

Urban Occupancy of Areas with Flood Risk and Territorial Dynamics: The Case of the Great Nador Agglomerations (Morocco)

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The province of Nador, located in the North-East of Morocco, extends on a maritime facade of 153km and an area of approximately 3263 km²; occupying 3.94% of the whole eastern region. It has an important territorial dynamic linked to deep economic, social and spatial changes. This phenomenon is particularly evident in the transformation of small urban centers into an urban archipelago that extends actually over more than 30 linear km. These centers evolve through a process of densification, concentration and hosting activities of all kinds (tourism projects, industrial, port, housing, tertiary sector etc...). In this territory the changes are perpetual; the urbanization is currently experiencing a spectacular spatial dynamic, generally poorly planned. This accelerated action of urban sprawl has directly led to the annexation of vulnerable areas to urban spaces, and indirectly, to a huge upheaval in the spatial organization of the cities. This new relationship, created between this territory and the risk of flooding is an important subject to study and examine. The aim is to understand the evolution of spatial dynamics in this fragile and vulnerable area, and to highlight this spatial phenomenon which is very useful in the process of rational urban planning.

To analyze this question, our methodological approach is based on the implementation of a set of tools and sources of information, allowing a complete and integrated analysis of the problematic of natural hazards in this territory. Interviews with risk management actors and local elected representatives were one of the bases of this work. In addition, surveys were conducted with local populations to understand their perception of the natural risks to which they are exposed. The historical dimension of this study was approached on the basis of bibliographic research. Administrative records and reports from the Urban Agency and the services of the Housing Ministry, have been helpful in supporting our results from the field. This work has been supplemented by more spatially and thematically focused field research. The exploitation of aerial photographs, from different missions, allowed us to map and grasp the evolution of the built space during the last decades.



The results of this study show that the urban environment of the Great Nador territory is still growing with a rather fast and exacerbated pace, by spreading in all directions following several logics. This has resulted in a fairly complex urban fabric, containing all forms of non-regulatory and under-equipped habitat, that presents enormous challenges for urban management. So, development trends occur in a random way, generating spatial transformations that are not very reversible, with a very high degree of artificialisation of the soil. Today, the territory of the Great Nador lives at the rate of spatial dispersion of urbanization and the invasion of sensitive areas, which results in a growth of amorphous and fragmented urban fabrics, where the risk of flooding is a crucial problem for the actors. The uncontrolled expansion of the agglomeration during the last decades in the risk zones accentuates its vulnerability to floods phenomena. The analysis of the ancient aerial photos and historical documentation shows that the Great Nador area, especially near the main rivers, was almost empty of any type of construction until the end of the fifties. Indeed, there were only small localities composed of a few scattered houses of native inhabitants (hamlets on Nador, Ait Anssar, Selouane ...). The area of the plain and "Sebkha de Bouareg" has been strictly safeguarded and reserved for agricultural activities and fishing. Very quickly, during the years following the independence of Morocco (1956), the Great Nador experienced a visible urban chaos. In fact, since 1950 the town of Nador has developed without order, when the outer quarters are scattered to the south, between the road to Selouane and the coast, which was precisely the perfect zone for a rational extension. Today the territory is reaching a saturation of land, where the urban planning faces an endless process of spatial extension. Indeed, following the accelerated rate of all dynamics, the accumulated capital from the period of prosperity due to the counter-gang and immigration, were invested in the purchase of unserviced land. This commercial dynamism was accompanied by a massive influx of rural population attracted by employment opportunities. The first result of this phenomenon was a high human concentration in the most environmentally sensitive areas; this has favored urban conurbation at varying rates. This galloping disorganized urbanization has been accompanied by several fatal phenomena on the urban and environmental plans:

- A very significant development of suburbs and illicit peripheral areas in zones less favorable to the reception of the population (flood zones, sensitive areas).
- The integration of rural mergers into the urban fabric, which poses the problem of requalification and recovery.
- The creation of an amorphous and fragmented urban fabric requiring several support and intervention operations for the upgrade (leveling).

Otherwise, it is important to underline that the risk of flood has allowed the emergence of new urban forms in the territory of Great Nador. Indeed, the spatial study of this phenomenon shows a paradox in terms of urban management. While the authorities are providing colossal efforts to relocate the affected population following the tragic events, we find that several flood plains are still attracting a population in search of affordable housing. These areas become a refuge for a low-income population. The location of several hectares of flood plain near major rivers has led to a reduction in property prices. Today these floodplains, overgrown with habitat, constitute more than 10% of the territory of Great Nador. This figure can increase at any time in the absence of a



concerted and directed urban policy. In addition, flood risk is an opportunity to promote rational management of risk areas. In fact, given the increasing degree of exposure of several neighborhoods to the risk of flooding, it is no longer a question of conceiving the risk as an external constraint to these neighborhoods, but rather as an intrinsic component of this territory. In this context, some specific event intervention methods, such as engineering protection works or cleaning operations of major watercourses, have been carried out. These actions, unfortunately, have not been able to totally annihilate the flood phenomena whose recurrence generates actually, significant damages, following the increase of the stakes in these zones. In order to overcome this situation of permanent threat, the public authorities are currently obliged to move towards passive interventions to mitigate the effects of floods and reduce the vulnerability of threatened neighborhoods. In this context, several initiatives in the direction of urbanization, land use and urban innovations began to emerge in the territory.

Similarly, the alarming frequency of floods, in major rivers, has raised awareness among local actors and a certain mobilization upstream of urban planning process, in order to implement more effective protections. In this sense, a remarkable technical, decisional and strategic evolution characterized the entire urban landscape of this territory. The urban transfer of the gravity center of the Great Nador, to the municipality of Selouane and the city of Zeghanghane, is today considered as the main action of this administrative awareness. This spatial reality is explained by a new territorial dynamic created following the decisions taken after the exceptional flooding events of 2008. Indeed, since that date, several subdivision operations have quickly emerged to offer a choice for a large affected population. However, the lack of land mobilized at the level of the cities of Nador, Beni Ansar and Zeghanghane, have pushed urbanization to the municipalities of Selouane and Alaroui, which are experiencing a very spectacular urban development due to the availability of land. As a result, two major urban centers are being built over more than 100 km².

Nevertheless, the current situation of these dysfunctions explains the delay experienced by the province in setting up an integrated provincial strategy for flood risk management. Initiatives in this context are still basic and are characterized by the punctuality of intervention, while being limited to the implementation of sectorial action plans, in a context of lack of synergy. So, the current approach to flood risk management in this province has shown flagrant deficiencies. Indeed, the local authorities are far from ensuring the minimum protection of the districts exposed against floods; the situation is only getting complicated.

Today, following to a political will, this territory lives to the rhythm of great spatial and territorial reconstruction. In the face of these changes, it has become of great importance for the concerned actors to rethink traditional systems of spatial planning. This requires the implementation of a bold strategy to address the past urban errors, to prevent the increase of human settlements in areas at risk. The recommended approach must include the evaluation, prevention, intervention and reconstruction phases in a process of continuous improvement that takes into account past experiences. In our view, this approach should encourage the participation of users, planners and decision makers at all levels, around an open, transparent, global and communicative approach. This would allow a decision-making initiative, including public consultation and stakeholder participation in planning and implementing rational management processes.

