

Intra-urban social-occupational structure and unequal housing conditions in the Fortaleza Metropolitan Region

Prof. Dr. Renato Pequeno - Universidade Federal do Ceará¹

Introduction

This article tries to appoint the results of a research in which the objectives were to identify the framed picture of the inequality of the inhabitations conditions associated to the intra-urban structure of the Fortaleza Metropolitan Region – FMR – defined according to its social-occupational characteristics. In the first part, we intend to present the FMR within the national context, as much as emphasize some aspects associated to its recent process of urban growth. Next, following a methodology commonly adopted within the research network, we propose the social-espacial structure, formed with seven different typologies, describing them in their social-occupational context associated to the urban elements which structure the FMR, as we have as main variable the density of the different social-occupational categories residing in each of the areas that compound the types. For last, we try to analyze the picture of the inequality among the referred typologies, regarding to the inhabitation conditions, as well as the differences inherent to them, considering the parts of which it is formed, focusing on the spaces occupied by squatter settlements, opposite the presence of formal real estate enterprises and social interest inhabitational programs.

1. Elements of intra-urban infrastructure of the Fortaleza

Created in 1973, Fortaleza distinguishes itself in the set of the other Brazilian metropolitan regions because of its high degrees of disparity and for the intense rhythm of the demographic growth. Its long distance from the other national metropolis as well as the environmental conditions of its vast enclosed region lead to a process of urban macrocephaly, turning this urban conglomeration a convergence point for populational flows, in search for jobs, as much as for the urban services, as precarious as they are.

Recent scientific researches indicate that in the national scenario, Fortaleza presents the worse social indicators among the most populous metropolitan regions, which are: inhabitational lack index, rates of the population in poverty situation,

¹ Pós-doutorando em sociologia urbana na Pontifícia Universidade Católica de São Paulo (PUC-SP) junto ao Núcleo de Pesquisa Observatório das Metrôpoles (CNPq)

percentiles of youngsters in extreme social vulnerability situation, marginalization risk, and relative inhabitational deficit, among others.

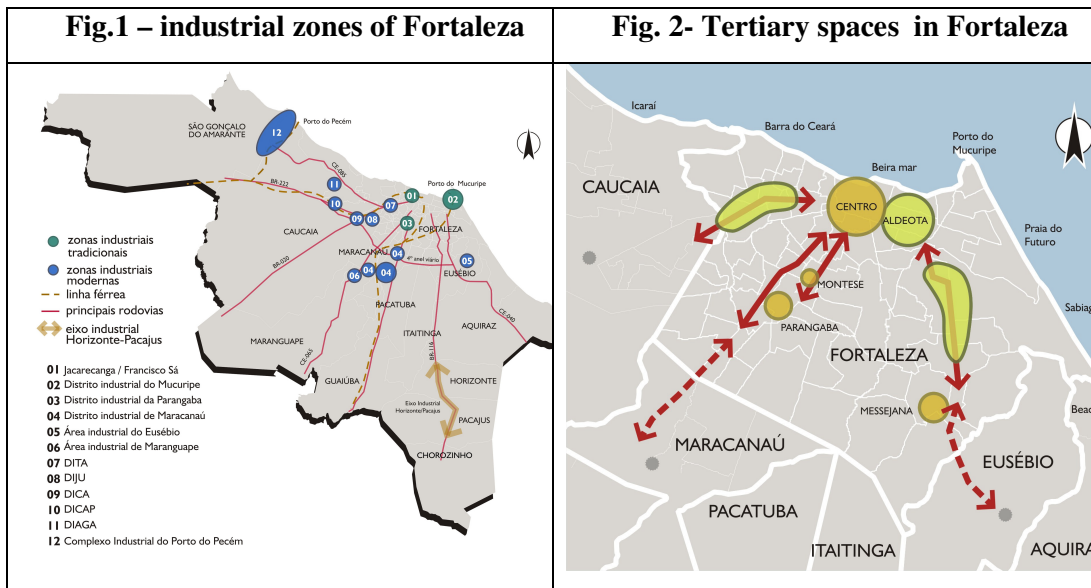
Data from the last populational count realized in 2007 indicate that the FMR already has more than 3,5 million inhabitants (Brazilian Institute of Geography and Statistics – IBGE, 2007). Compound of 13 cities, among which there is Fortaleza, nowadays the fourth city in Brazil in terms of population with 2,41 million individuals, more than 70% of the total population of the metropolis. Anyhow, this rapid population increment has not been accompanied with investments on infrastructure and social equipments, the same happening with the job opportunities which hasn't been sufficient to attend the growing demands. With this the scene of informality increases, whether in inhabitation, urban services or in the work relations.

Since its creation, the FMR had its political-administrative composition transformed as with the fragmentation of its original municipalities, through the emancipation of districts to municipalities, as through the insertion of new ones. From this we have a scene of conflicts regarding the integration of these cities, associated to the indefinición of their boundaries; remaining unsolved some questions regarding the metropolis as: the circulation of merchandises and of handiwork, the water supply and environmental sanitation, the provision of social housing, among others. In the absence of instruments for metropolitan planning and space management, as much as the inexistence of institutions in the political administrative level, we can verify the expansion of different kinds of problems which generates a series of incompatibilities among different patterns of land use and of the occupation of the territory, characterizing a model of the social production of the space extremely predatory and environmentally misbalanced. (Pequeno, 2002)

In the last decades, the FMR has seen a process of economical restructuring, ruled by the spatial redistribution of its industrial areas, which is directly bound to the necessary infrastructures needed to the production flowage. Besides, we can verify the reorganization of its centralities, which gain new forms, assuming differentiated patterns that adjust to the social-economical disparities presenting the metropolitan scenario. The contribution to this picture of this disorderly increment comes from the presence of a real estate market that has been acting avidly over the metropolis, notably when it confronts the frailty of the instruments for planning and management in the cities level.

Once concentrated in Fortaleza, along sides with the road-railway axels to the West and in the Center-South, as well as surrounding the port sector, the secondary sector

passed through reorganization in the last decades, migrating to the peripheral spaces of the metropolis, interfering directly in its social-spatial structure. These transformations could be decomposed into three periods: first, with the induced creation of industrial district in the 1970's; second, since the 1990's by means of the expansion of the sector in axial and districts along side the federal and state highways, bound to the state policy to attract more industries; third, the creation of a port industrial complex in the West part of the FMR resulting from government projects still being implanted, revisiting the logic of the exogenous development, unbound from the regional vocations.

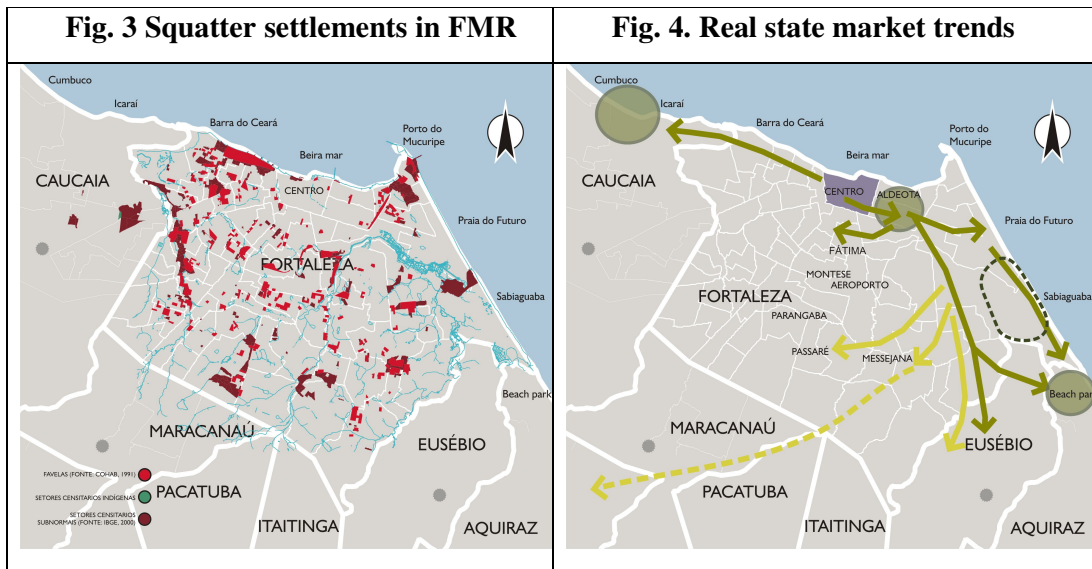


Source. Elaborated by the autor

What refers to the tertiary spaces, we can observe its expansion in corridors, as well as its fragmentation in sub centralities which come to emerge in areas with greater urban growth. (Villaça, 1998) Collaborating with the axial configuration of commerce and services, we have the rising of the shopping malls, along side the downtown avenues going to the East (see fig. 1). Strongly entailed to the real estate market, these areas come to redefine the distribution of the social groups with the higher purchasing power in the FMR. On its side, remaining in a state of disorderly growth, we have the traditional downtown, attending especially to the demands of the West part of the metropolis, under a strong impact of the informal economy. Unable to attend the whole demographic share of this part of the FMR, the downtown suffer with the dispersion of its tertiary activities through the ways with a greater flow, going West and Southwest. Besides, we can observe the intensification of the commerce in the center of the cities, assuming the function of sub centralities in the metropolis. (figure 2)

During this explosive demographic growth, the housing conditions were heavily transformed, fitting here its use as an indicator of changes of life conditions in the FMR, as a result of the presence of different players, holders of distinct roles and interests (Maricatto, 2001). We must observe the role of the public authority in the definition of policies for social housing, locating residential settlements in the peripheral space to the West and Southwest, shaping a process of redistribution of the population especially concentrated in the 1970's and the 1980's, running to a strong conurbation process.

Since its incapacity of attending the demands, there has been a proliferation of occupied areas as an answer from the excluded population to the decrease of the inhabitation offer. Assuming the condition of corridors of social-environmental degradation, the urban rivers and streams came to direct the squatting process (figure 3), more and more seen as signs of the absence of the urban and environmental control. Reaching beyond the boundaries of the city of Fortaleza, since the 1990's, this process came to be an inductor of a new way of conurbation, contributing with the overflow of poverty and social exclusion to the surrounding cities. This way, are generated new patterns of inter cities integration, which came to indicate the need of implantation of metropolitan managing programs that emphasize the inter city cooperation.



Source. Elaborated by the autor

On its side, the actions of the real estate market also indicate changes in its social housing offers. Concentrated in few neighborhoods, the real estate sector shows itself tied together to the social groups that have in the residential segregation, a strategy of appropriation of the areas that are better attended by the infrastructure and urban

services networks. In an intense and concentrated rhythm, we observed the substitution of the medium and large range residences for vertical condominiums, since the late 1980's, in the areas next to the East coast of Fortaleza. At the same time, occurred the expansion of the city in the Southeast way, where new neighborhoods were created, turning to the dissemination of the horizontal condominiums, establishing new patterns of social-spatial segregation in the metropolis. (figure 4)

Contributes to the understanding of the restructuring process of the metropolitan space, the spacialization of the touristic activities and its forms, which are directly associated to the real estate sector, interfering strongly in the land market of the FMR and contributing with the processes of social-spatial segregation, segmentation and social exclusion. We can observe that with the interventions in the road system at the regional and intra-urban levels, as well as the restructuring of great equipments, the progressive appropriation of areas with greater landscaping value in this sector occurs, exacerbating the social exclusion in the FMR.

In short, we verify that in an integrated way, the different productive activities and the distinctive ways of producing dwellings, whether by the public authority, whether by the real estate market, whether by the excluded social groups; turn the metropolis into a diversified space in its social-spatial configuration, which is especially associated to the infrastructure and road system implantation.

2. Social-occupational structure in the FMR

To understand the disparities scenario present in a determined spatial frame, it is necessary to recognize the parts that form the whole, attributing criteria and establishing the variables that will allow us to distinguish between the compartments that will be considered as social typologies.

In the sense of limiting these social-spatial types, and therefore, formulating a social-spatial structure of the FMR, we used a methodology performed by the Rede de Pesquisa Observatório das Metrópoles¹, which uses as spatial unity of analysis, the areas of pondering of the samples of the demographic census (AED), from where are obtained the information related to the working population. As main variable, is used the main job of each individual, grouped in social-occupational categories (CATs) defined according to some differentiations such as: city or rural work, specialized or non- specialized, secondary or tertiary, modern or traditional technology, regarding superior or medium formation level, employee or manager.

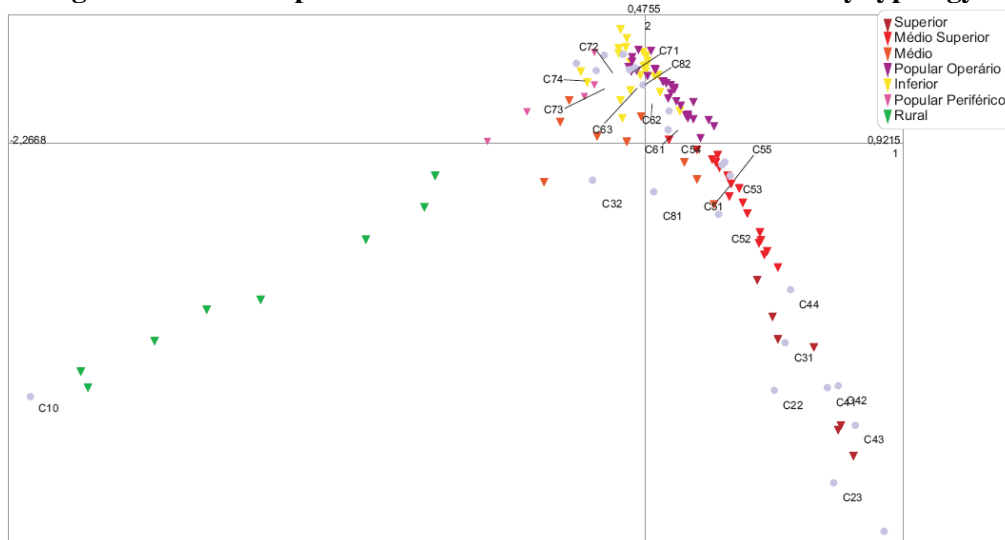
Subdivided in 98 areas (AEDs), we obtained as main result the social-spatial structure compounded with seven different typologies, verifying the consistency graduation between the results obtained by the use of geostatistics software and the social-spatial processes of the metropolis. Following the qualitative and quantitative analysis procedures, we adopted in a first stage for further identification of social-spatial types: the density of each social-occupational category, aiming to confront and differentiate the several typologies and the percentile of the different categories in each typology, analyzing the composition of each type. As a qualitative analysis, we observe the relation of contiguity among the different areas that compound each typology, as well as the compartmentation of each one of them.

Furthermore, the social-spatial typologies were related to the urban development process in its transformations and tendencies presented to the FMR, specially related to the restructuring of the productive sectors and to the interventions in the structure of the dislocation of handiwork and the distribution of the supplies and of the production.

With all this, it is viable to identify the parts that compound the totality, which allow us to understand that the social space of the metropolis encircles differences, which interpolate among the extremities, granting a better comprehension of the social-spatial dynamics, such as; the segmentation, the segregation, the exclusion, in the ways of how the groups aggregate, break apart, disband through the metropolitan social fabric.

In the FMR case, we identified seven social-spatial typologies denominated in a hierarchic way as: Superior, Medium-superior, Medium, Popular-proletarian, Inferior, Popular-peripheral e Rural. Using a factorial analysis, we obtained the social position of the different categories in the metropolitan space, observing the relations between the complementarities, juxtaposition and the opposition among the different occupational groups of the metropolis. Based in the extreme situations we observed that on one side, the category of the agricultural workers indicated the diametrical opposition between the rural spaces and the other parts of the metropolis. On the other hand, the occupations associated to the management, intellectuals and small employers indicated areas with larger concentration of groups with greater income, better education, such as with the best opportunities in the city (see figure 5). On the axial crossing where the intermediate position are predominant, we verify the grouping of areas characterized by the predominance of some social-occupational categories though juxtaposed and sometimes superposed indicating the social-occupational diversity and denying the plain dichotomy that generally subdivides the social metropolitan space between the rich and the poor.

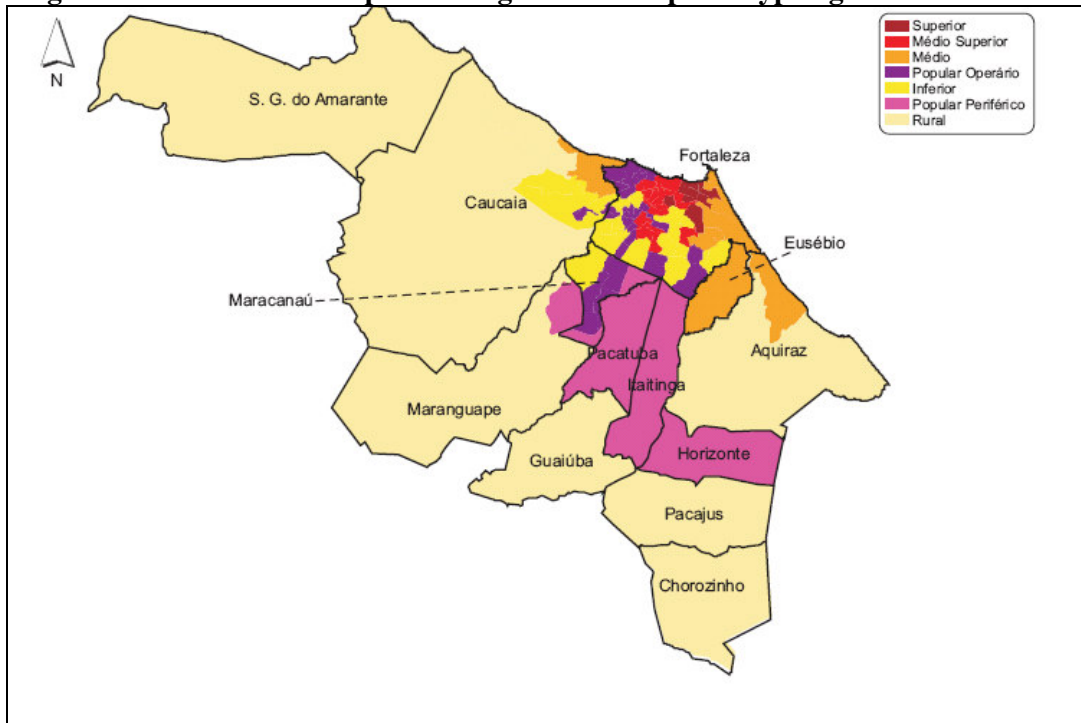
Figure 5 – Final dispersion with all the individuals identified by typology



Source. Elaborated by the autor

When compounding a set of social-spatial typologies, some aspects of the metropolis are clarified, such as: the populational concentration in the main city opposite to the rarefied occupation. The size of each typology also clarifies the recent courses and the segregation tendencies, differentiation, segmentation and social exclusion as we will attempt to present in a brief way. (fig. 6)

Figura 6 - Fortaleza Metropolitan Region – socio-spatial typologies



Source. Elaborated by the autor

With the data shown in the tables 1 and 2, we intend to present a brief characterization of the typologies we identified, linked to the urban development process and to the tendencies that are present in the metropolis growth. We have to say that the values regard to the relative density of each social-occupational category by social-spatial typology related to the total in the metropolis.

Table 1 – Density of the CATs in the different social-spatial typologies – 2000

Social-occupational categories (CATs)	Social-spatial typologies (densities)						
	Superior	Medium superior	Medium	Popular-proletarian	Inferior	Popular-Peripheral	Rural
21 - great employers	7,01	1,15	1,11	0,27	0,25	0,26	0,26
22 – public sector managers	3,76	1,95	0,98	0,36	0,41	0,67	0,80
23 – private sector managers	5,82	1,30	0,96	0,37	0,32	0,40	0,55
41- autonomous graduated professionals	4,33	1,67	1,04	0,52	0,43	0,40	0,25
42 - employed graduated professionals	4,16	1,90	0,82	0,57	0,39	0,25	0,17
43 - statutory graduated professionals	4,40	2,26	0,94	0,40	0,23	0,31	0,19
44 - university professors	2,62	2,03	0,85	0,78	0,43	0,54	0,23
31 - small employers	3,42	1,65	0,86	0,70	0,46	0,43	0,56
51 - office occupations	1,11	1,60	0,67	1,13	0,76	0,56	0,40
52 - supervising occupation	1,91	1,43	0,82	0,97	0,65	0,90	0,58
53 – technical occupations	1,38	1,54	0,89	1,09	0,73	0,59	0,31
54 - medium occup. health & education	0,64	1,24	0,76	1,21	0,86	0,80	0,78
55- occupation security, justice & post	1,20	1,40	0,71	1,24	0,74	0,61	0,28
32 – occupations in art and similar	0,98	1,04	0,72	0,91	0,90	1,46	1,56
71 – workers in the modern industry	0,23	0,72	0,85	1,24	1,22	1,17	0,72
72 - workers in the traditional industry	0,20	0,64	0,57	1,29	1,07	1,92	0,90
73 - workers in the auxiliary services	0,22	0,70	0,68	1,14	1,13	1,91	1,11
74 - workers in construction	0,25	0,45	1,29	0,91	1,56	1,10	1,24
61- workers in commerce	0,74	1,05	0,91	1,13	1,07	0,79	0,63
62 – specialized services renders	0,47	0,82	1,35	1,10	1,20	0,84	0,69
63 – non specialized service renders	0,41	0,68	1,39	1,01	1,37	0,95	0,73
81 – house workers	1,68	0,93	1,55	0,68	1,06	0,89	1,09
82 – wanderers and garbage pickers	0,33	0,79	0,98	1,10	1,30	1,07	0,73
10 – agriculture workers	0,12	0,09	1,21	0,22	0,35	1,76	8,70
Total	1,00	1,00	1,00	1,00	1,00	1,00	1,00

Source: elaborated by the author / IBGE, 2000

Table 2 – Percentiles of the CATs in the different social-spatial typologies – 2000

Social-occupational categories (CATs)	Social-spatial typologies						
	Superior	Medium superior	Medium	Popular-proletarian	Inferior	Popular-Peripheral	Rural
21 - great employers	3,22	0,53	0,51	0,13	0,11	0,12	0,12
22 – public sector managers	0,87	0,45	0,23	0,08	0,09	0,15	0,19
23 – private sector managers	2,39	0,53	0,39	0,15	0,13	0,17	0,22
41- autonomous graduated professionals	5,49	2,12	1,32	0,66	0,54	0,51	0,31
42 - employed graduated professionals	9,22	4,22	1,81	1,27	0,86	0,56	0,37
43 - statutory graduated professionals	3,09	1,59	0,66	0,28	0,16	0,22	0,13
44 - university professors	4,19	3,23	1,36	1,25	0,68	0,87	0,37
31 - small employers	6,64	3,21	1,68	1,36	0,90	0,84	1,10
51 - office occupations	8,46	12,21	5,14	8,63	5,83	4,28	3,04
52 - supervising occupation	6,15	4,61	2,64	3,14	2,08	2,91	1,87
53 – technical occupations	6,39	7,12	4,14	5,04	3,36	2,74	1,42
54 - medium occup. health & education	2,79	5,38	3,29	5,24	3,74	3,47	3,38
55- occupation security, justice & post	1,99	2,32	1,18	2,06	1,23	1,02	0,46
32 – occupations in art and similar	1,39	1,48	1,03	1,29	1,27	2,07	2,22
71 – workers in the modern industry	0,84	2,69	3,17	4,63	4,55	4,34	2,67
72 - workers in the traditional industry	1,88	5,98	5,36	12,00	10,02	17,87	8,41
73 - workers in the auxiliary services	1,04	3,23	3,14	5,27	5,25	8,85	5,16
74 - workers in construction	1,74	3,13	9,08	6,37	10,97	7,73	8,74
61- workers in commerce	7,77	10,97	9,54	11,84	11,13	8,26	6,59
62 – specialized services renders	4,89	8,60	14,13	11,45	12,53	8,75	7,25
63 – non specialized service renders	1,99	3,32	6,82	4,96	6,71	4,66	3,57
81 – house workers	15,42	8,56	14,19	6,28	9,76	8,15	10,00
82 – wanderers and garbage pickers	1,78	4,23	5,23	5,90	6,97	5,72	3,92
10 – agriculture workers	0,39	0,28	3,97	0,72	1,13	5,75	28,46
Total	100,0	100,0	100,0	100,0	100,0	100,0	100,0

Source: elaborated by the author / IBGE, 2000

Superior Typology: This typology comprehends areas with greater homogeneity in its landscape, gathering the intensely verticalized spaces of the FMR. Concentrated in the coastal part East of downtown, and in the surrounding neighborhoods, this typology has in its form the juxtaposition of residential areas with better standards, articulated by roads that concentrate better services and commerce in the FMR. Holder of the best conditions of mobility and accessibility to services and the urban infrastructure network, this typology is the greatest target of the real estate market whether turned to the residential use of the dominant groups, as for enterprises in the touristic sector.

The social-occupational continents of the superior typology are marked by the greater density of the managers, intellectuals and small employers regarding to the other typologies. Extremely concentrated, these occupations represent more than a third of the total amount of working people in the typology in percentiles. Observing the social-occupational data for this typology, we can perceive the association between better opportunities of work and access to college to the social groups formed by the categories mentioned above, becoming evident their exaggerated spatial concentration, as well as the tendency to maintain and perpetuate this segregation. It is remarkable that the house workers also emerge in this typology for their bigger density, being as well the one with greater percentile related to the other categories, coming to more than 15% of the working population. The concentration of this category in this typology indicates, in one hand, the search to diminish the need of dislocation of the house workers, and on the other, the increment of the daily working hours, characterizing the continuance of the precarious forms of the labor relations. However, since there are new offers from the real estate market to the superior typology, we can conclude the tendency of dispersion of this category in the peripheral neighborhoods and in irregular occupation next to the working place, including mass inhabitations, forming real tenements inserted in the slums. We can say that few occupations last long in these typologies, which were removed in the last decades due to management programs.

Medium-superior Typology: Includes areas located along side the road axels from the traditional downtown in Fortaleza, going to the West, Southwest and South of the FMR. Besides the residential use, it is clear to us the increment of the tertiary linked to the demographic condensation West of the FMR. Like the superior typology, we have here strong evidence that the accessibility to the urban services and transport also makes this type a preferential target of the real estate market. Among the transformations in process, we can notice: the increment of the offers to groups with purchasing power relatively superior substituting the late owners; the attending to a differentiated demand recently incorporated to the market, increasing in consequence the social segregation of those in the superior typology. The densities of managers and intellectuals, when compared to the other types, indicate that this correspond to a first alternative related to the residence location. However, differently from the superior typology, we can notice a greater occupational diversity, once the medium occupations and the workers of the tertiary sector specialized, present greater representativeness in the typology, grouping more than 50% of the working people. The proximity to the working place, as well as to

the urban benefits concentrated in the superior typology contributes to the differentiated conditions of this type in its localization in the intra-urban of the FMR.

Medium Typology: Though it gathers few areas, we do not verify homogeneity in its composition, turning into a diversified landscape. The presence of vacant urban spaces, liable to the expansion of the real estate market, such as the occurrence of slums juxtaposed to condominiums and lots with beach houses contribute to this situation. In the case of the coastal areas of the East part, located in Fortaleza next to the superior typology, we can observe that the recent increment of slums opposes to the recent public investments made as circulation systems leading to that sector of the city. In other areas to the Southeast we have the presence of real estate investments as small condominiums attending to the emerging demands. Furthermore, in the areas located in the surrounding cities, where occurs an expansion of condominiums and hotels, we can verify a differentiation between the areas located to the East and to the West. Verifying the tendency of occupation of the eastern areas by managers, intellectuals and small employers, though in the other, we can see a disorganized process of occupation, such as the occupation of the former beach apartments as definitive residence.

The density of house workers and construction workers state the strong expansion of the incorporation market. Equally, the density of managers, intellectuals and small employers, when compared to the others, indicate this type to be one of the preferred in these categories, attesting the dispersion of these groups in the East outskirts of the FMR, where the condominiums represent the dominant way leading to the a conurbation of Fortaleza with the surrounding cities. The presence of medium and specialized tertiary occupations along side the tertiary axels to the East and to the Southeast portrays the social-inhabitational diversity of this typology. The presence of inhabitational sets and lots from the 1970's, as well as irregular occupations in the interstices of this typology attest this ascertainment. However, the implantation of the infrastructure and the diffusion of specialized services tend to drive these categories to more distant areas, as the popular spaces. We can also say that the proximity with the Port and its industrial sector, as well as the climate conditions lead the East coast areas to stagnation; having there been the expansion of the slums, predominantly occupied by people with non specialized activities. Associated to this, there is the seasonality of the tourism, once the greater attractions and leisure areas are in this type, turning the commerce and the informal services a surviving alternative to great part of the population.

Popular-proletarian Typology: it has as main characteristics the presence of huge social housing groups and illegal settlements associated to the greater industrial concentration, as for its proximity, as well as for the location along side the great road axels between downtown and the outskirts where the secondary sector is settled. The best living conditions of these sets, compared to other popular areas, as well as the facilitated mobility to central areas and working places, is associated to the high percentiles of workers of modern and traditional industries, of the medium occupations and of the specialized tertiary, who are the greater part of people of this type.

When compared to the other typologies, we verify the greater densities for occupations of modern industry and of the specialized commerce in the FMR. Anyhow, we can observe that the traditional industry prevails over the modern one, regarding to the percentile of these categories in the typology, there being 12% of the working people in the traditional industries and about 4,6% in the modern ones. Once great part of the areas is located in Fortaleza, it is possible to appoint the preference of the modern industries for the peripheral cities of the FMR, which offer taxes advantages to the entrepreneurs of the sector. On the other hand, the traditional industries that remain without adopting any technological innovation in its production still have a good number of jobs, although with lower salaries. Besides the social-occupational diversity of the medium, tertiary and secondary categories, the social segregation scenario is evident, calling the attention to the little representativeness of the social-occupational categories of managers, intellectuals and small employers that together are a little more than 5% of the total of the working population.

Inferior Typology: This typology intertwines the central spaces of the metropolis to the outskirts, having the urban rivers as its structuring elements. Interpolating to the corridors of the popular-proletarian typology that link the production areas to the central spaces, this typology is subdivided into compartments with fragments of high density next to the center, opposite to others less dense in the outskirts of the FMR. Picture of the absence of policies for the urban environmental control for the margins of the rivers in the FMR, this typology indicates the interconnection between the precarious housing conditions and territorial exclusion. On the side of concentrating shanty towns at risk situation, presents the greatest densities of workers of survival, once some of these areas are known as the origin and the destination of routes of garbage-pickers, who symbolize the extreme situation of the inferior *circle of the metropolis' economy* (SANTOS, 1979). The occurrence of more than 10% of the working people in the traditional

industry and of 11% in the construction sector, both considered to be low income areas, characterizes this typology, which is characterized by the gathering of poorer groups, associated to the infrastructure needs and difficulty of dislocation. We can also detach the specialized tertiary and the house workers showing themselves in percentiles that are representative in the total of the occupations in the inferior typology.

Popular-peripheral Typology: This social-spatial type formed by areas outside the main city of the FMR presents in its composition wide areas that correspond to the total of the area in some cities. Strongly associated to the process of productive restructuring of the secondary sector, these areas lodge the periferization of the industry and the proliferation of the popular allotments occurred since the late 1990's. The foreseen road conveniences, as much as the low cost handiwork offer and the availability of low cost land, lead to the spatial redistribution of the population, forming a demographic growth vector in this direction. The presence of more than 30% of the workers in industries, associated to the greater densities of traditional industry and auxiliary services could be associated to the abandonment of the traditional industry corridors of the popular-proletarian type in Fortaleza.

Rural Typology: Because of its extended dimensions and its patterns for territorial occupation turned to the agricultural production, the rural typology appears as the less dense of the FMR. The percentile superior to 28% of the working population in agricultural activities justifies its denomination, which aggregates the field workers, as well as the fishermen on the beach. However, since its physical-natural aspects, we have a sub-division of it into two groups: coastal areas, target of lots for a second residence, which social-environmental reality of its traditional communities has been transformed by the predatory practices of the real estate market; extended rural zones subdivided into dry areas used by agriculture of subsistence and small farms in the mountain parts. Comes to the attention the presence of building workers, who are associated to the public works of infrastructure realized in these areas, as much as the expansion of the real estate sector linked to tourism. In the same way, we have that 10% of the working people are house workers, distributed among jobs in beach houses and in farms.

3. Social-spatial disparity and the housing subject in the FMR

Several are the possibilities to establish the inter-relations among the social-spatial typologies and the life conditions of the population, in the sense of characterizing better the social intra-urban structure in the FMR. Opting for secondary variables leads us to

perceive other differences among the social types, as well as disparities among the fragments that from them. In this sense, we will adopt **the housing condition as the variable that shows the inequality of the urban spaces**, specially regarding to the following aspects: **the inhabitational deficit; inadequacies of the residence; lacking of urban infrastructure; access to the urban land and the precariousness of the land market in the metropolis**. Taking the data from IBGE/2000, we start with the questions: what is the regularity existent between the proposed social-spatial structure and the estimated inhabitational deficit? Is there an interconnection between the social division of the space and the inequality of the distribution of basic sanitation services? How does the distribution of the areas considered to be subnormal happen, as well as the distribution of the inhabitation in precarious land situation throughout the social-spatial hierarchy? As a methodological resource to this phase we adopt as procedure: reading the data given by the tables that indicate the percentile for social-spatial type; the analysis of the thematic maps characterizing the FMR from the classification of the areas for the data ponderation as to the respective percentiles to each indicator we used.

3.1 Housing deficit

The Fortaleza Metropolitan Region presents a inhabitational deficit of 85.570 domiciles, mainly concentrated in the capital (75,8%) and in the most populous cities: Caucaia (6,5%) e Maracanaú (5,7%), which present processes of conurbations that area more consolidated with Fortaleza.

As characteristics that attest the deficit situation, we used: co-inhabitation, the improvised domicile made out of rustic materials and the residence in rooms that were lent or rented. According to table 3, the greater representatives of the deficit correspond to families that live together, with more than 92,5% of the total of domiciles. It is possible to assume that the inhabitational deficit presents lower intensity in the superior typology compound by areas in which we observe the greater density of working people as managers, intellectuals and small employers, where the real estate market is more consolidated. However, the inhabitational deficit is also diminished in the typologies formed by areas that are more distant from downtown: inferior, popular-peripheral and rural, with greater percentiles of working people in the traditional secondary sector, in construction, in auxiliary services, in agriculture, especially in those activities with lower incomes, leading to a lower presence in the formal real estate market.

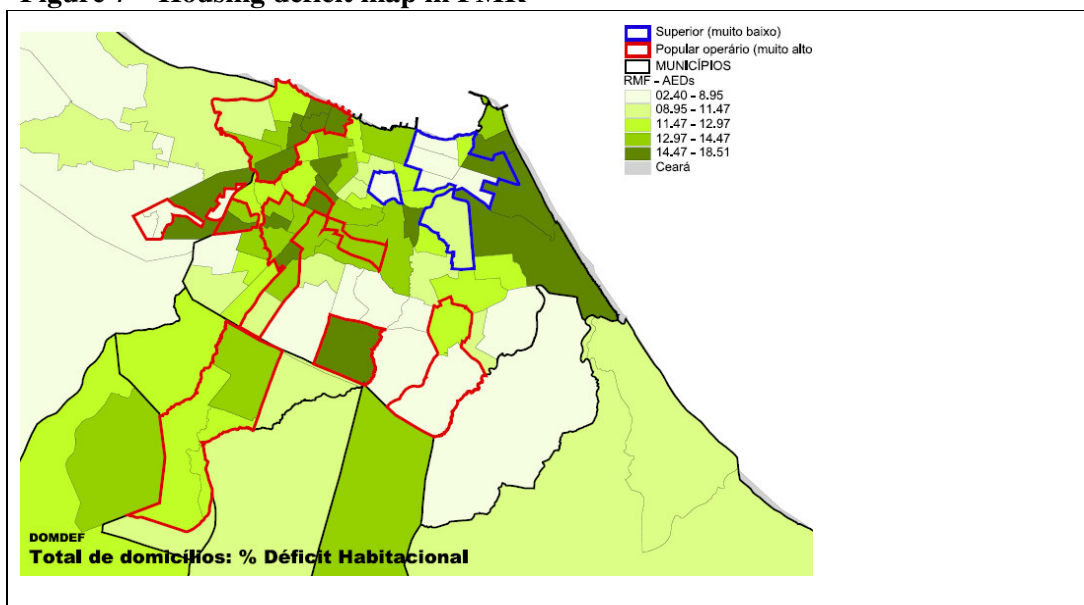
Table 3 – Housing deficit indicators - 2000

Typology	Total of houses	Housing Deficit		Families living together		Improvised domiciles		Lent or rented precarious rooms	
		total	%	total	%	total	%	total	%
Superior	47680	4238	8,89	3598	84,90	272	6,42	368	8,68
Medium-superior	112696	13888	12,32	12842	92,46	424	3,05	622	4,48
Medium	52790	6796	12,87	6028	88,70	346	5,10	422	6,20
Pop.-proletarian	222961	29752	13,34	27972	94,01	585	1,97	1196	4,02
Inferior	184830	20193	10,93	18618	92,20	820	4,06	755	3,74
Pop.-Peripheral	45959	5193	11,30	5022	96,70	83	1,60	88	1,70
Rural	56280	5508	9,79	5094	92,48	229	4,16	185	3,37
Total	723197	85570	11,83	79174	92,53	2760	3,23	3636	4,25

Source: elaborated by the author / IBGE, 2000

We observe that the medium-superior, medium and popular-peripheral typologies, which present the greater densities of medium and specialized tertiary activities, indicate the greater inhabitational deficit in percentiles, surpassing the average in the FMR. Turning in its majority from the condition of families living together, we point to aspects that deserve a better investigation: - the low offer of houses for rent; - the attempt of saving for a future investment in a better house; - the inability of paying the rent in the areas of the superior typology where there is a greater offer of residences.

Figure 7 – Housing deficit map in FMR



Source: elaborated by the author / IBGE, 2000

We have to say that these typologies regarding to the inhabitational provision, could be classified in two categories: - the medium-superior and medium typologies where the real estate market is expanding in a more promising way, whether substituting the rent, or attending to the demand for areas of expansion of the condominiums for the spatial segregation; - the popular-proletarian typology, where the public policies of social housing were more intense in the 1970's and the 1980's, as the infrastructure and the plot dimensions allow the expansion of the house, turning co-inhabitation a typical process in areas with medium, secondary and tertiary occupations.

Figure 7 presents the predominance of areas with a lower inhabitational deficit in the superior typology, where the real estate market has been even more present. On the other hand, we observe that in the case of the popular-proletarian typology, the concentration of areas with greater percentiles, especially in the areas next to downtown, with com predominance of the social housing sets, for this reason denser and with better urban infrastructure than the others.

Table 4 – Indicators for inadequate housing conditions - 2000

Typology	Total of houses	Domiciles with up to 3 rooms		Density superior to 3 people per room		Domiciles without bathroom		Inadequate urban infrastructure		Precarious land ownership	
		total	%	total.	%	total	%	total	%	total	%
Superior	47680	2561	5,37	5618	11,78	1120	2,35	10538	22,10	2874	6,03
Midi.superior	112696	13227	11,74	24248	21,52	5402	4,79	45833	40,67	8234	7,31
Medium	52790	11307	21,42	19076	36,14	13250	25,10	40387	76,50	13184	30,92
Pop.proletarian	222961	35337	15,85	75562	33,89	26905	12,07	139126	62,43	23250	10,43
Inferior	184830	43489	23,53	77991	42,20	35313	19,11	140413	75,97	30210	16,34
Pop.peripheral	45959	8893	19,35	17786	38,70	16806	36,57	33399	78,07	4820	10,49
Rural	56280	12122	21,54	21449	38,11	29884	53,10	35803	96,73	5197	9,23
Total	723197	126935	17,55	241731	33,43	128681	17,79	445498	63,58	87767	12,14

Source: elaborated by the author / IBGE, 2000

Table 4 has in its contents data that attests the domiciles inadequacies of the inferior, popular-peripheral and rural typologies, though they do not have significant inhabitational deficit. From this comes up the question if the ways of inhabitation used by the poorer people of the metropolis, though inadequate, could come to be disregarded of the demands, or even, if the inhabitational policies turn to have a better focus on the urbanization of these precarious lots, granting better housing conditions with the legalization of the land possession, the implantation of infrastructure and

improvements in the residences. In this sense, the following topics try to discuss the condition of the urban infrastructure and of the land irregularity associated to the proposed social hierarchy.

3.2 Intra urban structure and the urban infrastructure inadequacy

When it comes to accessibility to the infrastructure networks, the analysis of the social-occupational structure of the FMR considers as main hypothesis the direct relation between the precariousness of the basic sanitation and the areas denominated popular or inferior, where the managing elite, the intellectuals and the small employers would not be concentrated. The same way, we try to find evidences of the possible expansion of the benefits of the urban services to the surrounding areas, verifying if there occurs or not a better condition for the access to the infrastructure network to the popular areas next to the superior and medium-superior typologies, comparing to the others, located in the outskirts of the FMR.

Table 5 – Indicators of the inadequacy of the urban infrastructure, 2000

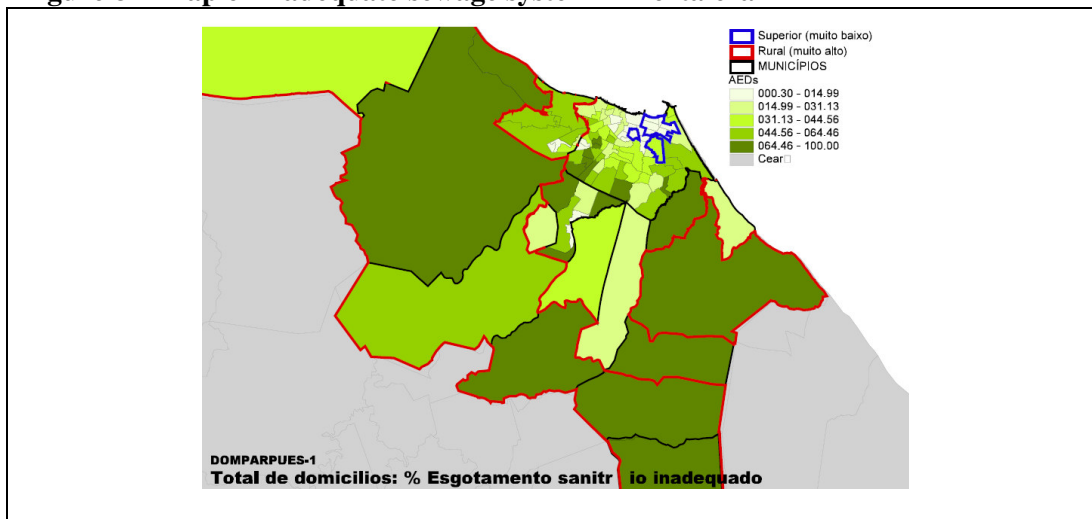
Typology	total of houses	Urban domiciles		Inadequate water supply		Inadequate sewerage system		Inadequate garbage collecting		Inadequate energy supply	
		total	%	total	%	total	%	total	%	total	%
Superior	47680	47680	100,00	3766	7,90	3134	6,57	829	1,74	827	0,08
Medium-superior	112696	112696	100,00	12954	11,49	22553	20,01	1908	1,69	1906	0,46
Medium	52790	52790	100,00	23685	44,87	25766	48,81	9207	17,44	9189	1,21
Popular.proletarian	222961	222842	99,95	43747	19,63	77046	34,57	7475	3,35	7472	0,50
Inferior	184830	184830	100,00	40802	22,08	100191	54,21	19101	10,33	19091	0,92
Popular.Peripheral	45959	42783	93,09	19417	45,38	22220	51,94	6902	16,13	6886	2,83
Rural	56280	37013	65,77	29460	79,59	27777	75,05	14623	39,51	14584	9,89
Total	723197	700635	96,88	173830	24,81	278686	39,78	60044	8,57	60036	1,51

Source: elaborated by the author / IBGE, 2000

The analysis of the chart of the social-occupational typologies as to the access to the infrastructure network of the Fortaleza Metropolitan Region, present in table 5, leads us to the understanding of a strong correlation between the inadequate conditions of sanitation and the popular-peripheral, inferior and rural typologies where we can verify the concentration of social-occupational non specialized categories of the industrial, commercial and services sectors, besides the agricultural occupations.

In the same way, we confirm that the adequate attending conditions to the superior and medium-superior typologies, bringing privilege to the managing and intellectual social-spatial categories which are concentrated there, such as the medium occupations. We have to make clear the strong interaction between the real estate market and the social-spatial hierarchy, differentiating the types as to the accessibility to the infrastructure network, the location of the FMR and the availability of areas for its expansion. The superior typology, though privileged, when concentrating the verticalization indicates the necessity of supplementary capacity of the urban infrastructure network, in the detriment of the areas that are worst attended to in the other typologies, favoring the land owners and the real estate speculation. We can certify that the real estate market in free expansion, comes to reach the areas of the medium-superior typology, where the infrastructure is already installed, enlarging its enclosure over the metropolitan territory, including new areas located to West of the traditional downtown with easy access by roads.

Figure 8 – Map of inadequate sewage system in Fortaleza



Source: elaborated by the author / IBGE, 2000

The popular-proletarian typology, though it has a predominance of the medium, secondary and specialized tertiary occupations, indicates very satisfactory values, surpassing the average of the metropolis. Some of its areas come even to surpass the rates of superior typology in the social hierarchy, especially the ones that had their origin in great social housing sets of the 1970's and 1980's, indicating the heterogeneity present in this social-spatial type. Even in the case of the medium typology, where we can verify the housing precariousness and the inadequacies of its infrastructure, it is

clear that there is already a new pattern of attending, with decentralized sewerage treatment unities, in the dimension of the condominiums and hotels that are yet to be implanted, besides the benefits gained regarding to roads structure, increasing the land value and favoring social groups where determinate categories are not dominant.

Comparatively, we can perceive that the sanitation has its worse situation in quantitative terms, especially in the most peripheral typologies and with the gravest environmental situation. The farther from the central areas, and consequently from the social-spatial superior and medium-superior typologies, the worst will be the conditions of inadequacies of these urban services. The situation is even more critical in the case of the inferior typology, which has as predominant characteristics: excessive density, land precariousness, small domiciles and the lack of sanitary; is a more inadequate situation for the infrastructure network (see table 5). Considering the exponential growth of the areas at risk in the margin of the urban rivers, we can attest that the inferior typology needs greater attention in posterior studies.

It is possible to say that the areas of a typology have influence over the others, in an adjoining situation, as to the better adequateness of the infrastructure network. In the case of areas next to the ones best provided with the services, we can verify the extension of the attending to the surrounding areas, diminishing gradually the effect of proximity as we get farther from the central areas. Anyhow, we can say that in the peripheral areas where the social interest inhabitational programs developed by the National Bank of Housing (BNH) and State Companies of Housing (COHABs) in the 1970's and 1980's, endowed with every infrastructure, exercise a positive impact over the adjacent areas, incorporating them to the demands attended by the networks and the decentralized treatment stations implanted in the past.

According to the figure 8, the sewage systems brought many benefits to the families of the superior typology, place of greater density of managers and intellectuals, as in the surrounding areas, where the same categories predominate. Besides that, we can verify a gradual decrease of the adequateness of the sewerage as we go in direction of the periphery, exception made to the social housing settlements that in the past contributed with the induction of the urban growth in that direction.

3.3 The social-occupational intra urban structure and the favelas in the FMR

Considering the social production process of the intra urban space in the FMR, the implantation of *favelas*, Brazilian name for squatter settlements, as one of its main phenomena, notably in the cities conurbed with Fortaleza. The impoverishment of the population, unable to pay the rent, as much as the permanent flow country-city has lead to an acceleration of this process in the last years, turning the risk areas the greater challenge of the institutions working on the housing issues.

When we analyze the location of the subnormal conglomerates identified by the Brazilian Institute for Geography and Statistics (IBGE), it is possible to verify a scenario of degradation of the natural resources and the migration to the peripheries of lower purchasing power people, who seek in the irregular occupation of the land the solution to their dwelling problem. To analyze the process of the beginning of the favelas in the FMR, will be used as indicators the percentile of families living in abnormal conglomerates and the percentage of domiciles that declared the ownership of the house without the ownership of the terrain. ²

In terms of percentiles, we can observe that the medium typology presents the greater rates of subnormal conglomerates and of houses without the possession of the land, being in fact more than double of the total of the FMR. Considering that the composition of this social-spatial typology gathers the coastal areas and the Southeast areas in Fortaleza and in the surrounding cities, where the real estate market of condominiums and the touristic enterprises are expanding with great intensity, we can predict a conflicting scenario in the future. We believe that investments of urban developers directed to the categories of the managers and intellectuals will come to displace most of the larger and most occupied squatter areas, whose inhabitants have in the proximity with the working place an enormous benefit.(table 6)

Table 6 – Indicators of the land ownership precariousness

Typology	Total of domiciles	subnormal conglomerates		Ownership house without possession of the land	
		total	%	total	%
Superior	47680	3623,7	7,6	2874	6,03
Medium-superior	112696	8226,8	7,3	8234	7,31
Medium	52790	12142	23	13184	30,92
Popular- proletarian	222961	29431	13,2	23250	10,43
Inferior	184830	25691	13,9	30210	16,34

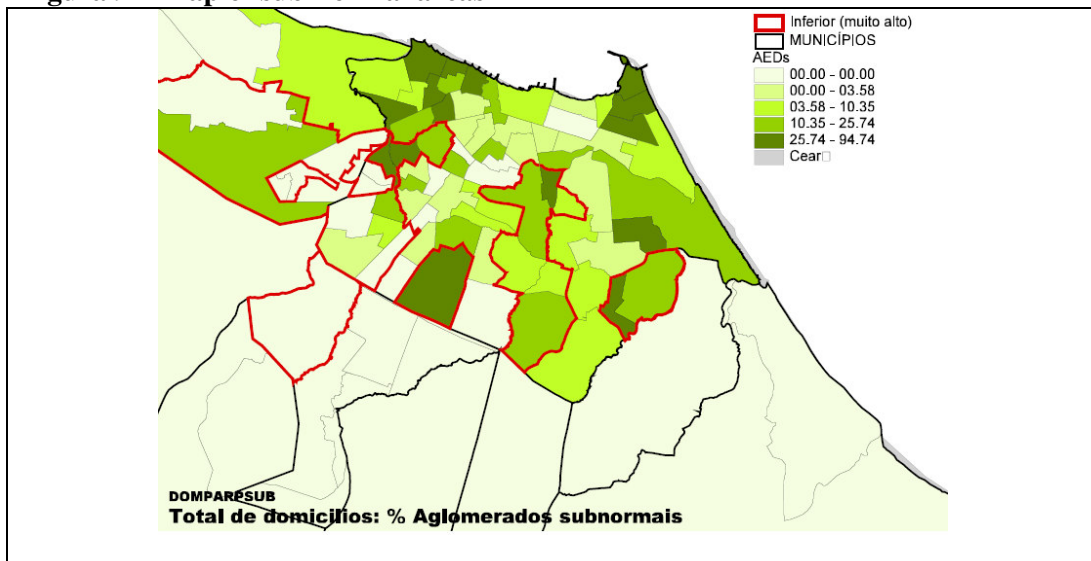
Popular-Peripheral	45959	0	0	4820	10,49
Rural	56280	0	0	5197	9,23
total	723197	79552	11	87767	12,14

Source: elaborated by the author / IBGE, 2000

The popular-proletarian and inferior typologies also present significant percentiles of subnormal conglomerates, surpassing the average rates in the FMR, indicating the presence of shanty towns in these social-spatial typologies, though in a different situation when it comes to the social-spatial hierarchy. From this we can ascertain the presence of favelas with better location and better opportunities in the metropolis than others, since the popular-proletarian typology has among other characteristics: proximity to working places; the best attending in terms of the infrastructure and urban mobility. The inferior typology, on the contrary, gather the most precarious squatter settlements, mainly those in a situation of environmental risk, that run along the margin of rivers and lagoons, finding themselves in precarious conditions of accessibility to the basic sanitation.

In the case of the superior e medium-superior typologies, we can verify values lower than the average rates of the metropolis, once they are preferential areas to the real estate market have been during decades the main target of urban control policies and of programs for the dislocation of favelas supported by the city and state governments and almost always associated to interventions in the road system. Even though, we can verify that some areas remain, though under the pressure of the real estate entrepreneurs furnished with public private partnerships.

Figura 9 – Map of sub-normal áreas - FMR



The discrepancy between the numbers associated to the subnormal conglomerates related to those inhabitants that do not own the plot of land, in the case of the popular-peripheral and rural indicate that the squatting process is already present in the other cities of the metropolis. This happens under the form of lines of shacks in the entrance of the cities, which associate with the migratory flows from the country to the city, as to the transposition of poverty originated in the main city.

As shown in the figure 9 above, we have in the inferior typology the greatest percentile of families in subnormal conglomerates. However, it is possible to observe the presence of areas with high rates of land precariousness in two blocks of areas out of the inferior type: - in the coastal sectors to the East, which belong to the medium typology, recovering the dunes next to the industrial port sector; to the West of the central area of Fortaleza, next to the areas with intense industrial activities, portraying a real corridor of social-environmental degradation along side the coast. Both have in common the possibility of going through deep transformations due to the opening of landscape roads by the governments, as by the changes of the use forecast in the laws of use and occupation of the soil, substituting the industries with new enterprises.

A situation as grave as this can be ascertained related to the areas that are crossed by the urban rivers in Fortaleza, where lots of shanty towns are at risk of landslides and floods. Though it is partial, the presence of these communities in permanent preservation areas hinders its regularization, as its urbanization. While there is no alternative for a tenable occupation of the surrounding urban empty spaces, to be included in policies of social interest inhabitations and of urban development, we can verify the greater proliferation of this kind of precarious settlements, which give shelter to more than 20.000 families.

Final considerations

In the scenario of the social-spatial disparities present in the Brazilian metropolis, the housing subject associated to the squatter settlements has been a special way to the comprehension of the problems associated to the historic unequal development. Fortaleza represents one more case, differentiated by the acceleration and intensity of the implantation of this process in its intra urban space. The proposition of a social-spatial structure to the FMR brings along some innovating elements regarding to the understanding of the dynamics of growth and development of the FMR, through the spacialization of the concentration of determinate social-occupational categories associated to the productive use of the territory and to the housing forms.

From the differences exacerbated among extreme social-spatial typologies, to the heterogeneities of the intermediary types, we can verify a strong link of the remaining types to the location of the productive activities in the metropolitan intra urban space, as the power of the real estate market associated to the tertiary activities and to the tourism. We dismantle this way the comprehension of the dichotomist division of the metropolitan space in only two parts, undoing the myth of the torn city: one very dense and poor to the West; and other less dense and rich to the East.

On the contrary, when we visualize the dispersion of determinate social-occupational categories in the metropolitan territory, we make clear the identification of new compartments, which justify the intra urban flows and the preferences for determinate location in the city, showing new spaces of social-spatial segregation and projecting areas of greater territorial exclusion. In the same way, from the density of the social-occupational categories, it is possible to recognize the representativeness and the importance of the productive activities that are predominant in the FMR, as well as the complementarities among them, through the recognition of heterogeneities present in the different social-spatial types.

The realization of the crossing between the proposed structure and some elements that characterize the housing issues in the FMR, as a way of investigation of the spatial disparities in the social hierarchy of the metropolis, lead us to verify a critical scenario regarding to the estimative of the housing deficit, to the accessibility of the infrastructure networks and to the state of illegality of land ownership.

The concentration of the dwelling deficit in the medium-superior and popular-proletarian types, areas with greater demographic density, could be associated to the lower purchasing power of its social-occupational predominant categories, in this case

the medium, of the tertiary and of the secondary. On its turn, the predominance of these same categories at more peripheral areas, where the inhabitation policies were more positive, indicate the tendency of the appropriation of the lots by these social groups, substituting the original beneficiaries. With this, we can shape the hypothesis that has been more and more propagated of the occurrence of pressure of the intermediary classes in these areas, resolving its incapacity of access to the formal market, using the appropriation of lots of inhabitations, as well as the evidences of the presence of informal market in these lots. New alternatives formulated by the National Inhabitation Policies, as well as the residential lease programs and the downtown rehabilitation programs for housing, tend to furnish in part these demands.

The emphasis given to the superior and medium-superior typologies in the provision of urban infrastructure confirms the supposition of a privileged attending to, most importantly regarding to the basic sanitation. The concentration of investments in construction in the superior social-spatial type, as well as the signs of new enterprises in the medium-superior typology, attests the combination between areas with the adequate infrastructure and the proposed social hierarchy. On its side, in the medium typology, facing the expansion of the touristic real estate sector, since the dispersion of its occupation, spreading the use of decentralized unities for sewerage treatment and water supply from artesian wells, and the costs are poured out to the customers.

In the peripheral spaces, exception made to the areas formed predominantly by social housing settlements inserted in the popular-proletarian typology, we can observe a picture which associates the lack of infrastructure and precariousness of the land. From this we can ascertain the importance of the formulation of policies for land regularization and sustainability, where the land ownership comes accompanied with the implantation of the urban infrastructure and services, as a way to diminish the social-economic disparity existent between the socio-spatial typologies of the FMR.

As to the popular-peripheral and rural types, composed only by areas of the municipalities of the FMR adjoining Fortaleza, we have a picture of occupation that is spread in the agricultural sectors, there being a greater demographic density in the centers and localities. We can say that the inadequate conditions of the urban infrastructures proves not only the differences of the occupation patterns of the land, but also, the low integration levels of these areas with the remaining areas of the metropolis. On its side, the recent industrialization of these cities, which are not well provided with

infrastructure, indicate a preoccupying scenario due to the migratory flows, mainly with the certainty of the precariousness of the land situation presented here.

In short, face the reading of the social structure of the FMR; we can ascertain that its recent economical re-structuring associated to great public works, points to the urgency in the formulation of processes for regional planning, from where would be pointed development policies that would help to hinder the propagation of the problems that exist today in the peri-urban areas. As this being a question of a study in the metropolitan scale, we verify the importance that mechanisms of cooperation between the cities come to be established, in the sense of trying to diminish its impacts and to increase the institutional integration levels between the cities of the FMR.

Bibliographical References

- BOGUS, L. e PASTERNAK, S., **São Paulo como patchwork: unindo fragmentos de uma cidade segregada (São Paulo as a patchwork: joining fragments of a segregated city)**, Cadernos Metr pole, N. 1, p. 43-98, S o Paulo: EDUC, 1999.
- LAGO, L. C. e RIBEIRO, L. C. Q., **O Espa o social das grandes metr poles Brasileiras (The Social Space of Greater Brazilian Metropolis)**, Cadernos Metr pole, N. 4, p. 173-203, S o Paulo: EDUC, 2000
- MARICATO, E., **Brasil, cidades (Brazil, Cities)**, Petr polis: Editora Vozes, 2001.
- PEQUENO, Renato, **Desenvolvimento e Degrada o no Espa o Intra-urbano de Fortaleza (Development and Degradation of the Intra-urban Space in Fortaleza)**, Tese de Doutorado, FAUUSP, S o Paulo, 2002
- RIBEIRO, Luis C sar de Queiroz, **Metr poles: Entre a Coes o, a Fragmenta o, a Coopera o e o Conflito (Metropolises: Between Cohesion, Fragmentation, Cooperation and Conflict)**, Editora Funda o Perseu Abramo, Rio de Janeiro, 2004
- SANTOS, Milton, **O Espa o Dividido (The Shared Space)**, Editora Francisco Alves, S o Paulo, 1979.
- VILLA A, FL VIO, **Espa o Intra-urbano no Brasil (Intra-urban Space in Brazil)**, Studio Nobel, S o Paulo, 1998

¹ The Rede de Pesquisa Observat rio das Metr poles gathers 12 different research settlements, which has been developing, since 1997, studies associated to the state of the inequalities and the management and govern problems in the Brazilian Metropolitan Regions.

² At once it is necessary to make an exception related to these indicators, since the IBGE considers only the settlements with more than 50 residences, and that not all the people interviewed admit the illegality regarding to the land possession, omitting the information. For a better notion of the discrepancy among this data, in the last slum census realized in Fortaleza in 1991, the results were the presence of 314 occupied areas, while the IBGE appoints a total of 154 in the last census.