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Epidemics X Popular Housing in Rio de Janeiro - Analysis through the SWOT Matrix

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SUMMARY

The work comparatively analyzes the relation between popular housing and the main epidemics in Rio de Janeiro, from the end of the 19th century to the present day. The text rescues the memory of the tenements (the first popular form of housing), recalling the mortality of Yellow Fever and Spanish Flu; continues to study the formation process of the favelas, in parallel to the Dengue and Covid 19 epidemics, and the solutions implemented by the government with the objective of improve sanitary conditions in the form of housing estates, and more recently, in their urbanization. The SWOT Analysis, a reflection and positioning tool in relation to situations, widely applied in engineering and administration, it was used to list points of weakness and potential solutions in low-income housing in the face of sanitary problems and the solutions brought by the Government. In the methodology, consultations with secondary sources (books, articles, and newspapers) and iconographic research that illustrate the situations and provide support for the application of the SWOT analysis stand out. The conclusions highlight the extent to which epidemics overwhelmingly plague the population living in needy areas, whose absence of wholesome and appropriate urban solutions demonstrate the lack of Urban Planning and Management.

KEYWORDS: Epidemics, Housing, SWOT Analysis.

1. INTRODUTION

The present work began in 2020 as an adaptation to the master's research that would study the use of historical heritage for social housing. In view of the emergence of the covid-19 pandemic, which has impacted the entire population, it was found that it was important to redirect this research to the health issue in popular housing.

Thus, the Article is divided into three parts, in which the first is a historical ransom of the main epidemics that devastated the city of Rio de Janeiro between the end of the 19th century and the present day. First, with the arrival of the yellow fever epidemic in 1849, the feared Spanish flu in 1918 and ending with Dengue from the 1980s and most up to date, the covid-19 pandemic.

In the second part, it demonstrates the housing conditions that exist during these health crises and relates the measures and solutions of the State to improve and mitigate the housing's housing inadequacies.

Cites the precarious conditions of the tenements during Yellow Fever and Spanish flu and the action of the state that invested in the hygienic villages, ending with favelas and government actions such as housing set-up programs and, more recently, their urbanization, that tries to solve the problems of sanitation infrastructure and in its unhealthy dwellings that remain foci of mortality in dengue and covid-19 epidemics.

In the latter part, it uses SWOT analysis to understand the strengths and weaknesses of each solution, citing the internal and external environments of each epoch, with a reflection of how these actions have caused improvement in the living conditions of that population.

According to Almeida (2020), the research method that was used is phenomenological because it is this qualitative and descriptive of the social reality built as it is understood. The nature of the research is basic, with the objective of generating new knowledge for the advancement of science and for this it approached the data inductively, identifying the factors that determine the phenomena and explaining them.

As for the technical procedures, consultations were made in secondary sources (books, articles, and newspapers). Iconographic research was carried out in Union and municipality

archives. It is worth pointing out that the viability of this work, in this atypical year, was due to the collection of bibliographic material through the Internet up to the present date.

Epidemics permeate the imaginary and memory of cities and their inhabitants. In comparing the past and the present, we understand that it is of utmost importance to understand the mistakes that have been made in seeking new solutions for the future.

2. EPIDEMICS AND PANDEMICS

The concern with the transmission of diseases can be found in the early days of humanity and the word epidemic is found in the first books of medicine. According to De Rezende (1998, p. 1), "Corpus Hippocraticum" there are seven books with the title of epidemics and Galen used endemic with the same current meaning".

The terms epidemic and pandemic differ: "the first refers to infectious and contagious diseases, but they occur only in a specific community and region, and the second when it spreads and reaches a large number of people worldwide." (STATE OF MINAS GERAIS, 2020).

Epidemics in Rio de Janeiro

Since 1849, the epidemics of Yellow Fever and other infectious diseases have become a frequent scourge in Rio de Janeiro and have been the main victims of these diseases in the poor, poorly fed population, clustered in the corks, without the minimum hygiene conditions. The lack of sanitation in the city led epidemics to reach other segments of the population. The threat to the functioning of the port and trade, as well as to the reproduction of the labor force of the emerging industry, have underpinned the emergence and strengthened the hygienist discourse.

Even after 1889, "intellectuals and men of science, concerned with thinking about the nation and the young republic, sought to circumvent Brazil's diseases and find a way out of the following question: How to sustain a modern and civilized country with a portion of the sick and hungry population?" (SILVA AND NASCIMENTO, 2018, p. 8).

2.1. Yellow fever (late 19th century)

Analyzing historically, the capital of Rio de Janeiro was affected by several epidemics during the centuries. In the 19th century, the issue of in wholesomeness became a focal point in housing conditions in Brazil. The Empire's Health Reports point to the problem describing recurrent epidemics and with high mortality. Pimenta (2015) cites that doctors and legislators demand that the only way to stop mortality was through the extinction of swamps and standing waters, but construction was necessary to do so.

> In 1840, the then President of the Province resigned himself, stating that: "only time, population increase, capital abundance, can dry up the vast swamps in the lower part of the Province; That only agriculture, man's housing and the consequent navigation of our rivers can bring down from their shores and their beds the corrupted plants that are caused by swamps that pass through, and that decompose in the waters, of which the inhabitants of these places generally use, are, in the opinion of the person concerned, one of the main causes of the in wholesomeness of such stops. (PIMENTA, 2015, p. 155)

The first major epidemic in Rio de Janeiro was yellow fever at the end of the 19th century, which arrives through hips from Africa. Although there was what was called at the time of "fever," none of them had its impact on mortality such as yellow fever. It was a disease of tropical climate, endemic and affected all social classes and races.

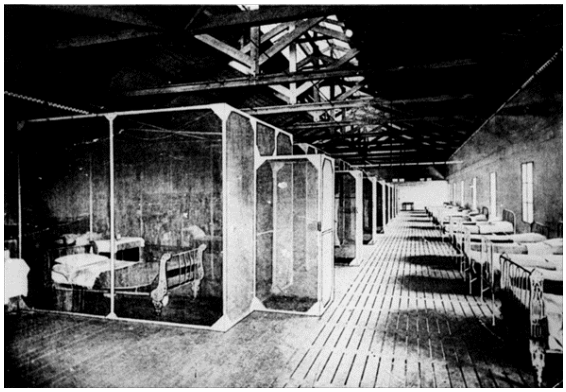
In 1850, a Public Hygiene Board was created that sought to combat the epidemic outbreaks, associated by scientific means with the decadent hygienic conditions of collective Tenements in Rio de Janeiro. Since the 1850s, the situation worsened, because, in addition to the appearance of yellow fever (whose outbreaks did not respect the boundaries of neighborhoods), the number of freed slaves increased progressively (as abolitionist laws were enacted) until the abolition in 1888, increasing the number of collective dwellings, allowing the spreading of the disease. Table 1 shows the number of deaths from the disease between 1850 and 1899.

Table 1 – Yellow fever mortality between 1850 and 1899 in Rio de Janeiro (urban area)

Years	Deaths
1850 – 1859	11.170
1860 – 1869	1.795
1870 – 1879	9.433
1880 – 1889	9.374
1890 – 1899	20.699

Source: Franco (1976)

Figure 1 – Metal screen Rooms for the insulation of patients attacked from yellow fever



Source: FIOCRUZ (1905).

2.2. Spanish flu (early 20th century)

At the beginning of the 20th century, another epidemic arrives in Rio de Janeiro that would bring with it a trail of mortality, Spanish flu or "La Espanõla", which led to this nickname for the great destruction in Spanish lands. According to Rocha (2009), it appeared in two

different waves: February and august 1918. In the first, it was a contagious but mild disease. In the second, it became deadly.

In Brazil, the epidemic arrived in September 1918, despite the disbelief of the authorities that the disease would hit national lands. Once again, it arrives through the ports, with the landing of patients, mainly sailors who served on the African coast.

From the beginning of its arrival until the first fortnight of November of the same year, the capital of Rio de Janeiro was especially affected by the mortality of the disease. It is estimated that only in Rio de Janeiro, 14,348 died and 65% of the population became ill (ROCHA, 2009).

2.3. Dengue (late 20th century)

The Ministry of Health (BRAZIL, 2020) defines dengue as an infectious tropical disease caused by several mosquitoes, and only by the aedes aegypti mosquito in America, the same as yellow fever.

For Barreto, the first reports of dengue in Brazil are dated from the end of the 19th century, in Curitiba (PR) and Niteroi (RJ). The greatest concern with the mosquito due to Yellow Fever led to its eradication in 1955, but the relaxation of the measures adopted caused its reintroduction into Brazil (BARRETO, 1929, p. 56).

In 2001 and 2002, the city of Rio de Janeiro experienced a severe dengue epidemic, with 177,919 cases, according to data from the state health secretariat. However, dengue has been present in the city with a high number of cases and is therefore a constant endemic disease. In 2006, there were a record of 31,054 cases in the State, of which 14,989 in the city. In 2007, there was an increase of 78%, with 26,810 cases (RIO DE JANEIRO, 2008).

2.4. Covid-19

Covid-19 is a serious acute respiratory disease that believes it originated in the seafood market in the city of Wuhan, China. Research is still being carried out to discover the intermediate host of the disease, some researchers believe that it would be the pangolin – mammal of the order Pholidota that lives in tropical areas of Asia and Africa – while others find similarity with bats and snakes, that would also be used as exotic food in some parts of China.

The RNA virus, which is a positive single chain, belongs to a large family of viruses called coronavirus, which can cause simple flu to even more severe cases such as the Middle East Respiratory Syndrome (MERS) or the severe acute respiratory syndrome (SARS). SARS-COV-2 is the seventh known corona virus that infects human beings (ZHU et al., 2020, p. 727).

In March 2020, the covid-19 pandemic became a reality in Brazil, and had its arrival provided by Brazilian travelers and residents who went mainly to Europe and contracted the virus. The first cases were concentrated in the southern zone of the capital of Rio de Janeiro, where they are in most high and middle classes, but, from April onwards, the disease was spread throughout the city.

According to the City Hall of Rio de Janeiro, 213,488 cases of the disease with 19,380 deaths since the beginning of the pandemic were counted to March 14, 2021. (IPP – Instituto Pereira Passos, 2021).

3. HOUSING

The question of housing is inherent to the human being, however, in the city of Rio de Janeiro, as in so many others in Brazil and in the world, what has been present since the 19th century is a critical picture of a progressive increase in exclusion and misery. This situation reveals the difficulty of the public authorities in ensuring adequate housing conditions for the considerable proportion of the urban population. The lower income bands were systematically excluded by the formal market, and the informal production of housing and urban space was seen.

3.1. The Tenements and epidemics of the 19th and 20th centuries

The first houses that sought to meet this most needy population were the so-called "Casa de Cômodos", groups of ground houses built in extremely small size, with the objective of maximizing the number of people and reducing the value of rent in the smallest possible area (Figure 2). By seeking for more profit in this rental market, the spacious and townhouses were divided and called houses of room or houses of rent-rooms.

According to Nemer (2019, p. 38), the two typologies had toilets and patios of collective use, and in addition to these there were precarious constructions that were called corks. The market for these rentals was extremely profitable, becoming an increasingly applied practice by owners, thus housing a large proportion of the population.

As the practice of houses with questionable health standards multiplied, more outbreaks and epidemics could not be contained by the public authorities. Medical doctors and sanitarists increasingly warn about the precarious conditions of these homes and their recurrent health problems.

Figure 2 – The tenement of the Senate Street 12 To 44

Source: Malta, AGCRJ (1906)

Chalhoub (2004) describes that the identification of the tenements as the main source of the Yellow Fever epidemic by the sanitarians, having an important symbolic and political significance. The hygienists began the incessant discourse for the radical transformation of

urban space, especially the central area. From this point on, a greater opening of streets and avenues is advocated and the demolition of the tenements (CHALHOUB, 2004, p. 102).

Thus, the Empire begins to act, with the incentive to build the so-called hygienic villages, as exemplified in Figure 3, which would be the answer to all the problems of the unhealthy corticoid. According to Vaz (1994), to achieve the objective of healthy hygiene conditions, these new houses would have costly technical and sanitary innovations. They should necessarily have a maximum number of residents, with lighting and ventilation, with fewer collective facilities, and with instruments of control over the residents. For this model to become a reality and to bar its construction, there were exemptions and facilities for its builders. (VAZ, 1994, p. 584)

Figure 3 - Rui Barbosa Village - facade to the Senate Street

Source: Backheuser (1905)

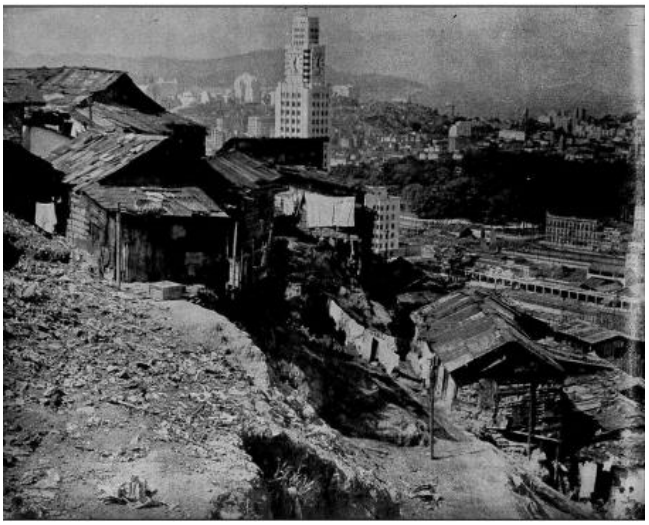
Despite all the facilities for these builders, hygienic villages have not made a profit. Many chose to build the so-called “Avenidas”, which were basically a construction of existing renovated “estalagens” and tenements that followed the hygiene standards dictated. It is important to point out that even with this other option, the rents were impractical for the workers and boosted the transformation of the user profile, causing a social segregation and expelling them to the hills.

3.2. The Favelas and epidemics of the XX and XXI centuries

The emergence of the favelas of Rio de Janeiro was a long process initiated at the end of the 19th and early 20th centuries, with the occupation of hills of the city by a plot forgotten by the public authorities, that needed to be close to the city's central areas because it had no incentive or financial conditions to go live in remote regions. Thus, the needy population occupies hills and, later, wetlands, where, at risk, they exposed themselves to serious diseases, linked to increasing density (single-room houses with numerous families) and lack of basic

sanitation and minimum health conditions (ventilation, lighting, hydro-sanitary facilities, and garbage collection).

Figure 4 - Favela Hill



Source: SILVA (1947)

The permanence of the problem still in the twenty-first century demands a criticism of the growing social inequality in the present time, reinforced by property speculation. According to 2010 Census (IBGE, 2010), the city of Rio de Janeiro has 763 favelas with 1,393,314 inhabitants; this figure corresponds to 22% of the capital population and transforms it into the city with the largest population living in subnormal agglomerations of the country.

3.3. The solution of housing assemblies

Just as it occurred during past epidemics, housing inadequacy shows a focal environment of several health problems, and the public authorities seek to bypass them through investments in urban sanitation and housing improvements. While in the 19th century the objective was to solve the problems of the tenements, from the 20th century the goal was to solve the problems of the Favelas; in fact, what changed was the name, but difficulties are the same.

Since the beginning of the 20th century, the idea of Favela like the “other”, as a segregated part of the city, is common, without belonging to it, despite its proximity to middle- or high-class neighborhoods. While these have urban equipment and services, in the Favelas the reality is different, which demonstrates a huge incongruence: So close and at the same time so diametrically opposed.

Despite the creation of the Fundação da Casa Popular – FCP (1946) and the National Housing Bank (BNH), the discontinuity of programs and periods of economic recession led to the lack of a robust housing policy that would promote social inclusion. Often the visible was the State’s dedication to urban beautification works and remedial measures. During some governments in Rio, mainly that of Carlos Lacerda, the policy was to remove favelas by transferring their residents to housing projects financed by the BNH. According to Blank, the Guanabara State Housing Company, created in 1962, offered “houses in keeping the dignity of human beings” for favelas families. (BLANK, 1977, p.6)

Figura 5 – Pedregulho Set

Fonte: tvbrasil.ebc.com.br

These sets were the result of housing proposal that were not limited to construction but included an educational and assistance process. Its objective was also to teach how to live in a new concept of the urban, as exemplified by the Prefeito Mendes de Moraes set, better know as Pedregilho. (Figure 5)

3.4. Minha Casa, Minha Vida (My House, my life)

The "Minha Casa, Minha Vida" program (PMCMV) was launched in 2009, with resources made available by the federal government as a subsidy for the acquisition of the home for sectors historically excluded from the formal real estate market.

In the city of Rio de Janeiro, the program was used mainly to remove housing in areas of risk in the favelas, which received more than 100,000 housing units, of which 35 thousand for the I range (income up to R$ 1,800.00). The municipality selected the beneficiaries for this track by drawing from the "demand Registration Bank" managed by the infrastructure and housing Secretariat. After being drawn, the individual would be able to become a borrower of the program if he fulfilled some legal requirements and could choose whether to accept the apartment or not.

PMCMV architectural and urban projects were based on standardized solutions that made it possible to streamline the housing program but did not achieve: The desired diversity of housing typologies, the use of appropriate and sustainable constructive technologies and the recognition (and incorporation into the project) of the different social/economic/cultural characteristics.

3.5. The solution of favelas urbanization

In 1993, the municipal government of Rio de Janeiro created the Favela Bairro program, following the "bases of the housing Policy of the City of Rio de Janeiro", which had as its main objective the complementation or construction of the main urban structure (accessibility and sanitation), providing conditions for the urbanization of the shantytown as a neighborhood, leaving the construction of housing to the hands of the residents.

> The Master Plan, in its articles 148 to 151, recommends the inclusion of Favelas in the maps and registration city, emphasizes the participation of residents in the urbanization process, recommends "preserving the typicity of the local occupation" and the effort to integrate Favelas into the neighborhoods. (DUARTE, 1996, p. 14)

According to César Maia, in Favela, a neighborhood, the program would follow the premises of the current Master Plan, with the rational use of urban soil, the priority relocation of the population based on risk areas, urbanization and land regularization of the favelas, the implementation of urban and popular housing lots, the financing for reducing housing deficit and improving urban infrastructure. To this end, housing policy encouraged the occupation of empty urban spaces with infrastructure and the construction of popular housing that would be distributed by the urban fabric (DUARTE, 1996, p. 7).

In 2010, Mayor Eduardo Paes launches the program "Morar Carioca", which was an extension of the Favela Bairro. Despite all the premises coinciding with its previous one, it was different in its performance. While the Favela Bairro had the focus on the qualification of public spaces, improvement of the infrastructure of the Favelas and resettlement only for families of risk areas or for the demolition of dwellings for improved accessibility; The Morar Carioca, which had a much more robust financial contribution, would radically change the urban fabric of shantytowns, with improvements in housing, technical advice, investment and implementation of solutions that sought to solve the problems of the in wholesomeness of the buildings.

According to Leitao, Barboza and Delecave (2014, p. 8), "it is worth pointing out that, until the moment of the elaboration of this work, Morar Carioca Program remains much more an intention of the municipal government, than a concrete public policy".

4. SWOT ANALYSIS

SWOT analysis is used as a tool for reflection and positioning in relation to the situation of popular housing before the health problems and the solutions imposed by the public authorities for housing inadequacy. The term SWOT is the conjunction of the words: strengths, weaknesses, opportunities, and threats. This analysis corresponds to the identification by the organization and in an integrated way of the main aspects that characterize its strategic position at a given moment, both internally and externally (SILVEIRA, 2001, p. 209).

According to Valim et al. (2015), the objective of this model in relation to external analysis is to identify the main opportunities and threats that arise at a time, and with internal analysis the objective is to identify the main strengths and weaknesses of the characteristics.

> "The internal environment should be constantly monitored to identify the strengths and weaknesses more directly related to the critical success factors of the organization. All of this analysis makes the company of course able to maximize the strengths and minimize weaknesses to the maximum." (VALIM et al., 2015, p. 1)

4.1. SWOT analysis: Tenements and hygienic villages

Amid the health crisis initiated by the epidemics of yellow fever and Spanish flu, the tips would become the target of the sanitarians of the time for housing conditions. Entire families

gathered in a room, toilets and common-use laundries, lack of infrastructure for sewage collection extended the conditions of transmissibility of epidemics. The State's focus was then to create hygienic villages.

Table 2 – Tenements

Strengths	**Internal Environment**	**External Environment**
	– Price accessible to the poorest classes. – Location next to work.	– accelerated economic growth with large immigration.
Weaknesses	**Internal Environment**	**External Environment**
	– excessive density. – poor housing, with disabled facilities for common use.	- lack of basic sanitation conditions. - No garbage collection. – increasing the proliferation of infectious diseases and epidemics.

Source: Authors (2021).

Table 3 – Hygienic villas

Strengths	**Internal Environment**	**External Environment**
	– housing with better sanitary conditions, such as bathroom presence in the units. – improved air circulation conditions and thermal comfort.	- exemption of taxes defined by the Empire for constructors in constructive materials.
Weaknesses	**Internal Environment**	**External Environment**
	– Unaffordable rental price for the poorest classes. – It provided social segregation.	– High cost to builders even with exemption – insufficient units to support housing demand.

Source: Authors (2021).

Despite the improvement of housing conditions, the construction of hygienic villages did not meet the housing demand of the chucks, its high cost turned out to make the value of the rents unviable, and so many families sought other forms of housing near the City Center and most of them climb the hills.

4.2. SWOT analysis: Favelas and public power solutions

The emergence of favelas was amplified by the inadequacies of housing and the problems with rents in the center, their problems last until the present day.

Table 4 – Favelas

Strengths	**Internal Environment**	**External Environment**
	– Price accessible to the poorest classes. – Location next to work.	– already consolidated housing areas. – Community sense, vibrant trade.
Weaknesses	**Internal Environment**	**External Environment**
	– excessive density. – precarious housing. – structural problems. – have no documentation to allow the property to be held.	- lack of basic sanitation conditions. - No garbage collection. – increasing the proliferation of infectious diseases and epidemics.

Source: Authors (2021).

The first solution was the removal of families living in poor conditions for housing groups. Despite the improvement in the conditions of habitability, its location in peripheral areas was an obstacle and the search for jobs became a challenge due to the cost of transport.

Table 5 – housing sets

Strengths	**Internal Environment**	**External Environment**
	– housing with better constructive quality. – improved air circulation conditions and thermal comfort. – Imobile with documentation.	– Investment of the Federal Government for construction, with the developmental vision and job creation.
Weaknesses	**Internal Environment**	**External Environment**
	– Location in peripheral areas of the city, with poor public transport. – abandonment of housing units and return to the favelas of origin, mainly by distance to work.	– insufficient units to support housing demand.

Source: Authors (2021).

With a new vision of the Favelas, the public authorities begin their urbanization projects, initially the Favela Bairro, which focused on providing urban infrastructure such as: basic sanitation, improved access to and distribution of rainwater, minimization of slides in the hills, and construction of public equipment such as schools and hospitals. The removal was only

indicated when the dwellings were in areas of risk, however, it was recommended that the relocation be within the same community.

Chart 6 – Urbanization of favelas

Strengths	**Internal Environment**	**External Environment**
	Favela Bairro	
	– improving urban mobility and basic infrastructure. – consolidates the idea of the shantytown as part of the city and should not be removed.	– strong popular participation. – attention of the public authority.
	Morar Carioca	
	– expands the vision of the Favela Bairro, expanding the vision of technical assistance for dwellings. – in addition to the improvements proposed in the Favela Bairro, it also focuses on accessibility and sustainability.	– Investment proposed superior to the Favela Bairro.
Weaknesses	**Internal Environment**	**External Environment**
	Favela Bairro	
	– it did not include the improvement of housing.	– Low investment.
	Morar Carioca	
	– despite the proposed ten-year time frame, it has never left the paper.	– proposed investments for the program were sent to works of beautification of the city, mainly due to the mega-events of the time.

Source: Authors (2021)

The second program was the Morar Carioca, which expanded the scope of Favela Bairro with technical assistance lines for the improvement of housing, in addition to the improvement of accessibility. Despite the promise of great investment, the Morar Carioca never realized its objectives.

5. CONCLUSION

When using the SWOT Matrix, management analysis tool, for the diagnosis of the solutions proposed to minimize the habitational and insanitary inadequacy of these popular

housing, a reflection about different time frames is initiated, but that bring similarities in the history of popular housing in Rio de Janeiro.

In historical moments that are so impactful in the daily life of the city, to the similarity of the problem of housing inadequacy and epidemics, with its acute mortality in poorer classes convokes the reflection: social inequality and marginalization maintained for centuries considerably kill a portion that has no minimum housing conditions.

In the 19th century, the yellow fever and Spanish flu epidemic forged the sanitarist movement in Rio de Janeiro, in a way that deeply affected the urban fabric of the city and continues to this day. Now, the city goes through a similar moment, which will leave marks in a population that is castigated in a way uncomfortably identical. It is up to researchers, technicians, and policymakers to assess a change in the trajectory and clearly discuss what the future will be for these people, how to improve their living conditions and how to protect them in the coming crises.

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