree cattle (Holstein-Friesian or Tarantaise) with the objective of selling dairy products directly to the Habib Imlil milk co-operative in Tinghir, which was created in 1983. Others trade their products directly to the hotels and numerous *crémeries* in the centre of Tinghir. The purchase of pedigree cattle is strongly linked to migration, as the remittances provided the necessary means to invest in livestock. However, the share of pedigree cattle is not high, as 87.4 percent of the cattle still consist of local breeds. Domestic cattle breeding is strongly linked to the importance of female labour in current farming practice and to the large areas covered by alfalfa (see paragraph 5.2.3.).

Goat and sheep breeding have witnessed important changes in recent decades. On the one hand, the numbers of sheep and goats have dwindled severely, which can be explained by the presumed decline in quality of the pasture land (at least in the perception of the former pastoralists), the sharp increase in school attendance of children, who used to contribute intensively to herding activities, as well as the general shift of the population towards non-agricultural activities. Sheep represent 67.1 percent of the total livestock in the Todgha, while the share of goats does not exceed 12 percent. Camels demand extensive pasture lands and their breeding is no longer profitable, except for a few big herds. In the absence of horses, the donkey is the most frequent draught animal, followed by the mule, and plays an important role in the transport between the house and the sometimes remote plots.

## 5.5. Labour and capital inputs

### 5.5.1. Family labour

The majority of households cultivate their land themselves. Family labour makes up about 70 percent of all agricultural labour. The tasks considered as arduous are carried out by men, whereas agricultural [rakss?] activities are assumed by women and children [NOT CLEAR]. Strictly male tasks are tillage and irrigation of the fields and, to a lesser extent, the maintenance of the date palms. Women assume the more daily and heavy tasks such as cutting alfalfa and weeds along the *souagui*, the lopping of fruit trees, the transport of crops (mostly on their backs) between the fields and the house, as well as the daily tasks associated with animal husbandry. That is to say, the majority of the daily agricultural tasks are performed by the women, in addition to the whole range of domestic tasks.

### 5.5.2. Sharecropping: From *khammes* to *toulouth*

The *khammessat* is an ancient form of sharecropping ('indirect exploitation') in which the owner supplies the land, the seeds and the equipment to the sharecropper, who himself either is landless or possesses only a little land. The sharecropper (the *khammes*) supplies his labour, for which he receives one fifth of the yield.<sup>46</sup> The *khammessat*, which used to be common in oases, has declined for several economic and socio-cultural reasons. Many former *khammes* have participated in migration movements to western Morocco or to Europe, where their labour is better paid. Moreover, the profession of *khammes* is considered to be dishonourable and closely associated with abject poverty and semi-feudal relationships.

The decreased availability of sharecroppers on the labour market has led to an increase in the share the owner has to give, and contracts determining shares of one quarter, one third or one half of the harvest exist. The most frequent sharecropping contract in the Todgha nowadays is one third of the harvest, i.e. the *khammes* has become *toulouth* ('one third' in Arabic). Despite this change, sharecropping is in rapid decline compared with family labour and the employment of paid agricultural labourers. Migration has not stimulated sharecropping, as most migrants prefer to let family members supervise and cultivate their land for free, in exchange for only a small part of the production.

Although sharecropping is declining in the traditional oasis of the Todgha, it is prevalent in the land bought by Ahl Todgha, in particular migrants, in the Ghallil plain and in other regions, such as Beni Mellal, the Middle Atlas, Rich and Tinejdad. In those more distant regions, the peasants do not always have the use of family labour, which explains why the owners often enter into a sharecropping agreement. According to statistics of the *caïdat* of Tinghir dating from 1992, only about ten percent of the international migrants exploit their land located in the Todgha by sharecropping, whereas 80 percent did so for their land outside the valley. The household questionnaires have confirmed this tendency. However, in some cases

---

<sup>46</sup> It should be observed that this one fifth is an ideal type. In practice, contracts which included a greater (or lesser) share for the *khammes* also existed before.

entire families have left the Todgha to settle on the newly acquired land in order to ensure the good management of the new patrimony.

### **5.5.3. Paid labour**

The importance of paid labour is actually rising at the cost of sharecropping arrangements. The development of a relatively modern agriculture in the lower Todgha, which is partly related to migration, has certainly contributed to this trend. Almost all the interviewed households employed paid labourers for well-defined agricultural tasks during limited periods, in particular, tillage and fruit picking. In the traditional agricultural sector of the Todgha, permanent paid labourers hardly exist. However, in the new extensions and Ghallil, several 'modern' peasants, frequently (re)migrants, have employed permanent labourers.

The origin of the agricultural labourers is generally local and mainly concerns the very poor families among the Ahl Todgha and El Hart. But others come from other, generally poorer regions (Ifre, Tarbalt, Alnif, Drâa), and some of them settle either around some *qsour* of the Aït Atta or in their ancient abandoned *qsour*. Women also perform paid agricultural labour, including cutting alfalfa, picking fruit and various other tasks. They are generally less paid than men, with daily wages varying between 30 and 40 dirham for women, and between 40 and 60 dirham for men. The labourers are often fed and even housed if transport home is impossible.

### **5.5.4. Mechanisation and other capital inputs**

Agriculture in the Todgha is still mainly based on human labour. In the upper Todgha, the extremely small plot sizes make any form of mechanisation impossible and almost all agricultural labour is done manually. From Tinghir downstream in the lower Todgha, plot become gradually larger, which explains a growing utilisation of tractors, which are mainly used for ploughing. The use of tractors is most intensive in the new extensions and the Ghallil plain, but even in these zones, most land is still tilled manually. The only agricultural activity which has been almost completely mechanised is the threshing of cereals, which used to be done by animals on the *qsour*'s threshing place. In the harvest season, the few threshing machines in the valley move between the *qsour* for this purpose. The use of other machines is very limited.

Manure is the main source of soil nutrients, but the regular floods also contribute to soil fertility, as they deposit a fine, but fertile, mud layer after each major flood. The growing of alfalfa also contributes to soil fertility, as it binds nitrogen from the air. The majority of peasants use fertilisers only to a limited extent, except for some larger farmers in the new extensions and the Ghallil plain. Pesticides and herbicides are only rarely used.

Despite the clearly shifting cropping patterns in the valley, the cultivation methods are still predominantly traditional. The only part in which some degree of 'modernisation' exists, is in the new extensions, and especially the Ghallil plain. In these areas more use is also being made of paid agricultural labour. However, this

holds only for a relatively small number of ‘modern’ farmers, who are either (re)migrants with enough financial resources to take the risks of this kind of investment, or farmers with specific agricultural know-how, sometimes originating from other regions in Morocco. These farmers are also the only ones in the Todgha who are prudently experimenting with other irrigation methods than the traditional flood irrigation.

It is striking that most peasants in these newly reclaimed lands are largely ‘reproducing’ the cultivation methods of the old oasis. Hence, the ‘modernity’ of these new extensions is limited mainly to the technique of motor pumping and the much larger size of the fields, which facilitate tractor ploughing. Although the advent of motor pumping and the extensions have considerably extended the total irrigated area of the Todgha, this development does not necessarily imply the ‘modernisation’ of agriculture, which is in reality only partial.

### **5.6. The changing economic role of agriculture: crisis or transformation?**

In the course of the 20<sup>th</sup> century, agriculture in the Todgha has undergone important changes. These changes cannot be seen in isolation from the major social, economic, and political development of this era. The most important of these changes for agriculture seem to be the rapid shift from an economy based mainly on subsistence agriculture to an economy based on salary income, in which agriculture plays a supplementary role. Migration, in particular, has contributed to a considerable increase in wealth (purchasing power). Besides the growing importance of non-agricultural income, the average size of agricultural holdings has markedly decreased due to inheritance and the rapid growth of the number of households in the 20<sup>th</sup> century. For most households, the current agricultural production is far too insufficient to sustain even a very basic livelihood (cf. Büchner 1986, Montagne 1951). These factors have led to the decreasing economic importance of agriculture. Nowadays, very few Todgha households depend entirely on agriculture. The existence of non-agricultural and, especially, migration revenues provides a higher total income and the diversification of sources of income generates more stability for the household economy.

In the course of the 20<sup>th</sup> century, the Todgha has become increasingly integrated into national markets. As a result of this development and thanks to the improvement of the infrastructure, ‘imported’ agricultural products from other regions are now abundantly available at Todgha’s weekly markets and in the shops at competitive prices. These agricultural products come from the main ‘agribusiness’ districts of Morocco, such as the Souss for vegetables and fruit in general, Tadla for cereals, and the Tafilalt and Drâa for dates. In these regions, these products can be produced at lower prices and often in better qualities than in the Todgha. The increasing integration of the different and distant agricultural regions in Morocco into one national market has led to increasing inter-regional competition.

The increasing wealth and the growing importance of non-agricultural cash income has led to a situation in which the former necessity to produce a large variety of products to satisfy the demands of the peasants’ own consumption, no longer exists.

In other words, *subsistence agriculture has lost its former imperative of self-sufficiency*. This has enabled Todgha households to cultivate only those products which they find either the most convenient in terms of labour input or the most productive, as other crops can now often be bought on the market at better quality and at competitive prices. Liberated from the obligation to produce for self-sufficiency, peasants in the Todgha now have a 'free choice' to specialise in certain products, which are relatively well adapted to local production factors (such as climate, plot size, labour availability, motivation). This partly explains the decline of certain crops in the Todgha and the rise of others.

Since the 1970s, households in the upper Todgha have been replacing wheat by other crops, especially alfalfa, which is an important fodder crop for the increased number of livestock which almost every household possesses. Given the extremely small plot sizes, the impossibility of mechanisation and the general lack of 'scale economics', the production of cereals lacks profitability in comparative market terms. Field research has demonstrated that the production of cereals in the upper Todgha is hardly profitable if all labour and capital costs are taken into account. Almost all cereals have now disappeared and households buy cereals on the market from other regions where these products can be produced more cheaply. Agriculture in the upper Todgha has increasingly specialised in the production of fodder crops, notably alfalfa.

Although many Todgha households produce mainly for their own consumption, there is a growing category of people specifically producing for local and regional markets. This partial shift coincides with the rise since the 1970s of motor pumping in the traditional oasis of the lower Todgha and in the agricultural extensions around the qsour of the lower Todgha and in the Ghallil plain. Although cultivation methods remain fairly traditional, an increasing number of peasants are producing partly or entirely for the market. This seems to be having a clear impact on crop choices. In particular, the decline of the date palm and the rise of the almond trees and the modest rise of horticulture in the extension zones can be explained by this increasing market-orientation of peasants.

For the Todgha, large-scale 'abandonment' of land is very limited. Small-scale abandonment does sometimes occur under the effect of domestic or international migration, but is mostly a temporary phenomenon. Where large-scale abandonment exists, it is generally related to an acute lack of water resources in some specific parts of the valley (mainly Ghallil n'Aït Isfoul and Taghia). These 'water crises' are mostly related to organisational problems at the collective *jemâa* level, which often lead to a lack of maintenance and general decline of the traditional *khattara* systems. The general decline of the *khattaras*, the growing tendency towards individualisation and the availability of financial resources (for an important part originating from migration) have contributed to the spectacular rise in motor pumps, not only in the recent extensions, but also in the traditional oasis south of Tinghir.

Agriculture in the Todgha has proved to be persistent. Instead of a frequently presumed 'crisis', there is a transformation of agriculture, entailing a change in cropping patterns throughout the valley, showing a slowly increasing degree of specialisation in certain crops. This development is related to (1) the decreasing focus on self-sufficiency, (2) the slowly growing market-orientation of production (3) the

rise of motor pumping and (4) the extension of agriculture in the lower Todgha. Thanks to these developments, the ancient oasis in the lower Todgha is now more intensively cultivated since the early 1960s and the total irrigated area has been extended significantly in the same period. This proves the vitality and flexibility of oasis agriculture. Migration remittances have played an important role in this development, by providing the necessary means to invest in this agriculture.

## 6. THE ROLE OF MIGRATION IN SOCIO-ECONOMIC AND AGRICULTURAL CHANGES

### 6.1. Introduction

The general difficulty in assessing the impact of migration on change in the regions of origin of migrants is that it is analytically impossible to separate migration from other socio-economic and political developments. For example, there is a clear correlation between the rise of migration and the rise of motor pumping and settlement extension in the Todgha. However, this correlation does not justify supposing a *causal* relationship between two phenomena. In practice, both phenomena also exist in other regions, where migration is less pronounced. To answer the question on the impact of migration, a comparison should be made between developments in the Todgha and in other more or less comparable regions. This procedure can be repeated at the valley level by comparing qsour which are less involved in migration with other qsour with high migration participation. Finally, a comparison should be made between the behaviour of migrant and non-migrant households. The fundamental question is whether migrant households behave differently from non-migrant households, e.g. with regard to investments. In this respect, the field research has identified clear differences, which will be described in the following paragraph.

A further distinction should be made between the ‘quantitative’ *general income impact* of migration and its ‘qualitative’ *socio-cultural impact*. It is important to analyse the two impacts separately. The general income impact refers to the fact that migration households have more financial resources and can therefore more easily afford to live in relative wealth and to invest in various economic sectors. This income impact has two dimensions: the direct rise of income by remittances, and the valley-wide income effect (by multiplier effects) of investments by migrants. Although this income impact can be highly significant, it is important to observe that this not mean that migration has any specific, qualitative impact. For example, if we observe that non-migrant households with the same income level show the same expenditure and investment behaviour as migration households, we could hypothesise that there is no specific migration impact beyond mere income effects. The socio-cultural impact refers to changes in attitudes, tastes and opinions that are caused by migration. These have a direct impact on migration households themselves, but seem also to have a valley-wide impact in the development of what one might call a ‘culture of migration’. This ‘qualitative impact’ can explain differences in behaviour between migrants and non-migration which cannot be explained by income differences.<sup>47</sup>

### 6.2. Socio-cultural impact

Throughout the 20<sup>th</sup> century, the population of the Todgha has intensively participated in international as well as domestic migration, which makes it a typical migration region. The majority of households, especially in the upper Todgha, have been

---

<sup>47</sup> The village studies will provide a quantitative and qualitative base for testing the main hypotheses of this report. c

directly or indirectly involved in international migration. Many families count two, three or even four generations of migrants. Migration has had an important influence on seasonality and life rhythm, as the July-August holiday season (instead of the harvest seasons) is now the yearly economic and cultural peak season, when the migrants temporarily return from Europe. The summer holiday has also become the peak season for marriages, regularly of Todghaoui living in Europe with family or acquaintances in their region of origin. This continues to propel chain migration through family reunification.

The regular return of the migrant 'role models' and exposure to their success and considerably higher wealth have contributed to high material and social aspiration levels among the younger generations and the development of a 'culture of migration', in which migration is identified with success, and in which most adolescents aspire to leave the Todgha. In this context, Massey et al. (1993: 453) have even characterised migration as a modern 'rite of passage'. Throughout the 20th century, migration was the main alternative to social failure and poverty, and remains the only way out to success for the unemployed and often frustrated youth. High aspirations, better education and the growing orientation on migration and material success seems to coincide with a strong disaffection with traditional agriculture. Nowadays, agriculture is mainly an activity of women and, if men are involved, it is mainly the older generation or the very poor. The growing disaffection with and negative connotation of agriculture is strongest in the upper Todgha. The question arises of what consequences this development will have for the future development of agriculture.

International migration has accelerated the erosion of the intra-qsour and intra-valley ethnic hierarchies, as well as the role of the *jemâa*. For the majority of the oasis population, formerly subsistence peasants, migration has meant a dramatic economic advancement and has led to their emancipation from the ancient elites (cf. De Haas 1998). The frequently mentioned 'individualisation' of the oasis households vis-à-vis the community, which is often mentioned in literature to explain the decline of collective irrigation and agricultural systems and the establishment of new farms outside the 'collective space', should also be seen in the context of this emancipation. Besides being investments, the construction of a new house, the purchase of land, the establishment of a business are important status symbols to confirm the newly-acquired *nouveau riche* status. Many older migrants participate in the *hajj*, the pilgrimage to Mecca<sup>48</sup>, by which they acquire a certain religious status, which is an extra confirmation of their ascent in the village hierarchy.

### **6.3. Impact of migration on wealth, habitation and the local economy**

It is impossible to measure the amount of money remitted by the domestic and international migrants at the valley level. Firstly, not all money is sent via official channels, i.e. banks. Moreover, banks are not willing to give this information, if it is available at all. The studies at the qsar level, however, have indicated that migration remittances constitute the most important source of cash income in the Todgha valley.

---

<sup>48</sup> In the eight qsour which were studied, the vast majority of *hajji* were international labour migrants.

More than half of the households are either directly or indirectly involved (through the migration of close family members) in international migration. In addition, those who are indirectly involved often receive remittances monthly or periodically, or receive financial assistance for starting businesses. Those not involved in international migration mostly participate in domestic migration, and many households in both types simultaneously.

International migration has visibly contributed to the accelerated development of settlement in the valley. Although the construction of new houses is a general development, households involved in migration tend to build faster more luxuriously, and often own several houses. Housing is the main investment goal of migrants, as it responds to an immediate need for more luxury and space. Investment in housing seems a logical choice, since it is the most secure investment in an uncertain investment environment. Moreover, in view of the rapid urban growth of Tinghir and its surroundings and the rising land prices, it can be a highly profitable choice. Finally, it is considered as a form of insurance for the migrant's wife and children. If the bread-winner dies, they have a home and often gain a considerable income in letting out their house.

International migration has greatly contributed to a rapid concentration of economic development in Tinghir centre. Migrants wishing to make investments beyond the usual luxurious house in the qsar of origin, mostly direct them towards Tinghir city centre. Investments are made mainly in establishing a coffee-house, restaurant or hotel, as well as in the retail sector (grocery stores, ironmongers), and, recently, call shops. Many migrants construct a second home in Tinghir, which they then often let out. Some migrants possess a great number of houses or speculate with new building lots in Tinghir's new quarters. In the older migration-impact literature, this kind of investment was normally downgraded as non-productive. However, provided they investments are made in local labour and locally produced goods, they may instead have important multiplier effects and, therefore, stimulate the local economy (cf. Taylor 1998).

This seems to be the case in the Todgha. Migrants' investments in the construction of new houses and other small-scale enterprises are essentially local investments, and are trickling down to the local economy by creating employment and income for many poorer non-migrant families. Our research indicated that many non-migrant households in Todgha are wholly or partly dependent on employment in the construction and service sector. Thanks to the above local employment and income effects, migration has also had a stimulating effect on the whole economy in the valley, in particular, on the service and housing sector in Tinghir.

#### **6.4. The role of migration remittances in agricultural change**

Migration remittances have played an important role in accelerating agricultural transformations in the Todgha valley. The most visible phenomenon is the role of remittances in the purchase of motor pumps in the traditional oasis or in the new agricultural extensions of the lower Todgha. The majority of motor pumps have been installed by migrant households. The non-migrants who do install them are often

aided by family members involved in migration. Migration has greatly contributed to the intensification and extension of agriculture in the lower Todgha. Among the new agricultural entrepreneurs in the lower Todgha, we find a remarkable number of returned migrants. Some migrants from the upper Todgha have also bought land in the lower Todgha (in particular in the Ghallil plain), but it is remarkable that the majority prefer to buy land in more distant regions of Morocco. Some of the migrants' investments are thus being made outside the Todgha. Besides the rise in motor pumping and the agricultural extensions, migration seems to have contributed to changing cropping patterns throughout the valley. In particular, the shift in the cultivation from cereals to alfalfa in the upper Todgha seems to be partly related to migration, as the latter has contributed to the 'feminisation' of agriculture. Throughout the Todgha, but especially in the new extensions and the Ghallil, production is becoming increasingly market-oriented, which explains the rise of the almond tree and vegetable crops.

It should be stressed that not all migration households have invested in agriculture, as many migrants have retreated from agriculture, mostly entrusting their land to poorer family members. This explains why migration-induced abandonment of land is a rare phenomenon. It is also not uniquely migration households which invest in agriculture. The current shifts in cropping patterns and the rise of motor pumping are partly related to general political and economic changes and cannot be attributed solely to migration. However, migration remittances have been a highly important source of capital for agricultural investments. The installation of a motor pump, the digging of a well and land purchase involve financial risks which most non-migrant households cannot afford. Migration remittances have enabled the peasants of the lower Todgha to make the shift to motor pumping and to extend significantly the irrigated agricultural area of the Todgha. Consequently, the management crisis from which the *khattara* system suffered has not led to large-scale abandonment of land through water shortages. On the contrary, agricultural production has rather intensified and extended, and compared with many other south Moroccan oases, the Todgha is a flourishing oasis.

As far as the future development of agriculture is concerned, however, two important questions arise. Firstly, the decreasing motivation of younger generations to practise agriculture does raise the question of whether this will not lead to decreasing investment and increasing abandonment of land in the long term. It remains unsure how this will work out in the future, and it would be speculative to suppose that this will lead to the inevitable downturn of agriculture. The disaffection seems especially strong with regard to traditional agriculture. In the new extensions and the Ghallil zone, there seems to be a prudent transformation to a more modern, or at least more market-oriented, agriculture. As this agriculture has been shown to be profitable, it might continue to attract future generations to invest. However, much will depend on the development of markets and the new investment possibilities in the lower Todgha, especially the availability of water. This then raises the second question, that of sustainability.

The current success of motor pumping in the lower Todgha also constitutes a serious danger, as it puts increasing stress on this resource and a possible lowering of groundwater tables may threaten the sustainability of agriculture. Current irrigation

systems and irrigation methods entail the dissipation of large amounts of water. The character of the biased water division at the valley level has led to a waste of water in the upper Todgha. With a more efficient use of the relatively abundant and perennial water resources of the Todgha, a much larger area could be irrigated than at present. It is not a question of water availability, but of a lack of management. The development of increasing motor pumping is taking place in a power vacuum, since the traditional *jemâa* has lost its effective power, and the local authority does not intervene. If the anarchic 'boom' in water pumping remains uncontrolled, the increasing stress on water resources may lead in the end to a resource crisis. Government intervention and hydrological research seems necessary in order to prevent the destruction of the agricultural investments made by many Todghaoui.

## REFERENCES

- Aït Hamza, M. (1995), Les Femmes d'Emigrés dans les Sociétés Oasiennes. *Le Maroc et la Hollande, Une Approche Comparative des Grands Intérêts Communs*. Rabat: Université Mohammed V
- Beaurpère, Lt. (1931) Avant Propos: Le Todgha. *Villes et Tribus au Maroc, Tribus Berbères*. Paris. 205-227, 243-258
- Bedoucha-Albergoni (1976) Système Hydraulique et Société dans une Oasis Tunisienne. In: *Etudes Rurales* No. 62, avril-juin 1976.
- Bencherifa, A. (1993), Migration Extérieure et Développement Agricole au Maroc: Etat de la Connaissance, Observations Empiriques Récentes, et Perspectives de Recherches Futures. In: *Revue de Géographie du Maroc*, Vol.15, Nouvelle Série, No. 1 et 2, 1993.
- Berque, J. (1965) *Structures Sociales du Haut Atlas*. Paris: Bibliothèque Contemporaine, Série B.
- Böhning, W.R. (1983) International Migration: A Suggested Typology. In: *International Labour Review*. 122: 641-650.
- Bozoyan, M. (1987) *Figuig: History and Transformation*. Casablanca: Djaj Press.
- Braun, C. (1974) *Teheran, Marrakech und Madrid: Ihrer Wasserversorgung..... mit Hilfe van Qanaten*. Bonn, Bonner Geogr. Abhandl. 52).
- Büchner, Hans-Joachim (1986) *Die Temporäre Arbeitskräftewanderung nach Westeuropa als Bestimmender Faktor für den Gegenwärtigen Strukturwandel der Todrha-Oase (Südmarokko)*. Mainzer Geographische Studien. Heft 18. Mainz: Geographisches Institut der Johannes Gutenberg-Universität.
- CMV (1996) Monographie 1996 du CMV Tinghir.
- Crossa-Raynaud, P. (1990) Note Technique: L'Arboriculture Fruitière dans les Systèmes Agricoles Oasiens. In: *Systèmes Agricoles Oasiens*. Options Méditerranéennes. Série A., No 11, 1990. Paris: CIHEAM.
- D'Achon (1952) Les Ouvrier Marocaines dans les Départements du Nord et du Pais-de-Calais. *Bulletin Economique et Sociologique du Maroc* 16, 29-36.
- Debbi, Fathalla (1998) *Atelier de Consultation (1ère phase). Tineghir: 28-30 mai 1998. Rapport de Synthèse*. Centre des Nations Unies pour les Etablissements Humains, Province d'Ouarzazate, Municipalité de Tinghir. 'Localising Agenda 21': Planification des Actions pour un Développement Urbain Durable.
- De Foucauld, Charles (1885) *Reconnaissance au Maroc 1883-1884*.
- De Haas, H. (1995), *Oasen: Zand Erover? Een Milieugeografische Studie naar Maatschappij en Landgebruik in een Marokkaanse Oase: Agadir-Tissint, Provincie Tata*. Amsterdam: Unversiteit van Amsterdam, Instituut voor Sociale Geografie.
- De Haas, H. & P. De Mas (1997), Retombées Ecologiques et Humaines de la Migration dans l'Agriculture Marginale des Oasis et Montagnes Marocaines. In: *L'Emigration Maghrébine vers l'Europe: Espace et Investissement*. Cahiers du CEMMM, no. 5. Publications du Rectorat de l'Université Mohammed Ier: Oujda. pp. 47-74.
- De Haas, H. (1998) Socio-economic transformations and oasis agriculture in southern Morocco. In: Haan, L. de & P. Blaikie (1998) *Looking at maps in the dark. Directions for geographical research in land management and sustainable development in rural and urban environments of the Third World*. Netherlands Geographical Studies 240, Utrecht/Amsterdam, KNAG/Agids, pp. 65-78.

- De Haas, H. (1999) Gevolgen van Migratie in Marokkaanse Oases: Een Nieuwe Groene Frontier in de Sahara? In: *Geografie*, April 1999.
- Delafosse, M. (1923) Les Debuts des Troupes Noires du Maroc. In: *Hespéris*. Tome III, 1er trimestre.
- Deverdun (1956) *Inscriptions Arabes de Marrakech*. Rabat.
- El Harradji (1999) Rapport Scientifique. IMAROM report. In: IMAROM Annual Report March 1998 - February 1999. Amsterdam: University of Amsterdam.
- Ensel, R. (1998) Saints and Servants: Hierarchical Interdependence between Shurfa and Haratin in the Moroccan Deep South. PhD thesis. University of Amsterdam.
- Evans-Pritchard, E.E. (1940) The Nuer: A Description of the Modes of Livelihood and Political Institutions of a Nilotical People. Oxford.
- Hammoudi, Abdellah (1974) Segmentarité, Stratification Sociale, Pouvoir Politique et Sainteté. Reflections sur les Thèses de Gellner.
- Harris, W.B. (1895) *Tafilet*. Edinburgh and London.
- Hart, David (1981) Dada 'Atta and his Forty Grandsons: The Socio-Political Organisation of the Ait 'Atta of Southern Morocco. Cambridge: Menas Press Ltd.
- King, Russell (ed.) (1993) *The New Geography of European Migrations*. London: Belhaven Press.
- Larbi, S. (1989), Les Zones Phoenicoles Marocaines. In: *Les Cahiers de la Recherche Développement* n°22, juin 1989. Montpellier: CIRAD.
- Leon L'Africain, *Description de l'Afrique*, tiercepartie du monde. Tr, Schefer, troisième
- Massey, D. J. Arango, G. Hugo, A. Kouaouci, A. Pellegrino & J. Taylor (1993), Theories of International Migration: A Review and Appraisal. In: *Population and Development Review*. 19, No. 3 (September 1993).
- Montagne (R). 1951. Naissance du prolétariat marocain. Enquête collective 1948-1950. Cahier de l'Afrique du Nord et de l'Asie. N°: III, Peyronnet, Paris .291p.
- Monts de Savasse de, Cne. (1950) *Le Problème de l'Emigration dans le Sud-Marocain - Vue d'un Ksar du Todgha: Le Ksar Tagoumast, Tinerhir*. A.S.H.A.
- Müller, K. (1998) *Trends in Migratory Movements and Flows or Remittances between the Maghreb and Western Europe*. IMAROM working paper series no. 2. September 1998. Amsterdam: AGIDS (University of Amsterdam). (first annual report)
- Naciri, El Mahdi (1999) *Er-Rihla Az-Zahira fi-Akhbar Draâ Al-Aamira (1925)*. Présenté Par Ahmed Al Bouzidi. Casablanca: Edition Amal
- Niemeier, G. (1956) Stadt und Ksar in der Algerischen Sahara, besonders in Mzab. In: *Die Erde* 8, 105-128.
- Otte, Corine (2000) *MA thesis on Water Management in the Tadafelt Oasis, Todgha valley, Morocco*. Untitled. To be published as IMAROM working paper in 2000. Amsterdam: University of Amsterdam.
- Ouhajjou, L. (1996) *Espace Hydraulique et Société au Maroc: Cas des Systèmes d'Irrigation dans la Vallée du Draa*. Série: Thèses et Mémoires. Agadir: Faculté des Lettres et des Sciences Humaines.
- Park, Thomas K. (1992) Moroccan Migration and Mercantile Money. In: *Human Organization*. Vol. 51, No. 3, 1992: 205-213.
- Pascon, P. (1979) Segmentation et Stratification dans la Société Rurale Marocaine. Recherches Récentes sur le Maroc Moderne. *Bulletin Economique et Sociologique du Maroc*, 138-139, pp 105-119.
- Raclot, Lieut. G. (1936) La Vallée du Todra. *Revue de Géographie du Maroc*. No. 2, XX.

- Riou, C. (1990) Bioclimatologie des Oasis. In: *Systèmes Agricoles Oasiens*. Options Méditerranéennes. Série A., No 11, 1990. Paris: CIHEAM.
- Ruhard, J.P. (1977) Le Quaternaire au Tafilalt. In: *Ressources en Eau du Maroc*. Editions du Service Géologique du Maroc.
- Skeldon, Ronald (1997) *Migration and Development: A Global Perspective*. Essex: Longman.
- Skouri, M. (1990), Eléments de Synthèse et Conclusions. In: *Les Systèmes Agricoles Oasiens*. Options Méditerranéennes. Série A, N° 11, 1990. Paris: Centre Internationale de Hautes Études Agronomiques Méditerranéennes (CIHEAM).
- Spillman, G. (1931) *Tribus Berbères, Districts et Tribus de la Haute Vallée du Draa*. Paris: Honore Champion.
- Steinman, Susanne H. (1993) *A Historical Analysis of Migration and Gender in the Todgha Oasis, Southern Morocco*. MA Thesis. Clark University.
- Steinman, Susanne H. (1993), Effects of International Migration on Women's Work in agriculture: The Case of the Todghra Oasis, Southern Morocco. In: *Revue de Géographie du Maroc*, Vol.15, Nouvelle Série, N° 1 et 2, 1993.
- Taylor, J. Edward (1998) *The Analysis of Factors Generating International Migration: The New Economics of Labour Migration and the Role of Remittances in the Migration Process*. Paper for Technical Symposium on International Migration and Development, The Hague, Netherlands, 29 June - 3 July 1998.
- Ubach, E. and E. Rackow (1923) Sitte und Recht in Nordafrika. *Zeitschrift für Vergleichende Rechtswissenschaft. Quellen zur Ethnologischen Rechtsforschung in Nordafrika, Asien und Australien* 1. Stuttgart.
- Wittfogel, K.A. (1957) *Oriental Despotism: A Comparative Study of Total Power*. New Haven: Yale University Press.
- Zafrani, Haïm (1998) *Deux Mille Ans de Vie Juive au Maroc*. Paris: Maisonneuve & Larose.

## APPENDIXES

### BASIC DATA ON THE POPULATION OF THE QSOUR OF THE TODGHA<sup>49</sup>

COMMUNE/ Fraction	Qsar	Population	Households	Persons?/household
<b>COMMUNE DE TOUDGHA EL OULYA</b>				
<b>Ait Tizgui</b>	Ait Baha	214	31	6,90
	Ait Moumen		222	24
	Tabia	245	39	6,28
	Zaouit Sidi Abdellali		812	122
	Ait Oussalen	167	18	9,28
	Ait Acha	67	10	6,70
	<i>TOTAL</i>	<i>5953</i>	<i>819</i>	<i>7,27</i>
	<b>Ait Snane</b>	Kassr Ighir	474	55
Ait Sidi Ali Ou Brahim		309	43	7,19
Ait Zaakri		654	89	7,35
Ait Segnounge		513	69	7,43
Ait Chaib		208	21	9,90
Ait Issmane		120	17	7,06
Ihjjmene		862	131	6,58
Ait Aritane		743	103	7,21
Ait Brra Ait Issmane		343	47	7,30
<i>TOTAL</i>		<i>4226</i>	<i>575</i>	<i>7,35</i>
<b>MUNICIPALITE URBAINE DE TINGHIR</b>				
<b>Igourtane</b>	Tihidrine	1217	175	6,95
	Tikoutar	904	130	6,95
	Ait Zilale	290	42	6,90
	Tagounsa	265	38	6,97
	Assfalou	476	68	7,00
	Ait Boujjane	829	119	6,97
	Ait Ourjdale	420	60	7,00
	Ichmarine	391	56	6,98
	Taourirte	2324	333	6,98
	Ait Oujjana	838	120	6,98
	Tasga	628	90	6,98
	<i>TOTAL</i>	<i>8582</i>	<i>1231</i>	<i>6,97</i>
<b>Centre</b>	Quartier Administratif	798	115	6,94
	Ihartane	1735	249	6,97
	Ait Hajj Ali	1932	278	6,95
	Qsar Jdid	415	59	7,03
	Ait Berra	4651	668	6,96
	Bougafer	534	76	7,03

<sup>49</sup> Sources: Caidat Tineghir; National Population Census 1994. Data for the urban centre of Tineghir were available only for some parts of the ancient qsar and for the surrounding qsour, forming part of the municipality of Tineghir. The eight qsour indicated with a '\*' have been selected as case studies for the IMAROM project.

<b>COMMUNE/ Fraction</b>	<b>Qsar</b>	<b>Population</b>	<b>Households</b>	<b>Persons?/household</b>
	Quartier minier	2239	329	6,81
	Tihit	393	56	7,02
	<i>TOTAL</i>	<i>12697</i>	<i>1830</i>	<i>6,94</i>
<b>Tagoumast</b>	Tagoumast	1554	223	6,97
	Ait Lhcen ou Ali	396	57	6,95
	Ait Lqadi	276	40	6,90
	Ait Ihiya	187	27	6,93
	n'Aadouane			
	Aadouane	624	90	6,93
	Ifri	432	62	6,97
	Tamasinte	403	58	6,95
	Azrou	167	24	6,96
	Ait Boulmane	301	43	7,00
	<i>TOTAL</i>	<i>4340</i>	<i>624</i>	<i>6,96</i>
<b>Afanour</b>	Afanour	3737	536	6,97
	Halloul	685	98	6,99
	Ilgane	428	61	7,02
	<i>TOTAL</i>	<i>4850</i>	<i>695</i>	<i>6,98</i>

#### COMMUNE TOUDGHA ESSOUFLA

<b>Ait M'hamed</b>	Ait M'hamed	1879	252	7,46
<b>Hart el M.</b>	Hart El Mourabidine	5697	737	7,73
<b>Hart N'Y.</b>	Hart El N'Yamine	2978	366	8,14
<b>Amzaourou</b>	Ait Yaâla	575	76	7,57
	Ait Bouyahia	241	36	6,69
	Tasga Amzaourou	519	56	9,27
	Ait Hammi	849	101	8,41
	Ikhba	324	41	7,90
	Ait El Meskine	532	70	7,60
	<i>TOTAL</i>	<i>13594</i>	<i>1735</i>	<i>7,84</i>

#### COMMUNE RURALE TAGHZOUT N'AÏT ATTA

<b>Taghzoute</b>	Aggoudime N'Ait Iazza	23	3	7,67
	Aggoudime N'Ait Iazza	1429	179	7,98
	Qsar Taghzoute	1645	259	6,35
<b>Ait Aïssa</b>	Akdim	806	126	6,40
<b>ou Brahim</b>	Akdim Ait Aïssa ou Brahim	1996	251	7,95
	Tloulte	1363	226	6,03
	Boutaghat	551	74	7,45
	Tabsebest	1020	139	7,34
	Ghallil N'Ait Isfoul	221	26	8,50
	Tiliouine	525	60	8,75
<b>Achdad</b>	Achdade	461	56	8,23
	Tadafalt*	1062	128	8,30
	Taghia N'Illemchane*	593	79	7,51
	<i>TOTAL</i>	<i>11695</i>	<i>1606</i>	<i>7,28</i>