Earth’s role on Moroccan High Atlas villages’ urban evolution

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ABSTRACT: This paper presents the investigation carried out by the School of Architecture of Málaga (Spain) in a group of rural settlements in Mgoun Valley, located on the southern slope of the High Atlas Mountains in Morocco. The analysis presents the urban evolution of the habitat to be built and the dynamic transformation that has taken place in the last few years. The results indicate: a deterioration of the traditional earthen architectural models, the neglect of the integrated models for urban settlements and a change in the habits of the population of the territory. This study could be extrapolated, taking into account the local peculiarities, to other settlements in the High Atlas and the pre-Saharan valleys in the South of Morocco. In these areas, the negative aspects of globalization and process of cultural uprooting are producing the irreparable loss of local identity, and material and abstract values of the traditional habitat.

1 INTRODUCTION

The paper presents the first conclusions of a larger scale study which is being developed by the International Cooperating Group (eAM’Coopera) of the School of Architecture of Málaga in the pre-Saharan valleys in the southern slope of the Moroccan High Atlas. The paper is integrated within a global project that tackles several questions related to the preservation of traditional architecture, the habitat and landscape, with the aim of foster protection dynamics and models of responsible tourism which give a boost to local development.

The use of the earth as a building material and the models for establishing urban settlements are being altered in the last few years, giving way to constructive and urban types, away from tradition, which threaten to destroy a habitat with unquestionable cultural and landscape qualities.

2 GENESIS AND EVOLUTION OF THE SETTLEMENTS IN MGOUN VALLEY

On Figure 2 it is developed a theoretical model of the genesis and evolution of the settlements in Mgoun Valley. The first phase shows the initial conditions: the river bank (oued) which sets the reference framework of the following settlement, and the means for the penetration and traditional communication in the High Atlas valleys. The second transformation is linked to the process of the Berber population being sedentary and the birth of the habitat, that fulfills with the construction of the traditional fortified home.
The human occupation entails the colonization of the river bank and its hydrological control for the creation of the oasis. The process begins with the collecting and canali-zation of the water in the high course by means of two irrigation ditches placed in both brooks. When the water gets to the area prepared for the cultivation, it branches into a set of secondary irrigation ditches that enable water supply to the different farming plot.

The third evolution phase happens once the defense needs disappear, when the scattered habitat is built up by means of new earthen buildings with a plain typology, where the four towers placed in the corners of the original tighremt disappear. The brand new settlement is also provided with equipment as the mosque and the cemetery, giving rise to the appearance of a traditional village (douar, p. douars).

The fourth evolution phase presents the current state of the settlement. Water collections from the river bank take place, by means of motor bomb that takes water to a peculiar reinforce concrete deposits, placed in the highest part of the slope, distributing the water into the houses by a canalization network. Likewise, new equipments as state schools and some official building are incorporated, replacing the old traditional mosques for new buildings made of reinforce concrete which depict the urban profile of the new settlements with slender minarets that did not use to exist in the original mosque. The process continues with the construction of new houses, also made up with reinforce concrete, which are disposed near the new gateways and are possible thanks to economic resources coming from emigration.

At last, it is worth highlighting a recent phenomenon which shows the new way of occupying the territory.

The lands placed in the medium slope, out of the cultivation plots, which belonged originally to the community, are undergoing a division and privatization process, showing new shapes or urban development. The initial occupation of the medium slope is carried out by building up a perimeter wall adapted to the terrain irregularities, built with soil walls (tabut), and showing a peculiar fragmented landscape and colonizing the original village surroundings.

3 THE STUDY CASE

It has been carried out a detailed study of one of the most characteristic sectors of Mgoun Valley, placed in the central area of the own Oued Mgoun and which constitutes a compact landscape unit of great patrimonial value.
The study field covers a group of three *douars*: Immi n-Ouaqqa, Issoumar and Ighrem Aqdime, which only share one oasis (Fig. 3) and which are, nowadays, in different transformation phases, despite having many common elements in their genesis and spatial organization.

The election of these settlements was influenced by their peculiar nature, their limited scale and current conditions in their evolution processes. That is possible because they are placed halfway through the high-altitude mountain nucleus, where transformations have not taken place yet, and the settlements in the lower areas of the valley, connected by asphalted roads with the major cities of southern Morocco, where the architectural and urban transformation dynamics began happening in the second half of the XX century.

Nowadays, the approaches to this sector are made by a 7 km-long land road that begins in the asphalted road which runs along the main arterial axis of the valley, starting in the town of Qal’at Mgouuna, placed 24 km away.

The main productive activity, in subsistence regime, is agriculture and less important stockbreeding. In the last few years the development of mountain tourism, which has meant an important development in other areas of the valley, also affects this particular area, existing a *gîte d’etape* in the *douar* Issoumar which make possible the accommodation of visitors and hikers.

Next, there is a detailed analysis of each one of the settlements.

### 3.1 Issoumar

The *douar* Issoumar is placed in the left slope of the oued. Nowadays it is possible to get there by the land road that communicates with the rest of the valley, which has meant a strong urban growth.

The oldest nucleus is made up of a group of *tighrematín* built in the beginning of the XIX century, which can be visited although they are not well preserved. The most dilapidated one accommodated five families that, since 2003, live in new construction buildings placed in the slope. They currently use their old houses as warehouse and stable for animals. The most southern *tighremt* is better preserved and is still inhabited, with water and electricity supplies since 2010.

The group of settlements herein described is currently placed inside the crop field, next to the first and oldest irrigation ditch that provides water to this area. This nucleus was originally placed over the water line, not occupying the cultivation crops. Later, trying to extend the oasis area, a new branch in the river bank made possible an extension of the cultivable area, fitting it in the original nucleus of the actual *douar*.

The cemetery is facing the south of this settlement and connected by a path running through the olive trees. It is demarcated by a soil wall which also has an entry from the main land road. It is also preserved a traditional mosque build of earth, only with a prayer room with a terraced cover. The state school for children under 6 years old is placed next to the mosque, and has two classrooms made up of concrete prefabricated elements. There also exists another school for...
There exist several aspects which indicate that the settlement is on its starting point according to the evolution sketch:

- There is no house built with reinforced concrete, preserving the constructive technique of the soil wall (tabut) in the new houses, which integrate into the original settlement with the tighremt (Fig. 6).

This settlement is lacking of own public equipments, due to its small size and the proximity to the neighboring nucleus. Its inhabitants use to go to the mosque of Ighrem Aqdim, and children go to the school of Issoumar.

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- The parceling up of the slope with a perimetral wall has not taken place yet.

3.3 Ighrem Aqdim

The douar Ighrem Aqdim is the biggest settlement and most developed of the set of three. It is placed, as well, in the right side of the river, with a strong lineal development, with group of houses around the gullies that go down by the slope and only collects water on the rainy season. It has a strategic position as a whole, as it is placed by a ford or river cross, where the water depth is not excessive and the distance between both banks is shorter. The nucleus is made up of several tighrematin and some houses built of earth around the original ones. There exist several aspects which indicate that the settlement is on its starting point according to the evolution sketch:

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Figure 6. New and old houses in Immi n-Ouaqqa. Author: J. M. López Osorio.

Figure 7. (a–b). Urban evolution of Ighrem Aqdim. Author: B. Marin Zofio.
4 CONCLUSIONS

The urban analysis of the three different douars investigated clearly shows the evolution dynamics and its growth, not only of the architectural elements, but also of the processes of urban transformation and territory occupation.

According to architecture, it is worth highlighting the abandon of the fortified traditional houses (tighremt) that, with some exception, are bad preserved and are used as warehouse or stable. The use of earth for building the new habitat is preserved in many cases, showing interesting examples of evolution which come from traditional typology and adjust to the contemporary new necessities (Fig. 8). Nevertheless, and although the soil wall (tabut) technique is still preserved, most of the constructions built in the last few years use structural systems of reinforced concrete and closings made of solid cement, being this collection covered with cement mortars usually painted in bright or earthy colors. This constructive trend has higher economic costs and means the loss of environmental qualities of the earthen house, but represent a symbol for development and social progress, because the most important parts of these buildings are built by the emigrants who come back in summer time. This replacement process of the traditional techniques gets improved with the appearance of state equipments, made of concrete. These buildings are necessary for the development of the state function, but also mean a loss of local constructive traditions and represent a role model by means of the private sector.

The urban aspects as well as the territory occupation aspects show, in the case of the douars under study, and with different intensity depending on the case, a breaking dynamic with the traditional model of houses grouping, enhancing the parceling and spatial segregation, and producing a worrying occupation of the slope in outlying locations, increasingly far away from the cultivation plots. The formation of little gardens or orchards is also interesting to bear in mind, as they appear inside the demarcated plots and located out of the oasis. The necessary water is collected from the phreatic levels or the river bank by means of motor bombs which affect the aquifers of the cultivation areas, and may have negative consequences for its control and water regulation.

In short, the lack of a relative strategy in the promotion of traditional construction and urban planning threatens with destroying an ecosystem based on the preservation of the oasis and its harmonious relation with the current habitat. An irreversible process in many rural settlements in the South of Morocco, which has to be avoided in some specific enclaves of great architectural and landscape value, as the example that has been analyzed. We must bear in mind that it does not exist effective regulations for planning and preserving the architectural and urban heritage, and its extinction would not only mean the material values loss, but also the loss of the local population identity. Nowadays, in the analyzed sector of Mgoun Valley, with a subsistence agriculture and farming, the sources of income of the family are merely coming from emigration and an increasing mountain tourism, which would be undoubtedly damaged if the important architectural, urban and landscape qualities finally disappear.

NOTE

The paper is a part of the scientific research project: Paisaje y patrimonio en el sur de Marruecos: Propuesta para el desarrollo de modelos de turismo responsable (AP/050921/11), granted by the Spanish Agency for International Cooperation.

REFERENCES


