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# The concept of Territorial Frugality, how to identify, quantify and apply - the study of Lisbon Metropolitan Area

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**Abstract.** “In behavioral science, frugality has been defined as the tendency to acquire goods and services in a contained manner, and use of the economic goods, resources and services themselves, to achieve a long-term goal” [1] The present project intends to study the introduction of the concept of territorial frugality, characterizing its applicability to the territory, specifically to the urban space, as a tool in the parsimonious use of available resources, as well as studying its measurement through a mixed methodology. An interventionist, either using the opinion of a group of experts, using the DELPHI technique, as well as the establishment of conceptual models or using other methods in order to identify, select and define the applicability of indicators that allow the evaluation or establishment of parameters correlated with the concept of frugality, within the scope of spatial planning and urbanism, within the case of Lisbon Metropolitan Area.

## 1. Introduction

The intention of this article is to expose the concept of Territorial Frugality. This concept is in development in the course of the current PhD in Urbanism, at Universidade de Lisboa - Lisbon School of Architecture.

To fully understand the intended base concept, of Territorial Frugality, is needed to express first the concepts of Territory, Region and Frugality that establish the foundation ground.

### 1.1 The concept of Territory

TERRITORY, delimited area of space under the power of an animal, a person or an organization. It is related to the study of the political organization of the space, co-related to countries or regions. Most authors use territory when dealing with relations between space and power. One of the primordial State functions is to administrate and defend the territory [2].

The State or Region resilience is connected to his space – in its form, extension, height variation, climate and natural resources at hand, to its position – social relations between the State or Region with the surrounding environment and to its people, assuming that each person have a distinct common being.

### 1.2 The concept of Region

REGION, derived from the Latin word "*rex*" or "*regere*", which means [3], a geographical partition or arbitrary spatial differentiation carried out by the political-administrative authority in order to obtain



control of the respective space under its administration, but without taking into account numerous other factors to which it must be associated modernly.

Fundamentally, the concept of the region [4] can be observed according to scientific criteria of fundamentally geographical basis [5] or according to political-administrative criteria, [6] as well as still predominating criteria statistical-based scientific data using quantified indicators.

### 1.3 The concept of Frugality

FRUGALITY, from the Latin *frugale* or *frugalis*; usually in the plural (*frūgēs + ālis*), feminine noun; quality of those who are frugal; sobriety; temperance; thrift; moderation; that is supported by fruits. In ancient times, the concept of frugality was not autonomously defined, but its essence is present in classical texts, in Aristotle and others.

"Man wants to accumulate without end and without measure" [7]

Complementary to the classic thought, which he certainly knew, says, Alberti [8] in the middle of the 15th century:

"... We learned that our former, very modest and prudent men, vehemently recommended, whether to the public, private or edifying art, frugality and thrift; and thought that every form of luxury should be eliminated or kept in check among citizens."

Throughout history, until nowadays, the concept of frugality has been fundamental for the reference of a cross-cutting path towards humanity towards self-improvement, with its reference to savings being recognizable, as a counterpoint to the reference of consumer society. America will be the ultimate exponent of this contradiction expressed in one of Benjamin Franklin's [9] aphorisms:

"be industrious and frugal, and you will be rich"

Thoreau's literature also refers to frugality, extrapolating the economy of means for the consumption of space, and how this binomial can limit the development of humanity.

"In my house, I only had three chairs. One for solitude, one for friendship and the third for society. If more than three people visited me, which was very rare, they would stand. Once, to my amazement, I noticed that there were about twenty-five people in my house if they stood. I concluded that in cities we build very large houses, where people are very far away." [10]

## 2. Urban Frugality and Territorial Frugality

Urban Frugality is an extension of the concept of frugality to urbanism, which results from the combination of two words from the Latin *frugalitas* with *urbanus*. It is easier to comprehend than territorial frugality because it extends to all the space, urban and non-urban.

Urban Frugality is the frugal way of being applied to urban living, to the production of urban space and everything that refers to the city, characterized by savings, prudence and rationality in the use of consumption resources, whether they are natural, financial resources, territory or time itself, privileging simplicity, sobriety of habits and manners to do, avoiding waste, and extravagance.

"Doing better with less (not just 'doing more with less'), sharing economy, co-creation, sustainable production and maintenance, customer awareness and self-monitoring. "[11]

The emphasis is given, preferably, on the natural regeneration of resources, in logic of circular economy, as well as repair or remanufacturing, in city production, but urban frugality may be more, in

essence, it is a virtue, a necessary condition to achieve the perfect city, the place of citizens' happiness, as understood by Aristotle in Politics.

### **2.1 Territorial Frugality**

This article's aim is to assume the relevance of introducing the concept of territorial frugality, as a new tool to use in Urban Planning.

Territorial Frugality, as a process of the simplicity of action and parsimonious use of available resources, associated with the phenomenon of urbanization the territory, analyzing the existence of non-deliberate frugality intentions or actions of territorial incidence (for example, e.g. Planned urban space, Urban Areas of Illegal Genesis, historic urban space).

It is co-related with the concept of frugal innovation, that began to be applied in economics and process engineering, assuming that its methods can be extensible and adapted, with a great advantage, and can function as a catalyst of solutions, namely for planning and ordering of the territory and urbanism.

However, it is necessary to define the scope of the concept's applicability to the territory, identify its forms and means of action, providing for the development of indicators, as mechanisms of analysis.

### **3. Framework**

Urban areas, especially metropolitan areas and megacities are the largest concentrations of the human population. These territories are today, at a large extent, the fundamental habitat of mankind, and are the sum of the urban areas where most of the people live and the surrounding region that are co-related to them that constituted until the mid-19<sup>th</sup> century the nearby main support area, supplying most of the food, water, energy and other basic needs. From the 20<sup>th</sup> century the growth of the urban areas, in its full extension, composed by the historic urban cities plus the growing areas and its suburban surroundings, constituted the emerging of metropolitan territories that includes all the urban, and all the non-urban spaces. Steamed by the growing globalization phenomenon the metropolitan areas are now connected with each other in a global network of dependence correlations, meaning, that the basic needs of each city or metropolis are no longer sustained by the correspondent territory. This constitutes the biggest disruption in basic sustainability and defense of the territory, assuming that these days forward we do not act anymore within the laws of nature, we act in something new that needs to be checked and balanced before it gains self-will.

Despite the extensive use of available resources, the solutions implemented to use it in these metropolitan territories, throughout the 20th century, proved to be insufficient to overcome the existing problems that arise mainly from population growth.

According to the 11th goal for sustainability until 2030, defined by the UN [12], "... the high density of these cities can generate gains in efficiency and technological innovation while reducing resources and energy consumption.", Deducing the need for action in planning, in better use, allocation and management of resources.

The emergence of the phenomenon of urbanization and its growing globalization in the 20th century constitutes a large-scale alteration (metropolises and megalopolises) of human habitat on Earth. This change led to an aggravation of problems stemming from social inequality and lack of territorial cohesion.

Currently, we are faced with increasing new challenges (the increase of the population and its aging, the risks of climate change), mostly co-related with the globalization process, aggravating the needs, opening the way for alternative approaches [13].

Through the introduction of **Territorial Frugality** as a practice or catalyst in improving the production of policies territorial planning or even some urban project solutions, it is believed that it is possible to find solutions of greater sensitivity, relevance and territorial adequacy, sustainability and feasibility, in order to balance and increase muscle to sustain the emergence of this global inter-dependence. Inter-dependence is good in the extension that could prevent the escalation of conflicts, and permitting a common ground to establish stronger and more developed economic and social thighs, but the global specification of each area of the world to produce a specific thing means that if one part of the world stops with simple flu, will affect all the other. This global dependency constitutes a severe risk that is not simply added because of a severe multiplying risk factor that will augment the effects of all the other.

The object of study is its adaptation to sustainable territorial planning and urbanism using the concept of territorial frugality as a catalyzer, for actions in the city of Lisbon metropolis (LX – XL), using measurable indicators, as cost by a square meter of different public spaces that allow the establishment of parameters to be included in Territorial Management Instruments.

The AML (Lisbon Metropolitan Area) was chosen for its heterogeneity, accessibility and knowledge on the part of the researcher. The application of Territorial Frugality to AML is synthesized through the expression LX - XL (Lisbon Extra-large), representing the City and the Metropolitan Area that are both opposing complementary and dependent, living in changing symbiosis, that function as a conceptual palindrome relating opposing concepts, the urban versus the suburban.

#### **4. Main Questions about Territorial Frugality**

The main question is to respond to the relevance of the concept of frugality to territorial planning and urbanism:

- Is the concept of frugality relevant for territorial planning and urbanism? What are the most relevant benefits?
- Can the concept of frugality be applied as a factor of innovation in territorial planning and urbanism or even environmental policies? Why and how does it best apply?
- Can frugality better respond to the problems and challenges identified by the UN in Metropolitan Areas for the 21st century? How does apply to the AML apply? What are the expected benefits?

#### **5. Objectives**

The objective is the study of frugal innovation practices, solutions and methods [14]. applicable to the adaptation of the AML territory as a response to the specific critical challenges that can be expected, integrating the 17 UN Sustainable Development Goals for the 21st century, developed in harmony with the spirit of the place, this meaning, that the adaptation should be related with the territory specificities (meaning territory as space and the people plus living-beings within it).

In order to achieve the global objective, the main objective is to identify the potential of the concept of Territorial Frugality as a possible mechanism for addressing the territorial adaptations necessary to deal simultaneously with the diversity of urban challenges that arise in the 21st century, whether prevailing challenges to be solved, that stood down behind in XX century, whether new challenges emerging in the XXI century, in the territory of the AML, as well as the possible extrapolation of these practices for implementation in other metropolitan territories.

## 6. Hypothesis

We sustain that it is possible to track and filter underlying Frugality practices throughout the history of Urbanism, capable of supporting the concept of Territorial Frugality, as well as defining indicators and parameters for its identification, measurement and application in the production of Public Policies, specifically to Planning (Territorial Management Instruments), using the AML as a case study.

## 7. Methodology

*“...it is necessary to try to understand the context in which we move so that it is possible to propose practices and ways of acting adapted to the current processes of occupation of the territory. The extensive, discontinuous and fragmented urban...”* [15].

The investigation is carried out according to a non-interventionist, mixed methodology of observing the expected case study that is the Metropolitan Area of Lisbon.

The methodological approach presupposes a fundamental research base, in support of the various concepts of the theoretical framework from the existing state of the art, including an extensive bibliography review, and from having a speculative approach.

Questionnaires, surveys and other forms of applied research are also planned. It is also foreseen the introduction of “surveys” to track the AML territory, in a graphical approach to manipulating variables, in a more experimental way, with different actors.

The methodology to be introduced to study the concept, its measurability and parameterization have to deal with the duality of making its dimension compatible as a theoretical concept, which is based on a strategy of studying the fundamental theoretical sources for conceptualization, as well as the innovation of the measurement of its applicability. Therefore it is necessary to understand the adequacies and / or limitations of the existing indicators, and tools, as well as which is the best combination to formulate potential parameters applicable in the domain of urbanism, in the light of the theoretical foundation, that is, with parsimonious use of available resources.

## 8. Conclusion

The introduction of the innovative potential of the concept of Frugality applied in the scope of Urbanism, in the sequence of all that has been said, is considered to be very relevant because of its comprehensive potential.

Its scaled out character that allows assuming diversity, variable geometry and flexibility in the face of uncertain probabilities [15], co-related to the leverage with local resources that are widely available, turn on the possibility to do more with less by introducing Frugality Innovation in Territorial Planning and Management, as well as in Urbanism.

Frugality concept can also act as a catalyst with a potential for innovation in the design, application and analysis of public policies, increasing its efficiency and above all its effectiveness, as well as deepening processes to achieve goals such as Sustainability or administrative principles such as Subsidiarity, Proportionality and Equality.

Through the introduction of frugality as a practice in improving the production of policies and territorial planning, it is possible to find solutions of greater sensitivity, relevance and territorial adequacy, sustainability and feasibility, with special relevance in the context of more complex territories such as the Metropolitan Areas.

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