

Vulnerability and Urban Failures at the Gates of Algiers. For what Appeasement?

Fériel BOUSTIL¹, Moussadek BENABBAS², Monique POULOT³

¹Laboratoire Lavue-Mosaïques. Paris Nanterre. Institut d'architecture, Université Saad Dahleb Blida, Algérie.

²Département d'architecture, Université Mohamed Khider Biskra, Algérie.

³Département de géographie, Université Paris Nanterre, France.

Abstract

The integration of agricultural villages in the metropolis of Algiers has been carried out in varying ways since independence in 1962 to date (Bessaoud, 1999) depending on the nature of the state's development policy and the urban planning model on which it was based (Fontaine, 1990).

The phenomenon of peri-urban development corresponds to the conjunction of phenomena of demographic concentration and urban loosening (Bouleux, 1998). (Lévy, 2013) thus "any urbanized territory contiguous to the city is the potential object, of an annexation by the city." Indeed, the peripheral space is for the city a space waiting to occupy at the rate of its expansion needs (Duvernoy, 2002).

The study area is characterized by strong urbanization with environmental and social consequences that are often disastrous and difficult to manage (Imache, 2010). This former arm of the sea, behind the hills of the Sahel, had been gradually backfilled by the alluvial deposits of rivers descending from the Atlas blidéen (Cote, 2014); with 50,000 inhabitants and limiting physical and geographical characteristics, is not immune to its consequences.

The spatial development of this marshy area is characterized by the occupation of land which is sometimes *No ædificandi*. Hence the physical vulnerability of peri-urban sectors to the risk of flooding, these measures should reverse the current trend of proliferation of anarchic urbanization, rehabilitate and "upgrade" these neighborhoods, and design tools for urban planning, both in their technical and regulatory aspects, capable of preserving the banks of wadis or the areas of natural spreading of floods, from any urbanization without prior protection ((Léone F et Al, 2010). temporal vulnerabilities invite a reflection on a better articulation between flood risk and territory. (Laganier, 2006) intends the territorialization of risk in the sense of "better taking into account of this risk in urban planning documents and regional planning".

This contribution aims to address three fundamental aspects: the drivers of peri-urbanization, spatial change and the site's vulnerability.

Key words: peri-urbanization, vulnerability, floods, ORSEC plan, territorial management.

INTRODUCTION

The small municipalities existing in the western region of Algiers and on the northern edge of western Mitidja are becoming more and more peripheral thanks to the conversion of agricultural land (Law 10-03 of August 15, 2010).

The three municipalities that are the subject of our study present a vast set of micro-urbanization which tends towards a functioning of fragmented residential development services with an expansion of the necessary public services.

This region is subject to natural hazards which have always been considered unpredictable and fatalistic hazards. The progressive occupation of the floodplains under the pressure of a dynamic environments and adapting it to human needs has exposed a poor understanding of the situation.

It is this vulnerability that should be materialized and assessed on tenure (Dubresson, Jaglin, 2005)

Our attention focuses on the complexity of the risks, according to the current structure of the site which is justified by the juxtaposition of several factors: geomorphology of the place, demographic index and infrastructures, by following the level of understanding and local intervention

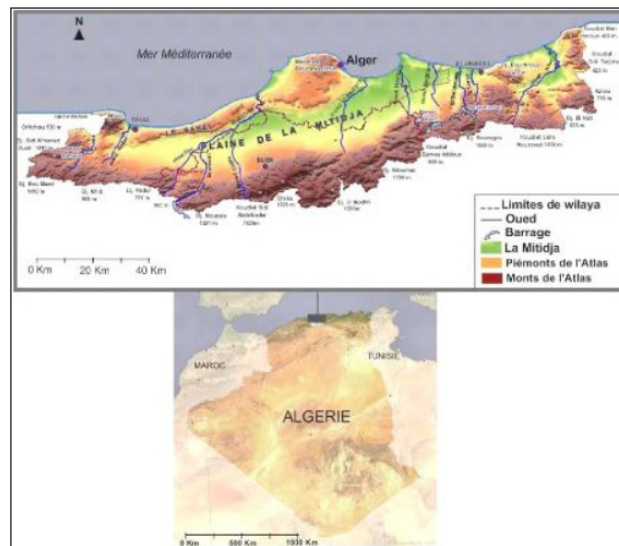


Figure 1. Geographical location (territorial and local) of Mitidja
Source: Tipasa wilaya coastal development program (PAC), 2006

The Studied Site

The study area, whose areas are considered to be different parts of a continuum of the urban influence of Blida-Koléa-Tipasa (Fig. 1) which disperses over the functional rural area; populations are not evenly distributed within the region, their concentration is found in the built-up area of central urban cores.



Figure 2. Territorial and administrative situation of the localities in the prefecture of Tipasa. Source: Wilaya development plan (PAW, 2008)

Table 1. State of the population

	Number of population in the urban core in 2008	Number of population y / c secondary agglomeration and hamlets in 2008
Attatba	10.000	24.000
Berbessa	6.000	8.000
Sidi Rached	8.000	12.000

Source: general census of population and housing. (RGPH2008) National Office of Statistics ONS Algiers

This region is structured around penetrating national roads (RN67) and is experiencing demographic growth considered to be the largest in the Wilaya of Tipasa. 2.6% (tab.1) which must be managed and controlled (50,000 inhabitants estimated by 202 We find here all the regional issues inherent in this phenomenon of rural urbanization (Vandermotten., 2010) which is observed, multiplied and weighed down.



Figure 3. Situation of the three cities in relation to the three poles Tipasa, Blida and Algiers. Source: Google Earth 2015 (personal treatment)

This allowed us to list the observations below

- The three villages (Berbessa, Attatba and Sidi Rached) represent a position of urban dominance in the region due to the location of the poles of influence of Tipasa, Blida and Algiers (Fig. 3)
- The village limits contain a nuanced urban development in the form of spontaneous housing estates without sprawl, retaining a large cut with the large neighboring urban centers Koléa, Boulsmail and Hadjout.
- Persistence of the rural atmosphere translated by the conservation of the initial agricultural plot with hedgerow type vegetable Hedgesadjout

Attatba



Figure 4. The variety of spaces where plant prevails over the mineral in an arrangement on the possible reversibility of the uses of these non-artificial soils



Figure 5. Almost ten years later (2018), these open spaces participate in territorializations by offering rewarding figures of anchoring hence their importance in the initial structuring

Berbessa



Figure 6. Evidence of an original construction of the "natural city" (Chalas, 2001)



Figure 7. Far from the concept of the dense city, the free spaces of construction in Berbessa are maintained and increase with the rhythm of the urban wave of the neighboring poles.

Sidi Rached



Figure 8. Undeveloped areas are maintained in urbanized areas



Figure 9. The recent satellite image shows us that open agricultural areas in urbanized areas are summoned to respond to inhabitant demand, are experiencing rapid changes

Spatial and Functional Dimensions of Localities

The latter is a transition zone as much for its land use as for its social and demographic characteristics, it presents an incompatible combination of urban and rural land uses. The changes in rural «physical» space mobilize particular attention with detailed studies on consumption and changes in land use and therefore.

The resorption of shanty towns, the construction of resettlement cities represent the final episodes of an upheaval which, if it posed above all problems linked to the establishment of the settlement, did not less result in modifications, can be less important, but just as spectacular, those which affect the physiognomy of the dwelling, govern the internal organization of the villages of colonial foundation on the regional scale and on the internal level of the fringe.

Areas of scattered housing or hamlets have been followed by compact villages with imposing terraced houses accessible in R + 3 geometrically aligned. The modifications to the agricultural town are inseparable from the structures serving as foundations for the establishment of this habitat.

These modifications appear under the dependence of two basic factors; the compact nature of the fringe in more or less narrow sites; the standardization of housing, the existence of an urban type of housing more than a real rural house (Lecoq, 1990), this reconfiguration of the traditional city-country couple of geography consecrated in the 1990s, the return of a new urbanity “ rural urbanity ”(Jollivet, 1997), necessarily involves the promotion of surrounding spaces

(Poulot, 2008) because of the pace adopted for the construction and the need to rehouse the inhabitants in the correct places and in connection with the very structure of fringe.

The evolution of the latter appears clearly in the villages and gives an effect of urbanization on a rural physiognomy which returns to an aspect of transition not completed (Beauchard, 2000) the related land disorganization

Vulnerability at the Limits of Structuring

We take as a basis for reflection the text of Richards et al. which also deals with inconsistencies between local planning and natural risk management practices for some English cities. These authors raise substantially the same concerns about a failure or a deficit in collective implementation in the face of integrated risk management. The development policies put forward do not seem to respond adequately to the collective management of risk-related problems. The authors propose to review the current structure of planning policy on a local scale, in order to arrive at suitable and strategic solutions, without compromising the specific development needs of local communities.

It is a way of using the knowledge of these “disasters” to develop, in a way, mechanisms of acceptability for the communities subjected to such events, and which can lead to concrete measures, including the preservation of space. peri-urban agriculture exposed to floods or to the protection of trees in flood zones.

The compact aspect of the fringe results from several factors, in the first rank the value of the land often led to reduce the inhabited space, mainly in the plain, especially if it was cultivated land as was the case for Sidi Rached and Attatba, unlike Berbessa which is an airy village established in a perched position and which is considered to be posing from the point of view of resources, cultivable land and drinking water supply linked to the existence of several aquifers and catchment areas.

The exception to this rule is very rare in this region apart from the village of Berbessa (Fig. 6), which was founded on the individual initiative of farmers over several phases which introduces a certain variety, the monotony is broken by a relief along the slope of a cone of dejection at the edge of the Mazafran wadi, while the limits of the available land, impose on the locality a rather complicated overall plan following the outline of a summit on which it is established so as to take advantage of the flat terrain.

Risks and Hazards of the Fringe

Seismicity

Northern Algeria is regularly struck by earthquakes that are sometimes large, but often moderate or weak. Moderate or strong earthquakes often generate disasters that are difficult to overcome because our country, like many others, is still ill-prepared to face such cataclysms.

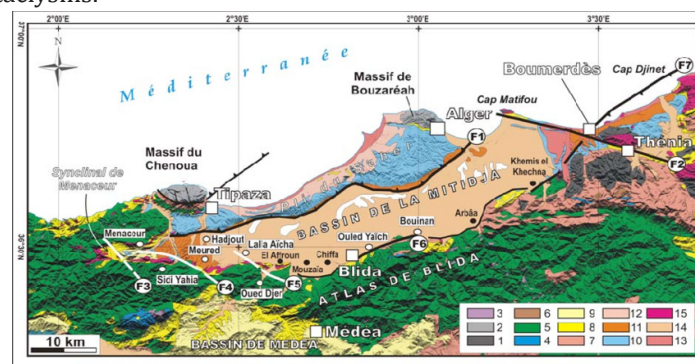


Figure 10. Geological map (on relief, topographic data SRTM-3) of the Mitidja basin and its surroundings. Source: National Center for Applied Research in Earthquake Engineering (CGS). Algeria

The Mitidja fault

Like the Plan Nord, the Mitidja Basin. South Plan is limited by a fault equivalent to that of the Sahel. It extends from Hadjout – Blida to Boudouaou and runs along the coasts of the municipalities of Boumerdès and Dellys. Analysis of the Mitidja basin suggests that a fault in the south of the basin, a mirror of the Sahel fault, continues to Boudouaou in Boumerdes. According to Meghraoui et al. , 2004), the fault that played on May 21, 2003 off Boumerdès, could be a continuation of the southern foot of Mitidja.

The aftershocks of the Tipasa earthquake of October 29, 1989 made it possible to define its shape which is in “L”, a terrestrial path and a sub-meridian part at sea

Figure 11. Current tectonic framework of the North Maghrebian alpine domain (Maghrebis), including the Tell (Atlas Tellien), with position of the main seismogenic basins of northern Algeria, including that of Mitidja (black frame).

Faults Supposed at Sea

Flood Risks and their Effects

689 flood sites have been identified in Algeria, including 233 presenting a very high risk, including the village of Berbessa, where the lands suffer serious damage due to the stagnation of rainwater (asphyxiation of the plant, decay and the difficulty of access trees for fruit picking) roads and ground floors of flooded dwellings. Exceptional phenomena can touch the region (lightning storm) (tab.3) which can cause a flood of Oued Mazafran and Lake Halloula.

Location	Elements exposed to risk	Construction type	Population density (inhab / ha)	vulnerability	Personal and property damage
Medlar estate Berbessa	Individual homes, Equipment	Mixed structure	400	Very high	Flooded premises, cut roads
Hamlets of Attatba	Shops, homes	Spontaneous neighborhoods	100	Very high	Slums destroyed, roads cut
Hamlet of Sidi Rached	Shops, homes	Spontaneous neighborhoods	120	Very high	Houses destroyed, roads cut

Source: Ministry of Water Resources. Communication cell

What the current vision of 2018 satellite images (Fig. 5, Fig. 7 and Fig. 9) draws for us is the distribution of shapes and colors in space, it is the drawing of cultures, with fields, meadows, woods bounded by paths and rows of trees. It is the agrarian morphology (Aldhuy, 2003) whose plot asserts itself oriented and geometric in a disorderly, coexistence of the plot of exploitation and land ownership. The rural cadastral matrix was of great use in defining the mode of parcel development.

Spatialization and Vulnerability

We will rely on a survey carried out by local authorities in 2012, among residents chosen according to the most exposed sites; Néfliers subdivision in Berbessa, Bennessah district in Attatba and the main street in Sidi Rached.

The observation is made that 45% of the population of these sites has recently settled in Berbessa, which is most of Algiers; 20% in Attatba and 35% in Sidi Rached, this population previously resided in precarious housing. or in colonial houses that were demolished and rebuilt in R + 3 with flood48% of the population say they are not well informed about natural risks since the only source of information is word of mouth and they are seeking training on the subject of vulnerability.

60% of the population surveyed admit that they encounter environmental problems without pretending to judge the consequences because for them the risk of flooding or seismic is always linked to the poor municipal management of various networks and buildings and not to their unconsciousness to build in dangerous areas and illegal basements.

CONCLUSION

The consideration of geomorphology in territorial governance by flood risk prevention plans (PPRI) and the General Plan for the Prevention of Major Risks (PGPRM) instituted by law n ° 04-20 of December 25, 2004, relating to the prevention of major risks and the management of disasters, tends to minimize the aggravating causes of damage due to urbanization and the development of peri-urban areas, land use methods and the resulting sociological causes of the organization of urban society and its behavior.

Indeed, the micro-urbanizations noted in the three localities are synonymous with a diversity of situations due to their own and localized development capacities in these territories.

The integration of the peri-urban specificity in the differentiated and clear development policies will plead for a concrete application but nevertheless very difficult in the current political context.

In this logic, the municipal institutions must play a driving role in the management of the development of the municipal territories they often prove essential by guaranteeing a compliance with regulations and by promoting sufficient public services and equipment.

The answer to all of our questions can offer these municipalities the opportunity to constitute a local decision-making authority.

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