

Conference Paper

Housing Planning for Informal Settlements: Pante-Macassar (East Timor)

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Abstract

Regeneration of informal settlements is a topic being studied worldwide. Generally, cities comprise informal settlements, and consequently sustainability problems, requiring urgent actions. Often, the solutions regarding informal settlements do not adequately consider the local features, leading to difficulties such as environmental and public health deteriorations, weakening of housing access or troubles related to economic sustainability. Additionally, some housing programs don't fit in community characteristics of social inequalities and poverty. In this sense, this paper intends to show the results of the development of a research methodology, to carry out strategies and to pursuit strategies of rethinking informal housing settlements, in an integrated and resilient way. It concludes with the application of a theoretical model to an informal neighbourhood in Pante Macassar, a city in the Oé-Cusse region of East Timor. The interest in this approach results from an ongoing Doctorate program in Civil Engineering at the University of Beira Interior, focused on the development of a set of good practice guidelines for the informal city regeneration. It aims to identify and assess informal and unhealthy features of urban settlements and their integration at city scale. The theoretical-conceptual issue addresses the informal settlements, comparing with formal housing programs.

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1. Introduction

The problem of informal settlements and urban informality is a serious issue, transversal to developing countries. This situation results in the raise of degradation in terms of environmental quality, boosting the weaknesses for local communities daily lives.

The lack of infrastructures and the consequent low standards of living conditions of the various populations in developing countries, stem from factors such as the following:

- A political and economic instability, which does not allow the implementation of long-term policies and strategies;

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- An accelerated and fragmented urbanization process, in disarticulation with the territorial planning models;
- A reduced investment in infrastructures of the territory;
- An insufficient set of governance strategies and policies;
- The economic weakness of the population.

This demonstrates the needs to develop efficient land-use plans and models of action regarding informal settlements turning them into formal ones, providing improvements not only in the quality of life of the population, but also in the improvement of urban space and environment.

This study focuses on finding solutions through the analysis of local needs and what the potential aspects for the case study of Pante Macassar in East Timor are. It defines the means to be used in contexts of informal settlements in order to improve the habitability conditions of their inhabitants and to reach potential socio-economic factors.

Over the years, different programs, strategies and policies have been developed by governments to answer to the problems of informal housing and urbanism. Nevertheless, as presented by Hassan (2012), *“The traditional approaches of mainstream for the development of informal settlements appear to be inadequate towards solving or alleviating the social and economic problems and failed to cope with the rapid change that have arisen”* [1].

Holistic approaches are integrating all dimensions of human activities and environmental impacts are gaining recognition as suitable alternatives for various experiences in developing countries contexts. However, in the presence of informal settlements, these approaches do not adequately consider the local features, which vary, leading to inappropriate and misfit territorial models and unsuccessful housing programs.

The solutions must take in account that *“driving forces of Informal Settlements should be detected and probable areas must be integrated in future urban planning”* [2]. Therefore, there is still much ink to spend, studying good practice guidelines to improve the conditions of informal settlements bringing them to the formal city features.

2. Scope of Research and Objectives

This research seeks to endorse a model of good practices that allows the changing of the informality of the territorial occupation for housing, that does not have neither

the conditions nor the means to reach an efficient level of performance, regarding the development of human activities.

It is intended to establish a conceptual model, based on sustainable development, resulting from the symbiosis between regeneration of urban spaces and housing neighbourhoods, favouring affordable housing policies, the improvement of cities and, consequently, the quality of life of their inhabitants.

From the timely development of the household on a smaller scale to the development of each community, promoting at a later stage the development of the city and the country itself.

For this to be possible, there is a priority to introducing the problem of informal settlements, in a primary section of this paper. And, therefore, to present the case study, in East Timor.

3. Methodology

The solutions described in this paper aim to respond to the problem of informal housing by translating the real needs existing in the case study area and for which the solution responds with the objective of building a lasting and sustainable solution in terms of development.

The process is translated by a proposal of transformation of the informal settlements, adapted to the reality of the social, economic and environmental context of their inhabitants. Within the framework of developing countries; where the intervention area is inserted; the literature emphasizes poverty and malnutrition, associated with the deprived economic situation, and social and cultural factors. Being a topic widely discussed by the academic and professional communities, which recognize that the localized interventions have had a high potential in the progressive transformation of a territory, the proposal consists of a gradual, inclusive and just changing, aiming to generate cells of dissemination for a fast process. The integration and articulation to reality thus requires a global understanding of the territory through its characterization and diagnosis.

Faced with this challenge, this study focuses on an approach based on the research of available information in confrontation of the methodological research, to achieve the objectives.

4. Informal Settlements

4.1. General Features in Developing Countries

If in many developed countries such as Portugal, the growth of population is anaemic, in developing realities it reveals a rapid progress. Consequently, the rise for housing needs is also quickly. The presence of informal settlements in cities of developing countries is massive, representing a significant part of housing offer. According to Menshawy et al. (2011), *“One of the biggest obstacles for development in the developing countries is the rapid population growth. (...) The urban population of developing countries is increasing at an alarming rate. Almost 1 billion, or 32 percent of the world’s urban population, live in informal settlement, most of them in the developing world”* [3].

The definition of informal settlements is a very wide concept: the United Nations (UN) Habitat Programme defines “residential areas where a group of housing units has been constructed on land to which the occupants have no legal claim, or which they occupy illegally”, and also as “unplanned settlements and areas where housing is not in compliance with current planning and building regulations (unauthorized housing)” [4].

Some authors defend that the term “informal settlements” is used to describe a dwelling that “occupy land that is interstitial and of marginal use – the leftovers and the terrain vague of the city” [5].

For the UN, the informal settlements, also known as “slums”, are very difficult figures to affirm as types of settlements, in which “about a billion people now live in” [6]. The World Urban Forum established by the United Nations in 2001 ascribed the program “City without Slums” using the term slum to describe “a wide range of low-income settlements and/or poor human living conditions” [7] (Gotham, 2001).

These types of settlements arise as the logical response for the growth of housing demand, and due to “the absence of an adequate formal response” [2] to this situation.

According to the UN-Habitat, “Informal Settlements” are connected to physical and legal conditions, since they are described as “wide range of residential areas formed of communities housed in self-constructed shelters that are perceived as informal on the basis of their legal status, their physical conditions or both” [8].

4.2. East Timor: the case of Pante Macassar

In 2002 the Democratic Republic of East Timor became the first sovereign state of the 21st century. Pante Macassar is the city of its Oe-Cusse Ambeno region. It is an enclave

separated from the rest of the country and surrounded by the Indonesian province of West Timor, which encircles this small enclave from all directions, except to the north (Figure 1). This province has about 800 km², with an extension of coast of about 50 km², skirted by the sea of Savu and shrouded in coral reefs of south-west Asia.



Figure 1: – Map of Pante Macassar in East Timor (GEOTPULAB., 2018, Repensar Oé-Cusse, Timor-Leste | Rethinking Oé-Cusse, Timor-Leste, Lisboa, IST PRESS)

Because of several years under foreign domination and territorial isolation from the rest of the country, Pante Macassar, a shortage of resources is observed, associated in large part with the biophysical characteristics of the territory and not only with socio-economic conditions. This city is located in a flat part of the landscape, between the mountains and a tiny stripe of land, with 50km² width, along to the seashore. As a result of a lack of development, there is a need for public equipment buildings, such as schools, hospitals. There is also a lack of programs to support the public sector, in order to respond to the shortage of housing and the low standards of quality of the existing dwellings. These needs for facilities also include the promotion for regulations on land use planning, urban development, and guidelines for the building sector.

The present built-up park is very degraded and with an evident lack of quality. Relating to the dwellings interior comfort it has been promoted by architectural solutions and environmental performances, misfit and mischaracterized, to the detriment of constructive techniques culturally used throughout the times in this territory [9].

The Region of Pante Macassar, as Bulgaski (2010) describes it, “apart from being an enclave, extreme biophysical features and past conflicts have hampered its development” [10].

The urban informality, the lack of infrastructures and a weak economic sector characterize this territory. Within the housing plot, all daily activities take place, resulting in a society and economy based on agriculture and small business [11]. Also, land tenure is based on unclear customary law [12]. Within this situation is possible to affirm

that informality, a weak network of infrastructures, precarious housing and low income characterize Pante Macassar [11]. Other references say that “On the building stock, housing is very precarious due to the bad quality of material and building systems. The housing stock, where a household with several families live, is mainly characterized by a large plot that has the several functions separated such as the living room/bedroom, kitchen, latrine and storage” [13].

In developing countries, such as Timor-Leste, urban areas are essentially characterized by an organic morphology, with no minimum planning regulation, resulting in poor housing, compromising social development and with public health sequels [14].

Morphologically three main areas are identified: 1 | Low and Flat Coastal Zone - characterized by a flat area, corresponding to a very irregular and narrow alluvial coastal plain, with altitude below 100 meters, representing 17% of the territory. The city of Pante Macassar falls into this group; 2 | Medium Mountainous Areas - Innermost zone, representing about 50% of the territory, characterized by a very irregular morphology and altitude between 100 and 500 meters; 3 | Mountainous Areas - zone of very irregular, sloping morphology, very cut by lines and water, in which heights are registered above 500 meters, occupying 33% of the territory. This category includes the mountainous area of northeastern Oé-Cusse. [13]



Figure 2: – Pictures of the houses in Pante Macassar in East Timor (GEOTPULAB., 2018, Repensar Oé-Cusse, Timor-Leste | Rethinking Oé-Cusse, Timor-Leste, Lisboa, IST PRESS.

The literature reveals that in East Timor, “Contrary to the overcrowded and unhealthy housing stock of cities, precarious housing in rural settlements is characterized by poor and unsafe building systems, precarious materials and inefficient projects, that is, the house only functions as a simple shelter” [15].

The built environment for housing in the Oe-Cusse Ambeno presents differences, mainly due to geographic location and mobility constraints. These factors are evidenced in the decision-making process regarding housing sector, both formal and informal, as well as being determinant in socioeconomic terms. This finding is made when comparing the city of Pante Macassar with the rest of the territory, regarding the choice of building materials used and the formalism of the dwellings themselves (Figure 2).

According to some authors “the house has a stronger meaning in developing countries than in developed countries because it is a place not only to rest, but also to generate income, work and socialization” [16]. In most developing countries, just as in Timor-Leste, housing is still built by its users, becoming a place of living and working, thus being the scene of everyday life, being a culturally and socially reflection of its occupants.

5. Spatial Planning in East Timor

The development of housing programs in informal settlements in developing countries is a widely studied topic throughout the world. It is becoming one of the main strategies focused on impoverished communities, with the goal of counteracting the growth of social disparities due to their quality of lives.

The city of Pante Macassar, is almost 300 kilometres from Dili, the capital city of the country and it is the administrative capital of the municipality of Oe-Cusse Ambone.

The hierarchy of the political and administrative system of East Timor is based on the family organization, that when is aggregated throughout the territory, constitute villages, commonly called ‘Knuas’ [9], a grouping of villages. All over the country there are a total of 442 ‘Knuas’ [13], which are organized in 12 districts, plus the enclave of Oe-Cusse Ambeno, which is considered an administrative region, known as Administrative Region of Oe-Cusse Ambeno [17].

At administrative level, the territory and the built-up park are organized into sub-districts and ‘Sucos’, which in turn are made up of several villages, with the existence of public facilities in all ‘Sucos’.

According to the Preliminary Results of the National Population and Housing Census from 2015 [17] East Timor has a population of about 1 million, 167 thousand and 242

inhabitants. It has a population growth of 1.81% per year, an age structure characterized by 66% of its inhabitants under the age of 20 years old, and essentially subsistence agriculture as well as a dominant informal economy [9].

In the previously referred scenario, Pante Macassar is the sub-district having a smaller percentage of elderly population, which can be attributed because it is the capital of the province, which attracts young people seeking better living conditions. There is a tendency, as in most least developing countries, for higher birth rates as well as for mortality.

This part of the territory observes diverse threats and deficiencies at the environmental and socio-economic level. Its location makes this area a vulnerable zone, exposed to the effects of climate change, which affect its normal functioning as an element of support to human activities. The territorial impact of climate change is a process that follows the development of the territory and assumes an active part in its performance. These elements, when altered, have direct repercussions of significant magnitude, making visible the fragility of the territory, given its inability to resilience to phenomena not totally predictable and determinable.

Although the region includes an urban area corresponding to Pante Macassar, most of the territory is primarily rural.

Apart from being an enclave, what isolates the territory not only geographically, but also in several other realms such as culturally or politically, the biophysical characteristics and the conflicts of the recent past times with Indonesian, are making difficult the development of Oe-Cusse [15]. In fact, considering its geographic conditions, Pante Macassar was the first piece of land of East Timor, to be occupied by Indonesia in 1975. This was an occupation that lasted 27 years and which made the development of the region difficult, resulting in a strong rural identity of the city and a socio-economic stagnation.

Climate change has been a problem with severe impacts such as floods or the temperature rise that dries water lines and changes the normal periods of the seasons.

Even because of its location, the case study area, is a strip of territory that is in a vulnerable zone, exposed to the effects of climate change that may affect its normal functioning, and the urban resilience.

As said before, Pante Macassar is a city mainly characterized by informality, lack of infrastructure and low family income, which highlights poverty and malnutrition, constraints of development.

The city of Pante Macassar is characterized by an irregular organization and distribution of the construction, resulting in an irregular building mesh. Observing this mesh it is easy to see the existence of voids between the building, nicknamed urban voids. These voids can be categorized into three distinct classes: 1 | Public - They result from the lack of organization of the building combined with a cultural concept of public space in which it arises and is used differently from western countries. The public spaces in Pante Macassar do not have a clear connection with the surrounding space, as exemplified by the two squares located on the city's outskirts. The lack of qualified and attractive public spaces leads the population to hold any socialization event within their lots or near existing equipment. 2 | Semi-publics - This category consists of all spaces defined as services or equipment, such as schools, hospitals and Sucos headquarters. 3 | Private - These are the voids identified within the various housing lots, ie spaces resulting from the construction of dwellings and their delimitation through physical boundaries. These voids can be further divided into two categories - voids within the lot and voids between lots.

Spatial planning practices, land uses regulation, ownership, and urban informal processes, are due to the inadequate legal framework that has resulted in a fragmented land management process [13].

The absence of a clear land tenure structure presents a set of challenges based on the following aspects:

- the existence of agricultural lands under customary practices;
- urban properties absent from a clear cadastral definition;
- public spaces with the potential to be planned by public and private investment, namely for the development of the tourism sector.

The economic conjuncture, together with the dimension of the problems and the social and cultural factors from which they emerge, require that the transformation of informal settlements into formal neighborhoods, should taking place in a gradual, inclusive and just way, supported by a urban design and planning model, appropriated to social, economic and environmental contexts.

In developing countries, development investments are mostly focused on cities because they are the areas that lead to economic and social transformations [11]. In the city of Pante Macassar, land uses management is mostly responsibility of the Regional Secretariat for Spatial Planning and Cadaster. It is characterized by a partially 'informal' process, given that the Secretariat has knowledge and in in charge of urban transformations control in the territory, but without an official legal support.

The difficulty of formalizing legislation related to spatial planning and land use issues, lies not only in the fact that East Timor is a recent country, but also in the very social and cultural characteristics of the population, which in turn are more significant in the rural context. The Timorese rural family pattern, namely in the District of Oe-Cusse Ambone, contains housing lots with several family nuclei which, for legal purposes, correspond to a concept of community property [15].

In cities that are dealing with informal settlements, such as Pante Macassar, there is the need of having a more environmentalist thinking regarding the public policies for the territory. They should define strategies towards a resilient urban spaces, enabling adaptation and mitigation measures, which can be divided into the three following categories:

1. To protect - in which there is an attempt to continue to use the areas at risk;
2. To adapt - that defends the attempt to take advantage of the areas at risk, but adapting the activities to the registered threats;
3. To withdraw - when there is the need of defining proposals for the people evacuation of the affected area.

All these policies for the mitigation of climate change upon urban areas should be part of the spatial planning system framework, its instruments and contents.

6. Conclusions

The developed methodology intends to transpose the scientific knowledge and the strategic and objective orientations for management and spatial planning models of the urban territory in a theoretical-practical approach.

The cities of developing countries are struggling with particular territorial, social and economic problems. In addition, they are facing environmental challenges, which are the determinants of the development of any type of spatial planning action, such as in the case of Pante Macassar. Therefore, is fundamental to evaluate these issues collectively and to find strategies that can mitigate their impacts.

In this sense, the conclusion shows that currently, holistic approaches are integrating all dimensions of human activities and that environmental impacts are gaining recognition as suitable alternatives for various experiences in developing countries. However, the presented analysis has revealed as well that in the presence of informal settlements,

these approaches do not adequately consider the local features, which vary, leading to inappropriate and misfit territorial models and unsuccessful housing programs.

The context of a rapid urban intervention constituted the subject to a feasible response to be adopted by the responsible for the region of Oé-Cusse in our research.

Balancing the sustainable development of the urbanization of small urban areas it is the main reason to develop a housing program that can be adapted to a developing country context.

In East Timor there is still a long way ahead regarding the good practices guidelines, towards the spatial planning policies focused on the housing issues. These strategies should be able to promoting a more resilient urban space, capable to facing the climate changes and the geographical restrictions, enhancing the identity of local communities.

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