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COVID-19 IN TERESINA: SOCIO-SPATIAL ASPECTS X MEASURES TO FACE THE WEAKNESSES

COVID-19 EM TERESINA-PI: ASPECTOS SOCIOESPACIAIS X MEDIDAS DE ENFRENTAMENTO DAS FRAGILIDADES

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Abstract

This article addresses the socio-spatial aspects of the dissemination of Covid-19 in the urban territory of Teresina-PI, as well as measures to face the weaknesses, focusing on low-income peripheral territories. Based on some urbanization variables existing in the territory, recorded in official census research data by IBGE and Teresina City Hall, a brief presentation of the local reality is made, pointing out the current uneven development condition in Teresina. Associated with this data, an analysis is made of the disease progression in the urban territory and of the decrees promulgated by the public authorities adopted as measures to face the pandemic. To do this, in addition to the official data from the city hall and the state government, there was information provided weekly by the Municipal Health Foundation regarding cases and deaths caused by the disease. In addition to the public actions and policies, alternative actions were also analyzed considering if they reached the low-income peripheral population. To do this, in addition to the information on official websites of civil society association, some telephone interviews were conducted. The analysis of the virus propagation confirms an uneven scenario of the disease dissemination, evidencing its rapid expansion to the peripheral territory, where the population has been most vulnerable to contamination and death. An insufficiency of actions is identified and therefore a need for political incidence to defend the basic rights of residents of low-income peripheral territories.

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Resumo

Este artigo aborda os aspectos socioespaciais da disseminação da COVID-19 no território urbano de Teresina - PI, bem como, as medidas de enfrentamento das fragilidades, com foco nos territórios periféricos de baixa renda. Com base em algumas variáveis de urbanização existentes no território, pautadas em dados oficiais de pesquisa censitária do IBGE e da Prefeitura de Teresina, é feita uma breve apresentação da realidade local, apontando a condição de desenvolvimento desigual vigente em Teresina. Associado a tais dados, é feita uma análise da evolução da doença no território urbano e dos decretos promulgados pelo poder público adotados como medidas de enfrentamento à pandemia. Para isso, além dos dados oficiais da prefeitura e do governo do estado, contou-se com informações fornecidas semanalmente pela Fundação Municipal de Saúde referentes aos casos e óbitos provocados pela doença. Ademais das ações e políticas públicas, analisam-se também as ações alternativas ponderando se as mesmas alcançam a população periférica de baixa renda. Para tal, além das informações em sites oficiais das organizações da sociedade civil, foram feitas algumas entrevistas por telefone. A análise sobre a evolução do vírus confirma um cenário desigual de disseminação da doença, evidenciando sua rápida expansão para o território periférico, onde a população tem estado mais vulnerável à contaminação e ao óbito. Identifica-se uma insuficiência das ações e portanto uma necessidade de incidência política para a defesa dos direitos básicos dos moradores dos territórios periféricos de baixa renda.

Palavras-chave: Covid-19 em Teresina. Aspectos socioespaciais. Medidas de enfrentamento.

Introduction

This article presents preliminary analyzes about the spread of the pandemic in the urban territory of Teresina - PI, and the coping measures adopted to safeguard lives, focusing on the low-income population living in the peripheral areas of the city. The reflection is structured in 04 parts: The first part presents the local reality about uneven socio-spatial development in Teresina, pointing out some elements that indicate such inequality, adopting census data (IBGE, 2010) and information from precarious urban settlements (IBGE, 2019; PLHIS, 2012).

Then, associated with the income data, precarious clusters and infrastructure conditions, an analysis was made of the evolution of some socio-spatial aspects of the disease in the urban territory through the municipal and state decrees adopted as a measure to face the pandemic. This analysis was based on the records of cases and deaths from the disease since mid-March, when the disease worsened, until September 15th, 2020, totaling 06 months. To this end, the bulletins published by the Emergency Operations Committee (COE) of the Municipal Health Foundation (FMS) of Teresina were adopted as a source of analysis, which has only released case data from the urban area of the city.

Once that's done, a series of public actions and policies were analyzed in order to consider whether they have reached the peripheral low-income population. This analysis emphasizes the policies and actions created to face the socioeconomic vulnerability; whether regarding of expanding the health system; or regarding the guarantee of access to water, sewage and housing; or regarding urban mobility conditions, considering these axes as structuring and essential for reducing the vulnerability of the low-income peripheral population. Such information and data were collected on official websites of the state government and city hall and in news carried by social media. Unfortunately, it was not possible to ascertain their effectiveness and continuity with community leaders or associations.

Finally, some alternative actions to face the weaknesses were analyzed, considering the insufficient responses given by the public authorities aimed specifically at the peripheral population that is most vulnerable to the disease. Such information about alternative actions was collected through social media, official websites and telephone contacts. Highlighting a great difficulty in identifying such actions, due to incomplete, outdated information or with little reach of disclosure.

Unequal socio-spatial development in Teresina - PI

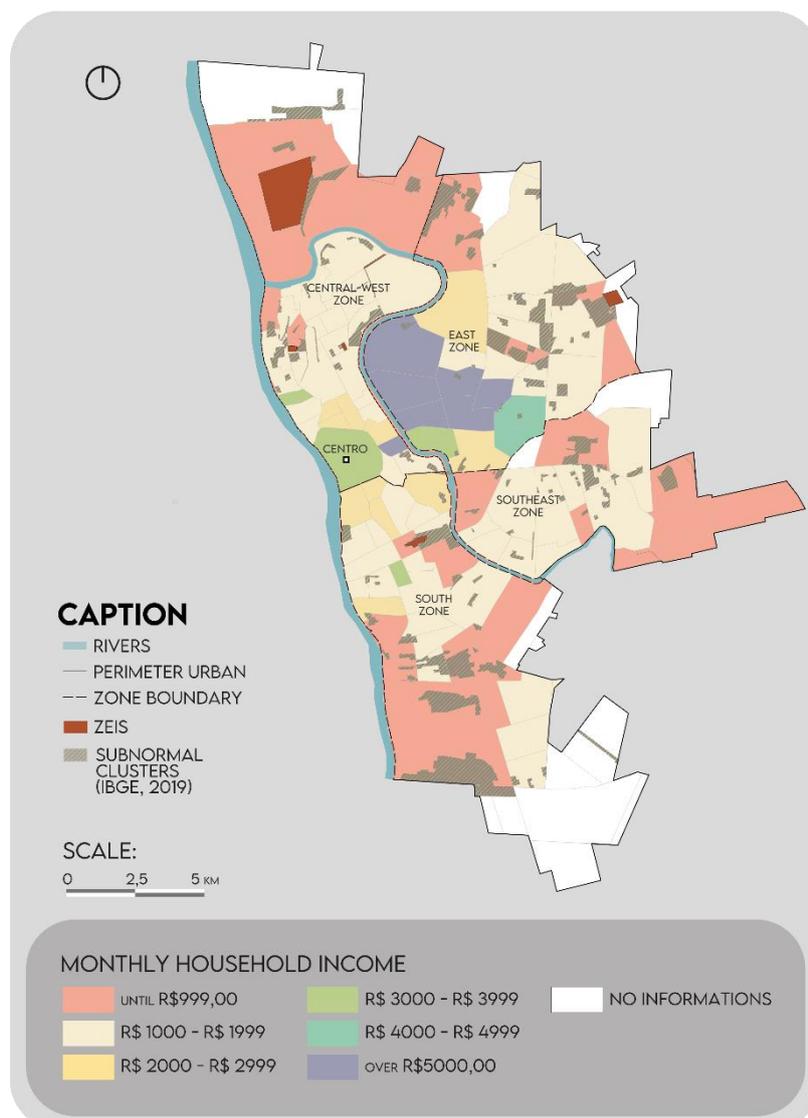
Teresina, capital of the state of Piauí, has an estimated population of 864.845 inhabitants, being the most populous among the 224 cities in the state, concentrating 26,42% of the total population of Piauí (IBGE, 2019). It is conurbated with the Maranhão city of Timon, forming an Integrated Development Region of the Grande Teresina, which gathers about 1.194.911 inhabitants, constituting the second most populous RIDE in Brazil, after Brasília.

Teresina owns 46% of the wealth of the state of Piauí, however its GDP per capita is R\$22.481,67, lower than the Brazilian average of R\$31.833,50 (IBGE, 2017). 29,3% of the population is in poverty, and the Gini index is 0,61 (Atlas of Human Development in Brazil, 2013), with an identification of increased indicators of extreme poverty, between 2017 and 2018, almost doubling the number of people in this situation, rising from 3,2% to 5,3% of the population, thus demonstrating that the city has a significant degree of social inequality.

The capital of Piauí shows signs of an uneven expansion process constituting dispersed and fragmented areas of the central urban space, under the strong influence of the Housing Policy of Social Interest - HIS. Between 1970 and 1990, under the policy of the National Housing Bank - BNH, which acted as the main agent for horizontal expansion of the city, HIS estates and subdivisions were implemented in the peripheral areas of the city, without urban infrastructure, aimed at the low income population, as Itararé, Saci, Mocambinho, and the expansion of Parque Piauí (LIMA, 2010a; 2010b).

In Teresina 94,27% of the population occupies only 17% of the urban territory (IBGE, 2010; TERESINA 2015), which presents several socio-environmental problems, such as being one of the capitals with the lowest sewage coverage, where 91,2 % of its population is without access to sanitation. In addition, 6,1% do not have access to garbage collection, and 2,8% of the population do not have access to the general water supply system (Summary of Social Indicators from IBGE, 2018).

The city is composed of 123 neighborhoods divided into four administrative regions (Center-North, South, East and Southeast), created through laws nº 2.960 and 2.965, of 12/26/2000 (TERESINA, 2000a, 2000b, 2013). When looking at Figure 01 below, socio-spatial inequality is perceived, with the highest income population concentrated in the central areas of the city (North and East Zone), and the middle and, especially, low-income population, residing in the peripheral areas.

Figure 01: Map of Administrative Division x Income x Subnormal Clusters and ZEIS

Source: IBGE, 2019; TERESINA (Household income 2010), TERESINA, 2012. Elaborated by LEU / UFPI, 2020

Regarding housing conditions, according to the Local Social Interest Housing Plan (TERESINA, 2012) there is a demand for housing in Teresina in the order of 55.305 thousand housing units, where it is estimated that the population resides in irregular occupations that present high density of buildings and poor infrastructure in approximately 200 areas spread across the city, which at that time corresponded to 19,54% of the total households living in poor communities or slums (IBGE, 2019).

The PLHIS shows that the Teresina Master Plan has not applied the instruments of the City Statute to inhibit real estate speculation, when it takes data from the 2010 Census, that there were 20.349 vacant homes in Teresina. Another contradiction demonstrated in the territory is that although in 2007 the first Special Social Interest Zone - ZEIS was created and until 2012 five more areas of the city were demarcated as ZEIS, all are in peripheral areas (as shown in Figure 01), not guaranteeing that the low-income population has the right to the city with all the infrastructure. Thus, there is an uneven development in Teresina, with greater attention to infrastructure in the more affluent and central neighborhoods, in parallel to the deprivation scenario in the more peripheral neighborhoods, signaling greater vulnerability to the context of public health crisis.

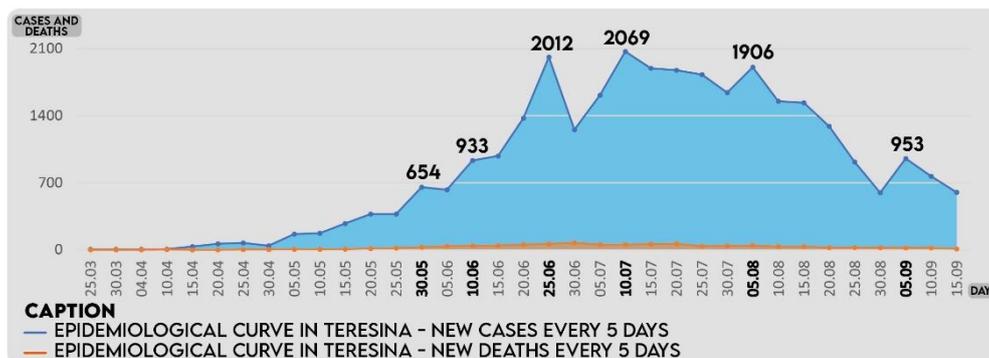
Socio-spatial aspects of COVID-19 in Teresina

Teresina's situation⁸ on 9/15/2020 was a total of 28.635 confirmed cases of COVID-19 and a total of 969 deaths, with 12.998 people already recovered (TERESINA, 2020). According to the survey released by COE/FMS, about the population profile, more than 72% of those infected by COVID-19 are between 0 and 49 years old, which may be asymptomatic cases and major transmitters of the disease for the age group most vulnerable, where the highest number of deaths was identified.

Regarding the population profile of confirmed cases, greater incidences were identified on males and on people with pre-existing diseases, who are unaware of such comorbidities until they are admitted, increasing the risk of worsening the patient's condition. Another relevant data that still needs further analysis is that, in parallel to the official data released by the COE/FMS, serological research⁹ has also been developed in the urban territory of Teresina. The results of this research affirm that the amount of contaminated is 10 times greater than the cases declared by COE/FMS in the COVID-19 Teresina Panel¹⁰.

According to information from the COVID-19 Panel¹¹, it appears that the epidemiological curve shown in Figure 02 below has several peak moments and great instability in the number of new cases and deaths related to COVID-19, among city residents and non-residents who turn to the capital in search of adequate medical care. It is noteworthy that Teresina stands out as a regional reference center receiving patients from the interior of the state as well as from other nearby states, especially Maranhão.

Figure 02: Evolution of new cases (every 5 days) of COVID-19 in Teresina (resident and non-residents).



Source: TERESINA, 2020 - Elaborated by LEU / UFPI, 2020.

According to data from the COE / FMS, the first cases of COVID-19 in Teresina residents appeared in the middle of January 2020. Due to the worsening of the disease in March 2020, the Teresina City Hall (PMT) established its first decrees, managing to contain in the first months the rapid spread of the disease until the date of 10/04, when the number of cases and deaths starts to rise (see Figure 02). The first regulated decree was n° 18.884, dated 03/16/2020, which declares an emergency situation and public health of international importance, including the suspension of all commercial, educational, religious and events activities in addition to Instituting the Crisis Management Committee.

Then, Decree n° 19.531 of 03/18/2020 was sanctioned, which provided for the following actions to face the pandemic: isolation, quarantine, compulsory medical examinations, laboratory tests, vaccination, etc; Decree n° 19.532 of 03/18/2020 with anticipation of school holidays in the

⁸ It is important to highlight that since the first notification of cases to the present moment, Teresina has been presenting about half of the cases of deaths in the entire state of Piauí. Until 09/15/2020, the state of Piauí had a total of 87.959 confirmed cases of COVID-19 and a total of 1.996 deaths (PIAÚI / SESAPI, 2020).

⁹ Regarding the serological research methodology, it has been developed by the company Opinar, which established an epidemiological reference divided into regions of influence on each of the 78 Unidades Básicas de Saúde in the urban area of Teresina, and these regions are then visited every week - on Fridays, Saturdays and Sundays. Within the regions, the locations where the tests are applied are chosen at random, totaling 900 people interviewed in that period.

¹⁰ Digital platform developed by COE/FMS of Teresina for monitoring and disclosure cases.

¹¹ It is important to note that the data presented by the Covid-19 Panel undergoes changes that are not always up to date in all data and, therefore, may present margins of error regarding the reality of the number of daily cases that may have been diluted in the numbers of accumulated cases, presenting a curve much smaller than reality.

municipal public school system; and Decree nº 18.901 of 03/19/2020 with suspension of commercial activities, maintaining only essential services by Decree nº 18.902 of 03/23/2020¹².

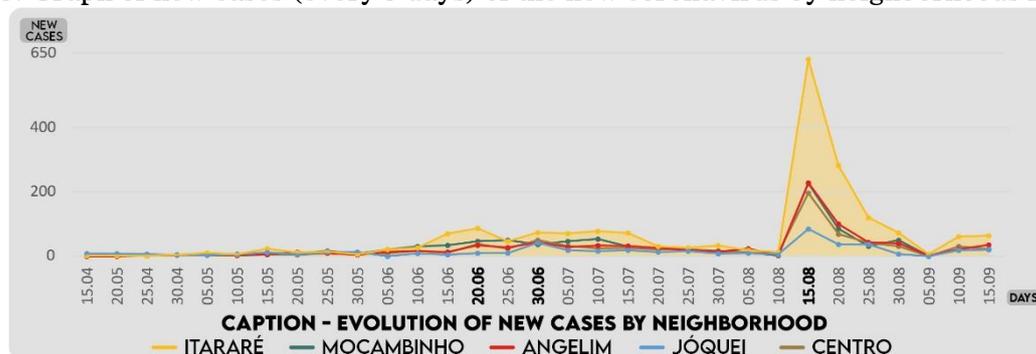
In the same period, it was decreed the suspension of free of charge for the elderly in the municipal public transport system and a decrease in the bus fleet to 30%¹³ (Decree Nº 19.541 of 03/23/2020), aiming to inhibit the use by the population at greatest risk. However, it is estimated that this measure may have hindered access to health facility and food security for informal workers who live in low-income peripheral areas and need to move to the city center in search of daily survival.

From the reading of the epidemiological curve presented in Figure 02, it can be seen that, even with the isolation measures adopted by the municipal and state decrees, it is still on the rise, reaching the peak of 2012 new cases and 343 accumulated deaths on 06/25/2020. Still at the end of June, there was a drop, but then that number went up again, reaching 2.069 new cases and 527 deaths on 10/07/2020. It is possible that this increase in cases and consecutive deaths is also related to the easing of social distancing through Decree nº 19.886 of 7/3/2020 that established the Plan for Gradual Economic Recovery from 06/07/2020.

The decree of flexibilization and resumption of the economy signals the safe construction of the economic recovery in four phases¹⁴, however, when looking at Figure 02, it can be seen that the number of new cases increases again from the beginning of August reaching 1.906 new cases and 775 deaths on 08/05/2020, although falling again until the beginning of September, when there is once again an increase in the number of new cases. According to COE/FMS, this increase in August was also the result of the care of patients coming from the interior, who account for approximately 30% of the total cases attended in the capital.

It is important to highlight that although Figure 02 shows a drop in new cases in Teresina from mid-August, if we analyze in parallel some low-income peripheral neighborhoods, we can see a significant growth reaching 650 new cases in the Itararé neighborhood low-income periphery, although soon afterwards there was also a drop in the number of new daily cases. (see Figure 03).

Figure 03: Graph of new cases (every 5 days) of the new coronavirus by neighborhoods in Teresina



Source: TERESINA, 2020 - Elaborated by LEU / UFPI, 2020.

Looking to discover how the disease has spread across the city, five neighborhoods with the highest number of cases were identified (in Figure 03) and it is not by chance, that of these neighborhoods, three are low-income and peripheral: Itararé in the Southeast, with Monthly Income per Household - MI/H of R\$1.260,00, which since the May disclosure until the moment, has stood out

¹² Several other decrees were adopted, including the state Decree nº 18.972 of 05/05/2020, which instituted the Programa Emergencial de Busca Ativa Covid-19 (Emergency Active Search Program Covid-19), in order to establish, in cooperation with the municipalities, teams active search to promote the screening of people infected by Covid-19. It stands out that, together with the suspension of public and private school classes, the suspension of the student pass was decreed, referring to the use of municipal public transport, until the resumption of face-to-face classes (Decree nº 19.635, of 04/08/2020)

¹³ The measures were decreed before public transport workers announced a strike, demanding payment of back wages and benefits. The bus strike lasted until July, returning to circulation with the fleet reduced by 30%, only increasing to 70% during peak hours. In August, the city government decreed the operation of 100% of the fleet.

¹⁴ Phase 1, step 1 (06/06) partial return of the civil construction area and sectors of the extraction and goods manufacturing industry; Phase 1, step 2 (07/20) partial return of legal, accounting and auditing activities, and trade in vehicles and automotive accessories; Phase 2, step 1 (07/27) reopening of wholesale and retail trade, pet shops, travel agency, masses and services, parks and nature reserves; Phase 2, step 2 (08/03) shopping centers, shopping centers, real estate services; Phase 3, step 1 (10/08) hairdressers and beauty treatments, collective road transport and maintenance services for electronic devices; Phase 3, step 2 (08/17) accommodation and food services and reopening of gyms and social clubs on 08/19. Then, other health services were resumed, as well as the expansion of the opening hours of economic activities and the return of the events sector.

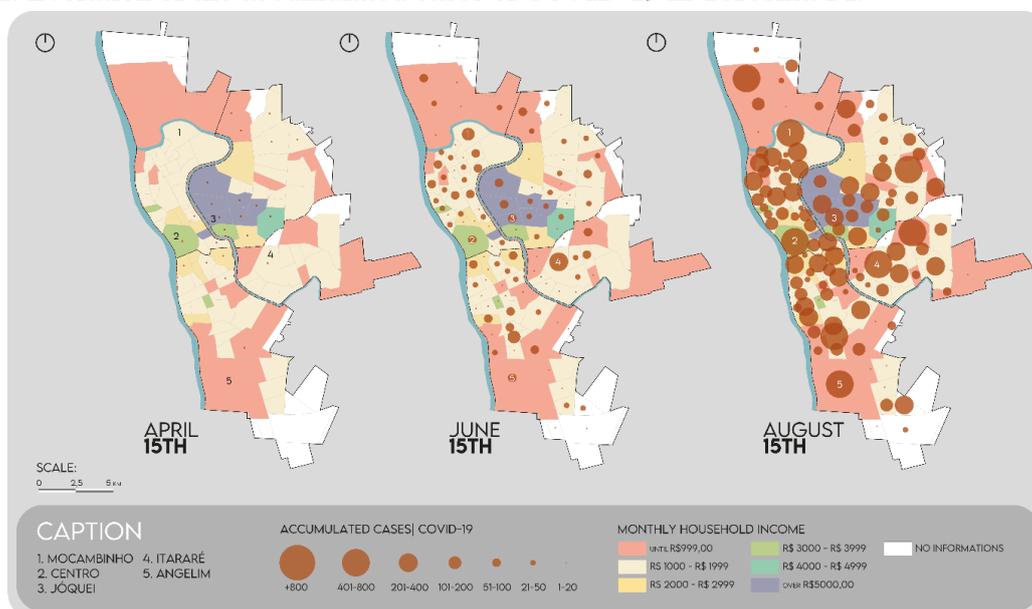
as the neighborhood with the highest number of contamination cases in the city and, although it has presented a drop, is still on an upward curve. Right after that, there is the Mocambinho neighborhood in the North, with MI/H of R\$1.600,00, with an unstable increase in the number of cases, which peaked in August.

The other neighborhood that stands out is Angelim in the South, with MI/H of R\$800,00, which also showed a very sharp growth curve in the month of August (See Figure 03). Itararé and Mocambinho, in addition to being predominantly low-income, are among the most populous neighborhoods in the city and are the ones that showed the lowest index of social isolation in Teresina (TERESINA, 2020). The other two neighborhoods that we highlight here for the high incidence of cases are the Centro district with MI/H of R\$3.000,00, which, even with the isolation measures, concentrates the essential services and the main commerce of the city, and therefore did not reach the recommended levels of social isolation¹⁵; and the neighborhood of Jockey in the East Zone with MI/H of R\$10.000,00.

It is important to highlight that, according to the Teresina in Neighborhoods survey conducted in 2010, the Itararé neighborhood did not have a sewage system, it had 02 villages, 02 subnormal clusters and 04 HIS estates. Mocambinho only had 13% of the sewage, housed 01 Vila, 04 Subnormal Clusters and 04 HIS estates. Angelim did not have a sewage, and housed 03 villages/slums; 03 Subnormal clusters; and 05 HIS estates. The Centro neighborhood had 76% of sewage system, and no village/slum, clusters or HIS. And finally Jockey with 95% of sewage and also no village/slum, clusters or HIS (TERESINA, 2018).

In the Figure 04 below, on the map for April 15th, a spatial perspective of the regions with the first confirmed cases of COVID-19 in the urban perimeter of Teresina is observed. Among them, the East zone¹⁶ stands out, with its respective neighborhoods with the highest monthly household income, and well assisted in terms of infrastructure and urban facility. It is noticed that this area acted as a relevant vector for the expansion of the disease towards the peripheral areas of the city, as shown in Figure 04, on June 15th.

Figure 04: Evolution of the accumulated cases of COVID-19 in Teresina-PI.



Source: IBGE, 2019; TERESINA (Household income 2010); TERESINA 2020 - Elaborated by LEU / UFPI, 2020.

It is possible to distinguish the overlap in the neighborhoods of Itararé, Mocambinho and Angelim and their adjacent neighborhoods, in Figure 04 on September 15th, corroborating the hypothesis that the situation of spread of the virus had already expanded throughout the urban

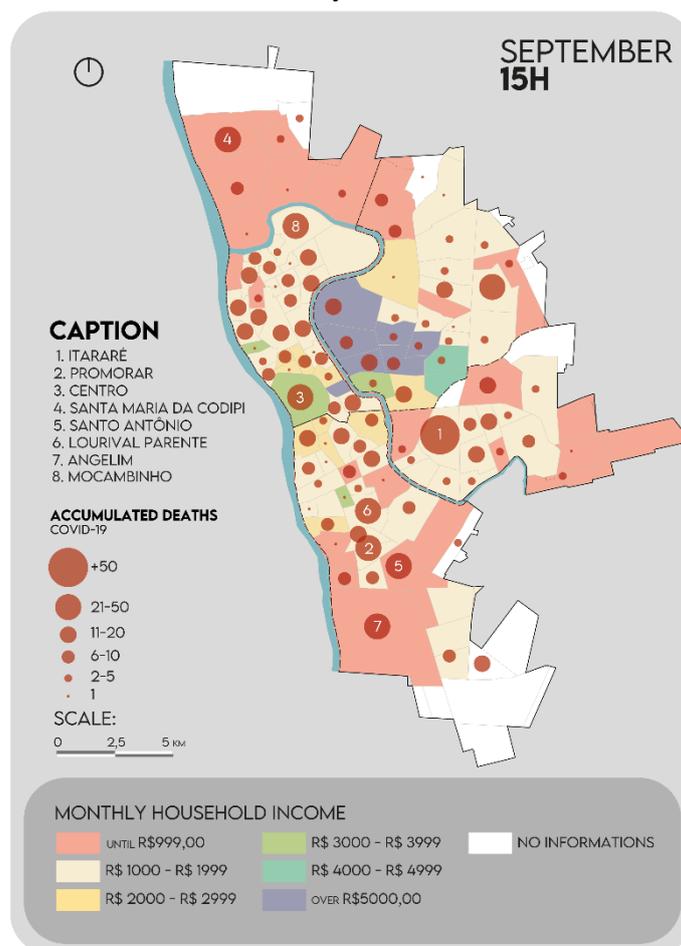
¹⁵ Teresina reached its highest level, 59,7%, on May 17th, remaining below the ideals 70% recommended by the World Health Organization - WHO. Although the government has decreed a series of measures to increase social isolation, such as a more rigid lockdown on the weekends, it is clear that these measures have reached the population unevenly.

¹⁶ It is noteworthy that the Jockey follows a trend of stabilization of cases, and although initially presenting an expressive number of cases, it was soon surpassed by the low-income peripheral neighborhoods.

territory, especially for the low-income peripheral neighborhoods. Thus, against the illusion of the democratic virus, the unequal impacts of COVID-19 in the urban area of Teresina are confirmed.

According to the analysis of the death map (shown in Figure 05 below), a concentration of the largest number of deaths in peripheral and low-income neighborhoods is confirmed¹⁷. On September 15th, Itararé (Southeast Zone), stands out with the highest number of reported deaths (78), followed by the Promorar neighborhood on the periphery of the South zone, with 37 declared deaths. Then comes the Centro neighborhood with 34 reported deaths, followed by the Santa Maria da Codipi neighborhood, located on the extreme periphery of the Center-North zone of Teresina with 27 declared deaths and the Santo Antônio neighborhood, on the periphery of the south zone with 25 declared deaths.

Figure 05: Map of accumulated deaths caused by COVID-19 in Teresina.



Source: IBGE, 2019; TERESINA, 2010; TERESINA, 2020 - Elaborated by LEU / UFPI, 2020.

Therefore, from the data pointed out, it is evident the uneven spread of the disease, which still grows in peripheral low-income areas, where the population is more vulnerable to contamination and, in particular, death. In view of this scenario, the economic recovery and the relaxation of isolation measures are worrying, although it is important to note that, right at the beginning of the health crisis, the PMT adopted very strict measures to protect life to the detriment of the economy. However, at the present moment, despite the instability in the evolution of the disease, the pressure of the economy guides decisions that can put the lives of the population at risk, especially of low-income workers.

¹⁷ Promorar - with MI/H of R\$1.040,00, without sewage, has subnormal clusters, villages, slums and HIS complexes; Santa Maria do Codipi is recognized as having a very low income (without official city hall data on income) also has subnormal clusters, villages, slums and a set of HIS; Santo Antônio - with MI/H of R\$836,00, without sewage, it also has several subnormal clusters, villages, slums and HIS complexes (IBGE, 2010, PMT, 2018)

Are the coping measures¹⁸ reaching the peripheral population in Teresina?

In view of the need for government action through public policies that ensure access to public health, food security, adequate housing and income for the most vulnerable, no resolutions have been identified that specifically address peripheral and popular territories in the context of the pandemic. However, it is important to highlight some measures, actions and policies created as of March 2020 that may have reached the population of these territories, such as the Merenda em Casa Program, aimed at families of students from public schools in situations of extreme poverty.

Regarding municipal and state decrees, most of them deal with social distance (most of which have already been mentioned) and health surveillance actions¹⁹, while only a small part of the decrees establish socioeconomic measures²⁰ that can reach the low-income peripheral population. We will emphasize here the policies and actions created to face socioeconomic vulnerability regarding the expansion of the health system; guaranteeing access to water, sewage and adequate housing; and urban mobility conditions essential conditions to guarantee the right to life in cities.

Regarding the measures to face the socioeconomic vulnerability²¹ (following recommendations from the Public Ministry of Piauí - MPPI), we highlight here those that somehow reached the population living in the peripheral territories, such as: the suspension of tariff adjustments and interruptions for default in water services and sewage while the pandemic lasts; the suspension of face-to-face classes and provision of non-perishable food to students from public schools of basic education, from the municipal and state schools, belonging to poorer families; and also the provision of basic food baskets to self-employed workers in situations of social vulnerability.

As humanitarian and financial support actions²² nothing was identified specifically aimed at popular and peripheral territories, although probably some of the socioeconomic actions have reached this population. According to reports collected informally, it is understood that such actions are still insufficient, not guaranteeing the right to life, health and food. The main actions identified are under an assistentialist bias, such as the distribution of basic food baskets to traditional, indigenous and quilombola communities and the maintenance of the shelter of Venezuelan immigrants.

In addition, the Teresina Solidária campaign has been promoted by the PMT, which consists of collecting food baskets and financial deposits and allocating these to low-income families in the capital of Piauí. Regarding assistance to victims of gender-based violence and other vulnerable groups, the call center service was created during the pandemic, which accounted for a considerable increase in reports of complaints.

Regarding the health system, a large variation in the number of hospital beds for the treatment of COVID-19 in Teresina was identified during the period studied. Measures such as the contracting of beds in private hospitals, the allocation of a portion of the beds already available in the public hospitals exclusively for the treatment of cases of the disease and the creation of Field Hospitals clarify this fluctuation. According to the Piauí Health Bulletin, produced by the Piauí Health Department - SESAPI, between April 26th and September 15th, 2020, the number of ICU beds in Teresina increased from 142 to 267.

¹⁸ It is important to remember that the state of Piauí is part of the Northeast Consortium created for the various joint actions such as the purchase of health facility and trade in goods and services. This consortium created the Scientific Committee to Combat Coronavirus in order to assist managers in making decisions about actions to deal with the crisis.

¹⁹ With emphasis on measures such as the creation of the Crisis Management Committee, the mandatory use of a protective mask in public places and the establishment of sanitary barriers on the three bridges that link Teresina to Timon in Maranhão

²⁰ At the local level, in line with the recommendations of the Federal Public Ministry, the Public Ministry of Labor - MPT in Piauí issued two recommendations on 03/23/2020, to guarantee the health care of workers in essential services. The 1st deals with the minimum necessary distance from customers so that essential activities continue to function without putting the lives of workers at risk. The second was the priority leave of absence for people over 60, who have a disease or pregnant women, from work without loss of salary.

²¹ It is important to highlight that in mid-March, most of the social assistance services were closed, aiming to ensure the safety of workers, thus taking place the public civil action of the Public Ministry, as well as the Public Defender's Office with a focus on the street population and actions to reopen such services for the most socially vulnerable population. Thus, through these actions, the State Secretariat for Social Assistance reopened the Reference Centers for Social Assistance - CRAS, Popular Restaurants and the Community Kitchen of UESPI with the provision of warm food for workers and the low-income population.

²² PMT created Empreende THEch, a platform to help small entrepreneurs in the midst of the crisis, however, no information was obtained if it has reached the low-income peripheral population.

In the same period, the stabilization beds went from 8 to 17 and the number of clinical beds went from 448 to 374, a 17% reduction probably caused by the conversion of some of the stabilization or ICU beds. It can be seen that the increase in the number of beds contributed to avoid the collapse of the health system of Teresina, which would have happened on June 7th, the date when the number of ICU beds occupied as a result of COVID-19 (142 beds) equaled the total number of beds available before the pandemic. As of that date, the healthcare system would have been full if this expansion had not occurred, but at that time, this occupation corresponded to only 65,7% of capacity, with 74 free beds remaining to absorb the demands that continued to grow. The number of ICU beds in the capital reached its maximum on August 5th²³, accounting for 328 in all, which represented an increase of 130% in relation to the pre-pandemic scenario.

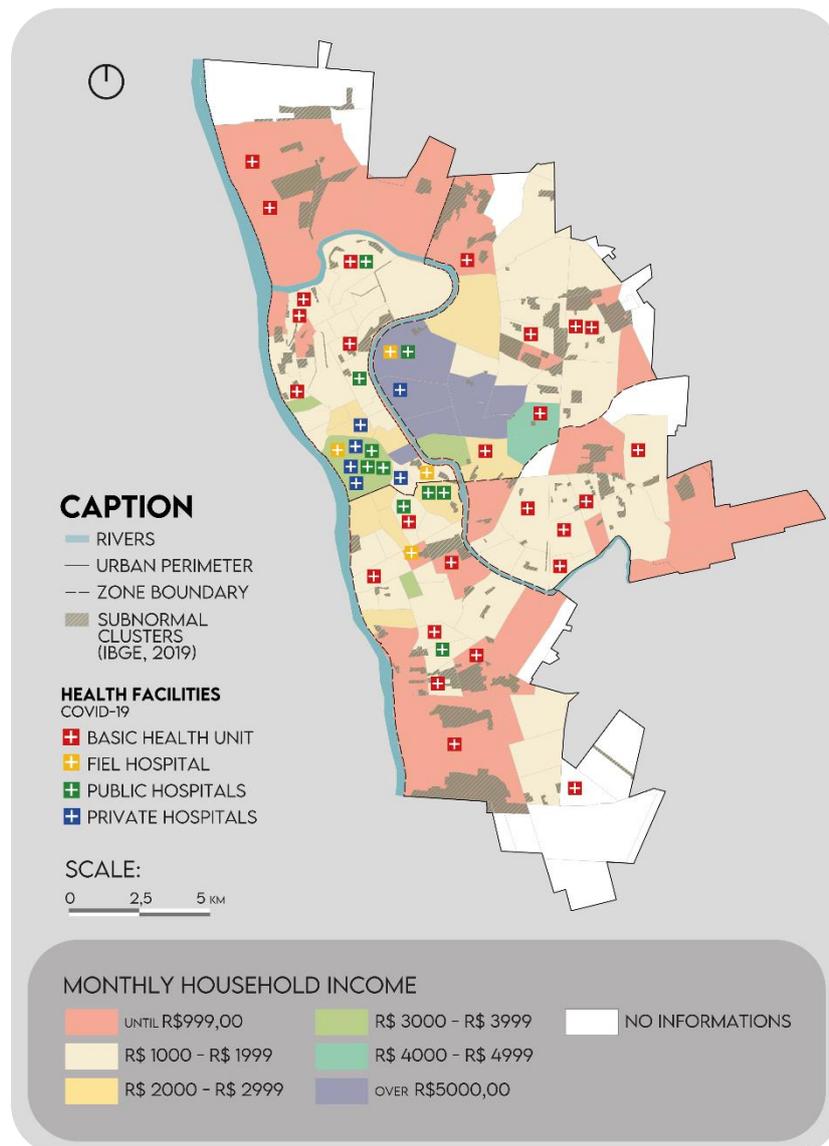
In order to face the pandemic in the peripheral areas, the PMT allocated 26 of the 91 Basic Health Units - BHU to the exclusive treatment²⁴ of COVID-19 cases. Figure 06 below shows the distribution of health facility for exclusive COVID-19 services in the city of Teresina, under public and private management. By looking at Figure 06, the 26 BHUs that have provided the service for testing and pre-identification of the disease are identified, located, in large part, close to the peripheral territories and subnormal settlements, which may have contributed a lot in the control of the disease. in these areas from May to August. However, in view of the reduction in the number of cases that occurred in the city, as of September, 04²⁵ of the 26 BHUs previously destined to exclusively attend cases of COVID-19 returned to meet other health demands. Such a measure may be precipitated, as the curve of new cases is still quite unstable, as can be seen in Figures 02 and 03.

As shown in Figure 06, other health facility, such as Field hospitals; public hospitals, both state and municipal; and private hospitals are concentrated in the central and eastern areas of the city. Therefore, it is believed that with the reduction in the number of BHUs in peripheral neighborhoods, which still have an unstable curve and a tendency for new cases to grow, the population will need to seek care in more distant territories, which can hinder early treatment and contribute to the worsening of cases among the peripheral population, exposing them to an increased risk.

²³ On that same date, the Emergency Operations Committee for Covid-19 approved the beginning of the deactivation of intensive care beds and clinical beds contracted in private hospitals. Subsequently, on August 18th, the activities of the Field Hospital of Estádio Verdão were also closed. The disarticulation is due to the drop in the number of deaths and reductions in the rates of transmissibility and occupation of hospital beds.

²⁴ Designed for simpler cases, care begins with screening, indication and prescription of medications, then recommends home isolation or, in more severe cases, referral to the hospital network

²⁵ BHUs in the neighborhoods Mafrense (North zone), Santa Isabel (East zone), Portal de Alegria (South zone) and Renascença (Southeast zone).

Figure 06: Map of Health Facility x Subnormal Clusters x Income

Source: IBGE, 2019; PIAUÍ, 2020; TERESINA, 2010; TERESINA, 2020. Elaborated by LEU / UFPI, 2020.

Regarding access to water, sewage, electricity and adequate housing, in Teresina the drinking water distribution service is managed by a private company, which during the pandemic inaugurated 32 km of water supply system for 5 peripheral low-income neighborhoods in the North zone, as well as promoting the improvement in the distribution of treated water in the neighborhoods Angelim, Mocambinho, Colorado, Poti Velho and Santa Bárbara (all peripheral and low income). No alternative actions were identified, such as the installation of community sinks in peripheral territories, which can compromise the necessary hygiene of the population that does not have daily and continuous access to piped water.

No actions were identified regarding the expansion of the basic sanitation service, nor was there any evidence of improvement in housing conditions or shelter for the low-income peripheral population. It is important to note that the electricity supply service in Teresina is also under the management of a private company, Equatorial de Teresina, which, equipped with a state police apparatus, in mid-August, cut off the power supply to 500 families living in the irregular occupation Lindalva Soares, in the Santa Maria do Codipi neighborhood, (extreme periphery of the northern zone), the violation of the right to adequate housing being evident due to the state's omission, thus negatively implying other rights.

Regarding the conditions of urban mobility, before the pandemic, Teresina no longer offered a quality public transport system, and there was no effective change in defense of the lives of its

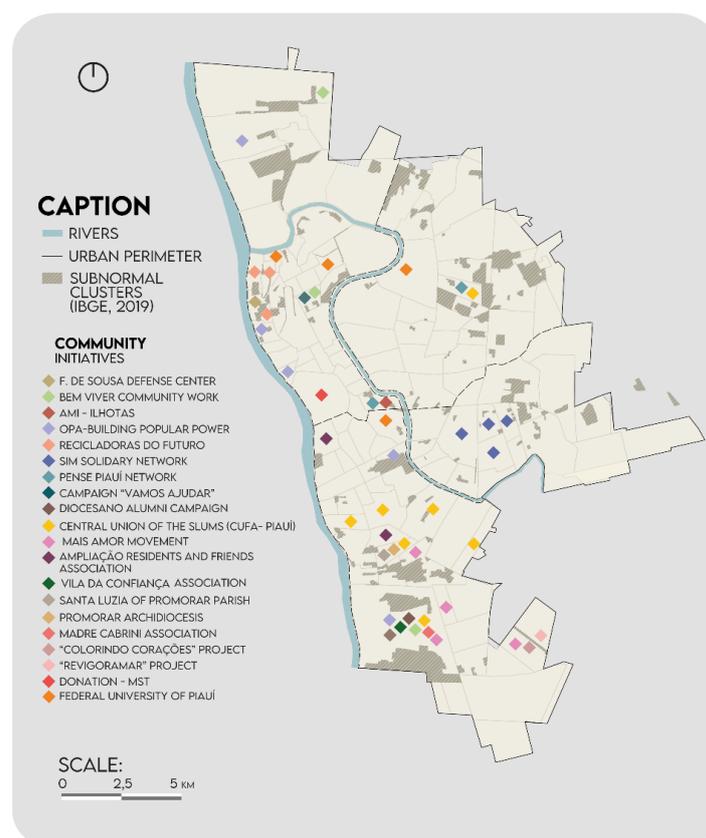
users, who are mostly the low-income peripheral population. In addition to the safety and fleet reduction procedures, adequate attention was not given to public transport users, with no effective measure to improve mobility conditions or even encourage active transport such as the creation of cycle lanes or the expansion of sidewalks as alternatives to prevent public transport users from crowding.

Therefore, considering the uneven impact of COVID-19 in central and peripheral neighborhoods, an insufficiency in the measures, policies and actions adopted by the public power to safeguard life in peripheral and popular territories is perceived, evidencing the violation of rights to health, food, adequate housing, urban mobility and assistance to the most vulnerable groups.

Alternative actions to face weaknesses

In view of the omissions and insufficient measures adopted by the public authorities, alternative actions²⁶ were identified (shown in Figure 07 below) aimed at reaching the population that is most vulnerable to contamination by the disease. The mapping of these actions identified, until the moment of the research, a total of 20 community initiatives that reveal solidarity practices aiming to mitigate the impacts of the pandemic on the low income population. However, it is worth mentioning that part of these institutions already worked with local actions, such as religious associations and institutions, which were intensified during the pandemic period. It is noteworthy that the actions performed are configured, in large part, as the distribution of basic baskets, hygiene items and masks²⁷.

Figure 07: Map of alternative initiatives to face weaknesses



Source: IBGE, 2019. Elaborated by LEU / UFPI, 2020.

²⁶ During the research period, initiatives created by Non-Governmental Organizations - NGOs, residents' associations, religious institutions, social projects and educational institutions were identified that have contributed to mitigate the impacts of the pandemic in the peripheral areas of Teresina.

²⁷ The Federal University of Piauí-UFPI has contributed to this action through the production and distribution of prevention booklets against coronavirus, 70% alcohol, masks and facial protectors.

In figure 07 it is possible to notice a greater concentration of these actions / organizations in the periphery of the South zone (area where the number of contamination is still large and growing) followed by the North and Southeast zones, indicating a close relationship with the subnormal clusters and neighborhoods where there is a higher incidence of COVID-19 cases (Itararé, Mocambinho, Centro, Angelim and Vale Quem Tem). Emphasizing the work of the Bem Viver Community Work (in the South and North Zone) and the Landless Movement (MST)²⁸ that promote the donation of agro-ecological baskets produced in community gardens in the rural area of Teresina for families in situations of socioeconomic vulnerability, in order to guarantee food security for this population. In addition to contributing as an alternative to the development of local commerce that also suffers the impacts of the pandemic. Finally, actions by churches and voluntary groups that are providing food for homeless people also stand out.

Initiatives from private institutions, trade unions and professional associations were also identified. The institutions have been promoting actions²⁹ mainly aimed at maintaining NGO's and community associations, which started to receive less donations with the emergence of COVID-19. However, according to depositions collected from the organizations, most of them maintained their operating radius, with no expansion in territorial terms, quite the contrary, several NGO's showed financial difficulty in maintaining their activities. Such information, points out that possibly these alternative initiatives must be reaching a small portion of the low-income peripheral population, confirming the insufficiency of the measures and actions, both of the public power and of the alternative actions in reaching the peripheral population of Teresina.

Final considerations

Teresina is elucidated as a stage for the effects of the unequal spread of the disease in the evolutionary process of the epidemiological crisis. Rapid and uneven, this evolution highlights the historic vulnerability marked by structural inequality and social injustice in the urban territory of the city that is expanding with the pandemic. From the surveys carried out, no specific actions were identified that deal with the popular peripheral territories in an adequate way regarding the need to improve the conditions of health services, environmental sanitation, urban facility and public transport systems and housing that that allows to face the weaknesses.

Under the evidence of the unequal spread of the disease, where in the peripheral territories there are higher numbers of cases and deaths, the importance of access to decent housing, with adequate habitability conditions, is reaffirmed. Efforts are required in addition to health and health issues, and it is essential to implement public policies and actions that enable food security and safe working conditions, considering the decrease in the income of the population dependent on informal activities and/or small businesses.

In view of the insufficiency of public policies and actions, it is noteworthy that the alternative actions led by various civil society organizations, actions of humanitarian support, which in defense of the most vulnerable population, refute a scenario possibly more aggressive to the homeless, workers in financial difficulty, and other people at risk during the pandemic. Thus, it is understood that the potential of civil society as a protagonist agent, requiring support in the field of political incidence to defend the basic rights of residents of peripheral and popular territories historically neglected by the government.

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²⁸ In general, the actions of the Bem Viver Community Work are concentrated in the north and south areas and women who are victims of femicide who live in the peripheries. The actions of the MST are intended for the Associação Beneficente São Paulo Apóstolo - ABESPA, which serves homeless people.

²⁹ As a supply of supplies, such as food, cleaning materials and masks, so that these organizations can continue to serve the most socially vulnerable population.

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