URBAN VOIDS: PROPOSAL OF A CONCEPTUAL MODEL FOR IDENTIFICATION AND MANAGEMENT IN THE CITY OF RIO DE JANEIRO

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1 Introduction

Urban voids are characterized as unutilized or underutilized areas in full in its possibilities or in disuse in general terms. Such existing spaces in the urban area are the consequences of the numerous historical, political, economic, and geographical processes of a particular location, being subject to analysis from these fields, given the use of these spaces may come to represent new ways of access to the deprived community to salubrious places of residence, recreation areas, public infrastructure, such as parks, squares, schools or health centers[1].

However, it is still necessary to contextualize the use of the term "urban void". In this paper will be taken into account different variables such as the geographical and historical configuration of the local, in addition to political, economic and social conditions for current application of the concept within the urban area proposed as study. For the present study, it is considered *a priori* that urban voids comprises of buildings, housing units, industrial buildings that are closed or out of use, in addition to the vacant and underutilized land, unoccupied areas, vacant land and land subject to price speculation. All these urban voids are, to some extent, a result of the processes of occupation and appropriation of space by different social stratus.

This phenomenon is observed in Downtown and the North Zone area of the city in such way that a question comes up to mind, either as urban planner who we are, or as a citizen that lives or visits the observed area: Why a center of a city with the richest heritage buildings, a representative architecture of all styles, complex systems of building and materials employed, with a highly priced land and an enviable infrastructure has so many empty or underutilized areas?

What is worth noting is that, at least at first glance, it would not suffice a pure and simple piece of information without a proper analysis, that the city in its central area has considerable

[1] Trancik, R. Finding lost space; Theories of urban design, 1st ed.; John Wiley & Sons:, 1986;.

empty spaces and many of them with apparent potential to built on it. However, understanding this question means understanding the very urban structuring process of capitalist societies itself to successfully implement legal instruments with satisfactory interpretation of the processes that determine the appearance and maintenance of these voids.

The action of the public administration will be discussed as the predominant factor in the evolution of the urban structure over time.

Like society itself, the urban space is also rather complex and dynamic. We immediately realize, that it becomes necessary several dimensions of analysis such as the historical process, the actions of the various modeling agents of their space, land valorization and applicable legislation so that we can deal satisfactorily with all its complexity. And yet without abandoning the understanding that each city has its specific features that are due to the history of the country where it is and its own local history.

The current structure of Rio de Janeiro's metropolitan area is characterized by a spatial stratification which is also a direct consequence of the public sector action over time, either through the creation of material conditions; either through the establishment of policies that benefit, ultimately, the capital; or by its omission in respect to economic and housing "informal" processes.

It seems that the spatial organization of Rio de Janeiro, today, is nothing more than the most complete expression of a spatial layering process that has been developing for a long time and has relied on the preponderant aid of the Public Sector.

In general, each new moment of social organization, determined by the different evolution process of the structures that make up the society knows new functions developed in the urban fabric, new actors and new forms of spatial planning and at the same time take place transformations of other old forms. Regarding the State's performance, each new moment is

characterized by the development or improvement of policies and other control mechanisms that are likely to become increasingly stringent over the course of time in order to confirm and consolidate the dominant interests.

Rio de Janeiro, with all its social stereotypes, has had a fragmented expansion model, where many of the new occupied areas do not have proper transportation and sanitation infrastructure. And the old areas, with good infrastructure, tend to be discredited and stigmatized as places of low social value. The effect on the city is catastrophic, affecting the routine of the population and hindering the control of the territory by the government.

While there was some space to grow, the city followed. Many neighborhoods emerged, developed and died while new spaces were created and promoted as new destination. That is when *Barra da Tijuca* emerged, the best example of how Rio de Janeiro has expanded to meet the desires of a particular group in search of an upper-class secure environment. Upper middle class condominiums were built and attracted people from all over the city and, in parallel, its sewage is thrown *in natura* in the lagoons in the neighborhood.

While *Barra da Tijuca* grew, much of the city was left by itself. In the South Zone part of the City, Copacabana was synonymous to decadence and prostitution and many of its residents have moved to other neighborhoods like *Ipanema,* and *Leblon. Botafogo* was just a pass-by neighborhood, with no economic interest from the real estate companies Traditional neighborhoods such as *Gloria, Catete,* and *Flamengo* are other examples of lack of interest by the real estate market and decay. The closer to the city center, the more devalued the neighborhoods is.

In the Downtown area, the idea of transferring the Economic Business Center to *Barra da Tijuca* was gaining momentum with big companies moving into that new neighborhood. Modern buildings, large office spaces and parking lots were the main differences between the two

regions. As the downtown area was not receiving new real estate launches and part of the offers were in old buildings without a good infrastructure, the downtown ceased to be the focus of installation of many important national and multinational companies' headquarters. In respect to the residential aspect, interest in the center was practically zero.

By observing the current downtown area of Rio de Janeiro, as well as understanding its history, we realize that what is now called Central Area (Planning Area 1) occupies in terms of territory what was its entire old urban core. However, in terms of physiognomy, what is observed is a profile almost entirely modified due to countless urbanity interventions which the city went over time and where, especially those carried out in the twentieth century, changed the old city its current form. As a whole, the old City Center is characterized by the heterogeneity of its physiognomy observable in the buildings and on the streets and that should be taken as a reflection of the complexity of its functions and its process of historical development.

The complexity of functions and the resulting multiplicity of services found in the Central area of Rio de Janeiro are in general, common evidence among all the big capitalist metropolises and characterize it as a sector of the city related to the dynamism of its activities and to the valued and intense use of its space. Such characteristics do not seem to condone, with the idea of voids in its territory.

In the North Zone area, the region of *Tijuca* neighborhood and adjacencies is an example of neglect with the old and urbanized Rio de Janeiro. With the increasing number of slums and violence, these neighborhoods became no longer the focus of Rio de Janeiro's middle class. The real estate investments were stagnating over time and the region went through a process of becoming irrelevant within the context of the city, and its image associated with violence and crime.

In the areas considered to be the suburbia in the North Zone, the situation was even worse. The region, which was no longer very attractive, experienced a huge stagnation over the past decades, with old industries moving to other cities due to the daily violence of those neighborhoods, especially *Benfica, Bonsucesso, Ramos* and *Penha*. Associated with the urban problems, prejudice towards these neighborhoods prevented that a large area of the city, with good infrastructure and a good location related to the Downtown could develop and be better explored by the real estate industry, and to some extent, be better served by the local government.

Currently known as Planning Area 3, most of these discredited areas has a peculiar occupation history, representing a little of everything that can be known about the urbanization process of a city, from chaos to organization. It is a stigmatized region and frequently called suburb by the media and by the population in general, but the application of that name ends up being a bit contradictory because, in Rio de Janeiro, this concept is more associated with an etymology than an urban fact itself.

Yet none of that was perceived as a problem, on the contrary, it was a solution, because in Rio de Janeiro there were still many empty areas to expand to, so investing in decadent areas to foster the occupation and revert the abandonment of these areas was not a good private investment or public policy even though these same areas were well served by public infrastructure. This indifference towards the old areas and the growing interest in new ones lasted for a couple of decades, resulting in an old and undervalued city and a brand new prosperous one, resulting in a decentralized City full of urban voids, increasingly dependent on transport services, sanitation, streets and all that public infrastructure a city requires, generating increasing costs for the entire population.

Analyzing the urban sprawl of Rio de Janeiro, we can see how big is the waste of areas already urbanized, where there is a structured urban space, with transport and sewerage system,

but underutilized and virtually devoid of large real estate projects. On the other hand in certain areas of the West Zone, like *Barra da Tijuca* or *Recreio dos Bandeirantes*, real estate investments are numerous, even though there is no public infrastructure or service available in this region. This is a contradiction.

1.1 Aim of the Project

This paper has as objective to propose a Conceptual Model for Identification and Management of Underutilized and Abandoned buildings in the City of Rio de Janeiro. The project will define the possible ways to identify the urban voids and what are the best options to legally treat them. Also it will be given some options of occupation to these urban voids considering the many City`s social programs.

As the object of study, it was considered as urban void all buildings and built space with unutilized or underutilized, including many urban contexts, territorial areas, and previous uses and building typologies, such as homes and vacant shops, closed industries buildings and warehouses, abandoned buildings and houses, and buildings in ruins. The scope of this work is the built urban voids, considering the urban planning for the city as a whole and as the spatial area of study the city to Rio de Janeiro.

1.2 Methodology

The methodological approach in this paper is a survey in the literature on urban voids and its definition or classification. A review on the legal framework of Federal, State and Municipal levels of administration considering as subject the legal instruments available that deals with urban voids and Land Use. It is mentioned a series of programs and projects inside municipal agencies without detailing them further. Some administrative quality tools are used to define some criteria to select urban voids according to public interest. As base to the proposal of the conceptual model it will be addressed only the options of resources already existing in the

municipal sphere as well as in public private partnerships on utilities services. A brief history of the urbanization of Rio de Janeiro since its founding, its economic development, with the consequent increase in built space occupation in the urban area as well as shutting buildings in the areas of the urban fabric, which largely led to the emergence of urban voids. The Proposal is conceptual, meaning that no deep research was performed at this moment at this level of the proposition. Different forms of identification of urban forms will be proposed, as well as the use these urban voids, and vacant buildings can have to public or private interest. For this project the territorial limit is the City of Rio de Janeiro.

The following work is divided into 8 more parts in addition to this introduction. The second part will present the project, its justification, identifying the object and the goal to be achieved.

The third part will address the theoretical literature, Urbanism, how cities grow over time; Urban Void addressing the bibliographies related to this project, it will also comment on specific literature on urban voids and other literature concepts relevant to this project. Specific references to the legislation related to the subject in this project.

The fourth part is dedicated to the urban legal framework in Brazil and other entities of the Republic. The fifth part is a very brief history of Rio de Janeiro urban formation.

The sixth part will be about the Conceptual Model of Identification and Management, it will be define how to identify urban voids, including the classification and use of urban void and ways of action by the public sector.

In the seventh part it will be discussed the management structure with the proposition to create a governing agency with description of the Organization and activities of this agency.

In the eighth part it will be presented some examples of how other cities are dealing with urban voids and what was their approach to manage them.

In the ninth part is dedicated to conclusions and comments.

2 Presentation and Background

The development of a Conceptual Model of Identification and Management will make it possible to identify and monitor properties in a condition of abandonment or underutilized throughout Rio de Janeiro City, in order to determine the best form of action from the City Hall. This action may include the use of onerous instruments under the Master Plan for Sustainable Urban Development of the Rio de Janeiro City, or suggest changes in specific local urban legislation, at the same time allowing economic incentives for the owners to put these properties back into use.

Urban socioeconomic segregation, embodied in the territorial separation between the accessible locations of housing for the rich and poor is one of the most striking features of the current Brazilian metropolises. The city of Rio de Janeiro has experienced a phenomenon common to other major Brazilian cities, a socio-economic division. Related to this situation are some of the major persistent problems today in the big cities, which are: the unequal distribution of public services, income inequality and access to the labor market, poor mass transit system and exclusionary, low quality of life of a considerable portion of the population, and high levels of urban violence.

The issue of housing for the low-income population is a recurrent theme in public policy discussions that deal with improving the living conditions of this segment of the population. Slums are the clearest picture of urban socioeconomic segregation. In part due to the failure of these housing policies a recent phenomenon has increased: the invasion and occupation by the poor population of closed or abandoned properties for housing. The invasions and occupations are more common, especially in the suburbs in North Zone of the city, where in the past were located the largest concentration industrial buildings in Rio de Janeiro. These buildings, with

some exceptions, are located in areas endowed with good urban infrastructure, being served by transport and good sanitation in its multiple dimensions.

This dynamic of occupation is directly related to the low capacity of municipal management, and lack of identification, registering and management system of urban voids that allows monitoring the demographic changes in the city, and developing and implementing requalification policies towards abandoned or closed buildings.

The underutilization or non-use of these properties goes against the principles and guidelines of urban development policy in its various spheres of public administration. The urban voids do not fulfill their social function of urban property, as defined in the Constitution, the City Statute and Master Plan for Sustainable Urban Development of the City of Rio de Janeiro.

Despite its acknowledged importance, the use of urban voids is still fragmented and at *ad hoc* basis. Few actions taken by the city aims to develop practices that could qualify these areas in order to allow them to be inserted again in the urban dynamic of the city.

This fact points to the need to elaborate a conceptual model for the identification and management of urban voids, guided by an integrated approach, which aims at the reinsertion of these properties in the urban dynamic of the city.

The implementation of a conceptual model for the identification and management of urban voids is the opportunity to create a new dynamic for the use of the Central areas of the city, equipped with better urban infrastructure, reducing the cost of urban development of the city. The development of a database bank of urban voids make it possible to better understand this reality in the city and the availability of closed or abandoned properties that may be used by the government to implement its programs and projects of different public nature.

At the same time, the creation of this conceptual model of urban voids management would represent an important action of the City Hall to illustrate a good response capacity of the public

administration to the most urgent social demands, for example lack of housing for low-income people, and even to relieve the pressure on property prices, rental or purchase. Rio de Janeiro is always on top of the list of cities with the most expensive square meter in the country.

Among the justifications and relevance to the study, there are motivations for transformation and reutilization from various dimensions such as economic and fiscal - by the unproductiveness these urban voids represent and the possible depreciation and decay of the areas, also resulting in the reduction of the potential for tax revenues by the municipality - and the solving of impacts such as environmental and social degradation - for example, the risk to human health. While the urban voids represent a sign of urban non sustainability, the use of well-located interstices is in line with the idea of a compact city, more sustainable in the point of view of environmental (lower emissions from transportation service), economic (lower costs for infrastructure deployment) and social (less spending of money and time in commuting between house-work-leisure) impacts.

Given the housing shortage in the city, the urban voids represent a potential housing inventory to be developed and utilized. To know the properties unutilized or underutilized represents also the possibility to improve the municipal administration management and planning of the use to give to the urban land, so it represents the possibility of a greater efficiency in public administration. The urban voids can be perceived as an opportunity for urban development from the perspective of promoting the social function of property.

3 Literature Review

3.1 Urban voids

Theoretical research on urban voids was first initiated approximately 30 years ago in Western countries. In the book ‘Finding Lost Space’, Roger Trancik brings up inquiries on undesirable urban area that makes no positive contribution to the surroundings and which is

ill-defined, without measurable boundaries and fail to connect elements in a coherent way, by calling them 'lost space' (Trancik, 1986).[2] Since the 1990s, as the land value soared in the city center, scattered unutilized parcels of land varying in size and shape located on valuable inner-city land increased. Michael Greenberg and other scholars have defined those abandoned lands as 'Temporarily Obsolete Abandoned Derelict Sites (TOADS)' (Greenberg et al., 1990; Perera & Amin, 1996; Greenberg et al., 2000).

On the other hand in declining industrial cities, due to suburbanization and decrease in population various 'vacant land' has emerged (Accordino & Johnson, 2000). Vacant land refers to many different types of unutilized and underutilized parcels with abandoned buildings and structures (Pagano & Bowman, 2000). Criticisms on the trend to create large landscaped open areas near new development projects that few people use, according to excessive planning has led to producing terminologies such as 'planned wasteland' or 'new urban desert' (Cybriwsky, 1999). 'Fortuitous urban void' indicates spaces beyond the conventional mainstream planned space which are more likely to be in marginal and residual condition (Groth & Corjin, 2005; Akkerman & Cornfield, 2010).

Other relevant concepts include 'Terra Incognita', 'urban ruins', 'brownfield' and so on. However, consensus has still not been reached on terminology definitions and concepts, which are used extensively in diverse areas. Multiple criteria and factors for defining urban voids can be considered such as formation background, scale and shape, regional context, planning influence, dispersion pattern and ownership.

The cause of occurrence for these urban voids can be found in the transforming political, economic and social structure. As the world entered the post-industrial age, decline of

[2] Trancik, R. Finding lost space; Theories of urban design, 1st ed.; John Wiley & Sons:, 1986;.

manufacturing industry, suburbanization, changing urban policy and planning system has resulted in producing diverse spectrums of urban voids (Cybriwsky, 1999; Accordino & Johnson, 2000; Pagano & Bowman, 2000). Ariya Aruninta has pointed out radical restructuring of global economy in recent decades has resulted in an explosion in the number of urban voids and inefficient decision making, poor land management, poor co-ordination among decision makers as the main policy problems that created urban voids (Aruninta, 2004).

Bowman and Pagano insisted different reasons for each expanding cities that contains issues such as growing local economy, in-migration, city policy to encourage land reuse (infill) and shrinking cities that possess situations such as disinvestment, suburbanization, deindustrialization, out-migration and so on (Bowman & Pagano, 2000).

Overall, there has been an influence of global phenomenon related to post-industrial modern society that has been producing various spaces losing its original purpose as well as regional and local issues regarding negligence or conflict in planning system and socio cultural changes.

In order to utilize urban voids as strategic places, it is imperative to understand the intrinsic problems and potentials they possess. As noted earlier, lack of planning guideline and policy for appropriate implementation is critical as the urban voids are overlooked and depicted yet negative from the realms of planning, architecture, design and urban theory (Hudson & Shaw, 2011). Also long period of abandonment increase social and economic expense and causes further deterioration. However positive interpretation is increasing as vacant primarily means empty, but also free and therefore full of opportunity and can be constantly reshaped and redefined as users reorganize and reinterpret them (Cupers & Miessen, 2002; Hudson & Shaw, 2011).

In this study, urban void is defined as unutilized, underutilized or currently used but can be in better usable conditioned spaces. The ownership belongs to both public and private; edge or corner condition of roads, retaining wall or public facility spaces are under public ownership whereas private ownership includes area within apartment complexes, residual spaces within individual plots. The scale of the urban void can be found from building scale, plot scale, and block scale to neighborhood community scale.

3.2 From the Greek Polis to the Contemporary City

The use of the word "urbanism" as we know it today dates back over a century. This term was coined in 1867 by the Spanish architect Cerda, in his *Théorie Générale de l'urbanization* (Harouel, 1985), and is now designated a technical and interdisciplinary science, critical character, which encompasses much of what refers to the city , and seeks to organize living spaces for the realization of the quality of human life (Silva, 2006).

The neologism may have approximately one hundred years but its meaning is as old as the urban civilization. However, because of our object of study, we will limit ourselves to the study of the history of Western urbanism from Greek antiquity to the present day.

It should be noted that urbanism has become fundamental to the study of cities, especially since the Industrial Revolution, when it sought to analyze how urban centers were developed and what could be the best way to organize its growth.

Urbanism today is perceived as an adjustment instrument of urban imbalances caused by unplanned urbanization. Thus, in the words of José Afonso da Silva (2006), "urbanism seeks the organization of living spaces for the realization of human quality of life." On the other hand urban planning involves the process of production of urban space and should be understood as the start of any urban planning activity.

Thus, in order to understand the transformation of cities over time, it is essential the examining of how the urban centers were formed and how its rapid growth happened, especially from the Industrial Age.

3.3 Urbanism in Classical Antiquity

Understanding the Greek polis is very important to the study of cities these days due to the importance given to public space in antiquity. For the Greeks, the polis was a community of citizens and its foundation was primarily a political act. However, the religious element was not absent, being the religion one of the elements that made up the solidarity among members of civil society, together with elements of defensive and politics nature.

By the end of the sixth century the Greek cities, were built in the form of residential neighborhoods with narrow, winding streets, next to a hill where the acropolis was located, a fortified site that has long been the symbol of political power. In the lower city, it was located the agora, which gradually became the political, administrative and religious center of the polis, concentrating around it the main public buildings. From this period also are the first attempts at urban improvement, which aimed to improve the living conditions of the city, with emphasis on water supply, major concern of the Greek urbanism.

In Greek cities, the space was divided into three zones: the private areas occupied by houses, sacred areas occupied by temples, and public areas, intended for political, trade, theater, among others (Benevolo, 2007). It was not planned closed and independent zones in the Greek city, because the population should be able to meet as an organic community.

It is possible to state that existed in ancient Greece a legitimate urban law in which the expropriation was constantly used for large urban public works, a major concern of the Greek urbanism was to protect the public space from private enterprises. The decision to expropriation, as well as the completion of major urban works, was a function of a popular assembly over

proposition of the magistrates, because there was a concern in not damage the expropriated owner.

To the Romans, the foundation of a city was a sacred act and its cities took the form of a square or a rectangle, where the *decumanus* and *cardo*[3] constituted the medians. The main urban elements of Roman cities were the walls, the streets, the forum, public facilities and housing.

The forum was a square surrounded by public buildings, usually connected by columns inspired by the porticoes of the Greek agoras, thus constituting the heart of the Roman city. In there it was usually constructed the building that housed both commercial transactions, and the exercise of justice by the magistrates.

In relation to public equipment, a special square contained the buildings for leisure activities, such as theaters, circuses, amphitheatres and baths. Among other essential monuments, we can highlight the palaces, administrative buildings, temples, triumphal arches and various statues that adorned the roads and public squares, often arranged to create a monumental perspective.

After Rome independence, the urban growth occurred around the forum, and the city eventually develops without a pre-established plan, according to a rather uneven path. The Rome of the final of the Republic was an ill-conceived and poorly constructed city, whose network of roads and squares was insufficient.

So thorough urban planning operations were necessary to transform the landscape of Rome, and the built supervisors and the magistrates had an essential role in this. It is noteworthy that the works of urbanization of Rome could not have been made without coercion of some owners who might have resisted the expropriation.

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[3] The Roman city is articulated from the intersection of two main roads: cardo, in the north-south direction and decumanus in the east-west direction. That was the spot where public buildings and the forum were situated.

As it turns out, since ancient time large urban operations occurred in order to improve the cities and adjusting them to the new needs of its inhabitants.

3.4 Medieval Time to Renaissance

With the fall of the Roman Empire, the city life declined and, in many cases, was halted in Europe. After the occupation of several areas by barbarian kingdoms, and the resistance against the conquest of the Arabs, the cities returned to a stage of development, whilst leaving back its original features, which represented a break between the two periods (Benevolo, 2007).

New cities emerged over the old ones, but did not kept many features of the previous period. In feudal political organization, the cities were not the administrative centers anymore, minimally maintaining its characteristic of production and exchange center (Benevolo, 2007).

The layout of the medieval cities had, at first, totally disrupted from the orthogonal urban layouts. Cities emerged and grew through the linear development along a road or a river, or the attraction to urban or impressive building core, resulting in a circular agglomeration. Later there was a return to the orthogonal paths.

In contrast, the Renaissance Era can be understood as a rupture with the medieval town planning (Harouel, 1985). Thus, it was decided that the city plan should be drawn up according to their site, that is, it would be an adaptation to the ground on a hill, or a grid for a flat city located next to a river.

However, the ideal city, when started from scratch, should take the form of a regular octagon with a square of the same shape in the center, from where eight streets would depart cut by concentric ring roads to the octagonal layout.

In the Renaissance, the urban layout was considered one of the beauty conditions of the city (Harouel, 1985). Since it was not possible to reach the ideal city, some principles were adopted in order to achieve a monumental perspective, such as the implementation of rectilinear

streets, searching for an axis of symmetry in urban composition, the convergence of streets to a building or a square and the organic link between different parts of a city.

3.5 Classic Urbanism

The seventeenth and eighteenth centuries marked the apogee of the classic urbanism, bringing as its main practical concern the refusal of urban gigantism, and the requirements of health and beautification.

This era was marked by the spread of the plans of improvements and embellishments, as well as interventions that were based on urban sanitation. It should be noted that many of the interventions were contrary to the history of cities and civilization, by destroying the medieval or colonial urban form, due to the aesthetic and hygienic and sanitary processing.

With the scale of cities growing in size, new challenges have emerged to urban planning. As a result of this process there was the creation of laws aimed at urban planning. Thus, the development of urban law occurred with the regulation of urban planning in order to rule out most of fire hazards. In addition, rules on the solidity of buildings appeared in order to curb risks and improve circulation.

It is noted that the three major concerns of urbanism of that time consisted of circulation, safety and aesthetics, and sometimes were combined in a single legal document in order to reach a comprehensive urban planning.

3.6 From the Industrial Revolution to Globalization

From the mid-eighteenth century, a new process, which began in England, completely changed the face of cities around the world, ending once the transition between feudalism and capitalism. According to Peter Hall, the consequences brought by the Industrial Revolution, "hung over all the cities, and on London in particular, a spirit of cataclysmic and even violent changes" (Hall, 2002).

It is undeniable that the increase in production with the Industrial Revolution enabled population growth and, in some countries, a significant rise in living standards. While the world's population has quadrupled since 1850, the urban population increased tenfold (Harouel, 1985), after the industrialization phenomenon, which led to the emergence of numerous cities.

The uncontrolled growth of industrial cities, the original city core, already completely degraded, gave rise to a new built environment, the periphery, which emerged as a response to the lack of planning of urban centers and also due to the establishment of a new capitalist dynamics.

So the era of satellite cities and suburbs began, aimed at containing urban gigantism. At the same time the efforts in the existing large cities turned toward a planned development with the opening of wide rectilinear avenues.

3.7 Reconfiguration of Public and Private

We can say that many historical events eventually demonstrated, in time and space, the causes of the increasing urbanization of society, this typically modern phenomenon, which is characterized by the relationship between the productive forces, the interaction of social classes and the form of appropriation of the environment. At the same time, it was possible to note that, in this context, the spheres of public life and private life have undergone numerous changes. If in the past there was a balance between these two fields of action, with contemporary urban version of capitalism that relationship destabilized.

We live today the effects of the "Age of Extremes"[4] which left us as inheritance numerous demands and dilemmas. The Socialist reign of centralized economic control faded (Sennett, 2006). This resulted in the "new capitalism culture" (Sennett, 2006).

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[4] term coined by historian Eric Hobsbawm, to define the twentieth century, which he describes as "the most extraordinary era of human history, combining human disasters of unprecedented dimensions, substantial material gains and an unprecedented increase in our ability to transform and perhaps destroy the planet (...) ".

However, not always had been this scenario. Given that, throughout history, it has been proven that it is in city public space that society relations are established in urban life, so we will pass to the study of how the two spheres - public and private - have been redesigned over time.

3.8 Public and Private Spheres: From the Greek Polis to the Industrial Era

With the emergence of the city-state humanity received in addition to its private life, its biospolitikos (Arendt, 2007). The public sphere, to the Greeks, translated at the place where the man could excel and distinguish themselves from others. On the other hand the private domain was the sphere of the house, and was based on kinship relations.

The Greek polis was the translation of the public sphere and the space for political action, through the multiplicity of opinions. According to Arendt (2007), political action depended on the presence of other men, and was the main characteristic of human life in society. Greek citizens participated in the discussions in the polis and thus exercised his political life, interacting with each other. Moreover, the Greeks believed that the entrance into public life, through political action, conducted men to prominence at the same time making them escape the anonymity of private life, because it was only in the public space that doxa[5] gained a relevant truth.

Thus, the polis was to the Greeks what the *res publica* was for the Romans, which means that for both peoples, the public domain was security against the vanity of individual life. As the Greeks believed, *doxa* could only appear in public space, so it was only there that the reality of the world could manifest itself authentically.

In the Ancient Regime, there was in the society an understanding of the limits of the public and private spheres, with no distinction between them. In the fifteenth century, the word "public" was understood as the common good of society, i.e. something undeniably open to all.

[5] Doxa not only denotes the individual's opinion, but glory and fame. However, the glory of the Greeks has nothing to do with the society of the contemporary spectacle. For the Greeks, appearing in public life was a great privilege, since domestic privacy does not allow any doxa, for not being the person seen or heard by others.

But the word “private” was initially used to describe privileges of those who made up the top management of the government, becoming understood later as a sheltered area of life where only friends and family could join.

Until the eighteenth century, the sphere of public life was open to the other, to the difference, allowing thus the contact between individuals without being put at risk their personality or intimacy, which indicates the balance between the two spheres. But the field of privacy, related to the family was understood as a hiding place, qualified for intimacy, and limited the action of the individual in each situation from a common belief code (Sennett, 1988).

However, from the eighteenth century, several events enabled a change in the perception of society of the frontier between the public and private spheres of action. The concept of "public" has expanded, becoming understood not only as a part of life that are excluded from family and friends, but also one in which the human being was obliged to relate to any kind of person whose core coexistence was the capital city, or even the capitalist enterprise, given the amount of hours that workers spent inside.

Thus, the bourgeois revolutions of the eighteenth century besides being crucial to the understanding of the history of capitalism also contributed to the overcoming of feudal remnants and thus made possible the realization of the capitalist way of production.

Moreover, with the fall of several absolutist regimes, it has been consolidated the right to private property at the expense of the long tradition of collective land (Smith, Low, 2006).

Richard Sennett, in several studies, but especially in “The Decline of Public Man”, shows very clearly how the emptying of public life significantly influenced the urban environment. Because of the strong growth of cities, from the Industrial Age, largely through the migration of workers seeking opportunities, the biggest urban centers have become cities of strangers, disputing a position. The public domain became to be comprehended as the locus of confusion,

where it was necessary to protect itself from outsiders. From there it emerges a clear boundary between the public and private domains, and their relationship becomes unbalanced.

While the growth of cities has become inevitable, many sites have emerged focused to the socializing of strangers, these sites that encompassed not only the elites, but also many other circles of society. Urban parks began to be built and the cafes and bars were seen as social centers frequented by both high society and the working classes (Sennett, 1988).

Therefore, according to Arendt (2007) the emergence of mass culture, since the Industrial Revolution, made the public life to be treated as if it were the private life of a large family. Thus, the cities and their markets should reflect the need of society to achieve increasingly greater number of goods, without any timidity.

As if it were not enough effects of the industrial age in redefining the public space, even more interesting were the consequences of the crisis of capitalism, which occurred in the last quarter of the twentieth century, in the transformation of cities.

At this time, according to Smith (2006), many people realized that daily life had become a war of all against all. In addition, there was a redefinition of the concept of citizenship, once citizens of the post-modern cities have become private owners and consumers. Considering that we move from a city of production to a city of consumption, nothing more natural than the reflection of this change in the public spaces and in the cultural activities that take place in them.

Thus, the de-industrialization process suffered by the big cities, which grew due to its old port functions, along the political and financial reforms, led to the growth of cultural[6] consumption, transformed into the main business of the city, which has become entrepreneurial.

[6] Herein understood as the consumption of art, fashion, gastronomy, music and also the one focused on tourism.

3.9 The Importance of the Public Space as Space for Coexistence

As stated by Arendt (2007), in "The Human Condition", the public space was important, because to be seen and heard by others would be essential, given the fact that everyone see and hear from different angles. The private life could never replace the sum of the many views of a multitude of spectators.

With the growing imbalance between the two spheres - public and intimate - after the era of revolutions[7], the collectivity has become much less expressive (Sennett, 1988). It is clear the current civic disengagement in contemporary public spaces.

As we have seen, throughout history, the public sphere has been understood as an arena of political decisions. The function of a public square was to mix people and diversify activities (Sennett, 1988). From the conception of democratic public spaces, the lower classes were heard and seen, which would make the right to the city a right for all.

In today's society, we started to understand the public space as a range of social locations offered by street, the park, the media, the Internet, the shopping malls, national governments and local neighborhoods. However, when we go back to ancient Greece, the public space was established as the very urban space (Smith, Low, 2006).

When a public area, though permeable, inhibits its users to connect with the outside, with the street, occurs the emptying of the public domain. To this public space, in the strict sense, it is not assigned any value, since it is aimed primarily as an area of passage for certain people, not for people permanence characterizing thus a social isolation. The streets lose their role in the public sphere and come to be understood as mere corridors aimed for circulation, and not as a living space.

[7] According to Erik Hobastawan the period from 1780 to 1860 corresponds to the era of revolutions, when the American independence war, the English industrial revolution and the French revolution occurred.

Note that given what has been said, that public space was the locus where social relations are constituted in urban life. However, from the moment that the elites no longer live with the poor, they lose their sense of obligation and moral influence on the lower classes.

4 Urban Planning and Legal Framework in Brazil

4.1 Urban Planning

The rules of urban development nature emerged from the need to organize the coexistence between people who established themselves in the same place. Therefore, it can be said it was the process of urbanization, not the emergence of cities that has made the urban planning to develop and subsequently the Urbanistic Law (Di Sarno, 2004).

It can be argued that some pedestrian urban planning rules have existed since classical antiquity, but it was only in the modern age that it evolved and approached to what today we understand as urban legal norms, standards should be established seeking the public interest and the well- being of society.

Therefore, the Government, through its urban policy, should enable better living conditions to the population assuring them leisure, housing, development, work alternatives and therefore an effective right to the city.

As adduces Carvalho Filho (2009), to be able to understand the sense of city within a particular legal system, it is necessary to examine the State framework assumed in the constitution. Thus, we could not study the new urban planning paradigm adopted in Rio de Janeiro, without understanding its position in the Brazilian State.

4.1.1 The Urban in the Brazilian Constitution of 1988

In Brazil, there have always been sparse norms of urban law, since they were - and still are - spread across several federal, state and local legislations (Silva, 2006).

Moreover, until 1983, the country had a legislation that contained only general guidelines for urban policy. Therefore, urban planning and its enforcement were not endued with legality, i.e. non-compliance did not translate into a sanction mechanism supported in the use of coercively action against violation rules. Therefore, since the nature of urban activity is reflected in the performance of the government in search of an appropriate planning of the urban environment, it has become necessary to create standards and legal instruments to guarantee the effectiveness of urban planning.

From the last quarter of the last century, several layers from organized Brazilian society came together to follow up the constitutional process. At the same time, cities located in developed hubs have become the natural destination of people seeking better living conditions.

Within this scenario, and because of the growth of the urban population and popular claim for housing and better living conditions, it was created the National Urban Reform Movement, formed by entities representing social movements, research institutes, non-governmental organizations and urban planning experts.

Such mobilization led to a popular amendment proposed to the Constitution draft under discussion, and made effective the debate on urban issues and the new urban instruments, which would facilitate a more solid performance of the government.

The National Urban Reform Movement stood out for the elaboration and approval of the chapter on urban policy set out in our Constitution, so that, with the "New Republic", comes new hopes for an urban action and development of a national urban development project (Moreira, 2002).

It is undeniable that the Federal Constitution of 1988 was the result of the struggles for democratization of Brazil after a long period dominated by the military dictatorship. Known as "Citizen Constitution", it marked the rise of the achievements of workers and women's rights, incorporated popular participation in decisions of public interest and for the first time, dealt with

the city, radically changing the position of the municipal government in the structure Brazilian federal, providing it with political autonomy, administrative, financial and legislative.

Therefore, it is necessary to point out that the 1988 Constitution gave greater unity to the urban planning rules, as it instituted multiple devices aimed for urban development and environmental preservation.

Moreover, it is from the 1988 Constitution, that the principle of the social function of property is now considered the backbone of the country's urban policy. Thus, although some scholars understand the social function of property as a limitation of property rights, the view that prevailed is the one where the property without function, loses protection from the system because the exercise of private property must operate in favor of the collective interest.

Unlike previous constitutions, the new Carta Magna allocated, in the chapter related to the economic and financial order, an exclusive chapter on urban policy, substantiated, in general terms, in Articles 182 and 183.[8]

Article 182 of the Constitution prescribes that the urban development policy, implemented by municipalities, aims to order the full development of the social functions of the city and ensure the well-being of its inhabitants, defining, among other things, that the instrument basics of this policy is the Master Plan. And Article 183 establish the special urban adverse possession of urban areas up to two hundred and fifty square meters, used for housing, thus emphasizing the concern for social issues.

4.1.2 Division of Competences

As mentioned earlier, the Federal Constitution, promulgated in October 1988, devoted an unprecedented tripartite federalism in which municipalities were elevated to entities condition of the federation, as the states, the Federal District and the Union.

[8] CRFB/88 - Cap. II do Título VII: “Da Política Urbana”

The Consecration of the municipalities as federal entities, alongside the expansion of rights to citizenship, has made the public administration more complex. At the time of the promulgation of the Constitution, many protested against this decision, claiming that the change in position of the municipalities within the federation, translated into a country's un-governability. There were even those who titled it "disassemble operation", the transfer of federal responsibilities to the state and local levels of power. On the other hand, many viewed the change as positive, because they believed the strengthening of local actors broaden citizenship (Santos, 2008).

It is important to note that the new Brazilian federal structure, designed by the Constituent Assembly of 1988 has strengthened much more municipalities than the states, it has been the decentralization identified as the "municipalization" of government bonds. A good example that proves this claim is the fact that the Constitution has endowed the municipalities own tax jurisdiction and not just tax capacity delegated by the state government (Santos, 2008), as the 30th art, incises III and 156th art of the mentioned law, gave them greater financial autonomy, and political and economic expression.

The division of the spheres of competence of the legislative, the administrative and tax collection between the federal bodies was outlined based on the principle of predominance of interest. Thus, under the regime of vertical division of competences, the Union legislates on matters of general interest; the States legislate on matter of predominant regional interest and the municipalities on matters of local interest.

With regard to urban planning, all federal entities are competent to deal with it. The Union develops and implements national and regional plans to organize the territory and policies of economic and social development, as described in the item IX of 21st art, additionally establish

guidelines for urban development, including housing, basic sanitation and urban transport, according to the twentieth paragraph of said article.

In article 30, the Federal Constitution of 1988 gave the municipalities the exclusive power to legislate on matters of local interest, by virtue of the Part I of 30th art, and to promote, where appropriate, adequate land use planning through planning and control of use, apportionment and occupation of urban land, according to item VIII of that article.

Thus, it is noted that the constitutional legislator assigned to the municipal executive the role to consolidate the organization of urban space, in line with the guidelines and principles that seek balanced development for society (Di Sarno, 2006).

On the other hand state instance has a limited role in terms of urban planning, as the municipality no longer keeps a relationship of subordination to the state in the Brazilian federation. However, there are two exemptions to this rule. The first relates to the full legislative competence of the States to meet its peculiarities, when there is a lack of federal legislation on general rules, as in § 3 of 24th art of the Carta Magna. The second deals with the 25th art, § 3 that gave the state the power to, by supplementary law, establish metropolitan regions, urban agglomerations and micro-regions, consisting of neighboring municipalities groupings to integrate the organization, planning and performing of public functions with common interest. In short, it is assumed that the States level of competence legislate on Urbanistic Law, given it is based on the Statute of the City, and it is not imposed to the municipal body (Silva, 2007).

4.2 Legal Framework

4.2.1 Urban Development Framework of the Rio de Janeiro City

Confirming and extending the constitutional space provided for the performance of municipalities in the control of urban development, was created the Federal Law 10.257 / 2001, known as the City Statute, which regulated the urban instruments presented by the 1988

Constitution, in articles 182 and 183, and created other possibilities for action by the municipal government (Moreira, 2002). Its 5th art provides for the compulsory use of the built urban land not in use; in case of noncompliance with the provisions then comes the application of progressive property taxes in time - defined in 7th art - And the municipality can, after five years charging the tax, expropriate the property.

The City Statute should be understood as the country meeting with its urban face (Oliveira, 2001), reflecting a set of legal rules that punctuate the urban activity by creating a legitimate agreement between governments and the townspeople.

After eleven years of legislative procedure, this law has emerged as a positive change of perspective in the Brazilian urban setting. However, it is important to note that since 1983, with the submission to Congress of the Bill 775/83,[9] there was in the Brazilian society the will to establish norms focused on urban policy, which can be proven by over fourteen projects submitted the legislative, which dealt with the same theme (Moreira, 2002).

It was only in 1990 that the Bill 5.788 / 90, proposed by De Souza Pompey senator and now known as the City Statute, was sent to the Senate and then to the House of Representatives, where it was incremented with seventeen other propositions (Moreira, 2002), until it became the Federal Law 10,257 on 10 July 2001. Therefore, only after many negotiations, amendments and vetoes both in the Senate and the House of Representatives, the City Statute made it to the final version.

The fact that it took over a decade to be approved does not mean that the statute is an old-fashioned or outdated law since it has opened several possibilities for the development of the urban policy, from the application of instruments oriented to promote social and territorial

[9] The bill 775/1983 was processed in the National Congress until 1988, when was the new constitution promulgated. In July 1995, it was removed by the executive power, with no other resolution (Moreira, 2002). However, it is considered by many the first draft of the City Statute.

inclusion in Brazilian cities. Moreover, its adoption also resulted in a significant achievement, since the principles elaborated in the National Urban Reform Movement were finally consolidated.

Thus, since the enactment of the aforementioned Law, the municipality became responsible to formulate the urban policy and implement the social functions of the city through its Master Plan, according to the determination of the Federal Constitution. The Statute also established in Chapter III - arts. 39-42 - that being the Master Plan the basic tool of development policy and urban expansion, it must be approved by municipal law, consider the participation of the population and be continuously revised. Nevertheless, the Statute determines a minimum content so the master plans to be prepared in order that urban property fulfills its social function.

Regarding the instruments of urban policy, the Statute regulated some of those defined in articles 182 and 183 of the 1988 Constitution, such as adverse possession of urban property; IPTU (Property Tax) progressive in time, and the division, building or compulsory use, among others. In addition, it created other instruments, such as the right to the surface, preemption, the granting of special use for housing purposes, the onerous grant to the right to build and joint urban operations.

We could develop a study just related to the discussion of the various possibilities that the City Statute instruments offer as they are plentiful. However, we will stick to those most closely related to the object of our study.

4.2.2 The Legal Instruments of the City Statute

Among the innovations emerged from the Statute of the City, we can highlight the Special Zones of Social Interest (ZEIS), collective adverse possession and neighborhood impact study. Weaving a brief comment regarding such instruments, since it is not possible at this time to address each of them in detail, we could define the ZEIS as the different treatment of urban

indexes of a certain area in order to ensure the right to housing, under Article 6 of the Constitution, as a social right.

Collective adverse possession as envisaged in Articles 10 to 14 of the City Statute can be determined as a tool that not only regulates the land situation, but also allows the urbanization of areas occupied by the poor, urbanistically reorganizing these housing units. Its object is urban areas with more than two hundred and fifty square meters, provided it is occupied by low-income population for their housing, for five years uninterruptedly and without opposition, where it is not possible to identify the land occupied by each possessor.

Finally, the neighborhood impact study, set out in Articles 36 to 38 of the Federal Law 10,257 / 2001, seeks to contemplate the positive and negative effects of the project or activity, the quality of life of the resident population in a given area and its nearby, including analysis, among other issues, of the population density, traffic generated and demand for public transportation, and land use and occupation. It is noteworthy that this tool is one of the clearest statements of constitutional civil law, from the moment that the property is now seen a not quite as absolute, once its purpose is to ensure that the use of the property, by the private, do not put at risk other values and guarantees provided to the community.

4.3 Urban Operations in Consortium

Urban Operation in Consortium is a tool for urban policy to stimulate the upgrading of degraded areas. A municipal law authorizes the change in the potential use of construction in the region through financial offsets by the interested parties. The values raised should be invested in the area's urban upgrading.

Although the joint urban operations have appeared in the Brazilian general rules as urban policy instrument in 2001, it is not so new. Its origin dates back to the seventies in Europe and

the USA, from the reform of the state and the transformations generated by the restructuring of the Fordist-Taylorist model.

In Brazil, the legal toll emerged in the 1980s, in the master plans of some cities with nomenclatures and conformations somewhat different of what has been regulated in 2001 by the City Statute (Maricato; Ferreira, 2002).

As stated earlier, the City Statute regulated some of the instruments laid down in Articles 182 and 183 of the 1988 Constitution, but also created other possibilities. Among these new urban policy instruments provided for in the Statute of the City, are the joint urban operations, which facilitate the work of the municipal authorities in respect to various urban issues, allowing that from the aforementioned legal toll use results resources to fund urban development, especially when transactions involve large enterprises.

We could not forget to mention two of the most controversial points of the legal instrument in the way it was designed by the Statute.

4.4 Entrepreneurial Planning in the Carioca Metropolis: Limits and Possibilities

From the aforementioned it could be noted that urban entrepreneurship is undoubtedly a planning strategy based on corporate management model, which led to a competition between cities seeking to attract private investment to its territory. It was also possible to see that in the Brazilian case, such a search overlapped the political pact that emerged with the 1988 Constitution, as the principles enshrined in the new Constitution, due to the urban social movements are not always observed when carrying out the great urban projects, which are the product of this new policy paradigm in the territory.

Moreover, due to the crisis of capitalism observed in the last quarter of the twentieth century, which led to the reform of the state, many industrial cities, which experienced a process of de-industrialization, became in cities of consumption. In this sense, culture and tourism as well

as sports played an important role, as it started to believe that holding a major event, or the installation of a large cultural facilities in the territory of the city, would catalyze a synergistic process transformation of the region.

There was thus the replacement of the social welfare state by the cultural business state with a large number of cities adhering to this new type of planning and competing more and more for private resources and tourists.

In a study on the urban entrepreneurship, it would be not possible not to address the trend of revitalization of waterfronts, as in most cities, which employed entrepreneurial practices to plan their urban development; these areas had a prominent position. This because one of the main characteristics of entrepreneurial cities is the conversion of the degraded industrial area in an appropriate setting to consumer needs.

Thus, the adaptation of the port areas for new uses is both a return to the areas that have a key role in the formation of the cities as well as a real opportunity, given the complexity of the process of raising public and private investments for the implementation of a program renovation that includes, among other things, the upgrading of the street network, the access, transit, land acquisition and improvement of local infrastructure as a whole.

One of the biggest urban renovations taking place in Brazil nowadays is *Porto Maravilha* Project that directly deals with the problem of abandoned and unutilized or underutilized buildings and urban voids in Rio de Janeiro.

The *Porto Maravilha* Urban Operation is a planned and innovative way to (re)build the city. An initiative of the City of Rio de Janeiro, with state and federal government support, the redevelopment restores the importance of this 5-million-square-meter area.

The initial interventions have already restored to the city genuine archaeological treasures, such as the rediscovery of the *Valongo* Pier. Since the changes underway have not occurred in the

city for a long time, a taste for controversy has been rekindled, with the debate about the demolition of the *Perimetral* Highway.

5 Rio de Janeiro`s Brief Urban History

The arrival of the Portuguese Royal Family in Rio de Janeiro in March 1808 completely changed the life of the small and somewhat dreary colonial city. The presence of the Corte[10] not only transformed Rio into the city capital of the world-wide Portuguese Empire but also stimulated the growth of the urban economy and an improvement in the living conditions of the wealthiest sectors of the population. At the same time there was an expansion in the cultivation of coffee and sugar in the vicinity of the city, that is to say, in the rural parishes (*freguesias*) of the Municipality of Rio de Janeiro. Expanding coffee and sugar production and, above all, the opening of Brazilian ports to international commerce considerably strengthened Rio de Janeiro's position as the great export and commercial centre of southeastern Brazil.

The rapid growth in population after 1808 led to the enlargement of the urban area to include the marshlands surrounding the city, which had been infilled, the mountain foothills, and previously unoccupied areas along the shoreline such as *Flamengo* and *Botafogo* and low ground further inland such as valley of *Laranjeiras* and *Engenho Velho*. This process of urban expansion was consolidated after Brazil's independence from Portugal was declared on 7th of September 1822, and by the end of the 1830s the city limits extended from *São Cristovão* in the north to *Botafogo* in the south and from the sea in the east to the *Tijuca* Mountains in the west.

During the 1840s the environs of the city of Rio de Janeiro ceased to be the centre of coffee production as by this period its cultivation had expanded over the mountains towards the

[10] The term Corte (Court) is used as it was in the nineteenth century; to denote the area encompassing the urban (and suburban) parishes of the city of Rio de Janeiro and the rural parishes surrounding it which together made up the Municipality of Rio de Janeiro. The Corte became the Distrito Federal with the establishment of the Republic in 1889.

valley of the Paraiba River in the provinces of Rio de Janeiro, São Paulo and Minas Gerais. The total production of the *Corte* was insignificant compared to the number of coffee sacks which were brought down the mountains in mule trains to the port of Rio de Janeiro for export. With this expansion Rio de Janeiro became the major port for the exportation of coffee and consequently the commercial centre and financial mainstay of the entire coffee growing region of the Paraiba valley.

Nevertheless, to enable the city better to adapt to its economic position it was necessary in the 1850s to embark on an extensive program of public works and the provision of new urban services such as gas lighting, public hygiene and a sewerage system, and the creation of urban transport companies, especially tramway companies. This is in addition to the expansion of existing services and the establishing of the banking, commercial and manufacturing facilities suitable to a great port. The construction of the Dom Pedro II Railway also began in the 1850s but it became operational only in the middle of the following decade, linking the coffee-producing areas with the port of Rio de Janeiro. These changes started the city on a gradual process of urbanization, characteristic of societies which begin to adopt a capitalist organization of production.

The industrial concentration in the city of Rio de Janeiro initially occurred in the central area and near the port, due to the need for flow of production. However, with the expansion of the rail network to the suburbs, from the early twentieth century, begins a spatial diffusion process, giving preference to the wide availability of land in the suburbs, with cheaper prices than the central urbanized region. The expansion of job offers that resulted from the installation of industries in other areas of the city beyond the Downtown also led to a large population flow and the birth of the first slums in these areas.

Among the first factories in the suburbs of the North Zone are Cisper (glass production) in 1917, and General Electric (lamp factory) and Marvin (factory screws and nails) in 1921, located in the *Maria da Graça* neighborhood. Among the pioneer factories was also the Company Nova America, which was installed in 1924 in *Del Castilho*. It is from this same date the appearance of the *Jacarezinho favela*, which many residents were workers in these factories (Abreu, 2008).

From the 1930s, with government support, particularly through environmental sanitation works and transport, industrial activity and residential occupation will intensify in the suburbs served by the railway lines of *Leopoldina*, Auxiliary Line and *Rio d'Ouro* which until then they were secondary. The most significant government intervention in this period is the Decree Law 6,000 / 37, which would for the first time define an industrial zoning for the city. In this zoning were included newly busy suburban areas at the expense of traditional manufacturing production neighborhoods of the South Zone and Downtown, that remained off the industrial zoning law, and which lands that were increasing in valuation were gradually being left by the industry for the occupation of houses of the upper classes. Meanwhile, a heavy flow of industries was heading to the suburbs, which already had railway lines and electricity, followed by the flow of poor workers who would occupy and density these areas - and its slums.

Avenida Brasil, inaugurated in 1946, aimed at the occupation of new land by industries, is considered by Abreu (2008) as the best example of integration between state and industry in the period from 1930 to 1950. The need for labor- numerous, cheap and net work leads to expansion and densification of slums; the 1948 Census have revealed that 44% of these settlements were in the AP3. A couple of slums that appear in this period are the *Nova Brasilia* (in the 40s in *Bonsucesso*) and *Fernão Cardim* (in the 50s, in the vicinity of the *Klabin* factory in *Cachambi*) (Abramo, 2003).

This industrialization trend in the North Zone of Rio de Janeiro was continuous until the 80s, when it begins a process of reversion of this situation, with the phenomenon of deindustrialization that affected the city as a whole and this area in particular.
Railway lines had a strong influence in the allocation of industrial areas, as well as their relationship with the distribution of the *favelas* (slums). Also notable is the large concentration of industrial areas along *Avenida Brasil*, which as a result of the process of deindustrialization of Rio de Janeiro potentially presents the largest number of buildings subject to abandonment, and that require special attention.

The *favela* appears as the main housing solution for people without sufficient income to buy well located housing from the formal market. The choice to live in the *favelas* is justified by the proximity to job centers and transportation infrastructure and services, although most often in situations of extreme precariousness of housing and urban planning and land irregularities. The importance of proximity and accessibility to jobs is one of the main factors that explain the emergence and expansion of slums in Rio de Janeiro, according to Abreu (2008).

6 Conceptual Model and the Strategic Alignment

This project was designed and developed based on the constitutional principle of the social function of urban property. According to this principle, and in accordance with Article 182 of the Constitution, an urban property fulfills its social function when it meets the fundamental requirements for the ordainment of the city expressed in the master plan. This same principle allows the public administration to demand that the owner of abandoned and underutilized property give use of its property in accordance with the principle of social function, under penalty of the application of onerous instruments, and may even reach the property dispossession.

As seen earlier in this project in the chapter of government legal framework, this fundamental principle was incorporated as the Brazilian Civil Code apparatus, enhancing the

power of public power toward the need for management of abandoned or underutilized properties that failed to comply with the proper social function of the urban property. Moreover, the principle of the social function of property was central to the development of the City Statute, a federal law that guides through the principles, guidelines and instruments the formulation of municipal urban policy and urban development of cities.

The Master Plan for Urban Development in Rio de Janeiro City presents the essential principles and guidelines for sustainable urban development planned for the city. In its Title I, "Principles and Guidelines Policy Municipality of Urban," the Plan establishes that it has the objective of promoting the full development of the social functions of the city and of urban property by some basic guidelines, such as: "the promotion of appropriate use of empty or underutilized or idle land, prioritizing its use for residential purposes, or as open spaces for community use, parks, green areas and recreational areas "; and "the expansion of housing supply of social interest, by producing affordable housing and developed land, the conversion of empty properties to use in infrastructure served areas of the city, social location and social production of housing." Thus the Master Plan addresses as its central point of urban development policy of the municipality the use of urban voids.

The proposal to create an integrated conceptual model of urban voids management is aligned with various planning tools development of the city. The Master Plan for Sustainable Urban Development of the Rio de Janeiro City has a whole legal basis, with the presentation of onerous instruments to stimulate and facilitate the reintegration of underutilized buildings and abandoned urban dynamic of the city. Likewise, the Strategic Planning of Rio de Janeiro, the result area "Urban Infrastructure" provides for the reduction of the housing deficit of the city, which was at the time of its elaboration estimated to be around 300,000 housing units.

6.1 Identification and Management of Abandoned and Underutilized Property

The Conceptual Model Identification and Management of Abandoned Property and underutilized proposed here considers the existence of five essential steps for its implementation: I) Identification; II) Characterization; III) Classification; IV) Allocation, and; V) Government acting form. Each of these steps is composed of distinct and complementary processes, and in this project they are discussed in an integrated manner aiming at a more efficient performance of public government front to the challenge of give a new function to abandoned and underutilized properties in the City. Each of these steps will be given below, and summarized at the end of this chapter. The following figure 1 illustrates the workflow - "model of five steps".

Figure 1: "Model of the Five Steps" for the Management of Abandoned and Underutilized Property.

6.2 Possible forms of identifying abandoned and underutilized buildings

One of the biggest challenges of the management of abandoned and underutilized properties is to develop a practical methodology, efficient and feasible to identify urban voids in large cities such as Rio de Janeiro. Implementing some proposed methodologies or existing one constantly bumps in the absence of resources, its complexity or lack of objectivity of its foundations.

Five forms of identification abandoned or underutilized properties have been proposed in this project. These different methodologies hold in common the principle of rational use of the structure and resources within the Municipality of Rio de Janeiro. Thus, the central idea of the use of resources pervaded this entire step of the management model, meaning an opportunity of

optimization and minimizing the costs. In the following is presented each of the proposed forms of identification of abandoned or underutilized properties, with a brief explanation about the context and justification of the choice of methodology and some processes inherent to the operating procedures to be adopted in the operation of the model.

6.2.1 Data collection at the Municipal Urban Planning Secretary (SMU)

Several departments of the Municipal Urban Planning Secretary have important information for the management of municipal Urban Voids. In addition to documents that record the existence of properties abandoned or underutilized in the most different areas of the city, it is acknowledged that the staff linked to SMU has a respectable level of knowledge and information not yet recorded and systematized in official database for public use.

Thus, the operating structure of the Urban Planning Secretary represents an important source of information about the existence of abandoned and underutilized properties in the city, being its responsibility of the central agency of the Urban Voids Management System the implementation of an operational procedure for exploration and organization these data for management purposes. This operating procedure should include:

- The creation of research forms that will be able to capture the accumulated technical knowledge;

- The application of research forms the staff of SMU;

- The incorporation of information from the geographic database.

6.2.2 Agreements with supervisory bodies of the Municipality of Rio de Janeiro City

The administrative structure of the City Hall of Rio de Janeiro City has agencies that, by their nature, have a supervisory role, with field staff to perform their duties.

The Municipal Guard[11] has a staff of about 8,000 guards distributed strategically in four directorates: Directorate of Operations (DOP), Human Resources Department (HRD), Administrative and Financial Department (DAF) and Director of Research and Technological Development (DPDT). Most of this effective is linked to the Directorate of Operations and operates in the city streets, controlling the operational activities of the agency.

Just like the Municipal Guard, other agencies of the City Hall have the human resources that are responsible for external and fiscal activities, such as the Urban Planning Secretary and the *Secretaria de Ordem Pública* (SEOP) Secretary of Public Order.

The use of this existing staff associated with the technical resources already available in the management process of urban voids and vacant buildings in the City is an opportunity of optimization of cost due to the low cost of investment in training the existing staff given that they are already qualified in the City Hall structure. The implementation of the Terms of Agreement model requires that:

- The development of an application ("plug") compatible with the mobile device the Municipal Guard operates to use it in the identification and location of urban voids in the city;

- The training and qualification of the staff of the supervisory bodies to use the application in the identification and location of urban voids in the city;

- Creation of an integrated database for receiving and processing information from the regulatory authorities.

[11] Created by Municipal Law 1,887 of September 27, 1992, the Municipal Guard of Rio de Janeiro (Rio-GM) was officially implemented by Municipal Decree 12000 of 30 March 1993. Community Security Force of the Rio de Janeiro City Hall, GM-Rio's mission is to protect goods, services and municipal facilities, contributing to the quality of life of the population.

6.2.3 Reports on the 1746

The Call Center for the Citizen 1746 is the main channel of communication between City Hall and the city's residents. Thus, the 1746 offers over a thousand services, involving all municipal agencies. In 1746 the citizen can make a service request, request information, complain, criticize and make suggestions. In addition, citizens can also follow requests through a protocol number, generated in all requests. 1746 is an important social tool for citizen participation in modern public management.

In 1746 Portal (http://www.1746.rio.gov.br/), it can be make online requests, there is a great list of types of demand, but none refers to the complaint about abandoned properties. In an interview with technicians of 1746 portal they informed that in some cases citizens call to 1746 to report cases of abandoned properties that can be site for the proliferation or outbreaks of certain diseases.

The incorporation of information coming from complaints made to the call center 1746 to the integrated database is a potential source of information for the proposed management model. In order to implement this procedure is necessary:

- Definition of the criteria for inclusion of complaints to empty bank;

- Integrated database creation for receiving and processing of information from the 1746 Service Center.

6.2.4 Identification by remote sensing- Geographical Information System (GIS)

Remote sensing techniques have been increasingly applied to the planning and management of the municipal urban development.

A geographic information system or geographical information system (GIS) is a system designed to capture, store, manipulate, analyze, manage, and present all types of spatial or geographical data. The acronym GIS is sometimes used for geographic information science

(GIScience) to refer to the academic discipline that studies geographic information systems. In a general sense, the term describes any information system that integrates stores, edits, analyzes, shares, and displays geographic information. GIS applications are tools that allow users to create interactive queries (user-created searches), analyze spatial information, edit data in maps, and present the results of all these operations. Geographic information science is the science underlying geographic concepts, applications, and systems.

GIS is a broad term that can refer to a number of different technologies, processes, and methods. It is attached to many operations and has many applications related to engineering, planning, management, transport/logistics, insurance, telecommunications, and business. For that reason, GIS and location intelligence applications can be the foundation for many location-enabled services that rely on analysis and visualization.

These techniques are used in different agencies of the Municipality of the City of Rio de Janeiro. The *Instituto Pereira Passos* (IPP) is a reference in the application of remote sensing and geographic information systems, as well as the Municipal Urban Planning and the Municipal Environment, develop numerous spatial analysis work focusing on urban development and environmental City.

The analysis and interpretation of satellite images and aerial photographs enable the acquisition and processing of complex information, applicable to various purposes. Among them, allows the identification of degraded areas of the city and buildings in a state of abandonment. Thus, through analysis performed in office, it can be defined the priority areas for the action of the field staff for identification of abandoned properties. This operating procedure should include:

- Definition in partnership with The *Instituto Pereira Passos* (IPP) of a basic methodology for identification of urban voids;

- Creation of an integrated database for receiving and processing of information from the analyses from remote sensing.

Referred to remote sensing and the use of geographical information system (GIS), is of relevance to say that it is a well development instrument and there are many studies and papers related to this subject done by professionals in Brazil.

6.2.5 Cooperation Agreements with Utilities Companies

Some of the most important public goods services in the municipality of Rio de Janeiro are provided through public concession, among them the power utility company (LIGHT), natural gas (CEG - Gas Natural Fenosa) and public transport. The water supply and sewage treatment is still done by public company (CEDAE) that is linked to the state government. The public good service concessionaires have a territorial extent that covers almost all commercial establishments, industrial and residential in the city of Rio de Janeiro.

Featuring structured databases for the consumption of their services, these companies represent potential partners in the management of buildings abandoned and underutilized. Through the capacity of these concessionaires to do computerized monitoring of the consumption of their customers, it can track the individual dynamic of consumption of each property, identifying historical patterns and abnormalities that indicate consumption lower than expected or even zero consumption, which suggests abandonment or underuse of the property.

The Utility companies would provide a report with a periodicity to be determined indicating which properties has had a diminishing in their consumption of each utility service. From the next report, information will be crossed with the previous report to confirm that the property is really indicating a situation of vacancy.

This information should also be confronted with others options of monitoring stated previously in this project. It means that the office of Management of Urban voids can ask the

Guarda Municipal or *Secretaria de Ordem Pública* (SEOP) to send a staff to personally check the property mentioned in the reports.

A certain number of monthly reports may be necessary to determine whether or not the property may be vacant, abandoned or simply in between use period, an owner trying to rent it, or o proprietor out of town for a long period.

Light, the energy utility supplier has well advanced monitoring system. It can monitor daily level of consumption to the point of identifying possible deviation on consumption; in Brazil it is considered a crime to deviate utility consumption.

Given this level of efficiency Light is probably the most probable partner to start this cooperation agreement. Because it benefits the City Hall that can make some urban or legal efforts to put the property back in use in favor of stabilizing the sale and rent market, increase its tax revenue through the implementation of the onerous instruments, and for the utility company it is also good because as soon as the property goes back in use, the company will increase its revenue.

Thus, the establishment of a cooperation agreement between the Municipality of Rio de Janeiro City and the utilities concessionaires represent an important identification tool of abandoned and underutilized buildings in the municipality. This operating procedure should include:

- The development of technical cooperation agreement to establish compromise between the City and Concessionaires;

- Review and approval of the agreement by the Attorney General of the Municipality;

- Creation of an integrated database for receiving and processing information of the concessionaires.

The following figure 2 illustrates the synthesis of the methodologies proposed for the identification of abandoned and underutilized properties in Rio de Janeiro. This chart illustrates the flow of processes inherent in each urban voids identification methodology, bringing together by temporality the proceedings in three stages of Management: Planning and Structuring, Execution and Registration, and Control.

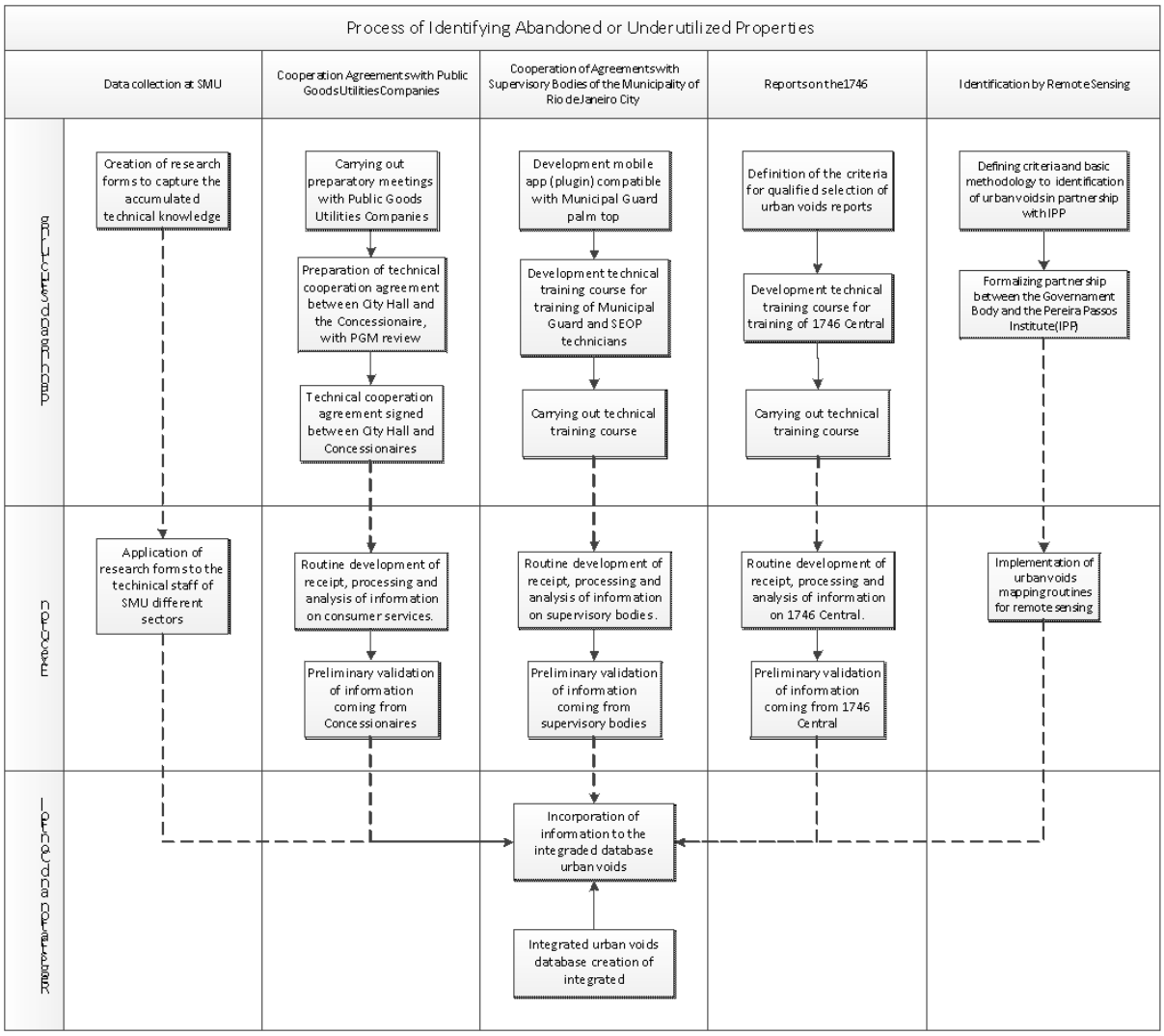

Figure 2: Methodologies proposed for the identification of abandoned and underutilized properties.

6.3 Characterization of Abandoned and Underutilized Buildings

For the characterization of the property in a state of abandonment or underutilized it was used a methodology proposed by the Macro planning Coordination of the Municipal Urban Planning Secretary (*U/CGPU/ CMP)*. It consists of a survey on the conditions of the property to better understand its physical, architectural, tax, and land characteristics as well as be able to verify its potential use or if the current legislation is too restrictive that difficult the return of the property to the market.

This information survey can be divided into 9 main distinct categories which are shown in figure 3 below. In Annex 1 is the basic registration form used for the characterization of the property.

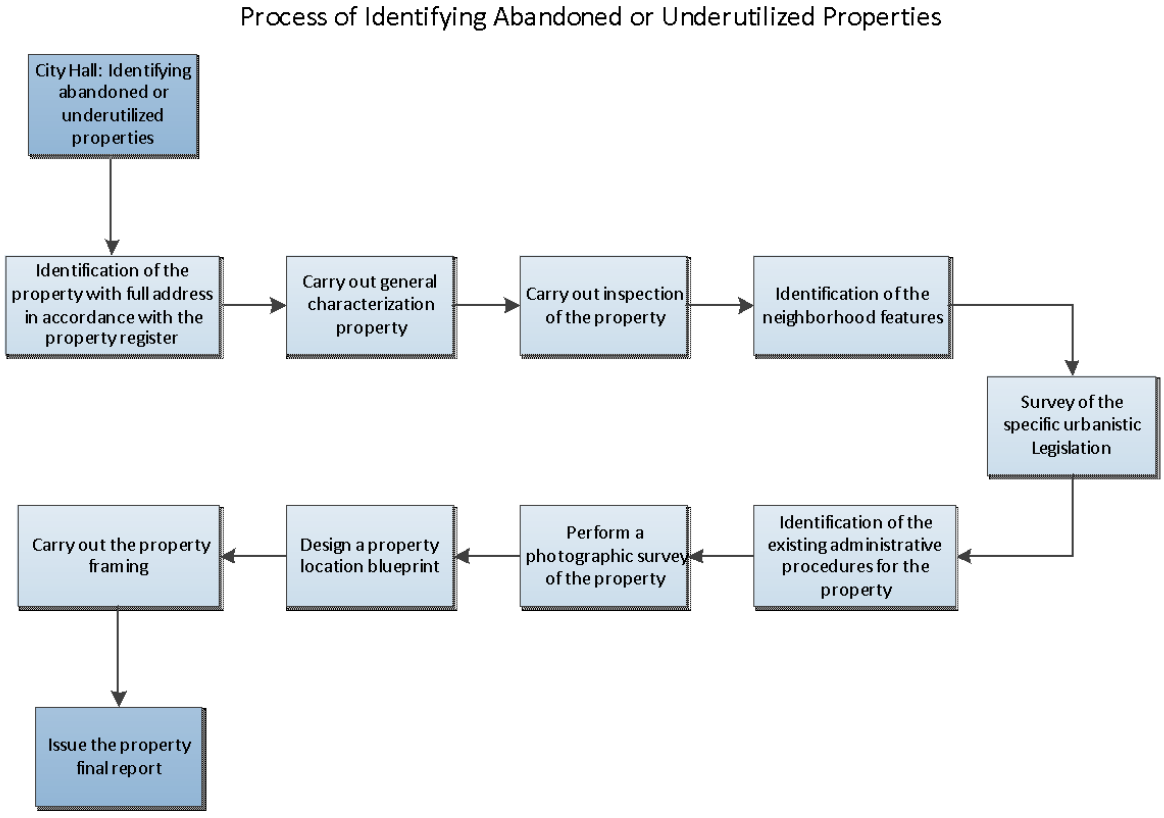

Figure 3: Methodology proposed by the Macro planning Coordination of SMU.

The process of identifying abandoned or underutilized properties is detailed below.

6.3.1 Identification of the property

Identification and locate of the property, including its surroundings with its full address.

6.3.2 Description of the property

In this category are collected data such as the size of the front of the property; depth of the lot; total area of the lot; total built area; number of floors/height; position on the ground; type/use of the edification; type/use of the unit and age of the building.

It is also verified if the property is from patrimonial interest (protect by law, preserved or of interest); conditions of conservation (conserved, under construction, degraded, in ruins), also is checked if the architectural features are preserved or disfigured. In addition to being carried out a brief description of the safety, stability, integrity and habitability of property.

It is checked whether there are restrictions to the occupation of the property (risk to the occupation); and searched the history of past use (residential, industrial or commercial), the ownership of the land (public, private, or on ownership dispute) and tax situation (with property tax (IPTU) debts or not).

6.3.3 Data Survey

In the survey shall be verified the condition of the property (not built, built, useless ruins, unfinished construction); the use of the property for economic activities (no activity, with activities and fully used, with activities, and partially used); the use for residential occupation (residential occupation, no residential occupation) and the lot index of occupancy (Total constructed area, Total occupancy index, number of floors).

6.3.4 Neighborhood Features

The analysis of the neighborhood characteristics around the property should include the evaluation of the urban fabric (consolidated, in formation, reminiscent of urban intervention,

urban intervention fringes); the conditions of accessibility and access to public transportation (bus, Bus Rapid Transit, train, subway, Complementary Transport) and the market dynamic of the real estate market and prices (valued area, degraded area, stagnant area, environmental or cultural preservation area).

6.3.5 Specific Urban Legislation

In the analysis of the urban planning legislation specific to the city zone where the property is located it is investigated the urban zoning, the construction occupancy rate, the Land Utilization Index, the rainwater permeability rate, and the number of floors / maximum height are required. It is also studied the lawful uses (residential single-family, multi-family residential, commercial, services, mixed, industrial).

6.3.6 Identification of the existing administrative procedures for the property

The existing or pending administrative processes for building permit are identified in the SMU; Processes of Property tax (IPTU) debt; expropriation; adverse possession, among others.

6.3.7 Images from the Property

Perform a photographic survey of the property/building including photos of the main facade or from the property main entrance, plus a location in map using Google Earth® Software.

6.3.8 Blueprint of the Location of the Property

A blueprint with the location of the property is designed showing its connection of the property with the immediate surroundings area.

6.3.9 Property Framing

The property is assessed and defined as: no construction, unutilized, or underutilized.

6.4 Rating of the Properties According to the Public Interest

After creating the urban voids database bank consisting of abandoned, vacant or underutilized buildings throughout the city of Rio de Janeiro, and before the implementation of

onerous instruments provided for by the Master Plan for Sustainable Urban Development of the Municipality of Rio de Janeiro, it is necessary to establish an order of priority and public interest among them.

It is necessary to define a public interest scale that classifies the extent of public interest to establish the level of priority to the city that will subsidize the decision-making of municipal intervention in an abandoned, vacant or underutilized property. From this point on the intervention will primarily prioritize those properties that whose urgency or level of public interest is greater.

In the definition of this level of public interest on the property it should be considered:

• Time the property has been in disuse or underuse: number of years that the property is already in a state of abandonment;

• Invasion threat / structural risk / social risk: a scale that defines the threats the property is subject for;

• Potential for social purposes use: Property adequacy to the municipal programs and the possibility of use for the benefit of the local population;

• Infrastructure availability: Type, quantity and level of the local infrastructure within the region where the property is located;

Based on GUT tool (Gravity, Urgency and Trend), used in the prioritization of strategies, decision-making and problem solving, create a matrix composed of the four main elements to the prioritization and definition of the public interest level in a given property.

For each of the items is set a scale of 1 to 5 points, that can be observed in detail and in the figure 4 in the table below. Considering the abandonment time when the property is abandoned or underutilized for a period of one to two years, it gets grade 1. This level increases until grade 5 (maximum) to those properties with over 5 years of abandonment or underused.

In respect to the risks, whether of occupation, structural or social background, it will be assigned grade 1 for properties with very low risk, grade 2 for properties with low risk, grade 3 for the property with average risk, grade 4 for properties with high risk and grade 5 for those with very high risk.

The potential for use or suitability to municipal programs should also be graded on a 5 point scale, assigning grade one to those properties who do not have a immediate suitability for municipal programs, grade two to buildings with partial suitability in a municipal program, grade three to the properties that have a partial suitability in more than one municipal program, grade four for those that have a full suitability in a municipal program and grade 5 (maximum) to those that have a full suitability to more than a municipal program.

Related to the availability of local infrastructure, it will be assigned grade one (minimum) to buildings located in areas completely deprived of infrastructure, grade two to properties in areas that have poor infrastructure, grade three to those where the infrastructure is regular, grade four where the urban infrastructure is good and grade 5 (maximum) where the urban infrastructure is excellent.

Level	Abandonment time	Invasion Risk	Potential for Use	Local Infrastructure
1	1 – 2 years	Very low risk	Not have an immediate suitability for municipal programs	Areas completely deprived of infrastructure
2	2 – 3 years	Low risk	Partial suitability in a municipal program	Areas with poor urban infrastructure
3	3 – 4 years	Average risk	Partial suitability in more than one municipal program	Areas with regular urban infrastructure
4	4 – 5 years	High risk	Full suitability in a municipal program	Areas with good urban infrastructure
5	More than 5 years	Very high risk	A full suitability to more than a municipal program.	Areas with excellent urban infrastructure

Figure 4: Classification matrix of properties according to the public interest

To reach the result of prioritizing a particular property over others, the grades assigned to each of the analyzed conditions should be multiplied: Risk x Time x Potential x Infrastructure. Therefore, the minimum score achieved by a property in the proposed matrix would be 1 x 1 x 1 x 1 = 1 point and the maximum would be 5 x 5 x 5 x 5 = 625 points.

As an example, if we have a property with the following characteristics: 1 year of abandonment, a very high-risk of invasion, full suitability in only one municipal program, and excellent urban infrastructure, we have the following scoring situation:

- One year of abandonment = 1 point;
- Highest risk of invasion = 5 points;
- Overall suitability for only one municipal program = 4 points;
- Excellent urban infrastructure = 5 points.

Therefore, 1 (time) x 5 (risk) x 4 (potential) x 5 (urban infrastructure) = 100 points on the scale that ranges from 1 to 625 points.

6.5 Possible Destination of the Abandoned, Vacant or Underutilized Properties

Traditionally the urban voids are treated as an important source of areas for the construction and implementation of social housing. In this sense numerous projects are executed in large cities and world metropolises, especially due to the availability of existing infrastructure. For this step of the management model it was researched and listed some programs and projects already developed in the Municipality of Rio de Janeiro City that may present relation with the use of the abandoned and underutilized properties under analysis. Again, the guiding principle of this step was the efficiency in the use of the available resources in public administration, thus minimizing costs and maximizing results.

6.5.1 New Alternatives Program

Under the auspices of the Secretary of Housing of the City of Rio de Janeiro (SMH), the *Programa Novas Alternativas* (New Alternatives Program), created in 1998, aiming to promote housing projects in consolidated areas of the city, engaged in the rehabilitation, recovery and construction of buildings in the urbanized and with infrastructure urban voids located in Downtown Rio. Aiming to recovery and reuse properties in poor condition, underutilized, in ruins or empty lots, aiming also in the use of old two stories houses with the development of new architectural solutions for housing and enhancement of the architectural and cultural heritage. Aiming to develop economic and social development activities, the program promotes the construction of housing in mixed-use buildings, associated with shops and services.

The buildings designed by the Program New alternatives are commercialized by *Programa Morando no Centro* (Living at Downtown Program) from the Secretary of Housing (SMH), in partnership with *Caixa Econômica Federal* (Brazilian Federal Government Bank).

The program also seeks the partnership of owners, builders and entrepreneurs interested in selling, rehabilitate or build real estate in the center.

6.5.2 Other Possibilities of Use for of Urban Voids

In addition to the New Alternatives Program which has as clear objective the rehabilitation of abandoned buildings in the central areas of the city, there are several other programs that can be applied in urban voids throughout the city, such as housing programs, implementing green areas and parks, leisure facilities. Also it has to consider the possibility to use these properties to implement health or school equipments.

6.5.3 Minha Casa Minha Vida Program

A possible use for an urban void is its insertion in the housing program "*Minha Casa Minha Vida*", in partnership with the federal government, it aims to build housing for families

earning up to 10 minimum wages. Coordinated by the Municipal Housing, the program aims to prioritize families with income up to three salaries with subsidies and tax exemption, credit analysis and insurance.

With subsidized interest rates, the housing projects built in the city for families earning up to six minimum wages have exemption from service tax (ISS) and the Tax on the Transfer of Real Estate (ITBI). Also at the municipal level, there is annulment of property tax debts on private property transformed into housing in the Central area and in the North Zone.

According to the Municipal Housing (SMH), this program was possible due to a data bank of properties identified as public and private property in areas with infrastructure and transport, in the central area mainly but also along *Avenida Brasil*; the axes of Line Two subway and railway sidings of *Leopoldina*, *Central do Brasil* and *Santa Cruz*; and *Baixada Jacarepaguá*.

6.5.4 Neighborhood Square - 15 minutes Green Program

Another possible use of an urban void is the program "Neighborhood Square - 15 minutes Green" designed by Parks and Gardens Foundation (FPJ), it aims to allocate a green space at 15 minutes away maximum walking distance from every house in the North Zone of the City.

6.5.5 *Clínicas da Família* – Clinics of Family

It is desirable to allocate an urban void for the implementation of *Clínicas da Família* " Clinics of Family " that are part of the *Programa Saúde Presente* from the Secretary of Health (SMS), this program has as objective to work on prevention and health improvement of the population.

Clinics of Family represent a milestone in the reformulation of primary care assistance and have a multidisciplinary team of physicians, nurses, nursing technicians, dentists, community workers and health vigilance, dental health professionals, among others.

In the Clinics of Family, patients with chronic problems are accompanied by health professionals of the units and, when necessary, are referred to medical appointments and / or specialists, reducing the progression of the most serious diseases.

6.5.6 Emergency Assistance Units

It is also possible the destination of urban void for the implementation of *Unidades de Pronto Atendimento* (UPA)"Emergency Assistance Units " that are health facilities to assist in intermediate complexity health care between Primary Care and the Hospital Network.

6.5.7 Child Development Spaces

It is also possible the allocation of urban voids to the implementation Child Development Space (EDI), a municipal initiative to create a space that combines kindergarten and preschool attention to the population. Aimed at children from six months to 5 years and 11 months old, the EDI seek to provide quality early childhood education, the basis for a healthy development of the individual and the leveling of socioeconomic differences in future school performance of the students.

6.5.8 Single Shift Schools

It is also possible the destination of urban void for the implementation of Municipal Schools with the Single Shift Program, which aims at improving school performance, envisages that students stay in school for seven hours, with more Portuguese, Mathematics, Science, Physical Education and English lessons, as well as elective courses such as Financial Mathematics, Arts and Reading.

This program is already in course with most of these schools being implemented in the North and West Zone of the city. They are occupying urban voids that have the specific dimension and proximity to the underprivileged population.

6.5.9 Government Action Approach

As mentioned earlier, the Master Plan for Sustainable Urban Development of the Rio de Janeiro City features legal management tools menu to deal with the use and occupation of urban land. Among them there are the onerous instruments that are designed to encourage and facilitate the reintegration of underutilized and abandoned buildings to the urban dynamic of the city. In addition to the tools provided by the Master Plan, it were also searched other instruments that could be used in urban voids management of the City of Rio de Janeiro. For a better presentation and understanding of operational procedures to be adopted for the legal actions of the government, the process flows for the implementation of each of the instruments were mapped.

The mapped and adopted instruments were: Land Parceling and Compulsory Construction, Progressive Property tax, and Expropriation by emission of Public Debt Securities bonds (joint implementation), Direct Expropriation, Abandoned Property Collection and Tax Incentives.

6.6 Legal Public Actions and Policies

There are some legal actions the public administration can take in order to deal with urban voids and with it incentive that a specific property or a full region can be reutilized, mitigating the impacts already discussed in this paper. Some of them are onerous instruments like property tax progressive in time; others are in form of incentives.

6.6.1 Progressive Urban Property Tax in Time

The Urban Property Tax (IPTU) Progressive in Time – is one of the instruments foreseen in the Statute of the City, focused on the management of the municipal urban development. This instrument was included in the Master Plan for Sustainable Development of the Municipality of Rio de Janeiro Urban and compels, when associated with Land Parceling, Compulsory

Construction and Utilization, the owners of abandoned and closed properties to put them back in use.

The IPTU Progressive in Time incorporates a territorial approach to the planning of the city, offering the possibility of reinsertion of abandoned and underutilized buildings into the urban dynamics of the City.

The legal framework and regulation of this instrument was sent to the City Council in May 2012 and is pending to get on the agenda to be voted. The adoption of this legislation is the opportunity of implementation of an onerous instrument to use on the management for the proper use of the Urban Land and at the same time incentive the owner put it back to use the abandoned or underutilized properties.

Owners of unutilized properties will be notified (in person or by notice) to give the appropriate destination to their property, if after being notified, the owner fails to comply with the notification progressive rates of property tax shall be levied on the property the for a period of five years until the rate of 15%.

São Paulo, Brazilian biggest city, approved in 2015 the use of the Progressive Property Tax in Time. So far this legal framework has brought many contestation including demands on the Brazilian judiciary questioning its constitutionality.

Figure 5 illustrates the process flow necessary for the consortium and sequential application of Parceling and Compulsory Construction, Progressive Property Tax and Expropriation with payment by Public Debt Bonds, according to the bill nº1396 2012 which is in the Municipal City Council awaiting the agenda for voting.

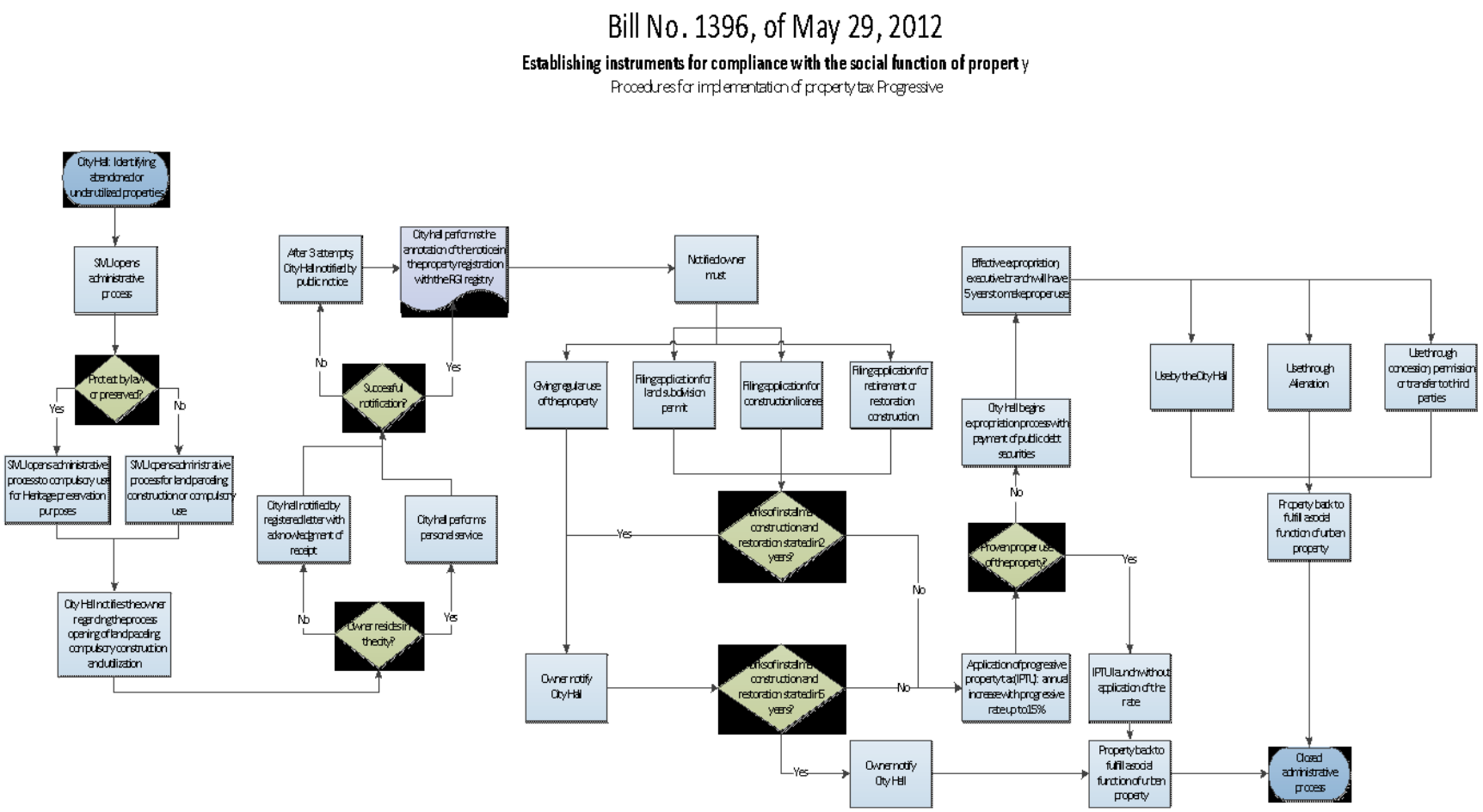

Figure 5: Process Flow of the Progressive IPTU

6.6.2 Expropriation

The Expropriation consists of a public government act within a legal framework instrument, founded in justified in the social interest or in public good utility, by which the city government dispossess a property from its owner by the due payment of a fair compensation. This instrument causes certain social questionings, but in fact it is an important procedure in order to response to urgent social issues, enabling a more immediate decision-making of the government.

The process flow necessary for the expropriation of a property adopted by the City of Rio de Janeiro were searched and mapped and are illustrated in Figure 6.

6.6.3 Collection of Abandoned Property with Tax Debt

Based on the principle of compliance with the social function of urban property the executive branch issued a decree that allows the urban property collection that display signs of neglect as well vague, passing three years later, the property of the municipality.

The legal provision is clear. Currently, the owner of an urban property that is not in the possession of others can not abandon it, under the penalty of losing it. And as it is not expropriation there is any right to compensation. Thus, the owner has a duty to be diligent and keep its good. If there is a construction on it, must ensure that there is no risk of collapse. If it is an empty plot must keep it clean and make sure it does not turn into a garbage dump.

If the owner fails to comply with these and other measures, which are external signs of the exercise of ownership, and does not meet the tax debt (especially property taxes), its property may be collected as vague good. After three years, it may be incorporated into the municipal area. To understand the operating procedures displayed in the legal framework of the instrument the process relating to the collection of abandoned buildings and that tax debts were mapped. The process flow that illustrates these procedures is shown in figure 7.

6.6.4 Granting Tax Benefits

Along with the Progressive Property Tax Bill, it was also sent to the City Council a bill to grant tax benefits to buyers of buildings in a very bad condition or unfinished buildings in the City of Rio de Janeiro.

The Bill of Law complements the instrument of Progressive Property Tax, since it facilitates the participation of private entities in the reinsertion of abandoned and underutilized buildings into the social and productive dynamic of the city. It enables tools that encourage purchasers of abandoned buildings still in the structure face (skeletons) to undertake constructions works of new buildings or the restoration and adaptation of these buildings. Among the foreseen tax benefits are exempt from Tax on Services (ISS), a municipal tax, during the construction time and exemption from property tax for 5 years following the dwell up. Figure 8 illustrates the mapping of the process flow for granting tax benefits, as it is described in the bill that is in the City Hall awaiting the agenda in order to a vote.

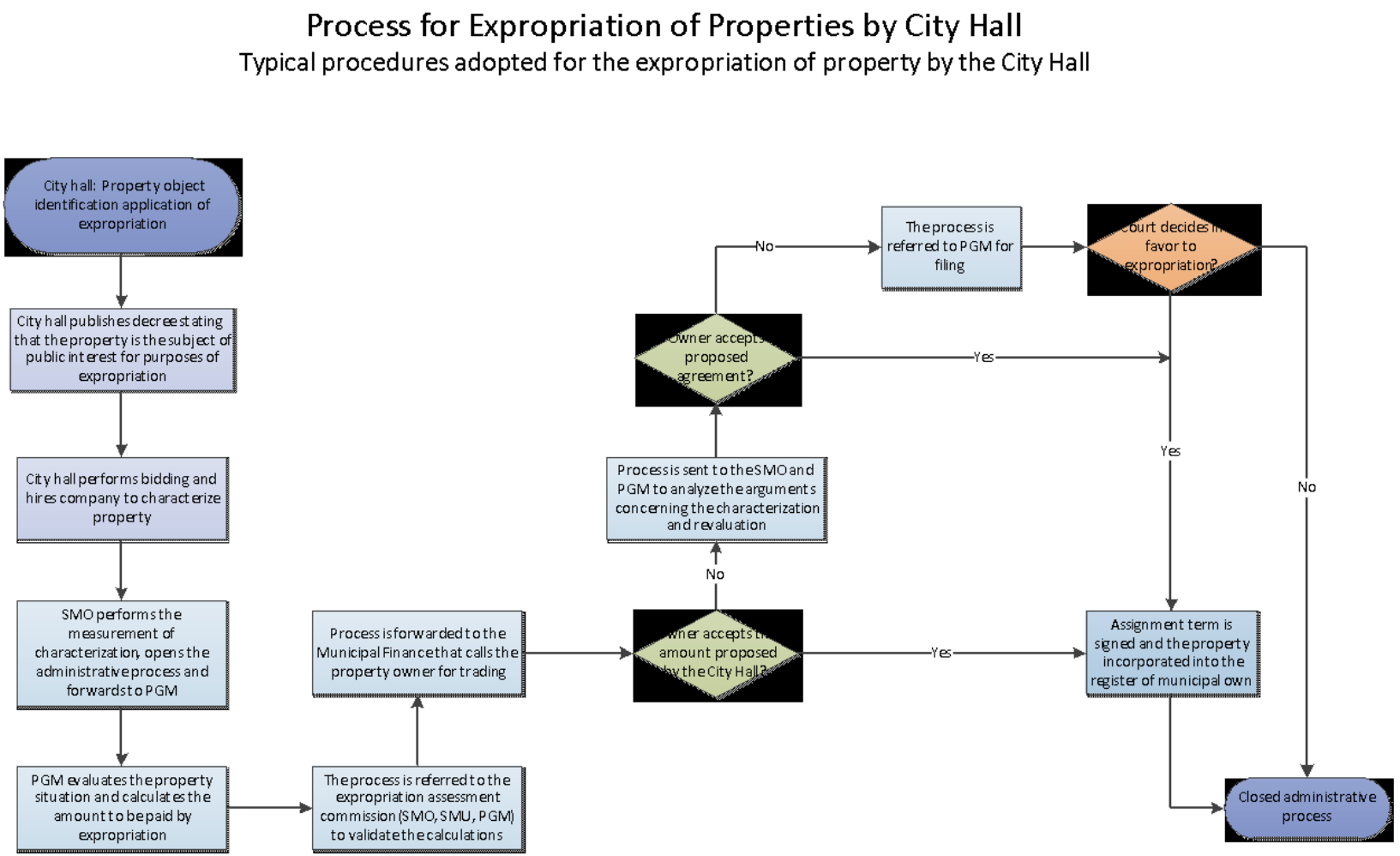

Figure 6: Process flow mapping to the expropriation of a property.

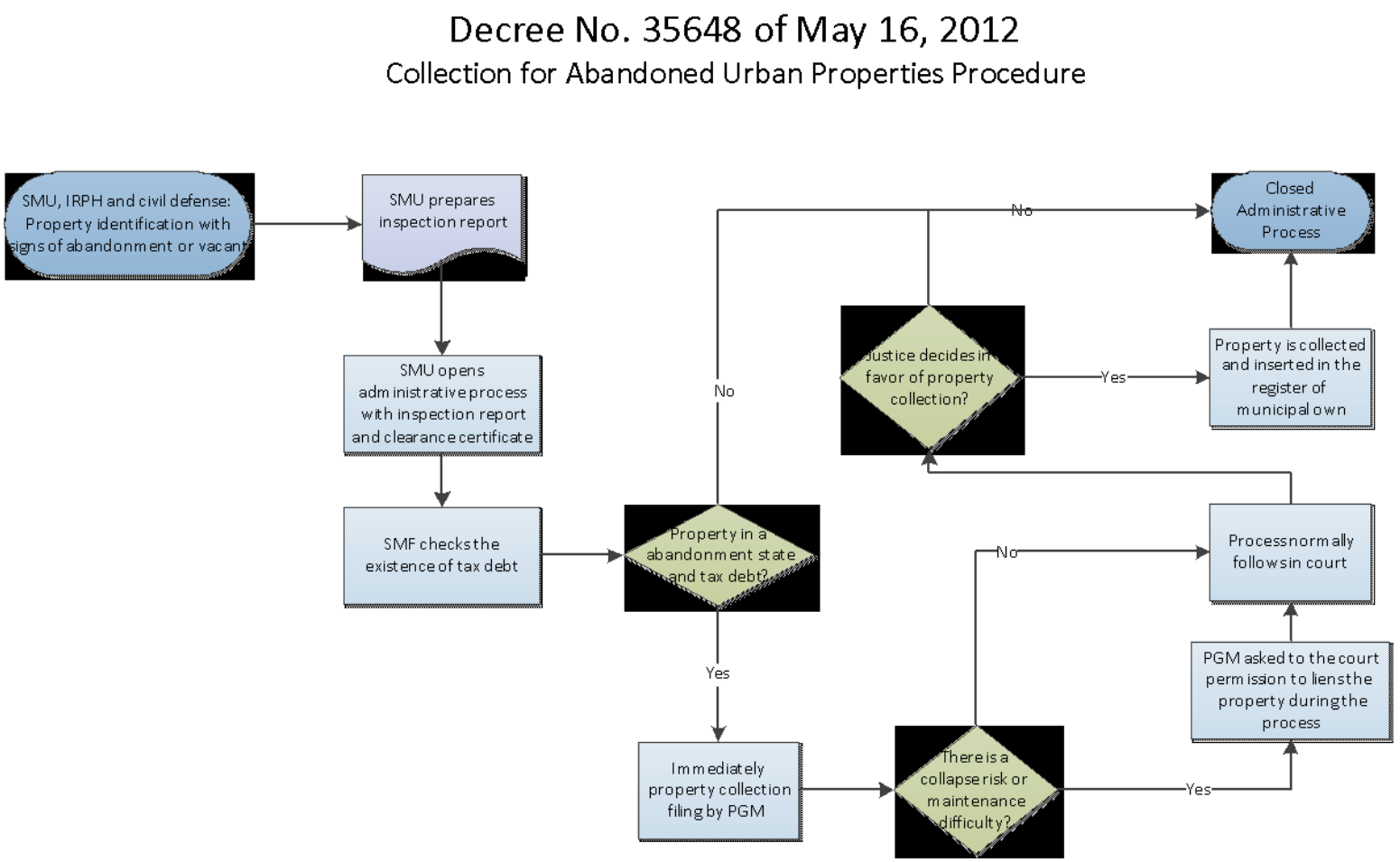

Figure 7: Process flow mapping to the Collecting of a property.

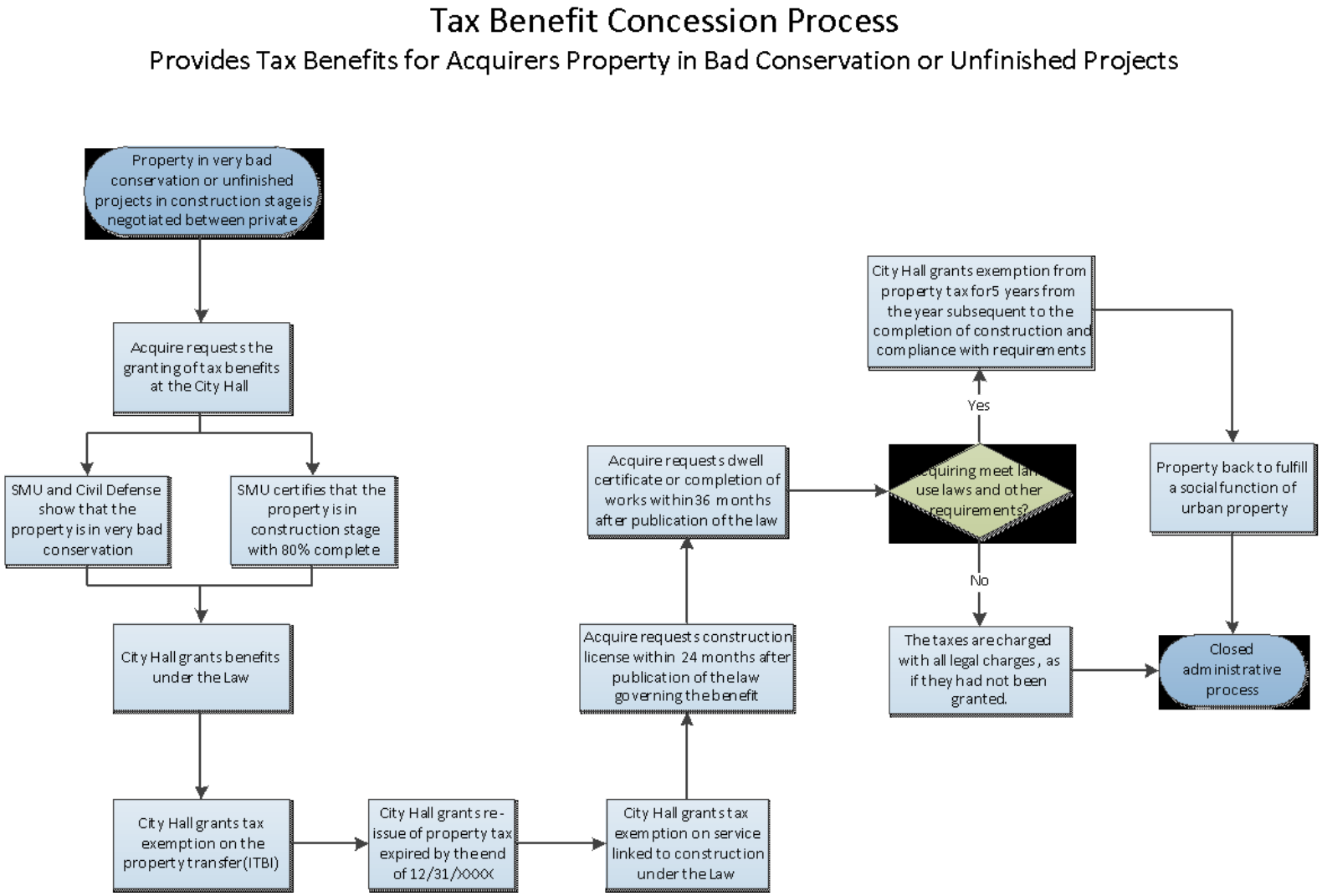

Figure 8: Mapping of the process flow for granting tax benefits.

6.7 The 5 Steps Model: Summary Table

The table below (Figure 9) illustrates in synthesis the main features of the conceptual model for identification and management of urban voids proposed in this project, with emphasis on the operating guidelines of each of the five steps, the tools and instruments available, and the project operational goals. The definition of operational goals is a key element for the analysis of the performance of a project in any organization.

Macro processes of Abandoned and Underutilization Property Management of Rio de Janeiro City					
	Identification	Characterization	Classification	Destination	Action Form
Guidelines	- Identify abandoned or underutilized properties of the city; - Develop practical, efficient and achievable methodologies in the public administration; - Optimize the use of existing resources; - Explore the partnership model.	- Characterize the properties in an abandonment or underutilized state identified in the first step; - Understanding the physical, urban design, architecture and tax characteristics.	- Classify the properties in an abandonment or underutilized state according to the public interest level; - Evaluate the structural and social risks involved in the processes.	- Check potential for property use; - Utilize plans, programs and projects existing in the organs of the City Hall; - Explore models of partnerships with the private sector.	- Apply land use management tools provided by the Statute of the City and Master Plan; - Articulate the authorities necessary for the implementation of the instruments efficiently; - Minimize the legalization process; - Develop standard operating procedures.
Tools / Instruments	- Data collection at the Municipal Urban Planning Secretary (SMU); - Terms of Agreements with supervisory bodies of the Municipality of Rio de Janeiro City; - Reports on the 1746; - Identification by remote sensing; - Cooperation Agreements with Public Goods Utilities Companies.	- Field Survey; - GIS and geographic information system; - SMF Fiscal records; - SMU Records.	- Remote sensing, GIS and geographic information system; - Field Survey; - Quality Tools: Brainstorming, GUT, Ishikawa Diagram.	- EGPWeb; - Relationship with Integrated Urban Planning; - Plans goals.	- Installment and compulsory building; - Progressive property tax; - Property raising; - Expropriation; - Granting of tax benefits (IPTU / ITBI / ISS)
	Compliance with Social Function of Urban Property: Abandoned Property and underutilized reintegration to the dynamics of City of Rio de Janeiro				

Figure 9: Summary of the macro processes for Identification and Management of urban voids.

6.8 Critical Factors of Success (CFS)

The critical factors of success relates to the central topics that can determine the success or failure of a project that has been planned and executed by an organization. These factors are derived from the project objectives, and viewed as essential conditions for its full implementation. The essential factors critical to the realization of this project are presented below:

- Approval of the Bills regulating the instruments necessary for the proper use of abandoned or underutilized buildings in the city;

- Political Support from the Secretaries of the Municipal Administration in inter-sector articulation to provide all the necessary information;

- Legal support in the implementation of the legal instruments;

- Qualification and engagement of the technical staff of the proposed administrative structure;

- Lack of belief on the importance of the identification and management model focused on results;

- Resistance to innovation in the organizational culture in the public service.

7 Administrative Structure

The necessary structure for the management of urban voids would require the creation of a management agency with a lean staff composition, preferably linked to a City Hall planning department. This structure it would composed by an advisory body and technical staff of experts from engineering, architecture and geography. In addition to this staff it would necessary to have an administrative support for organizational support and process flow in this proposed management agency.

The management agency of this structure shall develop activities related to the identification and management of abandoned and underutilized properties of the city and, therefore, must meet the following basic tasks:

- Define and detail the possible forms of identification and characterization of abandoned and underutilized buildings;

- Prepare a draft of the creation, operation and updating of the Databank of Urban Voids;

- Determine the model of the government's action, proposing the instruments to be applied to redefine the new use for the abandoned or underutilized property;

- Define possible uses of abandoned or underutilized properties;

- Develop a policy of occupation of abandoned and underutilized buildings in line with the Master Plan for Sustainable Urban Development propositions;

- Develop plans, programs and urban revitalization projects focusing on the use of abandoned and underutilized buildings;

- Establish the necessary inter-sector coordination for the development of activities related to the identification and management of abandoned and underutilized buildings.

During the performance of its statuary attribution the planning sector of this structure must link up, when necessary with other agencies from the Municipal Government. The Mayor`s Office and the Secretary of Urbanism (SMU) are important stakeholders in this management model, given they are they are the main beneficiaries of this project. Similarly, the full operation of this structure must rely on the continued legal support from the General Attorney of the Municipality, more specifically during the application of the legal instruments.

7.1 Database Bank of Urban Voids

In order to facilitate the management of abandoned and underutilized properties in the city it is proposed the creation of a Database Bank of Urban Voids, an information technology

structure responsible for integrating data from different sources. This structure will provide the necessary support to the management model manager proposed by this project.

IplanRio the municipal IT agency is defined as the database administrator, commonly called Database Administrator (DBA). IplanRio would be responsible for managing, installing, configuring, updating, and monitoring the database.

In this phase of the project it is discussed the possibility of implementing a database bank system of urban voids. Such a system should be able to receive multi-platform information that comes from Web environment, Palmtops, Smartphones, Computers and other operational systems, including those already in use in PCRJ. In order to adapt the bank, it is suggest to IplanRio to develop the database platform using existing form fields. In order to feed the database with information, information coming from agents using palmtops, smartphones and a new app would be input in the new platform. A specific field for reporting urban void could be developed in implemented in the 1746 service, so that the population reports can be useful to identify urban voids and feed this bank.

The database bank should also be fed by information from the cooperation agreements with utilities companies, such that of Light, as mentioned before. Actually, these partnerships with the utilities companies can be the main source of real time information about properties that might be in a face of become an urban void. Another source of information for the database bank is the mapping by remote sensing (GIS).

As the database would be updated constantly, it could serve as a source of information and consulting for others parties in the public sector as well as in the private sector. The public sector may search for a plot or building to implement one of its program, or companies searching for opportunities for investments. In time this database could become an important asset to the government to define its public policies and investments.

The database bank of urban voids is part of the mapping process of abandoned and underutilized properties, making it possible for information to be assessed at any time with very little bureaucracy. Thus facilitating the decision-making by the government related to a specific property or a series of them.

8 International Experiences

The idea of proposing a conceptual model for identification and management of urban voids for the city of Rio de Janeiro involved in seeking for experiences already in place in other cities or countries that could used as benchmark or be adjusted for Rio de Janeiro reality.

Although the subject of urban void as classically defined is pretty much the same for most of the cities. Resources, political will, public participation or demand, and the impact of these voids in the city economy vary from place to place. Moreover, legal framework is a key tool to assess the problem and to propose solutions that affects among others the right o the ownership of a property.

Actually, though the importance of this subject, urban void and its impact, it is rare to find examples of a consistent methodology to deal with this subject, from identifying, legal action, and results of possible viable actions. So in the search for some models or examples we could select a few examples.

In an effort to identify best practices to help guide organizations, this section examines how other cities approach the issue of blight, abandonment, and vacancy, and how it may apply to the model proposed in this paper. The goal of the research on case studies of other cities is two-fold. First, it is used to help design a definition of blight, which may be accepted by the city of Rio de Janeiro and the first-ring suburbs surrounding it. Second, the factors identified by other cities as root causes of blight, abandonment, and vacancy are incorporated into quantitative research in the Rio de Janeiro region. The goal of the quantitative research is to create the

foundation for determining a set of neighborhood indicators that may be used in order to identify the state of neighborhoods‟ built environments and to indicate appropriate remediation or rehabilitation efforts to correct blight, abandonment and vacancy within it.

8.1 Cleveland, Ohio

Strengthened code enforcement is a proactive policy that can work to stabilize communities and to prevent minor nuisances from becoming major hazards. The Cleveland Code Enforcement Partnership provides a model that is not only relevant to areas that are suffering from advanced stages of decay, but also to those attempting to control localized problems.

Within the city of Cleveland, Community Development Corporation (CDC)-employed inspectors work on the front lines of the battle against abandonment, as the Department of Building and Housing refers all “routine” complaints to these organizations to conduct exterior field studies. The CDCs are subsequently charged with categorizing and inventorying structures about which a complaint is received; they also are tasked with maintaining a database of vacancy and foreclosure rates within their district, which can help the city to recognize neighborhood trends and potential future problem properties. Filing preliminary paperwork for interior inspections or demolitions is also an assigned CDC duty, as the city has effectively delegated the authority to these organizations to determine which structures pose the greatest risk to the community.

In addition to conducting inspections, Cleveland`s CDCs provide initial contact to building owners about code violations and suggest avenues for remedying infractions, including placing residents in contact with government assistant programs. The CDCs perform follow up evaluations to determine if issues have been addressed and recommend prosecution for those that remain out of compliance. Although data has yet to be collected to verify the city`s argument, Cleveland makes a convincing case that this process yields better outcomes in terms of

persuading property holders to take corrective action; it should expect that Allegheny County residents would also be more receptive to these community organizations, who they may view as concerned with the plight of citizens, as opposed to the collection of fines.

The Code Enforcement Partnership has been vital for allowing Cleveland to continue to investigate violations, even after a budget crisis slashed Building and Housing`s staff by 25 percent. The Pittsburgh Bureau of Building Inspection, the largest code enforcement agency in the area, has maintained a stable budget, but partnering with CDCs can allow local governments to allocate funds to other areas.[12]

8.2 Michigan's Land Use Strategy

In order to address a variety of land use issues including the encroachment on and conversion of agricultural lands and wildlife habitat by expanding low-density development, the attendant cost of extending public services and infrastructure that serve that development, and the desire to preserve cultural and historic resources while providing affordable housing, Michigan Government issued an Executive Order in February of 2003 creating the bi-partisan Michigan Land Use Leadership Council[13]. The Council was tasked with a number of duties including evaluating state and local land use, housing, and planning laws and regulations as well as building codes; identifying state programs or regulations that contribute to low-density development and outmigration from urban areas; identifying incentives or techniques for sharing benefits of economic growth and reducing or eliminating fiscal competition among local units of government; proposing innovative and cooperative land use approaches to guide growth and development through cooperation on a local and regional basis; supporting the development of and eliminating barriers to affordable housing; protecting environmental and historic resources;

[12]11 "2011 Budget." 2011. *City of Pittsburgh*.
[13] Office of the Governor, Governor Jennifer Granholm, Executive Order No. 2003-4

enhancing community livability; and preserving farmland[14]. Under the terms of the Executive Order the Council was to report back to the Governor with its recommendation.

The Council's report was published and included numerous recommendations focused on how to adapt state policies to meet Governor Objectives.[15] Among the recommendations was to create a state entity known as the Land Bank Fast Track Authority (Land Bank) to help assemble the land needed for redevelopment. The Land Bank would be empowered to consolidate all state-owned tax-reverted property; quiet title[16] to make properties more marketable, and authorize foreclosing local governments to create a similar land bank at the local level by agreement with the state. With these powers, the Land Bank would be able to speedily move vacant and abandoned properties back into productive use.

The governor and legislature adopted the Council's recommendation and created the Land Bank by Public Act 258 of 2003.[17] The Land Bank can own, accept, and hold property through gift, transfer, and conveyance.[18] It can manage, sell, exchange, lease, option, renovate, develop, and demolish properties in its inventory, and can also initiate expedited quiet title actions to real property held under its jurisdiction. The Land Bank also catalogues available properties and provides a searchable database for interested parties.

Following establishment of the Land Bank, properties that previously languished for up to seven years being readied for sale and redevelopment can be ready in less than a single year.
In addition to the Land Bank Fast Track Authority, Michigan`s Government published other legislation to aid in the redevelopment of vacant and abandoned properties including legislation that:

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[14] Ibid.
[15] Michigan Land Use Leadership Council, Michigan's Land, Michigan's Future, Final Report, 15 August, 2003.
[16] This is an action to establish that a party has clear title and ownership against any and all challenges.
[17] Michigan Department of Labor and Economic Growth, Michigan Land Bank Fast Track Authority.
[18] Ibid.

• Allows any land in a land bank's inventory to be defined as blighted, thereby enabling a tax increment financing board to provide assistance with quieting title and disposing of the property.

• Exempts property held by a land bank from general property taxes and exempts property sold by a land bank from general property taxes for five years after is sold, and instead imposes a specific tax equal to what general property taxes would have been, using some of the specific tax revenue to fund the land bank's disposition and title clearance costs.

8.3 Albany, NY:[19]

8.3.1 Vacant Building Registry and Committee

Over the past several years, Albany has established a multi-pronged approach to dealing with vacant and abandoned buildings, and the City continues to build upon and improve it through its Vacant Building Registry, reinvigorated Vacant Building Committee, and ongoing efforts to strengthen communication and partnerships within the City.

8.3.2 Vacant Building Registry

In July 2000 Mayor Gerald D. Jennings signed into law an ordinance creating the Albany Vacant Building Registry. The Registry was instituted to protect the health, safety, and welfare of the public by establishing a registration process for vacant buildings. The process requires responsible parties to implement a maintenance plan for such buildings in order to remedy any public nuisance problems and prevent deterioration, unsightly blight, and consequent adverse impact on the value of nearby property.

The ordinance requires owners to register their buildings with the Albany Fire Department's Division of Buildings and Codes within 30 days of becoming vacant. Owners must

[19] http://usmayors.org/bestpractices/vacantproperties06.pdf

register vacant buildings annually, by mail or on-line, and submit a yearly fee for each registered building. The yearly fee acts as an incentive for building owners to maintain their buildings.

8.3.3 Vacant Building Committee

In 2005 Mayor`s Office established a Vacant Building Committee to examine how the City can be more proactive in enforcing the Vacant Building Registry and to counteract the continuing increase in the number of vacant and abandoned buildings in the City. The Committee, led by the Fire Department's Deputy Chief for Buildings and Codes, also includes representatives from the Mayor's Office, the City's Corporation Counsel, a private engineering firm, the City Engineering Department, the Historic Albany Foundation, the Albany Community Development Agency, the public utility company National Grid, and the New York State Department of Codes. Currently the Committee is organizing a massive identification and notification drive that will catalog all of the vacant buildings in the City and notify building owners of the need to comply with City vacant building codes and ordinances. The following activities are being undertaken:

Identification – The Fire Department's Buildings and Codes staff is performing a street-by-street analysis of the City to identify all vacant buildings subject to the Vacant Building Registry and/or maintenance of vacant building requirements. At the time of identification, a full exterior inspection is performed, including roof inspection using a Fire Department aerial bucket truck. Photographs are taken to further document the condition of the building. Each building then receives a rating. The three ratings are:

- Cosmetic work needed;
- Rehabilitation needed and economically feasible; and
- Demolition recommended/not economically feasible for rehabilitation.

In extreme instances, immediate demolition may be necessary. During the identification stages, all code violations are noted and entered into the Codes computer system.

Notification – Within three business days of the inspection/identification process, the owner of the building is notified as to actions that must be taken (e.g., register the building on the Vacant Building Registry; maintain the building's exterior in compliance with Article XI which outlines the criteria for vacant buildings in the City Code; obtain a structural engineering report; etc.). In most instances owners are given 30 days to comply. At the same time the National Grid, City Water Department, Albany Community Development Agency, and Office of Communications (for Fire and Police Dispatch) are each notified to take the following actions:

- National Grid – terminate and disconnect the power and/or gas utilities for long term vacant buildings and buildings that are unsafe and not economically feasible for rehabilitation;
- Water Department – terminate and disconnect the water supply to the building to prevent wasting water resources and possible flooding of the vacant building as well as neighboring properties;
- Albany Community Development Agency – if possible, follow up with the owners of these buildings and offer them assistance and/or link them with potential buyers who will then rehabilitate the buildings;
- Office of Communications – internally mark in the joint Computer Aided Design (CAD) system vacant and abandoned buildings identified as unsafe so that emergency personnel can be alerted to the condition of the building.

Re-inspection – A re-inspection is performed after the 30 days has elapsed to determine if the owner has complied with requirements outlined in the letter of notification.

Prosecution – In cases of non-compliance, the matter will be referred to the City Court for prosecution.

8.4 Dallas, TX:[20]

8.4.1 Urban Land Bank Program

The City of Dallas recognizes the important role local governments can play in encouraging economic growth and development. In 2002 Mayor Laura Miller's Affordable Housing Task Force developed an innovative way to address the problem of vacant, tax-delinquent properties: The City of Dallas Urban Land Bank Program. The goal of the program is to develop affordable, single -family homes on vacant, tax-delinquent properties in Dallas neighborhoods. It is designed to expand the supply of affordable housing and to stabilize and revitalize City neighborhoods, neighborhood commercial areas, and neighborhood schools.

Creation of the Urban Land Bank Program required special state legislation, the Texas Urban Land Bank Demonstration Program Act (HB 2801), which authorizes a demonstration program to streamline the process for foreclosure and sale of identified tax delinquent properties, and authorizes the Land Bank to assemble tax-foreclosed properties and sell them at below market prices to nonprofit and for-profit affordable housing developers. The City has forged partnerships to implement the program with other local taxing entities, including the Dallas Independent School District, the Dallas County Sheriff's Office, and Dallas County Tax Courts, as well as with private and nonprofit organizations, including the Real Estate Council Foundation, Community Housing Development Organizations (CHDOs), title companies, and developers.

[20] http://usmayors.org/bestpractices/vacantproperties06.pdf

The Land Bank works with other local taxing entities to identify properties for foreclosure and assemble suitable clusters to entice development. After foreclosure, CHDOs have the right of first refusal to acquire property in their area of service.

Dallas voters approved the emission of property acquisition bond funds to provide for the purchase of foreclosed properties. In addition, the Real Estate Council Foundation provided a loan for expenses related to the purchase and resale of Land Bank lots. Title companies and law firms are providing pro bono services to assist with the program by identifying appropriate properties, clearing titles and filing tax lawsuits. The City pays the majority of costs associated with land acquisition using General and Bond Funds.

The major challenge for the program has been securing the involvement and agreement of all of the local taxing entities. In addition, reworking the delinquent property foreclosure and sale processes proved to be more complex and time consuming than originally anticipated, and streamlining of these processes continues.

By restoring these properties to productive uses, the City is stabilizing and revitalizing its neighborhoods, enhancing neighborhood quality of life, stimulating community investment and growth, reducing local government expenditures, and increasing local government property and fee revenues.

8.5 Indianapolis, IN:[21]

8.5.1 Abandoned Housing Initiative

In February 2003 Indianapolis Mayor Bart Peterson announced a long term commitment to addressing the problem of abandoned properties in the City. “This problem has existed for decades, and solutions are neither easy, nor quick,” Mayor Peterson said at the time. “But we have reached a point where we must act to deter continued deterioration.”

[21] http://usmayors.org/bestpractices/vacantproperties06.pdf

To measure the scope of the problem the City with the help of students from Ball State University initiated a first-ever, comprehensive inventory of vacant houses. The goal of the inventory was to locate and inventory every vacant or abandoned home within the downtown and inner-ring suburbs, or "old City limits," of Indianapolis.

Ball State students conducted field work over six weeks in the summer of 2003. Three field teams consisted of two students each, with a student project manager overseeing the inventory. Each field team was equipped with a personal digital assistant (PDA) outfitted with ArcPad GIS software that contained detailed maps of the City.

The GIS maps indicated likely vacancies based on the following indicators:

- boarding, repair, or demolition orders
- property tax delinquencies
- mortgage foreclosure and Sheriff sale records
- power company records (no electricity for six months)

These indicators provided an initial assessment of possible vacancy. Ultimately, within the old City limits, due to high concentrations of vacancy and the density of construction, the survey team inventoried the entire area building-by-building. Outside the old City limits, the above indicators guided the survey teams to specific properties.

Survey teams collected five pieces of information on each building:

The number of dwelling units – The number of dwelling units was noted and additional information was collected for each unit within a structure that contained vacancy.

The status of vacancy – There was a tiered system for classifying vacant properties (e.g., vacant properties could be boarded or for sale). For that reason, three categories were created: Vacant, Vacant for Sale, and Vacant/Boarded. If a property rated as Vacant/Boarded, it could

also be for sale. If the building rated as Vacant for Sale, however, it was identified as such, which also indicated that it was not boarded.

Condition rating – Each property was rated on a scale of A to E. An A rating was given to vacant homes in excellent condition. A "C" rating includes homes that needed minor rehabilitation, while an "E" rating is given to homes that were severely dilapidated.

Site condition – Surveyors also rated the surrounding site, using a "good/fair/poor" scale. A "good" yard was well maintained while a "poor" yard had overgrown weeds or contained dangerous trash and debris.

Digital photograph – The front façade of each property was digitally photographed. Over the course of the project, surveyors identified 7,913 vacant properties. As a direct result, Mayor Peterson's Abandoned House Work Group – comprised of local experts and community leaders – convened to recommend solutions. The work group's two reports provided the framework for the City's housing and code enforcement policies. Mayor Peterson's efforts caught the attention of the State Legislature, which latter approved new legislation that will help speed the redevelopment of abandoned properties in Indianapolis and throughout the State.

8.6 Philadelphia, PA:

The City of Philadelphia uses logistical regression to analyze data from the Philadelphia Neighborhood Information System in order to determine which properties were most likely to become imminently dangerous. Several characteristics of the property, including whether it was vacant, had outstanding housing code violations, and tax arrearages as well as characteristics of nearby properties were identified as significant predictors. There are a multitude of early-warning signs that could be fed into Pittsburgh`s blight and abandonment indicator system: Owners receive code violations and complaints from tenants, city agencies receive complaints from tenants and neighbors, while utility companies have unpaid accounts. Although these individual

signs are not necessarily causal factors, together they signal where a property is in the abandonment process.

Furthermore, the Philadelphia Indicator system breaks down abandonment into three separate groups:

Functionally abandoned: Property is no longer fulfilling its role as a residence (suspension of mail service, vacancy, etc.).

Financially abandoned: The disinvestment that occurs when owners stop meeting their minimum financial responsibilities and properties begin to accumulate debt because of equity

Physically abandoned: When owners neglect the interior or exterior upkeep of a property.

By classifying abandoned properties into these sub-groups, analysts are better able to devise cause-and-effect relationships at the community and block level.

9 Conclusion and Recommendations

This study defined that urban void is unutilized, underutilized or better usable conditioned spaces in the future. In terms of this dimension urban voids have huge potential to convert or change their using for sustainable urban development. So this research analyses and suggests a new conceptual model to identify and manage urban voids.

This conceptual model has a great potential to be implemented because it does not require a considerable amount of funds to be implemented, much of the necessary instruments already exist and some little investment in a human and material resource is necessary. Also a key element of the model, the legal frame is defined, most of it approved as law, others pending approval. It means condition is out there available, it needs a specific to put it all together under the same governance almost.

During this project it was possible to perceive the great theoretical and empirical difficulties in analyzing the urban voids, due to the great diversity of ideas and situations in

which they apply. Although difficult to measure and locate the urban voids, these tasks are essential for planning the reuse and utilization in urban development.

Also it could be identified that some old legislation concerning economic activities in the many neighborhoods or regions of the city due to the Zoning Land Use restricts economic activities that could positively impact a specific area, or that restricts the construction of residences in an once industrial area that are in decay and both could mitigate de decay some part of the city is experiencing.

With this study it was possible to structure a conceptual model of identification of urban voids using the existing tools spread among public administration. Also it presents a proposal of a partnership with utilities companies that potentially could foster the process of identification of urban voids. This database bank of urban voids allows the municipality to know these voids are located and the possibility of combination with other essential information to support the development of planning and management policies, ensuring better control over the use of land by the municipal government. The precise location of urban void properties in increases the possibility to design efficient and cost effective urban planning strategies. We consider this project an important tool to increase the efficiency of municipal policies and enhance the quality of life for its population. From the use of this initial registration, it can be facilitated the monitoring of the database to keep it updated. There is need for refinement of households, service commercial and industrial buildings classification as vacant with description that provides evidence of abandonment.

With the implementation of this conceptual model, we can understand the spatial distribution of urban voids in the city of Rio de Janeiro and its dispersion in the territory. Most of the vacant homes are concentrated in the old consolidated areas of the city, but its greatest number and ratio to the total of people and households are in the areas of expansion. With regard

to abandoned properties, its concentration is higher in the Center and in the North Zone, areas that were in degradation process, but various stimulus policies are underway to reverse this situation.

The construction of a database bank as proposed in this project offers a possibility for better planning and management of the city's use of land and its built environment, from the urban voids, and is useful for various sectors such as urban planning, housing, health, civil defense, architectural heritage history, that working together can keep it updated. Partnerships with utilities companies and GIS tools are presented as an important tool to assist in the integration and sharing of information on urban voids, it is essential for a better management and planning on the use of urban voids on the city as a whole.

Mapping the urban voids makes it is possible a series of spatial analyzes that provide better management of them, which is a proposed instrument not only to identify but also to prevent new urban voids and to promote the reuse of existing ones.

From a detailed mapping it is possible to provide tools that allow the definition of parameters and areas for application of legal instruments such as the progressive property tax on time and dispossession, applicable in urban voids in areas with complete urban infrastructure and high potential of construction.

We understand that only the identification and the database bank is not sufficient for the formulation of a comprehensive policy, which involves issues such as urban land market, real estate valuation resulting from stimulus policies and changes in the legal framework on use of land. Other complex issues are related to the owner's identification, either for purchase or expropriation by the municipality, establishment of partnerships with utilities companies for information release.

There is the expectation not only to provide inputs to the identification and action on these urban voids as well as to better understand its causes aiming mitigate the occurrence of new voids.

Also the proposition of this conceptual model is aligned with the Strategic Plan of Rio de Janeiro[22] that in its chapter about Urban Infrastructure defines as priority promote partnerships with Federal Government and private institutions to build housing for the low income population. Promote the urban requalification of degraded areas on Downtown and North Zone parts of the city. Revitalize the port area – *Porto Maravilha* project – that is an ongoing huge revitalization of the old port area with investments in transport, public equipment, museums, and permission to skyscrapers to be built.

It was verified in the literature the importance of the temporal issue in the analysis of urban voids - because it is necessary to define how long an unutilized property can be before be considered abandoned given the transitory nature of the state of unutilized. Greenberg, Popper et al. (1990) coined the expression in English "TOADS" acronym "temporarily Obsolete, Abandoned, or Derelict Sites", i.e. temporarily abandoned sites, and most of the expressions used in international studies on urban voids. The difference between the "vague" and "abandoned" terms is the existence of an owner or not of that property, as well as the existence of someone interested in the property.

9.1 Next Steps

The next necessary steps to be taken to implement this model are to detail the scope of each of the 5 steps of the model, create the database bank structure that will deal with all information sources and formats to map the urban voids, create the municipal agency responsible

[22] http://www0.rio.rj.gov.br/planoestrategico/

to manage the urban voids from the data collection to the definition of the instruments to be applied in each case of urban void. Define a legal framework and partnership with utilities companies to collect the data.

A revision on the Urban Zoning for Land Use is require to modernize the current legislation that is some aspects is too restrictive and prevents new economic or housing dynamics that could mitigate the appearance of urban voids.

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