

TESI DI LAUREA MAGISTRALE
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IN[FORMAL]

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**ANALYSIS OF THE
PERSISTENT
INFORMALITY
IN THE BUILT
ENVIRONMENT
OF VARJÃO**

ISABELLA AZARIAS DE SOUZA

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Analysis of the persistent
informality in the built
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Candidato

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IN[FORMAL]:
analysis of the persistent
informality in the built
environment of Varjão

The research aims to **identify and understand to which extent the urban interventions** held in the area **were effective** to reach their original goals **and what still needs to be changed** in order to raise the living standards of the inhabitants, still under socioeconomic vulnerability.



IN[FORMALE]:
analisi dell'informalità
persistente nell'ambiente
costruito di Varjão.

La ricerca ha lo scopo di **identificare e comprendere fino a che punto gli interventi urbani** nell'area **sono stati efficaci** per raggiungere i loro obiettivi originali **e ciò che deve ancora essere cambiato** per innalzare il tenore di vita degli abitanti, ancora vulnerabili dal punto di vista socioeconomico.



IN[FORMAL]:
análise da informalidade
persistente no ambiente
construído do Varjão.

A pesquisa objetiva **identificar e entender em que medida as intervenções urbanas** conduzidas na área **foram efetivas** para atingir suas metas originais **e o que ainda precisa ser alterado** para melhorar o padrão de vida dos moradores, ainda sob um quadro de vulnerabilidade socioeconômica.

[Abstract]

The work aims to identify and understand to which extent the urban interventions held in Varjão, 23th administrative region of the Federal District, Brazil, were effective to reach their original goals and what still needs to be changed in order to raise the living standards of the inhabitants, still under socioeconomic vulnerability.

Varjão started as an informal settlement where the residents' primary needs were not met and there was crescent environmental degradation, due to a lack of infrastructure. Thus, the local government intervened promoting changes towards its formalization, fostering a particular spatial configuration that persisted: today there are significant internal contrasts and dynamics associated with informality are still present, despite all the urban interventions conducted.

In addition, Varjão is not incorporated into the formal parts of the Federal District (federation unit where it is located), and the work seeks, through a 3-part approach (study of Varjão's characteristics, understanding its internal dynamics and addressment of its current needs) to recognize and explain why this happens.

Hence, this thesis features an introduction about the theme of informality, giving an overview of why it is a relevant theme nowadays and deserves academic studies; theoretical references selected to guide the research; description and site choice motivations; a characterization of Varjão as an informal settlement, comparing it to the typical aspects of an informal settlement environment; chronological description of the urban interventions conducted in the area and a spatial analysis of its current configuration, with respective conclusions, arriving at an elaboration of demand for further projects.

[Keywords]

informal settlement, urban studies, urban planning, informality

[Riassunto]

Il lavoro ha lo scopo di identificare e comprendere fino a che punto gli interventi urbani tenuti a Varjão, 23ª Regione Amministrativa del Distretto Federale, in Brasile, sono stati efficaci per raggiungere i loro obiettivi originali e ciò che deve ancora essere cambiato al fine di elevare gli standard di vita dei abitanti, ancora vulnerabili dal punto di vista socioeconomico.

Varjão iniziò come un insediamento informale in cui i bisogni primari dei residenti non erano soddisfatti e c'era un crescente degrado ambientale, a causa della mancanza di infrastrutture. Pertanto, il governo locale è intervenuto promuovendo cambiamenti verso la sua formalizzazione, promuovendo una particolare configurazione spaziale che è persistita: oggi sono ancora significativi i contrasti interni e le dinamiche associate all'informalità, nonostante tutti gli interventi urbani condotti.

Inoltre, Varjão non è incorporato nelle parti formali del Distretto Federale (unità federativa in cui si trova) e il lavoro cerca, attraverso un approccio fatto in 3 parti (studio delle caratteristiche di Varjão, comprensione delle sue dinamiche interne e trattamento delle sue attuali necessità) di riconoscere e spiegare perché questo succede.

Dunque, questa tesi presenta: un'introduzione sul tema dell'informalità, fornendo una panoramica del perché oggi è un tema rilevante e merita studi accademici; riferimenti teorici selezionati per guidare la ricerca; descrizione e motivazioni della scelta del sito; una caratterizzazione di Varjão come un insediamento informale, confrontandolo con gli aspetti tipici di un ambiente di insediamento informale; descrizione cronologica degli interventi urbani condotti nell'area e un'analisi spaziale della sua attuale configurazione, con rispettive conclusioni, arrivando a un'elaborazione della domanda per ulteriori progetti.

[Parole chiave]

insediamento informale, studi urbani, pianificazione urbana, informalità

[ACRONYMS LIST]

BID: Inter-American Development Bank

BSB : City of Brasília

CAESB: Federal District Environmental Sanitation Company

CEB: Brasília's energy company

CODEPLAN: Federal District Planning Company

DET: Project detail document

DF: Federal District

EPPR: Paranoà park road

GDF: Government of the Federal District

GEPAFI: Executive Group for Informal Settlements Fixation

IBGE: Brazilian Institute of Geography and Statistics

LUOS: Land use and soil occupation law

MDE: Descriptive project memorial

MS: Minimum Salary

NGB: Building, Use and Heights Standards
NOVACAP: Brasília's Real Estate Company

RA: Administrative Region

SEGETH: State Secretariat of Territory and Housing Management

SEOPS: Secretariat of public and social order

SLU: Urban cleaning service

PDAD: District Household Sample Survey

PLN: Planialtimetric/geometric design document

UAS: Subprogram for Subnormal Settlement Urbanization

URB: Urbanism Project

**general
objective** page 5
abstract page 6
**acronyms
list** page 9

01 page 13
introduction

02 page 19
**theoretical
references**

03 page 35
**why
Varjão?**

04 page 47
**Varjão
as an
informal
settlement**

05 page 57
**urban
interventions**

06 page 79
**spatial
analysis** + **typologies
catalog**
page 94

07 page 103
conclusions

**[CON
TENTS]**

08 page 117
**demand
elaboration**

**bibliographic
references** page 127
image list page 130

[01]
introduction

What is informality and why to study it?

The discussion about informality has been present in the debates about the city since early 1960s, as an alternative to the functionalist urbanism and modernist ideas promoted by the CIAM¹. During this period, dispersed informal patterns, in parallel with urban demographic growth, appeared as fortunate trajectories opposing the paradigms proposed by elites such as the 'Team X'². As a consequence, some aspects that had been set aside, such as social demands, spontaneity, self-organization, and design flexibility for future change started to be addressed. (Lutzoni, 2016)

Next to their ideological consideration, between the 1950s and 1960s these ideas contrary to the modernist architecture figured in other theoretical models, such as the Situationist International, which operated in the political, social and artistic fields, as opposed to functional planning. Thus, new approaches to the study of the city were conceived.

However, despite the theoretical discussion, dimensions and conditions of the informal practices were not mapped on a regular basis, making specific contingency and planning actions for this purpose difficult.

Informality has always figured as a social and economic phenomenon difficult to be interpreted. The early studies focused mostly on the field of economics and its related dynamics, such as the studies carried by the International Labor Organization, inside the United Nations agency, on informal employability in Ghana (1958-1965) and Kenya (1972). They never prioritized the physical space where informality grew and for the experts it was difficult to describe social groups, spaces and activities without using dualistic (formal / informal) comparison.

Between the 1970s and the 1990s, theoretical studies broadened the approach to the concept of urban informality. Lutzoni, reconstructed that first, 'dualists' understood informality as "marginal activities excluded from the formal economy". Subsequently, 'legalists' saw it as "a set of positive forces in a formal context linked to power

¹ CIAM: Sign for the Congrès Internationaux d'Architecture Moderne, founded in 1928 at the castle of H. de Mandrot in La Sarraz in Switzerland. Until 1959 they were the most valid and effective tool for the dissemination and discussion of the architectural and urban ideas that characterized the development of the so-called Modern Movement.

² Team X was a group of architects and other invited participants who assembled starting in July 1953 at the 9th Congress of C.I.A.M. and created a schism within CIAM by challenging its doctrinaire approach to urbanism. They disclosed with the Manifesto Doorn, which reflect ideas of architecture and urbanism. The members exposed, discussed and analyzed architectural problems, so that their writings were not dogmas, but ideas and opinions.

strategies” and, finally, ‘structuralists’ classified it as “an integral part of a single system”, but always referring to the economy, with very little or no spatial analysis included. (Lutzoni, 2016).

In the 1990s the debate on informality remained stagnant and strongly returned in the 21st century, according to Roy, due to its strong relationship with the globalization process that began to transform societies, economies, politics and world geography. (Roy, 2005)

This new interest popped up because the informal economy was growing significantly in many countries and was appearing in unexpected forms, processes and spaces, as Mike Davis states in *Planet of Slums* (Davis, 2006). The further attention given to informal economy – such as more discussions around the theme and new attempts to map it – reframed the interest regarding the informal settlements, this time with consideration to their physical space.

In the early 2000s, Rem Koolhaas's *Mutations* (2000) and Alfredo Brillembourg and Hubert Klumpner's *Informal City: Caracas Case* (2005) were published, for the first time bringing concrete representations of informality. Both publications brought in new ways to see it as they pictured informal settlement environments with great coherence and made possible, albeit superficial, new visions of this spatial organization.

From then on, the discussion on informality enabled a debate on sustainable economic and social development methods, as it started to be seen as a potential support for the formal economy and not only as a sign of slow/late development. Moreover, this discussion fostered action planning networks such as ‘Arrival Cities’, by URBACT³, and other similar transnational initiatives that aim to put together countries to dialog about their sustainability-related urban issues.

Given this propagation, Hernandez and his cowriters state today the concept of informality belongs to various areas of study, being used to describe and theorize about city space, culture, economics, social organization, and politics (Hernandez et al. 2010). However, it is still associated with procedures and phenomena that take place outside formal processes, in spatial terms, that means they are out the planning and zoning standards guided by the authorities.

Given the number of ways in which spatial informality can manifest, Lutzoni brought together some of these occurrences. In short, they are: spontaneous processes of land occupation, lack of land tenure, housing construction by residents themselves, illegal occupation in places of rapid urbanization, temporary use of space, forms of organization led by the landowners themselves and the development of urban settlements on the edges of cities (Lutzoni, 2016).

[THEME JUSTIFICATION]

Informality must be studied because it is inherent to the contemporary process of forming cities in demographic, economic and spatial terms. As an integral part of cities, informality truly reflects what urban complexity as well as its major issues to be addressed.

It is also a worldwide phenomenon that evolves at a rapid pace in developing countries, where there is a greater mismatch between demand and supply in the real estate, economic and political sectors.

Regarding the social aspect, the demand of the right to be in a place to have the primary human needs met, can be seen as the root of informality.

Moreover, the analysis of some systems considered marginal, illegal or informal, in the traditional way of viewing the city, are also opportunities, if viewed otherwise.

As they are more flexible, they receive and incorporate changes easily and faster, creating a field of action for different professionals.

As informality is the product of ever-changing social dynamics, Saunders states convincing planning and design could be important elements to improve quality of life in the informal city. (Saunders, 2008)

Finally, one more reason to study the informality is understanding when the reiterations of informal practices become unfavorable for the socioeconomic-disadvantaged group, that may get benefits in short terms but suffer directly from public-health and environmental issues. **]**



[CONDUCTION OF THE WORK]

Said so, this thesis presents an analysis of persistent informality in the built environment of Varjão. The site has undergone urban interventions to overcome the initial conditions of occupation (totally informal) but some dynamics associated with informality still reside in the area and the goal is to identify them (what they are, and the reasons behind them) since they influence the current configuration of the space.

Since the study of informality has already been proved relevant, especially in Varjão, where the history of the site is particular, it is also an opportunity to understand residents', under socioeconomic vulnerability, needs. Moreover, the local authorities can change their approach developing more accurate public policies specific to that specific context.

Thus, the work starts with this introduction, where the justification of the theme is presented (what is informality and why to study it).

Subsequently, a framework for the approach is established, dividing the analysis in a 1. Study 2. Understanding and 3. Addressment of Varjão's issues.

In **chapter 2**, theoretical references are gathered as I review publications of selected authors to illustrate

each of these steps. Furthermore, their arguments were used as a basis for the next stages of the research.

At **chapter 3** there is a brief description of the motivations for the site's choice and it is presented, with its particularities, to explain where the study will be developed.

Chapter 4 begins with a brief characterization of some aspects common to informal settlements, so that the reader can understand why Varjão could be framed as such in its early stages of occupation. There is then a description of the spontaneous changes that took place in the territory, up to the urbanistic interventions that were conducted in the area.

Chapter 5 is intended to describe these interventions, showing their scope, their main focus, and the way they were conducted. The last phase of these interventions would correspond to a post-occupation site assessment, to understand the extent to which the needs were met as they should be, or where they lagged, and this assessment is here adapted to a spatial analysis of what exists today in Varjão; its current situation in terms of forms and construction variations.

Chapter 6 brings this spatial analysis, returning to the first part of the theoretical framework, the study. Here the space is represented so that its current characteristics (what exists today in the place) can be better debated. Chapter 6 also has a catalog of the typologies found in Varjão, illustrating the types of buildings that can be found there.

Chapter 7 brings the conclusions of the previous analysis, resuming the second part of the theoretical framework, the understanding of the dynamics associated with informality: what they are and how they manifest themselves in Varjão's current built environment.

Chapter 8 covers the third and last part of the theoretical framework, the issue's addressment. Limits and potentials of the site are listed to highlight Varjão's greatest needs and thus guidelines are launched for a coherent and effective intervention.

[02]
theoretical
references

Setting approach boundaries

[Among the many ways to approach informality this thesis is limited to study, understand and address the phenomenon in Varjão. Thus, theoretical references were chosen to frame the analysis of the case and orient the research development]

[the study]

the study is supported by **The Informal Stance**, where **Valeria Federighi** discusses issues about the **representation of the informality**. It is necessary to overcome old and conservatory academic models to represent the urban informality so to see and study it from different angles.

[the understanding]

The understanding is supported by **Embracing the paradox of planning for the informality**, where **Jeff Risdorff and Mayra Madriz** (Gehl Architects) share **dynamics of an informal settlement** they visited, elaborating hypothesis of why that informal part of the city had a better performance than the formal ones.

[the addressment]

The addressment is supported by **Planning and design for future informal settlements**, where **David Gouverneur** shows **ways of conducting upgrading operations** for these urban configurations. The demand and action lines must be clear for further effective projects.

[INTRO]

The issue of planning / designing for informal settlements has been addressed by several authors, some of whom are directly relevant to the research developed.

It is important to know what previous publications talk about because: 1. They are already the result of previous bibliographical reviews, placing the theme more accessible and 2. They guide my approach on the theme, since well-grounded arguments gain strength and stand out from the rest.

The approach to the theme over time, and the view on informality in general terms, has changed a lot. What was initially seen by common sense as inferior and segregated, the subject of very few studies mainly related to economy, today is the subject of much research of inclusion and mutual spatial influence, between the formal/informal parts of the cities.

Informality is considered one of the main paradigms of contemporary urbanism by architect Rem Koolhaas, even if according to the author himself, there is a subjectivity inherent in the phenomenon to be weighted (Koolhaas, 2000).

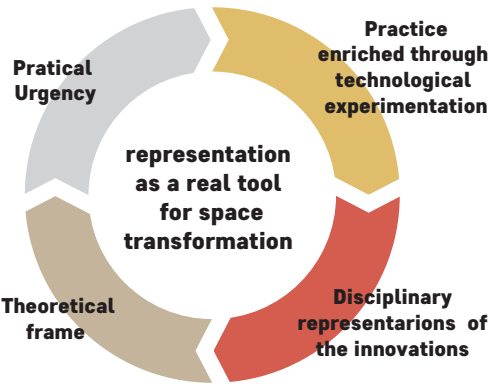
This is because informality is the result of policies, actions and social dynamics that belong to different contexts (Federighi, 2018). It is what everyone knows exists, but no one can define it precisely because it presents itself in a particular way in every situation. There is therefore no consensus about how its forms can be contained or understood.

Informality here is approached in three dimensions: 1. the disparity between disciplinary representation and common knowledge about the issue, as defined by Federighi (2018); 2. the operational aspects, as in Madriz and Risdorff's article (2018), in which some on-site dynamics of informal settlements outperform some formal parts of the city; and 3. the conduction of improvement and revitalization actions capable of adding value to informal settlements by equating them to the formal parts of a city as stated by Gouverneur (2015).

[THE STUDY]

A good way to start dealing with the informality is by gathering useful concepts to identify the elements that characterize the site and thus determine how it will be represented.

Valeria Federighi argues for the need to overcome certain modes of academic practice when it comes to informality. Given that academic representations create a theoretical framework, which in turn evolves to nurture / respond to the practical demands and urgencies that exist in communities, she argues that design may create a representation working as a real tool for the transformation of space.



img 01. Cycle of how representation works as a real tool for space transformation, according to Federighi (2018)

Nowadays, urban informality divides opinions as it is seen as: 1. A crisis image, where informal overgrowth of cities not only affects the southern hemisphere, but 'invades' developed cities or 2. A place of historic entrepreneurship where the informal economy is people's creative and spontaneous response to the state's inability to meet the basic needs of the masses. In addition, sometimes it is praised as a different city-making paradigm, which offers a more flexible understanding of how urban space is produced, and some others it is criticized as a hostile way of dismissing parts of the city that do not belong to the definitions of 'developed and formal' city (Federighi, 2018).

Personally, I see the vision of historical entrepreneurship as stronger. I believe that urban informality is a spontaneous form, born with the people who need to get around their needs, and while it is the product of interactions, it provides new social dynamics. Informal commerce, for example, settles wherever there is a consumer market. Street vendors, who have to sell, are looking for crowded places, such as public-transport waiting points or busy streets to settle in, and if commerce begins to flow, it expands and diversifies rapidly. At this point a new occupation of space arises, where dynamics that did not exist before begin to happen. Thus, considering informality as an integral part and a producer of space is the best way to try to decipher it.



img 02 and 03. Main street of Varjão: dynamics in the space change when it is appropriated by vendors and pedestrians.

Early representations of informality in the 2000s, for instance, were decisive in changing the way we view the informality in spatial terms (and hence study it) as in the *Mutations* (2000), by Rem Koolhaas, and *Informal City: Caracas Case* (2005), by Alfredo Brillembourg and Hubert Klumpner.

Prior to these, representations of urban informality for a long time focused on distance from the formal parts (formal / informal duality) and adopted a developmental approach, suggesting progress from informal to formality. As a result, there was a tendency to treat informal settlements as specific locations outside the formal parts of cities, which is currently being rethought.

Today, the understanding of what informal settlements are allows two interpretations of them. They can be seen either as physical results of economic forces, which produce social disparities, and thus end the system in which they are only passive and marginal components, or they can be seen as the final stage of deregulation urbanism and global networks, and so are active, albeit underprivileged, participants in the same system (Federighi, 2018).

Informal architecture can also be translated as a disciplinary (academic) fascination with the phenomenon of urban informality. This fascination has to test the limits of architectural design in the hope of making it adaptable (and wanting to adapt) to the various situations that may exist (Federighi, 2018).

Urban informality, on its turn, is understood as all manifestations of informal processes that take place in the urban environment.

My view is that the origin of these settlements is the result of inefficient public policies from a system that does not satisfactorily address those in situations of socioeconomic difficulty. These people, however, as they lack alternatives, remain in the midst of this regime feeding it. Thus the considered 'marginalized' places where they live and their consequent characteristics are an integral part of the system.

Informal settlements may even function as small bodies unrelated to the main (regulated) dynamics, but they expand rapidly and soon start to influence them, in some cases housing more inhabitants than the formal part, in the same city. This is because the more people they house, the more diversified the activities within the informal settlements and the greater their influence on the city.

The problem is that its inner mechanisms do not work in the same way, when compared to formal parts, and the effects of a disorderly expansion are detrimental. Urban problems (that mainly affect economically vulnerable groups) are intensified and indirectly also affect the performance of entire cities. That is why the interest in these areas is so great in the 21st century: this unplanned growth does not offer comfort to residents who already live with low quality, and, on the contrary, goes

against the principles of sustainable development.

Thus, a broad field of action is established for architects, urbanists and city planners who try to minimize the unintended consequences. The work, however, is not easy: there are difficulties in conceptualizing both the practice and the object of study.

When dealing with the informality, the scope of actions tend to be characterized mostly by what it is not (not market driven, not authorial, not formal), instead of what it is, because of the broadness of the concept.

Yet, a difficulty is to avoid vertical power relations and ignorance of the laity. Many authors strive to show that the economically favored tend to have mistaken views of the residents of informal settlements. Firstly, because the privileged fail to recognize the creativity and geniality that exists within the informal environment, and secondly because they think that residents are more needy than they really are (Saunders, 2008).

In short, limited visions outside the informal context can easily distort it and as a way of avoiding this feat, Fabricius proposes that traditional academic models, which are the current basis for study and discussion, should be updated to meet the real needs of the informal city.

With this finality, these needs need to be observed increasingly at pedestrian level, and so less mapped by

satellite. Fabricius emphasizes that it is necessary to experience the dynamics of the informal space before discovering it and thus deciphering it as she argues the external view becomes deceiving when it present generalizations and does not catalog many of the factors that contribute to set the considered informal space as it is. (Fabricius, 2009)

[THE UNDERSTANDING]

In a complementary way, Mayra Madriz and Jeff Risom argue in their article, *Embracing the Paradox of Planning for Informality*, the importance of understanding the dynamics of informality since, according to them, city-making professionals often use terms such as 'spontaneous' or 'authentic' to define it, but when designing they develop plans and areas that limit these qualities.

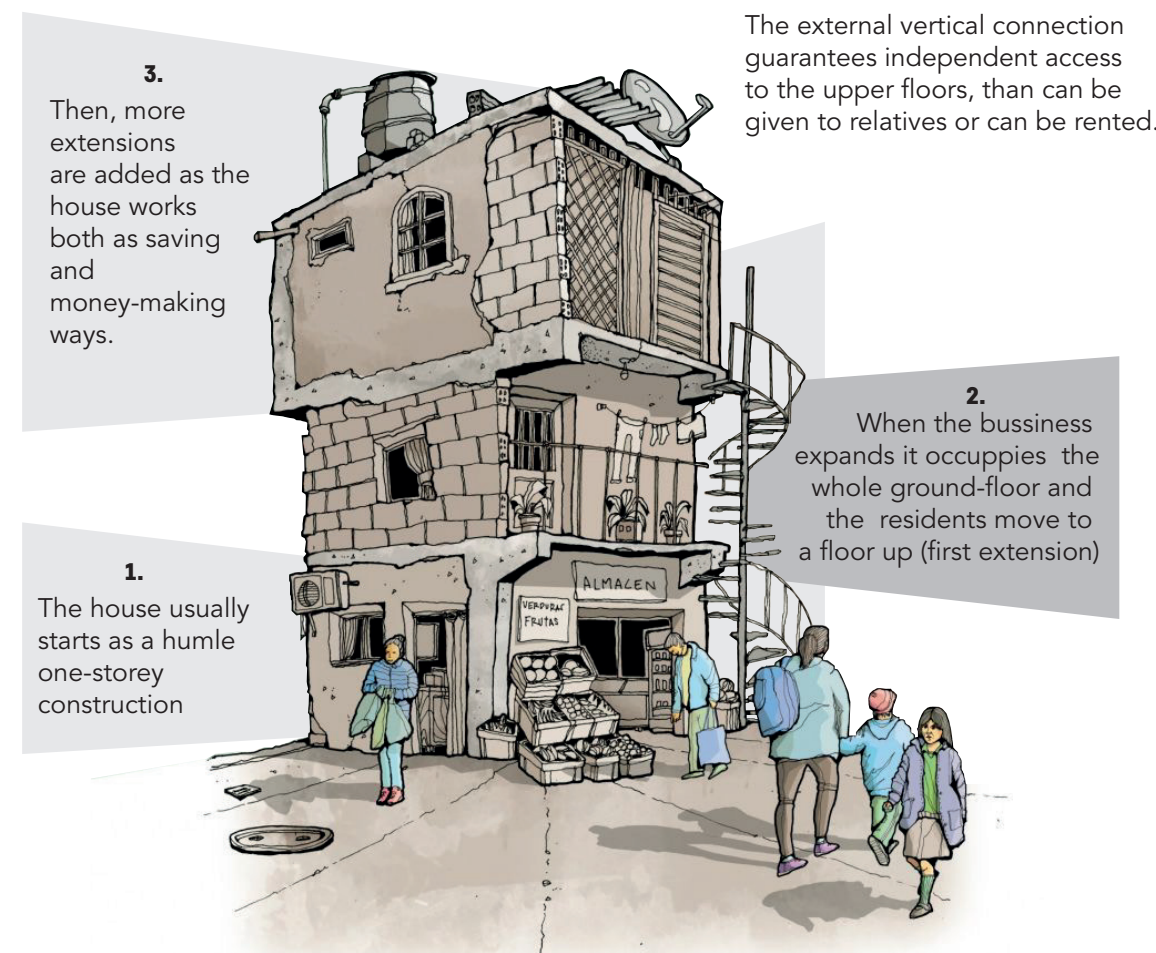
The authors bring in their article the results of a visit to an informal settlement in Argentina, where they identified it surpassed the formal parts of the city in indicators of urban liveliness and sustainable mobility. Thus, they argue that the qualities of the place, created by the community itself, need to be preserved when professionals take action.

The first quality is that the settlement built on public land near major roads has enabled residents to live close to the services, jobs and amenities the city offers. Generally, the provision of low-cost housing and social housing programs is restricted to outlying areas that lack adequate jobs and public transportation, and this limits residents' opportunities (Madriz and Risom, 2018).

The second is the density of the settlement, where narrow buildings with balconies and active ground floor, always keeps "eyes on the street"

(Grant, 2014). In addition, narrow organic streets form small squares and meeting places. They are safer and quieter because vehicles cannot travel at high speeds there. Depending on the dimensions, some cannot even be accessed by cars. Lastly, the alleys form a network of shortcuts that allow pedestrians to walk shorter distances (Madriz and Risom, 2018).

Another important quality is that that houses are also platforms for economic progress. A window or gate are the basic elements to start a business that, if it thrives, occupies the ground level while profits allow the addition of one more floor. In some cases there is the addition of a third part with independent access that can be given to relatives or can be sublet. Thus, the house is under constant change and adaptation: it is subdivided when the family grows or is rented when someone moves. Most of the residents make transactions parallel to the regular banking system so a larger house works both



img 04. Adaptable house. Original illustration by Fernando Neyra. Edited for this document by its author.

Business, on their turn, also contribute to meet people's primary needs within walkable distances. They are a confirmation of the residents' initiatives, supporting the vision of historical entrepreneurship brought earlier.

Finally, the article warns about the importance of enhancing and preserving community's strengths so that they are kept where they are and can be replicated in other initiatives. New investments should be geared to the most urgent needs, but in a way that takes into account the social structures that supported the community to resist ahead of any intervention (Madriz e Risom, 2018).

I agree with the authors' perspective that the urban form of the settlement, with its proximity to work, flexible and adaptable architecture, compact and walkable streets, have helped to strengthen social ties that exist between residents and the structures they inhabit. For Madriz and Risom, the government needs to embrace the paradox that informal settlements are: the need is for public policies (and projects) that respect the organic life that had been developed there.

Thus, the diagnosis to be developed has to be always clear, listing all the potentials and limitations that informal dynamics in the place provide, either to be expanded or overcome, for better comfort and use of space by residents.

[THE ADDRESSMENT]

Finally, David Gouverneur, in *Planning and Design for Future Informal Settlements*, shows how some cases of revitalization of informal settlements have been conducted, and the differences between their results, clarifying which main points need to be addressed in the architectural and urbanistic practices directed towards informality. Gouverneur emphasizes the importance of gathering information of various kinds to better understand the reality of these settlements and to be able to propose appropriate suggestions for them.

The author brings in the study cases of urban renewal at Medellín and Bogotá in Colombia, and Caracas, in Venezuela, the first two with greater success than the last. In Colombia, informal areas have been connected to formal areas employing high quality design solutions in terms of infrastructure, transportation, public spaces, and community services, with the aim of equalizing quality of life in both parts (Gouverneur, 2015). Over there, the intention to increase quality through investments that met local conditions was clear. In addition, a system of new educational equipment was built amidst the less well-off informal communities, while in Venezuela only social housing projects were built in underused areas amid the formal parts of Caracas.

Gouverneur says the key point is to improve connectivity between the formal and informal parts of cities. This connectivity must be spatial, but also in people's minds, so that the inhabitants of the different parts can be integrated. With this objective, convincing planning and design, together with the introduction of sustainable paradigms that aim to address social, behavioral and environmental aspects of urbanism, make the difference (Gouverneur, 2015).

He also states it is essential to join forces between qualified professionals, the community, and local authorities, so that they can develop proposals that exactly match the main needs of each location, with specific solutions for the contexts they are intended for.

These punctual interventions, further, when scaled, will constitute a network of improvements capable to foster attractiveness in informal parts.

Medellin's intervention

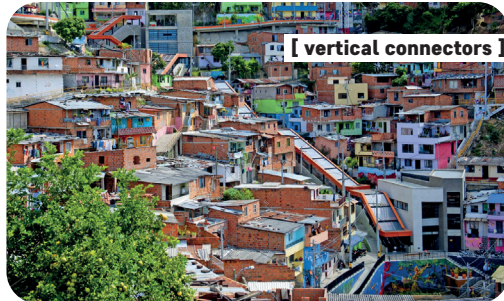


Photo source: The Guardian



Photo source: The Guardian

img 05 and 06. Medellín's intervention

Bogota's intervention



Photo source: Colprensa in Caracol Radio website



Photo source: El tintal - official facebook page

img 07 and 08. Bogota's intervention

Caracas' intervention

Photo source: 'Caracas Virtual' website
img 09. Caracas' intervention

“Colombia developed implementation tools in the realm of territorial and urban planning that included informal urbanism. This approach starkly contrasts with the Venezuelan model, which employed a rigid, one-size-fits-all ideology, which emphasized social housing that had limited impact.”

Gouverneur, 2015

[FINAL REMARKS]

Thus, in view of the bibliographic reviews presented, we can conclude that planning for informality requires care in several directions. While hoping to overcome the negative conditions and characteristics that do not contribute to residents' quality of life and are not consistent with sustainable development, one faces social, economic, environmental and academic complexity. Each of these aspects imposes restrictions on the architectural/urbanistic practices that must be considered, and incorporated into the project, so that it will truly be a transformative element of space.

In this process, needs are often conflicting as resources, education and government support are lacking, and informal settlement populations have high levels of socioeconomic vulnerability. Therefore, informality needs to be first studied, to be understood and thus respected, before formalization measures are adopted.

The best architectural practices for informality, those that revitalize the needy place, incorporate it into the formal parts of the city, and equip it so that it is no longer seen as inferior, are those that best diagnose the initial conditions of the place, scaling the positive aspects of informality (such as flexibility, dynamism, diversity) and outweigh others that are detrimental to communities (insecurity, lack of infrastructure and accessibility).

The authors mentioned here, all architects and/or urban planners, propose discussions on the study of informality, in their area of operation, bringing common points that need to be considered in any situation, but also specific points that each of them elects as most important. Federighi highlights the representation, Madriz and Risdorff the local characteristics created by the residents themselves and Gouverneur bets on the integration of various subjects, so that the treatment given to informality is effective. This way, according to these focal points, I could orient my research about the informal practices that still persist in the built environment of Varjão.

This theoretical basis was useful to understand: 1. some of the reasons for the difficulty in conceptualizing the phenomenon of informality (such as Valeria Federighi's comparing views on her approach) 2. why certain dynamics happen in a certain way (as the adaptable houses, brought by Risdorff and Madriz); and 3. possible ways to address informality (with the different examples brought by David Gouverneur).

With these references, I have directions to conduct the analysis on the chosen site and to represent it and, from that, I can establish a clear diagnosis for the situation found, providing a more effective treatment through a more appropriate proposal to the local context of the intervention.

[03]
why Varjão?

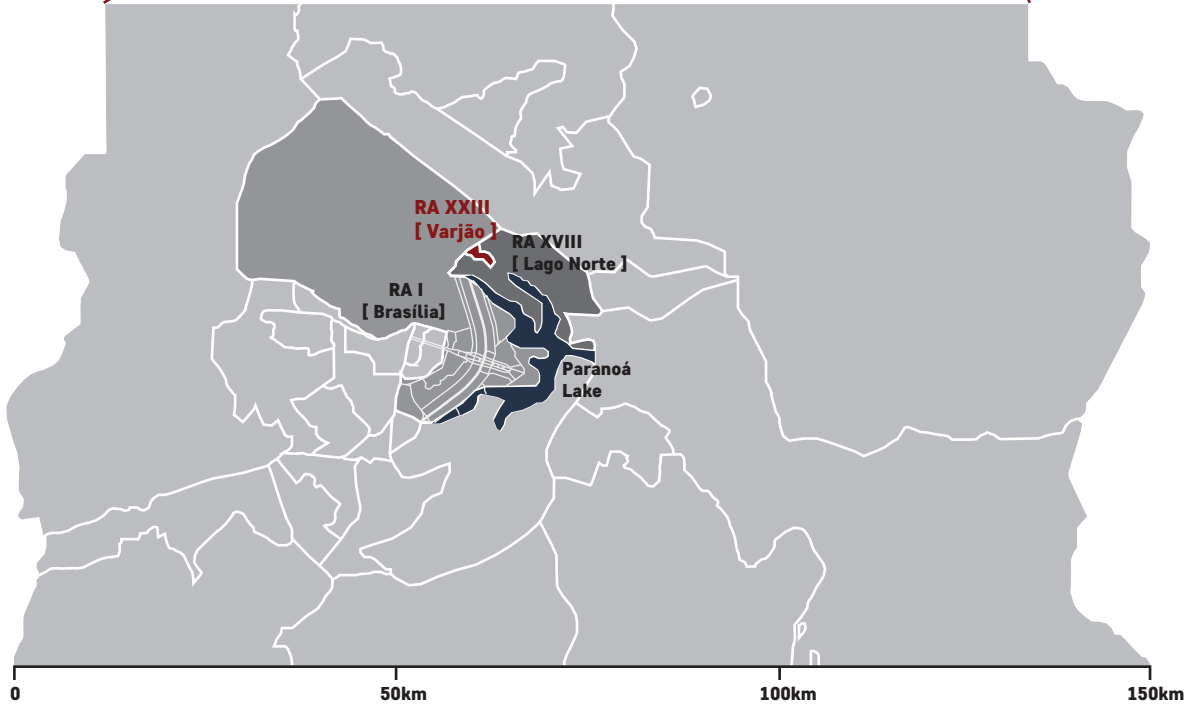
[LOCATION]

Brazil, South America



Federal District

Is one of the 27 federative units of Brazil. Located in the Midwest Region, it is the smallest Brazilian federative unit and the only one without municipalities, being divided into 31 administrative regions (RA), with an area of 5802 km²



img 10. Federal District and its administrative regions (RAs)

[MOTIVATIONS FOR THE CHOICE]

[Varjão was chosen primarily for its particularities. Its physical characteristics, its geographical location within the Federal District (close to Brasília's center) and its immediate context (proximity to Lago Norte and Taquari neighborhoods) make it a unique place.

The history of changes the area went through was also relevant for the choice. Varjão began with a spontaneous and therefore totally informal occupation of an area along the EPPR (Estrada Parque Paranoá) highway and, over time, expanded and gradually gained recognition from the authorities, what enabled urban interventions on the site.

These interventions, however, turned it into a hybrid: today Varjão has some characteristics common to the formal parts of the Federal District, but also clear signs of informality, the result of a transition process from complete informality (initial occupation) to a more formal configuration in terms of space organization, which has not been well resolved. Despite planning projects and attempts of regularization, much of the previous informality remains and this has opened the door for an investigation into how and why this happens.

In second place, Varjão was also chosen because it is viable for the research. There is a great deal of information and documents available about the site, allowing to study and represent it with great veracity. In addition, the dimensions of this administrative region² are mappable: Varjão has an area of 90.68ha and its population, according to the 2015 District Household Sample Survey (PDAD), is of 9215 inhabitants.

Finally, Varjão was elected as an object of study for my personal identification with the area. It is located close to where I live and I have been there a few times. In my opinion Varjão is an area that needs more academic studies! Its socioeconomic indicators show that the majority population are low-income people, still vulnerable in many aspects, and they deserve studies with the aim to increase their quality of life.]



img 11. Connection Varjão - Brasília's center

scale 1:50.000

[ADJACENCES]

Varjão is located close to Brasília (Federal District's Administrative Region 01), capital of Brazil, with a modernist bias, that was totally planned before the beginning of its construction. Over there, the residential scale has a spatial configuration of 'superquadra', concept defined by the urban planner Lúcio Costa, in the master plan also elaborated by him, after winning the competition for the urban organization of the city in 1955.

The 'superquadra' consists of extensive (in some 11 blocks are allowed while in others up to 20) six-story multi-family residential buildings on pilotis, each with its parking space and green belts, lush with vegetation and large uncovered grassy areas around them.

In the 'superquadra' the ground level is all public, for community use, so there are no fences or physical barriers, pedestrian traffic is free and separate from vehicles, and the private part of the residences corresponds only to the projection of the building in height. It is a unique form of space appropriation that is divided into 280m x 280m quarters, distinguished from a condominium by this collective and open appropriation of space.

This form of appropriation and occupation of space eventually gathered in Brasília families with greater

purchasing power as the limited and limited supply of housing generated speculation in the real estate market.

Moreover, this formalized area has always offered security and short distances to the city center, where most of the jobs are concentrated, so it has always been very targeted.

Another difference from Varjão is that many residents of the superquadras have a car. Since Brasília was designed with cars in mind, as the road and vehicle industries were government priorities in the 1960s, since the beginning the most privileged families preferred not to rely on public transport, that was never very effective, and this culture perpetuated.

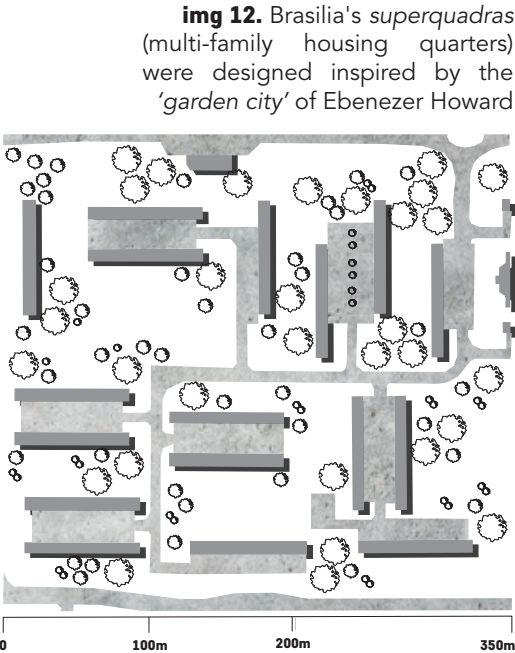
Lago Norte, Federal District's RA XVIII, neighborhood adjacent to Varjão, on its turn, has a characteristic suburban setting, with large private lots for single family homes, also of high standard. There, the roads lose their hierarchy gradually (from the main to the local ones) finishing in dead ends, bordering exclusive residential sets, that have at their edges species of roundabouts, called in French urbanism cul-de-sac.

Lago Norte lots average 20m x 40m, are all walled and the houses are of 1 or 2 floors. Almost all have a pool at the back along a large green area, which can be more or less wooded as it is under the healing of the owner of the lot. There, too, the use of the car is frequent, since the distances are significant to the center of Brasília.

“ Brasília's proposal has changed the image of 'living in an apartment', and this is because living in an apartment in a superquadra means having free floor and generous lawns adjacent to the 'house', on a scale that a normal individual lot has no possibility to offer. ”

Lucio Costa, in Brasília revisited, 1985-1987: Complementation, preservation, densification and urban expansion (1989)

[space appropriation]



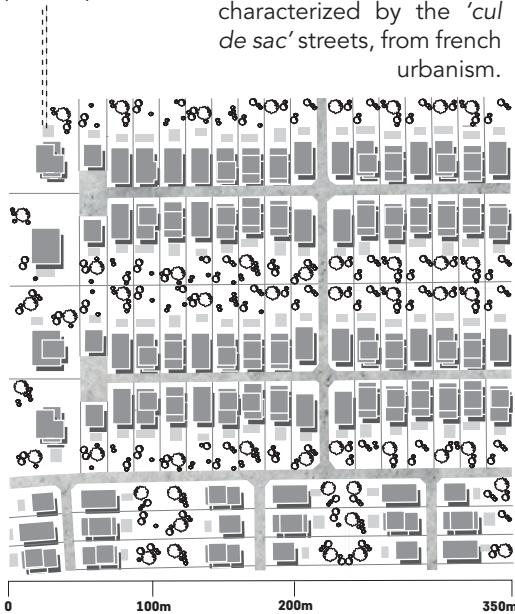
BRASILIA
RA I

[socioeconomic indicators]

R\$ 13 489,93 (€ 2700)
average household income
R\$ 5 569,46 (€ 1114)
average individual income
2,64
average people per dwelling
87,39%
dwellings with possession of vehicle
56,55%
inhabitants in possession of a degree

At Lago Norte neighborhood, almost every dwelling has a private pool

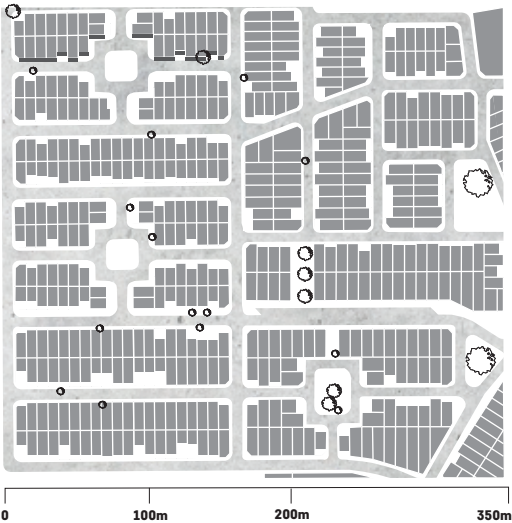
img 13. Lago Norte was inspired by the american suburb model and is characterized by the 'cul de sac' streets, from french urbanism.



LAGO NORTE
RA XVIII

R\$ 12 598,00 (€ 2520)
average household income
R\$ 4736,75 (€ 947)
average individual income
3,08
average people per dwelling
80,20%
dwellings with possession of vehicle
55,99%
inhabitants in possession of a degree

img 14. Varjão presents more compact urban fabric, with smaller lots and few free areas.



VARJÃO
RA XXIII

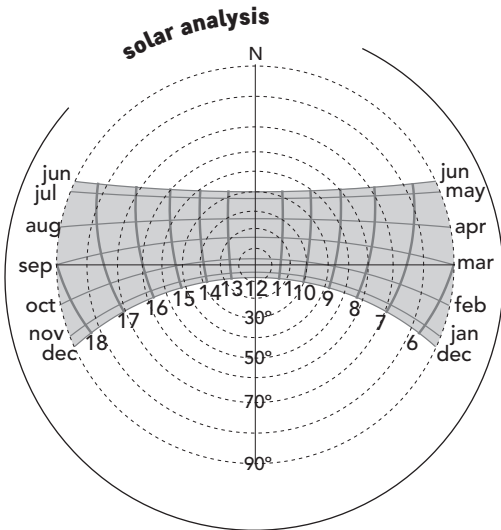
R\$ 2744,48 (€ 555)
average household income
R\$ 627,81 (€ 125)
average individual income
3,68
average people per dwelling
44,88%
dwellings with possession of vehicle
2,56%
inhabitants in possession of a degree

[SITE'S PHYSICAL CHARACTERIZATION]

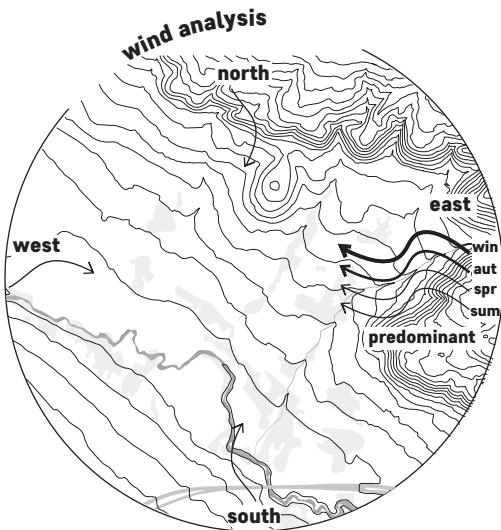
It is important to know the topographic / hydrographic and climatic conditions of Varjão to understand the motivations that people had to settle there in the first place. They also explain the form the occupation took and what influenced its directions as it expanded. Thus, there is a brief description of the terrain, waterbodies and climatic conditions that physically characterize the area.

Varjão's level contours are sparse throughout most of the settlement (indicating the declivity is very soft), with heights ranging from 1010 to 1045m in altitude at a distance 7km (north-south). The exceptions are a small peak in the central settlement area (up to 1055m) and the great slope on the north. This sudden height gain forms a fairly steep (approximately 25m) barrier, which was decisive in stopping the expansion of occupation towards the north.

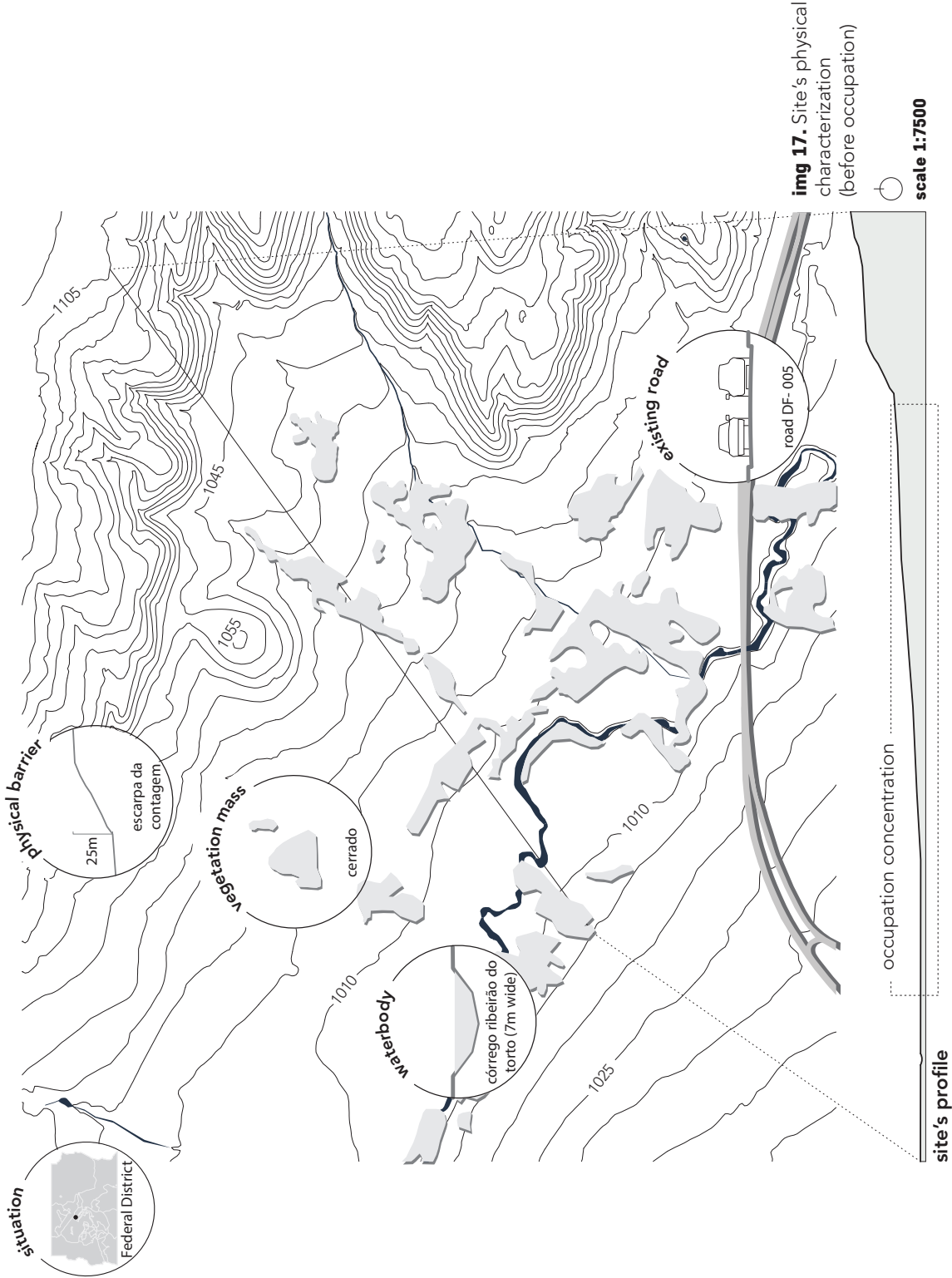
The vegetation characteristic of the area are short sparse trees with twisted trunks, thick leaves and long roots, as well as grasses and shrubs. The predominant climate of the region is tropical with high temperatures (monthly averages above 18°C), which is divided into rainy (October to April) and dry (May to September) seasons. The prevailing winds come from the east and are less frequent in summer. They grow in the fall and are bigger in the winter.



img 15. Solar analysis
Source: SOL-AR software



img 16. Wind analysis
Source: SOL-AR software



Varjão is located in the Paranoá watershed and has 3 waterbodies nearby: Two that follow the north physical barrier natural's declivity and one to the south, the largest one (7m wide), called Ribeirão do Torto.

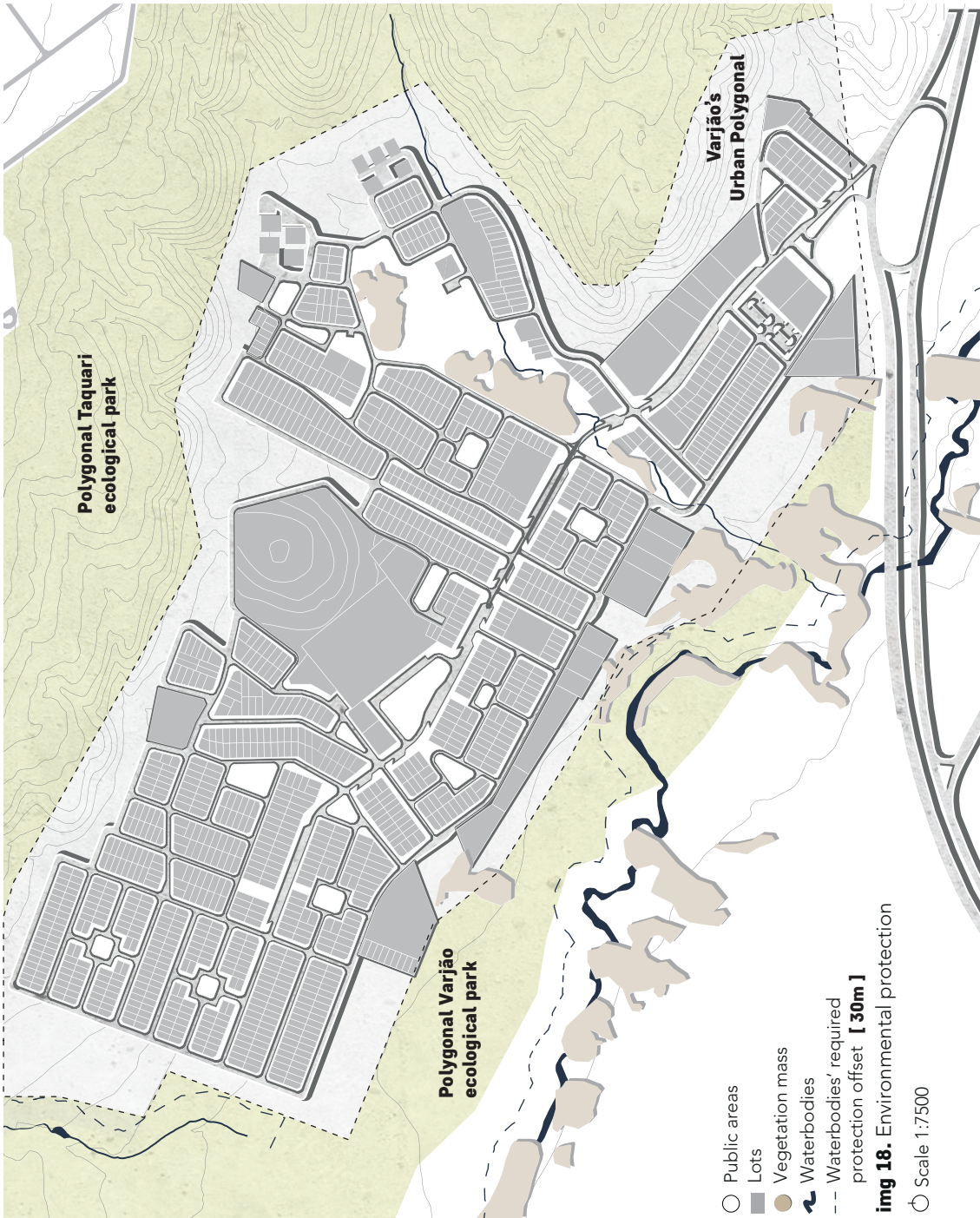
This proximity to water sources and a mostly flat terrain along an expressway, which allowed a direct connection with the center of Brasília, were the factors that motivated the first people to settle there.

Today all its extension is within the environmental protection area of Paranoá, which indicates that it is a **unit of sustainable use**, where nature conservation must be reconciled with the sustainable use of natural resources. In the north / east the occupation is limited by the Taquari Ecological Park (regulated in 2003) and in the west/-south by Vila Varjão Ecological and Living Park (regulated in 1996), being both ecological parks are also sustainable use.

The Federal District Conservation Units are divided, according to the National System of Nature Conservation Units, into two large groups with specific characteristics and different degrees of restriction:

1. Integral Protection Units aimed at nature conservation, admitting only indirect use of its natural resources, except as provided by law;
2. Sustainable Use Units that aim to make nature conservation compatible with the sustainable use of part of its natural resources.

Federal District Institute of the Environment and Water Resources Brasília Ambiental in Guide to Federal District Conservation Units (2014)



[04]
**Varjão as an
informal settlement**

“Informal settlements entail the ensuing lack of tenure security, political vulnerability and poor quality of life of their occupants, and result not only from the exclusionary pattern of urban development, planning and management processes, but also from the nature of the existing legal order.

Throughout the process of intensive urbanization, speculative land markets, clientlist political systems, and elitist legal regimes have not provided sufficient, adequate, and affordable conditions for access to urban land and housing for the poorest social groups, thus causing irregular and inadequate occupation in the urban environment.”

Source: Centro de Apoio Operacional do Meio Ambiente do Ministério Público de Goiás available at <www.mpggo.mp.org.br>.

[CHARACTERIZATION OF AN INFORMAL SETTLEMENT]

An informal settlement is a conglomerate that arises from the illegal occupation of an empty area, when a group seeks a portion of free land to settle in. What happens is that the settlement begins very poorly: the financial conditions of the group are not enough to afford the formal real estate market, otherwise they would join it, so people seek in the foreground only to meet their basic needs. Thus, they settle where natural resources abound and the settlement expands inevitably.

Across time, it grows and develops marginalized to the zoning and ordering laws that govern the formal parts of the city. Lack of tenure security, together with lack of infrastructure and continuous use of resources lead to violence, health and environmental issues.

The occupation in Varjão began exactly as described above: irregularly, when a group of people set out to meet their primary needs in 1960, and from that it just expanded.

What happened there is recurrent in Brazil: land that is uninsured/unfenced or unoccupied, even if private, is invaded by very poor people who cannot afford to buy it. These are usually people who emigrate from the rural environment in search of better living

conditions, but when they arrive in the city center they do not have the required qualifications for paid work and therefore need an area to meet their basic needs. They are unable to enter the formal market and are forced to dwell where land is available, in increasingly distant places.

The area that today corresponds to Varjão was chosen because it was free, it was abundant in natural resources (presence of waterbodies nearby) and for the favorable terrain.

visual identity

The exclusion of urban development, planning and management processes by the public sector also contributes to shape the visual identity of these places: the streets are narrow, organic and muddy, adjusted as the space that remains between properties. They do not accommodate police cars, garbage collection vehicles or public transportation, causing people to lack these services.

In terms of micro plots, the residences are very close to each other and usually lack external finishing. The color of brick and makeshift woods is what can be seen in abundance instead.

There are also few or no public areas for recreation or afforestation.

As the lots are usually small, the buildings occupy as much of their projection as possible on the ground but are usually not tall, as this would require a large initial investment in structuring.

In these places, the situation of high construction and demographic density creates bad urban situations, with lack of natural lighting and ventilation and excessive humidity, which leads to serious health consequences (Macedo, 2012). It is also important to say that the buildings are built by the residents themselves, with their limited knowledge of architecture and construction, as they cannot hire professionals to help them.

In addition, the famous *gambiarra*s (impromptu facilities - usually fraudulent calls) are everywhere. Where infrastructure services do not serve the community well enough or cost too much, residents produce makeshift solutions to solve problems and get around daily and emergency situations.

At Varjão, the initial housing was mainly characterized by wooden shacks, built with rubble rests brought from exterior sites and available materials that could be found in the area. The houses were spaced, as there was not yet a division of streets and lots.

transportation

Speaking of transportation, the system available to cater to informal settlements is often flawed. The tickets are expensive and the route presents a high level of discomfort and insecurity. In addition, as residents must use it, they still have to walk long distances to reach it.

While an irregular settlement, there was no public transportation connecting Varjão to the other parts of the Federal District. The streets (none asphalted) were organic paths where people moved by feet or bicycle.

public facilities

Moreover, the lack of public facilities reduces the quality of life of people living in informal settlements as they do not have access to health, education and adequate policing until there is a financed intervention.

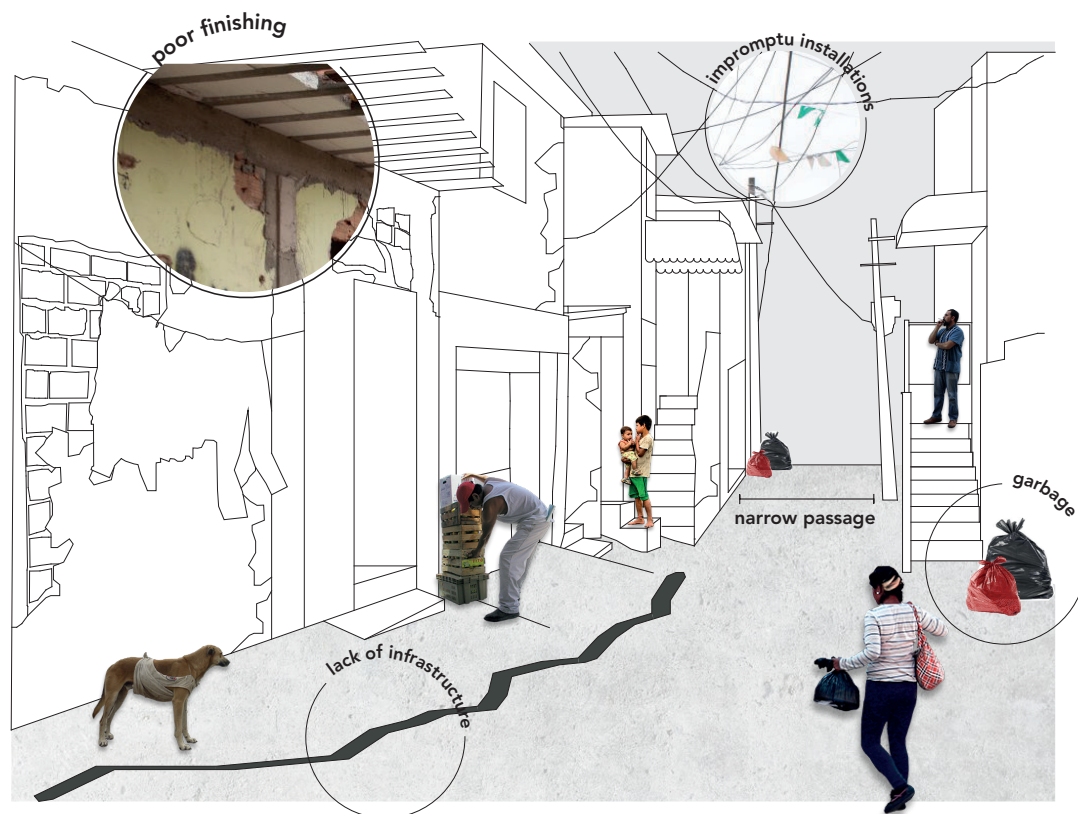
Due to the socioeconomic situation of the residents, malnutrition and unemployment, together with low levels of education, are common problems. This set of needs often establishes situations of extreme vulnerability, also subject, and increasingly significantly, to the dominance of popular spaces by an "order" based on violence (Brasil Habitar, 2007).

Varjão have always presented low socioeconomic indicators, as the population there was never too rich. Since the first settlers were employees of Brasília's construction and others dedicated to rural activity, it was never a neighborhood with big acquisitive power. The population struggled itself to overcome eventual necessities or resorted to nearby neighborhoods when in need deal with sudden emergencies. As it was not yet considered a proper neighborhood by the government, there were no institutional services in the area.

infrastructure

Lastly, open-air garbage, wastewater and poor lighting and running water all increase the impact the settlement has on the environment. Depending on this impact the area becomes a danger zone for the residents themselves, who are susceptible to erosion, flooding and landslides.

This was the main issue in Varjão, as the area was initially full in natural sources (there were abundant waterbodies following the natural topography), and it was fully covered by cerrado vegetation. With the human occupation, however, sewage and garbage were being illegally discarded in the water and flooding and erosions started to succeed.



img 19. Informal settlement environment

[URBANIZATION IN THE FEDERAL DISTRICT]

The urbanization process in the Federal District reflects what happened throughout Brazil: it is recent and has been happening fast. According to IBGE the number of people in urban environments in Brazil went from 55% in 1970 to 84% in 2010 (IBGE, 2010).

In the last decades, the years of greatest growth, the phenomenon has configured a particular situation: at the same time there is population concentration in large urban agglomerations (metropolitan regions), there is also dispersion in a large number of small cities. Metropolitan regions, however, are the most targeted by people who emigrate from the rural environment. They stand out because they are strategic to the country's development, and thus receive more resources and interventions. They also concentrate the largest number of jobs, which means greater attractiveness.

This population concentration, together with unsatisfactory investments and poor soil management (even total lack of planning in some cases), generated a housing deficit that boosted the informality. Precarious residences have multiplied and became informal settlements with poor construction quality and disorderly occupation in areas unfit for residential use throughout the country (Brasil Habitar, 2007).

This is what happened in the Federal District. Brasília was expected to host from 500.000 to 700.000 people, but in 2010, just fifty years after its inauguration, the city already exceeded 2.5 million inhabitants (IBGE, 2010). The prediction was that only when the city was depleted the periphery would be developed, with the creation of small 'satellite cities' that would support the center (Oliveira, 2005). These, however, emerged and expanded before the construction of Brasília was even completed.

The number of inhabitants therefore increased due to the big offer at the construction site. People from various parts of the country came to work and settled in because they did not want to return to their home cities.

Hence, workers began to form informal settlements around the center, and the expansion started to be coordinated with the choice, by NOVACAP (Brasília real estate company), of land in the periphery, where, at first, improvised settlements were created, being later legalized in the decade of 60. These correspond today to the Administrative Regions of the Federal District, totaling 30. (Oliveira and Maniçoba, 2014).

From 1960 to 1970 the population of the DF grew from 140 thousand to 537 thousand inhabitants. From 1970

to 1980 this number more than doubled. From 1980 onwards, despite a decrease in the Federal District external migration rates, the internal migration rates to the periphery increased. This was due to the large number of invasions happening simultaneously to the implementation of a lot distribution policy, encouraged by the Local Government itself, that lasted until 1991. (CODEPLAN, 1996).

During the process of special organization of the Federal District, urban centers distant from the center were created, most without urban planning, seeking to meet the growing demand for low, middle and upper-class housing. Some of them, however, initially grew cluttered, without basic infrastructure, and overwhelmed Brasília as they lacked the services and public facilities that had long been restricted to the center. (Oliveira and Manicoba, 2014).

[HISTORY OF VARJÃO]

In 1970 the land was divided by a squatter among his employees: "lots" were determined without studies of environmental impact or housing conditions. There was also no investment by the grantee on site. This division was yet another informal "concession of use" as the land officially belonged to the Federal District government.

After this initial division there were other secondary in the area, that was occupied by relatives and friends of the first favored, always irregularly and disorderly. During this process shacks co-existed with small, rarely fenced lots and farms on larger land intended for rural activities.

The informal settlement then expanded like any other: spontaneously, it grew in many directions, being only limited by the physical barriers on its surroundings.

Precarious homes have multiplied and with them public health issues and environmental impact have also increased proportionately. By the early 80's there were already 120 families. Many coming from northeastern Brazil, they were motivated by the opportunities that the capital Brasília, in proximity, promised to offer.

What is always very strong in these settlements, however, and was also expressive in Varjão, are its social ties. People who live in precarious situations usually join themselves in the

difficulties to try to overcome them and thus movements asking the settlement to be fixed in the area started to arise, since the inhabitants knew that only after a governmental intervention the rustic initial condition of occupation could be overcome.

Thus, in 1984 the first study to gather information about the population in the area was carried out by GEPAFI (Executive Group for Informal Settlements Fixation), since the settlement kept growing and needed to be contained. Five years later, in 1989, there were already 378 residences housing 550 families and 3200 settlers. All of them lacking infrastructure and public facilities.

Being close to areas of high economic value (nowadays North Lake and Lake North Mansion Sector neighborhoods) the invasion of the Varjão area continued for many years as residents resisted to be relocated to other areas.

In 1991, through an official document (Decree No. 13.132 /1991), the Federal District Government (GDF) recognized the existence of Varjão and began to draw guidelines to help the local population, which culminated in the determination of an urban project for the definitive implementation of Varjão neighborhood.

The obstacle of gathering statistical data in informal occupations is a constant, so at that time there was not much information available for a precise

quantification or characterization of occupation in the area until that point. Therefore, for the intervention there was a register of residents and, when the news that the area would be provided with infrastructure spread, the number of families on the territory increased from 700 to 1000 in just a few days.

This flexibility in constitution is also a feature of informality. Since there are no bureaucratic laws or processes to join the settlement, agglomeration can grow very fast, especially when there are prospects for improvement. The families, already very humble and almost without possessions, move according to the "winds of opportunity". (Estado de São Paulo, 2011).

[05]
urban
interventions

[1ST PLANNING ATTEMPT]

URB 108/91

In 1991, after the Government recognized the existence of Varjão, an urban project was foreseen, but it was eventually overcome by increasing irregular appropriations.

Initially, seeking to preserve the former characteristics of 'Vila Varjão' (name given to the informal settlement), the URB 108/91 Urbanism Project was presented, taking advantage of the existing physical configuration and already consolidated urban activities.

The organic paths were kept and there was a cadastral survey of the present buildings, as well as of the 'owners' of the unofficially divided lots, so that they could be regulated for the first time.

The project foresaw the creation of 684 lots, distributed among diverse uses/ functions, for an estimated population of 3500 inhabitants, resulting in a gross density of 33 inhabitants/ha (Costa, 2011).

At the time were produced Descriptive Memorial (MDE 108/91), Urbanism Project - Installment (HRB 108/91), Planialtimetric Geometric Design (PLN 108/91) and Building, Use and Heights Standards (NGB 108/91, NGB 127/91 , NGB 128/91, NGB 129/91 and NGB 130/91), outdated documents today.

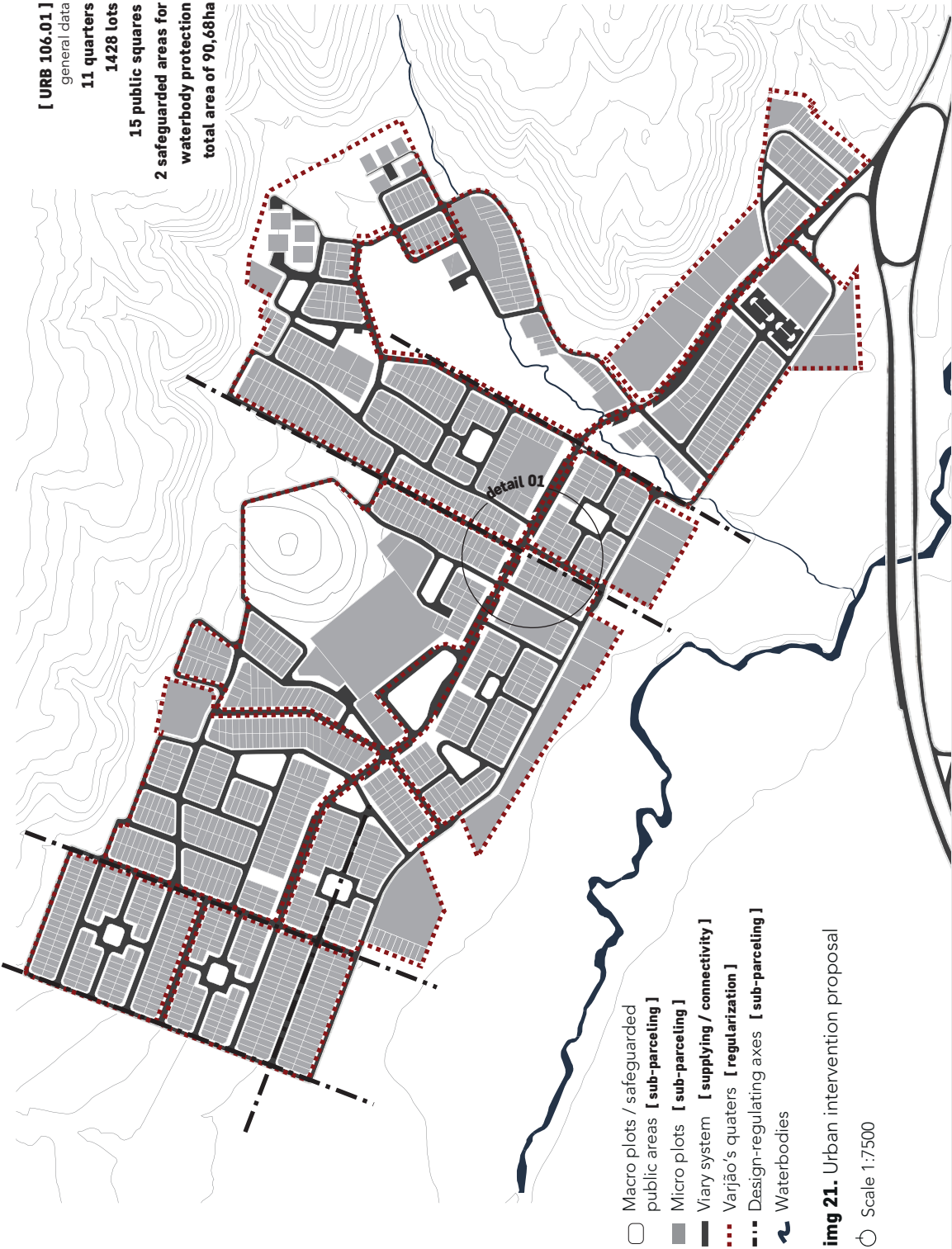
Even with the project, however, public areas were still being occupied and land close to the waterbodies, slopes and environmentally sensitive areas continued to be invaded.

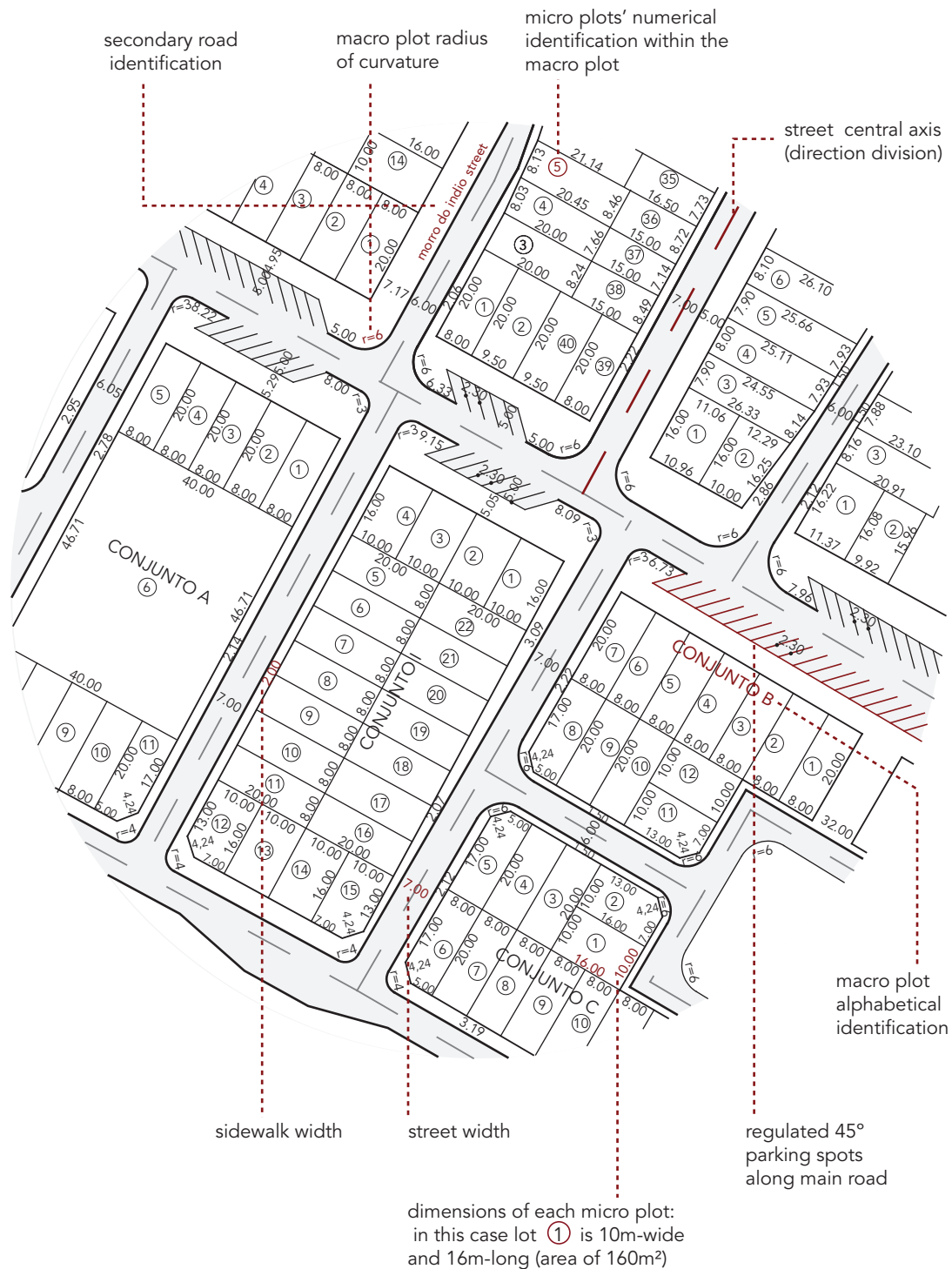


[2ND PLANNING
ATTEMPT]

VILA VARJÃO
INTEGRATED PROJECT

In 1997, the government took new provisions and Varjão became the target of a new action plan. The second urban intervention conducted in the area was then entitled “Vila Varjão Integrated Project” and belonged to the Subnormal Settlement Urbanization Subprogram (UAS), part of the Habitar Brasil Program, a partnership between the Government of Federal District, Ministry of Cities and the Inter-American Bank Development (BID), that made funds available for the project in 2002.





INTERVENTION [OBJECTIVES]

- 01 Remove families from risk areas
- 02 Curb the growing environmental impact
- 03 Provide better living conditions for the others already settled there

[TARGET]

Families earning up to 3 minimum wages¹ who should have living standards raised



¹In Brazil, the minimum wage is an important economic parameter: it is the lowest salary a company can pay to an employee. It is established by law and is reevaluated every year based on the population's cost of living. It was created based on the minimum amount a person spends to ensure his survival.

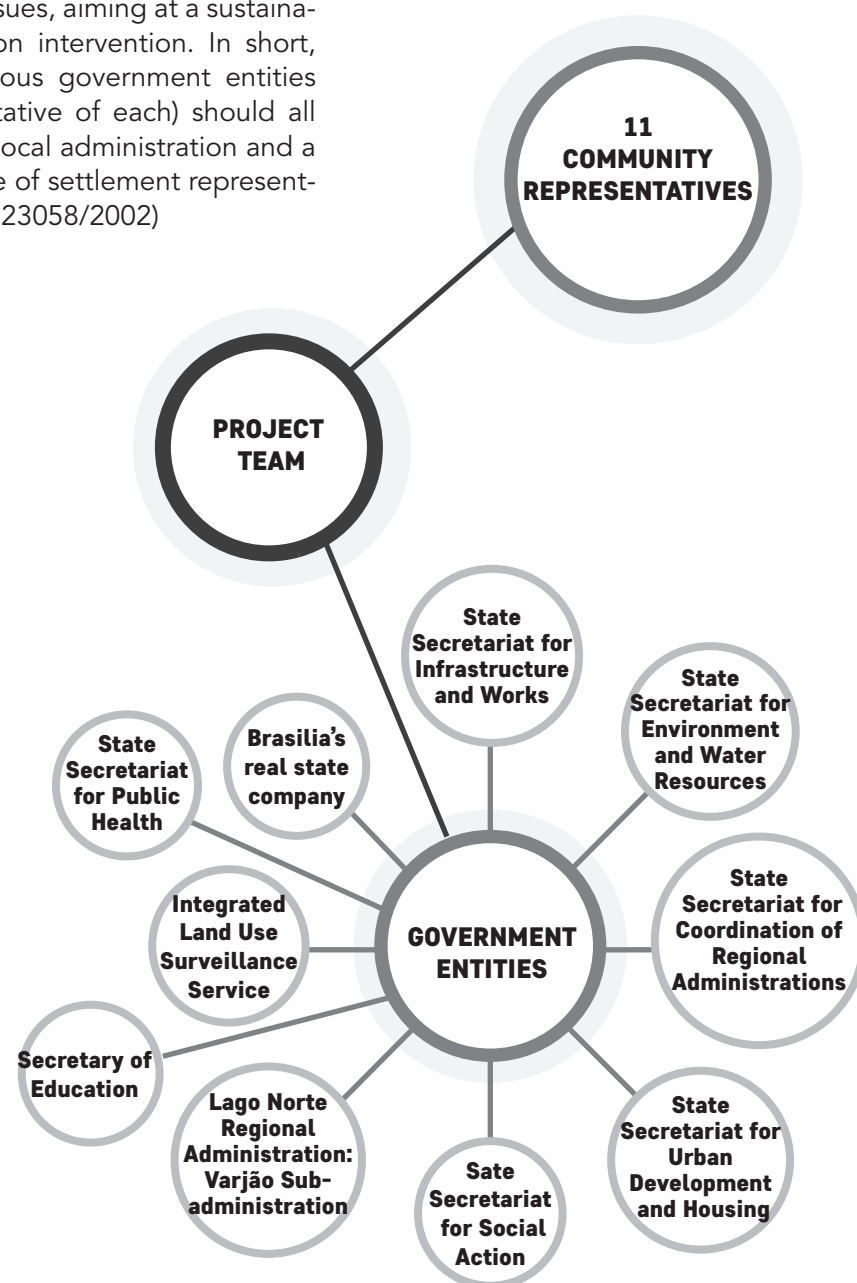
The intervention clearly intended to rid Varjão of the informal condition in which it was immersed, providing the creation of instruments for settlement regularization in the urban, institutional and environmental spheres. In addition, public policies and programs were envisaged to scale up low-cost housing while authorities were controlling and discouraging irregular construction. Consequently, it was necessary to adapt the urban regulation to local standards, taking into consideration the conditions of the population (Brasil Habitar, 2007).

There were also political motivations in the background for all this regularization, as the local government would benefit from the issuance of ownership documents sponsored by Federal Government money transfers.



[INVOLVED STAKEHOLDERS]

To cope with the project, multi-disciplinary teams worked together on urban, environmental, social, land and engineering issues, aiming at a sustainable urbanization intervention. In short, staff from various government entities (one representative of each) should all work with the local administration and a small collective of settlement representatives (Decree 23058/2002)



[PHASES]

The urban intervention was divided into 3 phases: the first was a diagnosis for the recognition and characterization of the existing demand in the area, the second equivalent to the actual urban proposal and the third a post-occupation evaluation, to verify the results obtained.

[PHASE 01] DIAGNOSIS

The intervention was based on a clear definition of the existing framework, based on adequate and reliable indicators that allowed an accurate diagnosis of the problem (precariousness of existing public services, predominant housing type, average income of the population, land tenure, degree of public intervention already and the degree of community organization, among others). It was then structured through a planning of actions to be implemented, with definition of deadlines, sources of resources, ways of approaching problems and hierarchization of measures to be taken (Brasil Habitar, 2007).

In addition, analysis of physical and climatic aspects such as soil type, slope, hydrography, vegetation and winds were also among project's constraints.

As a result of the diagnosis phase, two morphological structures were identified reflecting the changes that Varjão had undergone so far: 1. Lots following natural drainage which was being used by the residents as garbage dumps and to flow domestic sewage, generating large environmental degradation and 2. Already defined residential blocks, organized as surrounding a square, which was appreciated by the residents.

[PHASE 02] URBANISM PROJECT

According to the National Housing Secretariat, the guidelines orientating the integrated project sought to overcome housing problems through articulated policies, with an emphasis on the urban, proposing experimental actions that should accompany the growth of Varjão and its social needs (Brasil Habitar, 2007).

The 2001 urban project (URB 106/01) foresaw 1284 lots: 1282 mixed use lots and 2 condominium housing, seeking to serve 5959 people.

INTERVENTION
[FOCUS]

1. Provide urban infrastructure

through the development of a viary system and the extension of piped water, sewage, street lighting and garbage collection networks throughout Varjão

2. Regularize the area

by defining macro and micro plots later organized into quarters and blocks

The calculation was 4.2 people per dwelling and included existing and proposed lots, resulting in a gross density of 72hab / ha. The polygons of the project area (82.58ha) and the Vila Varjão ecological park (adjacent preservation area) were also defined.

When URB 106/01 project was elaborated, Varjão was classified as a 'Consolidated and Controlled Urban Area' and 'Area of protection III', according to the current master plan of territorial planning for the Federal District.

Therefore, a new Descriptive Memorial (MDE 106/01) and Urbanism Project (URB 106/01) were produced, with respective details (DET 106/01) and Building, Use and Heights Standards (NGB 19/02, NGB20 / 02, NGB 21/02, NGB 22/02, NGB 28/02, NGB 29/02 and NGB 30/02). These documents replaced the previous ones, concerning the intervention 108/91 and established new urban parameters for Varjão.

Records such as these take into account the topography of the area, the proximity of preservation areas, the occupation of servitude areas, the location and the history of occupation, which are fundamental factors to be studied and respected. They are responsible for the peculiarities of each project and reflect the need for site-specific solutions. (Brasil Habitar, 2007).

Thus, the intervention prioritized an asphalted road system with 3 hierarchical levels (main road, connected to secondary roads that in turn connect to local roads). This system was designed from a basic structure, trying to organize them so as to concentrate most of the traffic on the main road, which cuts the entire settlement longitudinally.

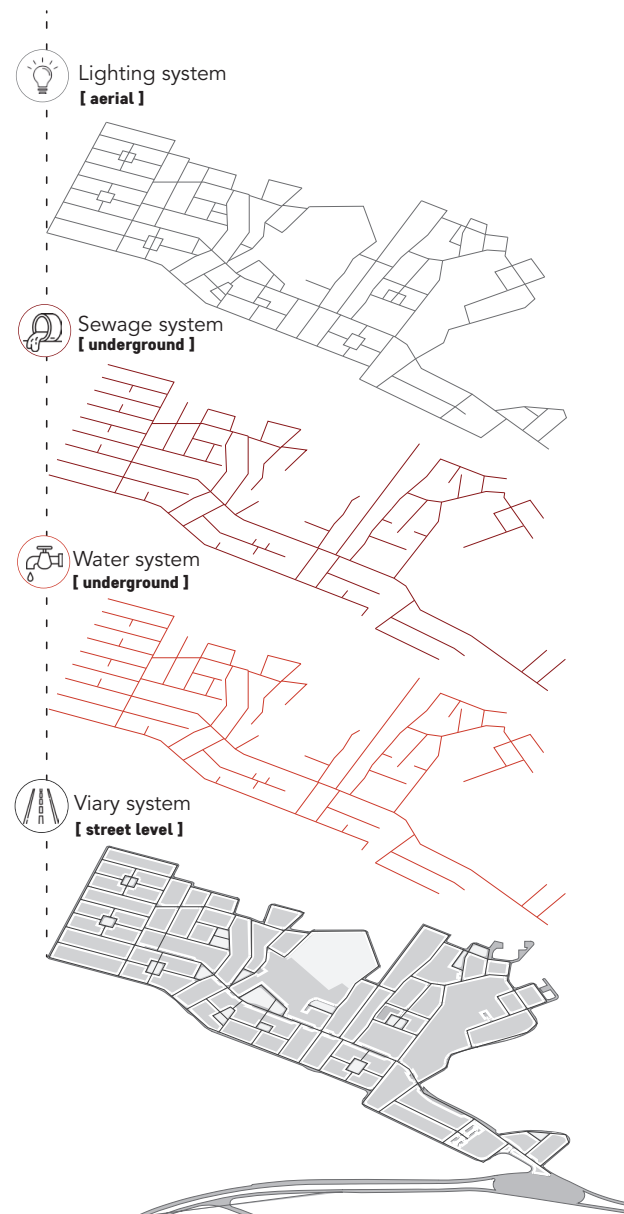
Access was established by a single entry and exit, which is located at the main road meeting with Paranoà park road (EPPR) (Costa, 2011) and a contour road was also proposed to define the limits of occupation as a premise of the urban design.



Parallel to the implementation of the road system, the supplying of Varjão was treated. Infrastructure networks that were totally irregular / non-existent went through a process of urbanization (or redevelopment) and the area gained a massive investment from the public sector. Since the Government had already recognized the existence of the settlement, the supplying companies that already served Brasília could extend to Varjão and it was then provided with lighting, sewage, plumbed water and garbage collection services.

The proposal was the entire area would be served with the electricity and street lighting by the Brasília's energy company (CEB) and with sanitary systems (water and sewage) through the Federal District Environmental Sanitation Company (CAESB). For sewage services, the option was for condominium implementation, aiming to reduce costs and promote social integration among residents, through joint efforts to perform the services (Costa, 2011). The whole area would also have garbage collection by the Urban Cleaning Service (SLU).

Once infrastructure systems are implemented the use of natural resources is maximized so they do not have to be consumed at such high speed and this reduces the environmental impact.



img 24. Supplying networks

Moreover, in an attempt to change the current unsuitable urban setting, macro and micro plots oriented by guiding axes were defined in accordance with the proposed new road system and public areas were safeguarded for the creation of squares and sports venues. It was important to ensure free areas that the entire population could use as a measure to improve local livability.

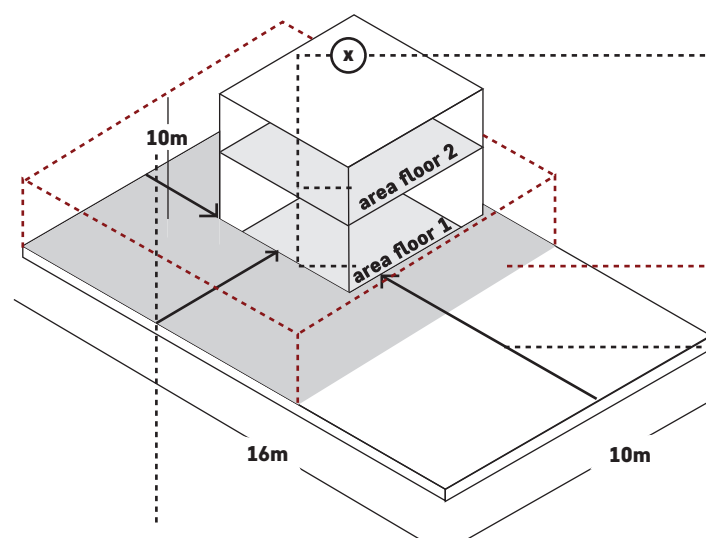
In addition, the occupation was able to be ordered with the channeling of natural drainages, which allowed a conforming space. This way, the areas could have defined purposes and functions, clearly determining public and private spaces.

The sub parceling was made by the government itself, through the Urban Planning Secretariat, and the result was macro plots (sets) of different dimensions, but regular. Summary tables of real estate units, public areas and proposed public facilities can be found in the descriptive memorandum (MDE 106/01) indicating the quantity and respective area of each of them.

Finally, the regularization of the physical space also happened giving families the right to own housing. In interventions such as this, land regularization is an element of citizenship, in the sense it provides an address to the residents and promotes their social inclusion, giving them a property title (Brasil Habitar, 2007). Thus, Varjão was divided into 11 numerical quarters, subdivided into alphabetic sets.

[URBAN PARAMETERS]

The initial urban parameters that governed activities, uses, and construction indices in Varjão were described in the Building, Use and Heights Standards (NGB), which were drawn up in 2002. These parameters were mainly maintained in the 2009 revision of the Master Plan and Territorial Planning (Supplementary Law 803 / 2009) for the entire Federal District, but today their latest version is in the LUOS (Land Use and Occupation Law), a recently created document to unify urban parameters throughout the Federal District.



[maximum height]
indicates how tall the construction can be.

img 25.

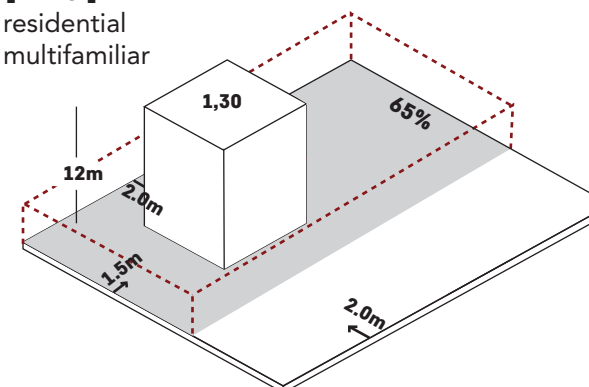
[construction index]
coefficient that multiplied by the site's area indicates the maximum built-up area allowed. This total built-up area corresponds to the sum of all floor areas.

[occupation index]
maximum percentage of the site that can be occupied by construction's projection on the ground

[required setbacks]
how far the building should be from site's boundaries

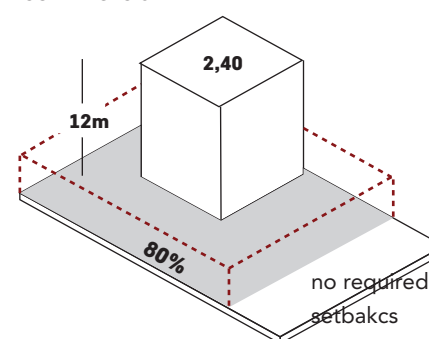
img 25 to 30. Urban Parameters foreseen by LUOS.

img 26.
[RE 3]
residential
multifamiliar



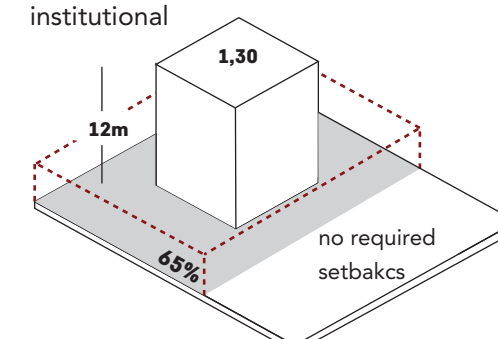
img 27.
[CSIR 2]
mixed-use /
commercial

1500m²
to 6500m²



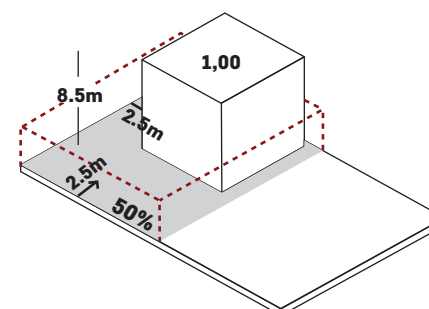
<350m²

img 28.
[CSIR 1 NO]
non-compulsory
commercial /
institutional



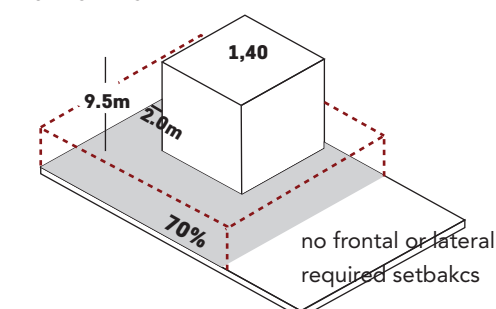
800m² to 2500m²

img 29.
[INST]
and
[EP]
institutional



300m² to 2000m²

img 30.
[RO 1]
and
[RO 2]
residential
unifamiliar



<350m²

[LAND USE AND OCCUPATION LAW]

Land Use and Occupation Law is then configured as the current legislation, defining the area as predominantly residential and indicating the feasible constructive limits. It also divides Varjão into categories: RE3, RO1, RO2, CSII NO, CSII 2, and INST and EP.

In area RE3 a maximum of 2 floors is allowed, with minimum front and rear setbacks of 2m and lateral of 1.5m. The maximum occupancy rate can reach up to 77% of the plots' areas, that range from 800m² to 6500m². It is an area intended for exclusive multifamily residential use.

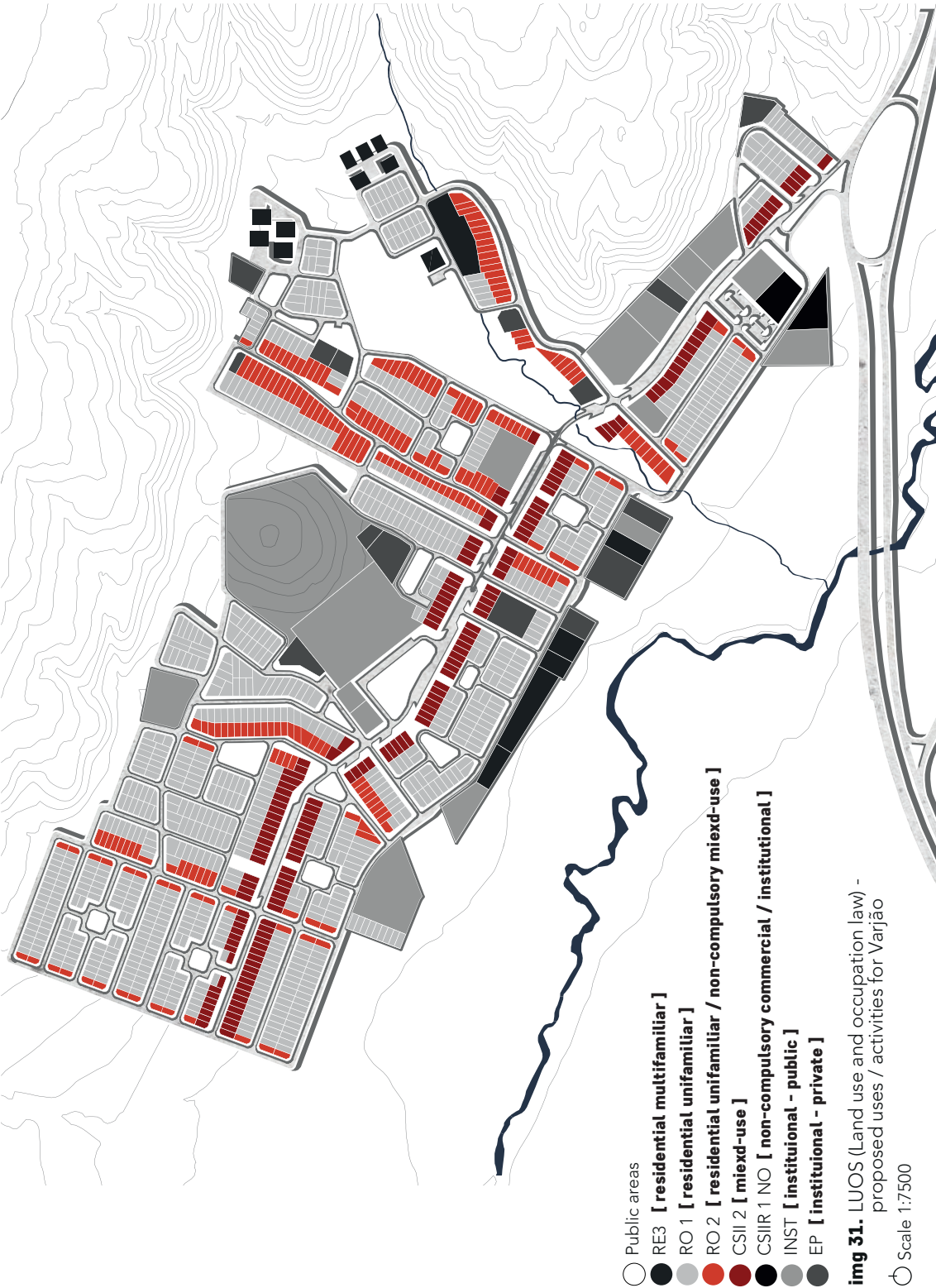
RO1 is for single family residential use. It is the predominant category in Varjão and allows autonomous activities without customers /consumers. In contrast, RO 2, which also foresees single-family residential use, allows trade / service to coexist with residential use, so they are mixed-use lots. Both areas require a front setback of at least 1m and rear of 2m. For the sides, only in corner lots 1.5 m setback is required. Occupancy in both areas can reach up to 70% of the lots, ranging from 100m² to 350m² and the maximum allowed is 2 floors.

For CSII NO no specific use is required. They are small lots also from 100m² to 350m² but can be occupied up to 80% of their areas. They can have up to 3 floors and there are not mandatory setbacks.

For CSII 2 the only prohibited use is residential. The lots range from 1500m² to 2000m² and can be occupied up to 70%. Mandatory setback is 2.5m on all sides.

The INST category is for public institutions lots, which correspond to public facilities available to the community, and EP is for private institutions. The lots range from 300m² to 2500m² and can be occupied up to 50% of their areas. The required front and rear setbacks are of 2m while the lateral ones are of 1.5m.

Documents such as this take into account the topography of the area, the proximity of preservation areas, the occupation of servitude areas, the location and the history of occupation, which are fundamental factors to be studied and respected. They are responsible for the peculiarities of each project and reflect the need for site-specific solutions (Brasil Habitar, 2007).



[POST - OCCUPATION]

All this regularization enabled a new level of development for the area, that began to gain autonomy. In 2003 Varjão was recognized as an autonomous Administrative Region² (23th in the Federal District), and became independent from RA 18- North Lake, that nowadays corresponds to the adjacent upper-middle-class neighborhood (Law 3153/2003). Costa argues, however, that the creation of a new administration hampered urban planning and management actions, as it fostered a process of socioeconomic segregation towards Varjão (Costa, 2011).

Despite the treatment, some dynamics associated with the informality remain present in Varjão. It is still configured as a periphery for Brasília (centrality), and is not integrated with the formal parts of the city. Furthermore, the independent administrative region is still socioeconomically vulnerable, as its residents' indicators show, despite all the physical formalization in the space.

[APPENDIX]

transient irregular occupation

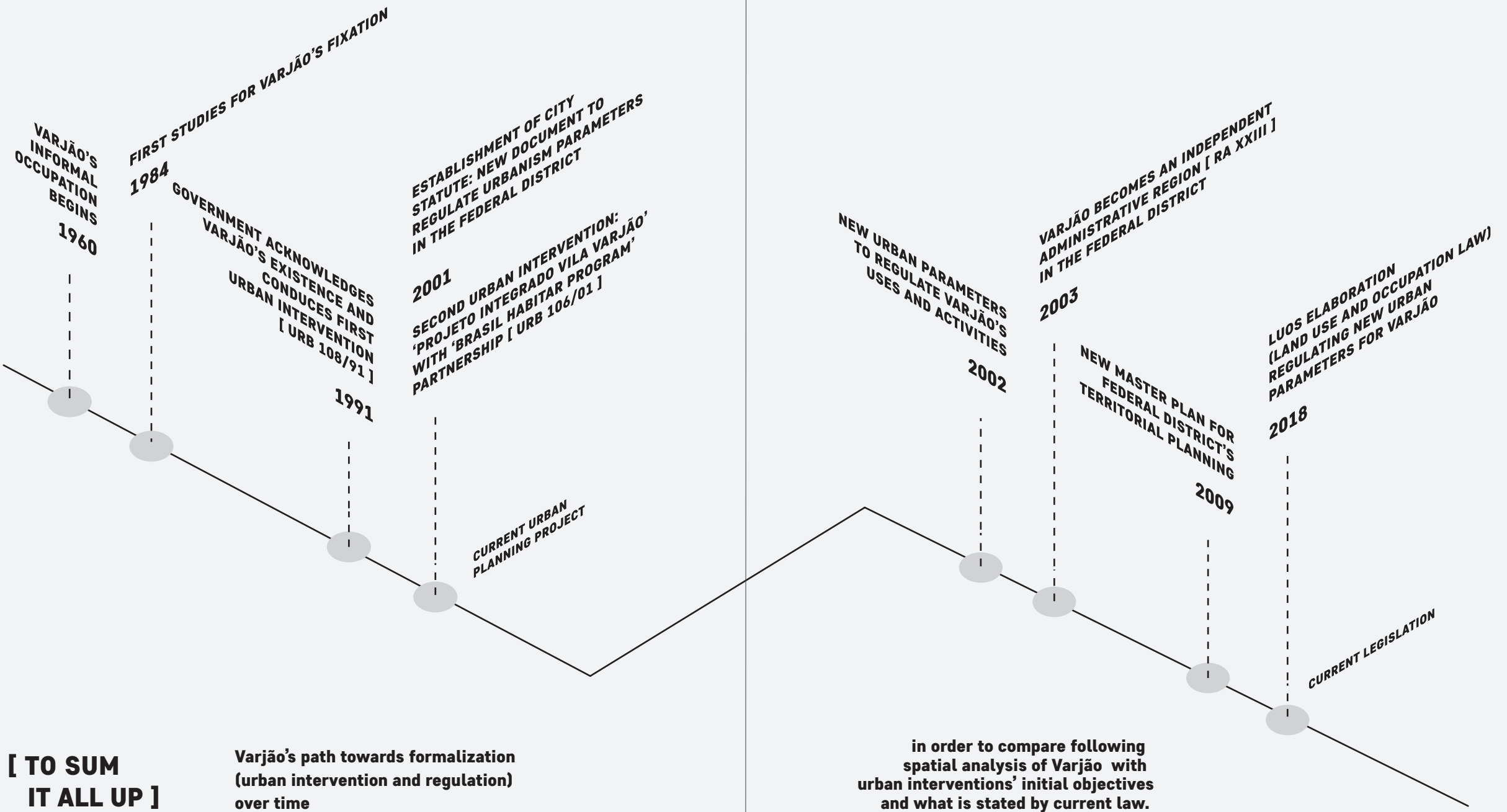
From 2005 to 2014 a new invasion developed to the west of the settlement, reaching 500 **wooden shacks** in permanent environmental protection area. This occupation, however, was removed by the Secretariat of Public and Social Order (SEOPS) that did not tolerate a new irregular occupation in Varjão.



img 32. Housing visual in the irregular occupation
Source: google maps.



img 33. Location of the irregular occupation within Varjão's urban perimeter



[INTRO]

To guide the spatial analysis and consequently the representation of Varjão, the initial aspects were those the Law of Land Use and Occupation (LUOS) mentions : activities and heights. These criteria directly influence the built environment and therefore initially provide an overview of the occupation in the territory.

Furthermore, some aspects related to informality (brought in the characterization of informal settlements) are revisited. The range of public transportation, environmental comfort, the public facilities and the typologies that are found in the area are some other points responsible for the characterization of Varjão. Therefore, they were also shortlisted in order to check disparities between the proposed and the current configuration.

The work thus analyzes the connection points / internal disconnection of the road system, the easement of public transport (routes and distances), the afforestation and noise sources, the easement of basic public services such as health, education and policing units.

Finally, a condensate of informations regarding the typologies form a sort of catalogue, since they translate the visual identity of the built environment of Varjão. Finally, a condensate of informations regarding the typologies form a sort of catalogue, since they translate the visual identity of the built environment of Varjão.

The data sources are recent documents prepared by CODEPLAN, SEGETH, and Varjão Regional Administration, combined with satellite views and interpreted for the elaboration of maps that seek to represent the current spatial configuration of the area with great likelihood.

[ACTIVITIES]

In general, the proposed activities by the law of use and occupation (LUOS) were followed and today Varjão is still a mostly residential neighborhood with walled lots. The residences have high walls and gates (approx. 2m high), some with more and others with less permeability, and even the few vacant lots are surrounded. At Varjão, the guarantee of land ownership is an important factor.

Although lots have been regularized, landlords fear invasions. Owners then seek to occupy them quickly, often starting precarious houses that are continuously being upgraded, such as the adaptable houses brought earlier by Mayra Madriz and Jeff Risdorff in the theoretical framework.

Commercial and mixed-use lots are concentrated along the main avenue, that is an important corridor in Varjão. The businesses are small and medium sized stores, with higher permeability, that seek to meet the basic needs of the residents. These are restaurants, pharmacies, supermarkets, clothing and utilities stores. Mixed-use lots, on their turn, carry commercial activities on the ground floor that is more accessible and open, while on the upper floors there is residential use in the same building.

The exceptions to the planning rule are only a few lots that currently house businesses where they should be exclusively residential. Finally, many of the lots that allow non-compulsory mixed-use remained as only residential units along the secondary roads.

As for the squares, although some are not well configured to encourage the permanence of the population, the spaces proposed as public free areas were respected. The same is true for the institutional lots: their state of conservation is not good but they were properly erected on the designed lots, also along the main road.



[HEIGHTS]

The Land Use and Occupation Law (LUOS) does not define precisely the number of floors, but the occupancy rate (how much the building can occupy in projection on the ground, as a percentage of the total land area), utilization coefficient (index to be multiplied by the total land area in order to obtain the maximum amount of possible built m², where the areas of all floors must be summed) and maximum height, to constrain the constructions within buildable limits previously established. (see LUOS categories in regularization, chapter 5).

Maximum heights were the most respected criterion as it is the easiest to be measured and enforced by local authorities. Occupancy rates and utilization coefficients, on the other hand, have been neglected. The minimum setbacks were disrespected and resulted in constructions with larger built-up area than allowed.

These parameters seek to contain the excessive growth of the buildings since the taller the building, the less it may be projected on the plot (allowing good natural sunlight and ventilation), but what has been observed is a gradual verticalization, with buildings that occupy almost 100% of the available site. This happens because as the lots are already small the owners want to maximize the dimensions of the buildings both in height and in built area, especially where they intend to make irregular sub-installments.



[INTERNAL CIRCULATION]

The current configuration of the roads is one of the biggest contrasts with previous irregular occupation. It is characteristic of the informal settlements to have narrow and organic streets, as the space that “remains” between the lots, but a planned urbanization foresses the road system along with supplying networks, so that the viary infrastructure accompanies the occupation, and in Varjão this treatment is very visible.

The paln’s tracing was regular, defining (mostly) macro plots with individual residential lots. The blocks are rectangular and the lots change size to fit with what was already consolidated before the intervention.

The main road, the largest and the one with highest speed allowed, is a continuation of Varjão's main access and cuts the entire area longitudinally. It houses most of the commercial activities on its borders, as it is the most visible and movimented road in the entire neighborhood.

Because of this, it is the only one with regulated parking spaces. The secondary roads are important connecting stretches because they distribute the flow of the main road to the tertiary (local) that are already internal roads, with less movement, bordering exclusively residential lots.

The continuity of the roads is good, which indicates that the area is well connected internally, but to connect it to the other neighborhoods and downtown Brasília (12 km) there is only one government-managed bus route that passes through by the main road of Varjão.

Once there, the stops are sparsely spaced, but residents have to travel long distances from their homes to reach it. Thus, residents closer to the main road are better served by public transportation, while those who live farther away need to walk longer distances.

Varjão is a neighborhood with walkable distances (approximately 1.5 km in the longitudinal direction and 800m in the transverse direction) and there are no major barriers to pedestrian flows. What happens, however, is that there are extensive blind facades on the sides of exclusive residential sets and universal accessibility is lacking. Bike paths are missing and as each owner takes care of the sidewalk in front of his lot, they end up not being standardized. Some homes even advance on the sidewalks, setting up unevenness and unexpected obstacles to the pedestrians.

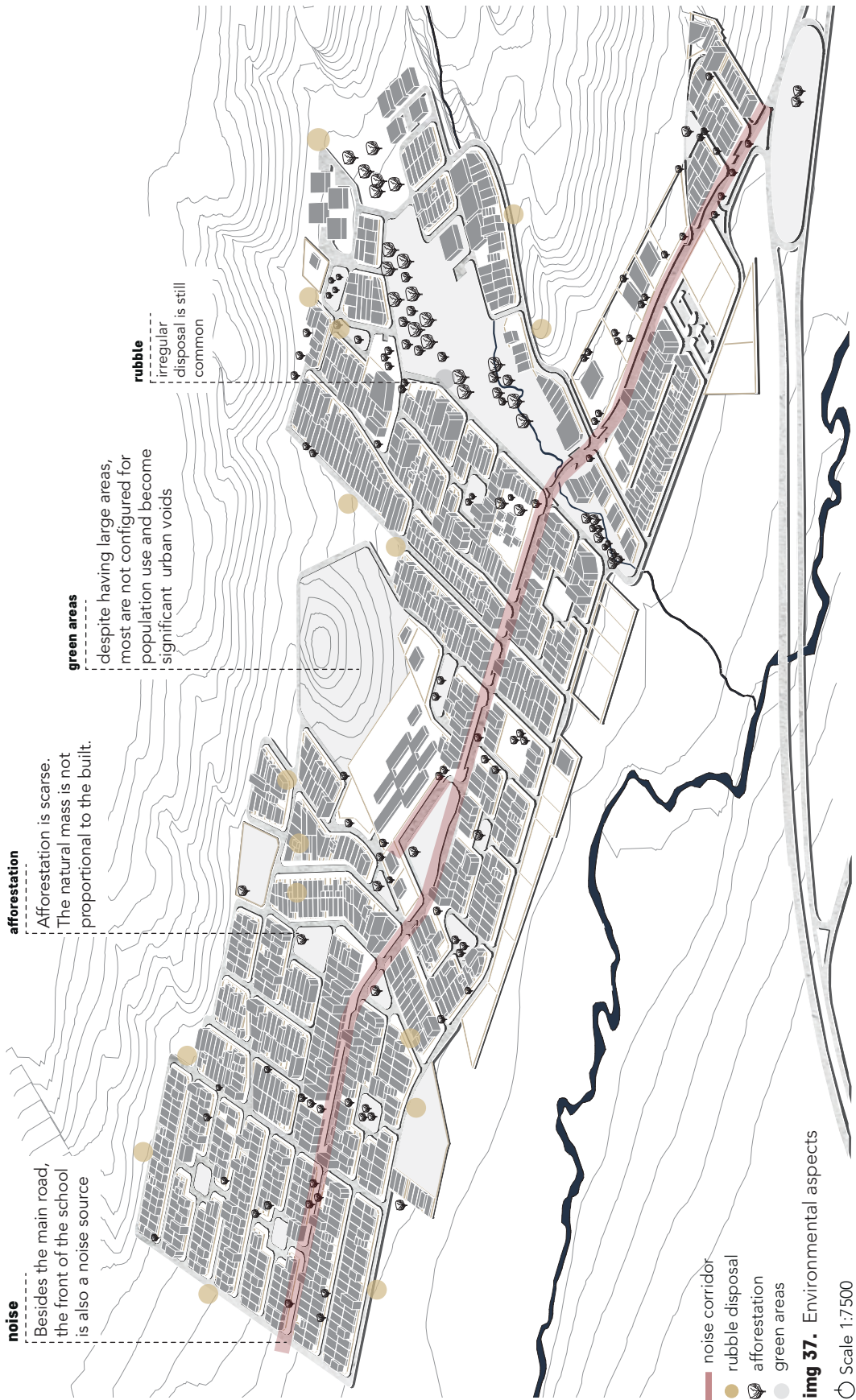


[ENVIRONMENTAL ASPECTS]

With wide streets, Varjão presents good ventilation but the same cannot be said about and afforestation. The ratio of built-up to natural mass is not balanced (there is too much built-up area and so few natural).

The few existent trees are scattered around the neighborhood were planted among sidewalks by the residents themselves, as there is no room for gardens or backyards within the lots. Grassed and wooded surfaces are restricted to public free areas. These, however, are not well configured for population permanence and currently appear as urban voids.

The settlement temperature is the same as in Brasília, and there is no heat island formation because the buildings are not tall. The main source of noise is the main road due to vehicle, commerce and large pedestrian traffic.



[PUBLIC FACILITIES]

The public facilities lot stand out in the built environment by their dimensions and for being only one exemplar of each type: there is one public school, one police station, a health unit, an administration, a center for the elderly, a community daycare, a space for events, a social welfare center and a tutelage council.

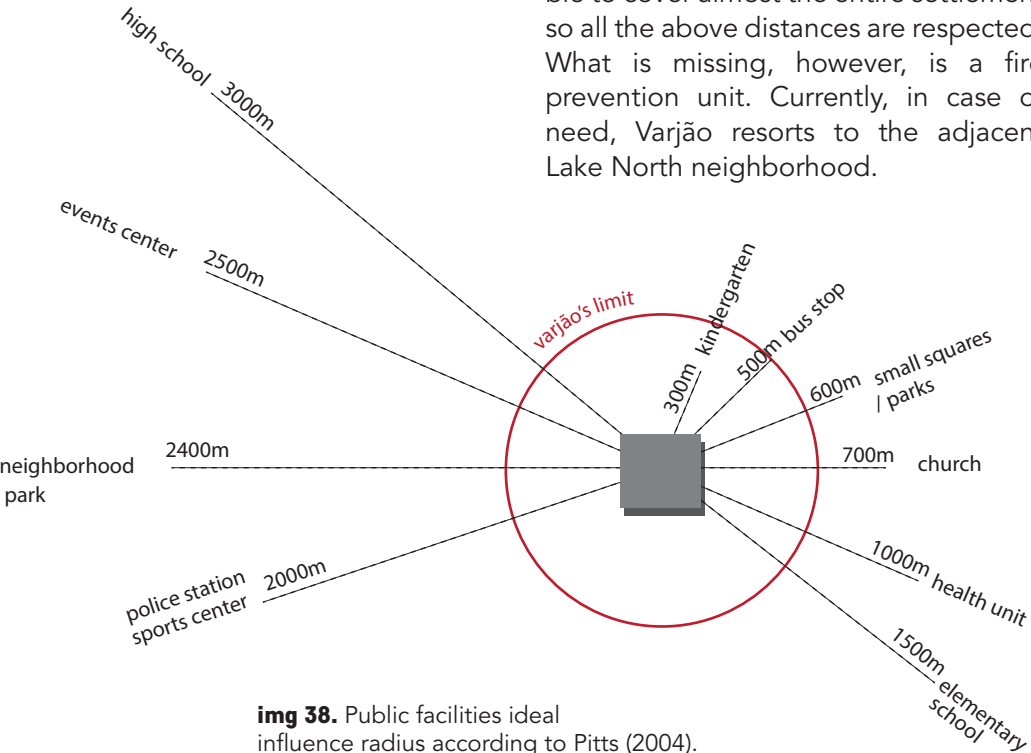
Their radius of influence, however, are almost all in accordance with what Adrian Pitts says in Planning and Design Strategies for Sustainability and Profit: Pragmatic Sustainable Design on Building and Urban Scales (2004).

According to Pitts, the influence radius of a kindergarten is 300m, for an elementary school is 1500m and for a high school is 3000m.

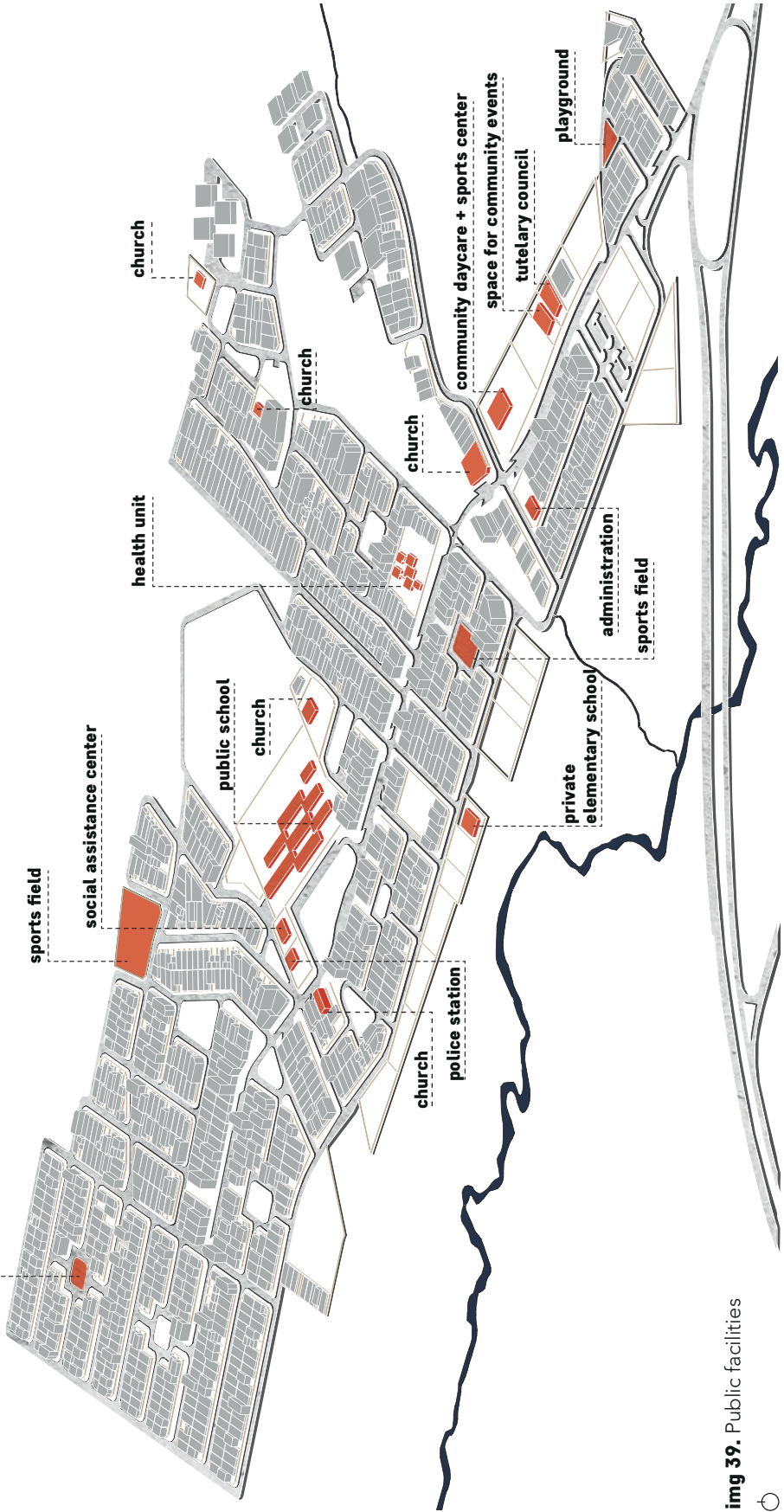
At Varjão the public school is centrally located and offers the 3 levels. Therefore, only the early childhood education offered by the government is not sufficient for the whole area. There is, however, a private kindergarten, as an alternative for families with greater financial conditions.

The radius proposed by Pitts for a police station is 2000m, while for the health facility is 1000m. For small squares and parks the ideal radius is 600m and for a neighborhood park it is 2400m.

In addition, the author states 500m as the ideal radius for bus stops, 700m for churches, 2000m for sports centers and 2500m for event centers. In Varjão, with a radius of 500m it is possible to cover almost the entire settlement so all the above distances are respected. What is missing, however, is a fire prevention unit. Currently, in case of need, Varjão resorts to the adjacent Lake North neighborhood.



img 38. Public facilities ideal influence radius according to Pitts (2004).



img 39. Public facilities

[VISUAL LANDMARKS]

Varjão has an **entrance square** that symbolically characterizes it.

Once inside the administrative region, the secondary and tertiary streets have practically the same configuration and the same views, so there is visual uniformity.

In contrast, the main road stands out from all the others with the tallest buildings, parking spaces, the presence of public transportation and the diverse ground floor on its borders, being a guiding landmark for all those who circulate in Varjão.

The few **4-story buildings** can also be considered visual landmarks, as they are few and stand out being the tallest.

Furthermore, another form of orientation and common identification in space is referencing the **commercial types**. They are often used as landmarks, as they feature large names and colors on their facades, so they are easily recognizable.



img 40. Entrance square

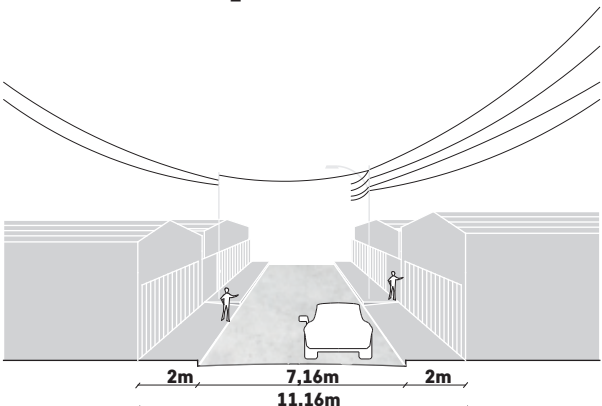


img 41. 4-story building

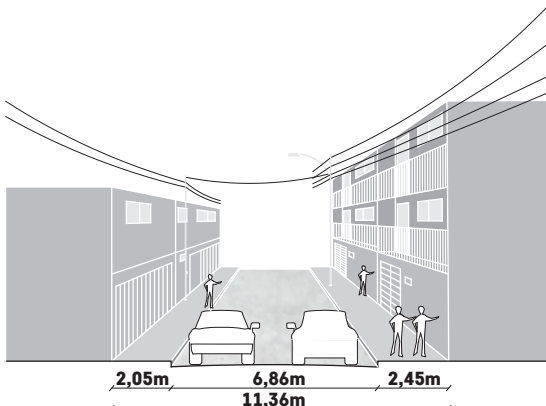


img 42. Commercial unit

[viary sections]

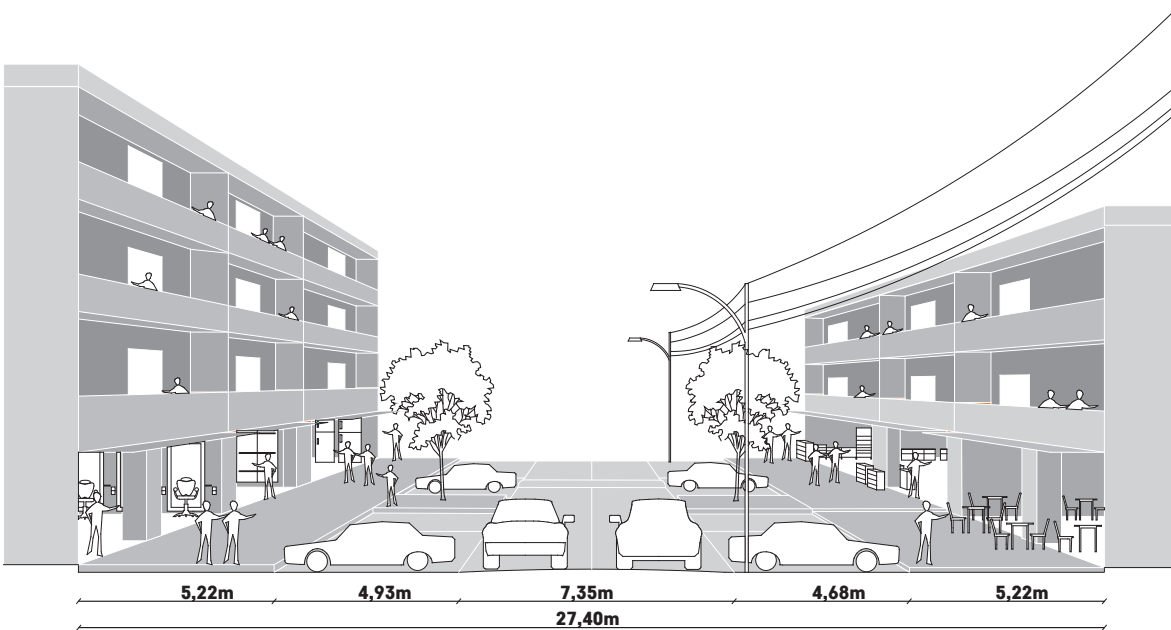


img 43. Tertiary (local) road perspective section



img 44. Secondary road perspective section

Secondary and tertiary roads had different hierarchies in the intervention project, but present practically same dimensions today. What changes is the extent of the secondary roads and the non-compulsory mixed-use on their borders, initially intended to bring more urban vitality to these corridors. However, many lots remained only as residences, and today the two road categories are visually similar, which further enhances the contrast with the main road.

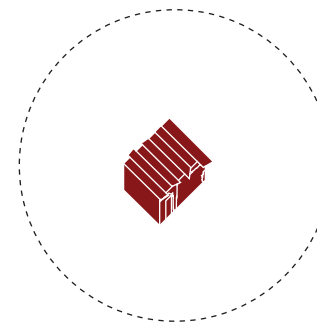


img 45. Main road perspective section

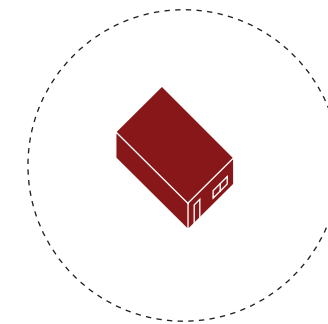
[TYPOLOGIES FOUND IN VARJÃO]

The spatial analysis continues with a look at the existing typologies in Varjão. They contribute to the site's visual identity and translate the current housing and service characteristics of the inhabitants at the 23rd region of the Federal District.

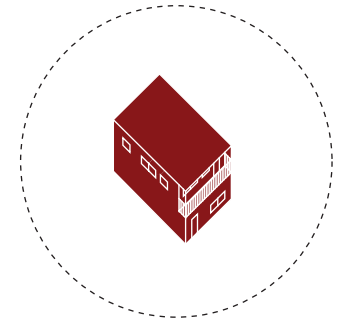
The typologies were studied in terms of: internal location (whether they are on the main, secondary or tertiary roads), frequency of the type in the neighborhood (1-story single-family masonry house is the most common example), accesses, visual permeability level, occupancy and construction rates and finally the type of external finishing they feature.



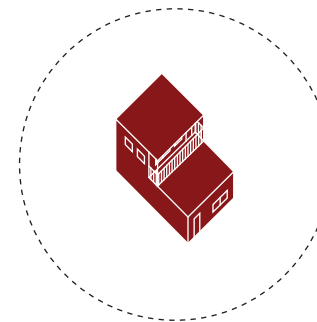
[residential
precarious]
single-family



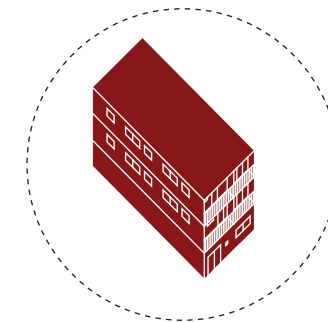
[residential
1-story]
single-family



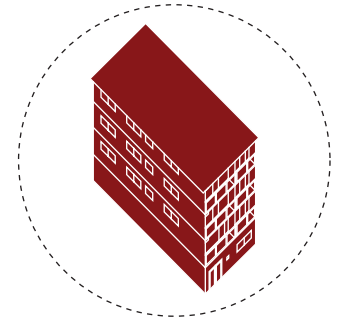
[residential
2-story]
single-family



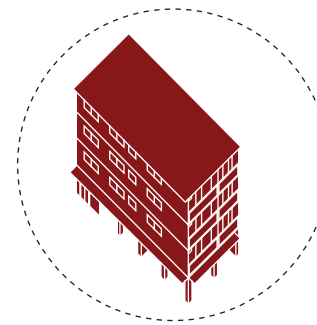
[residential
'L' type]
single-family



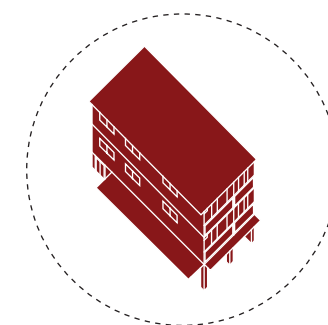
[residential
3-story]
multi-family



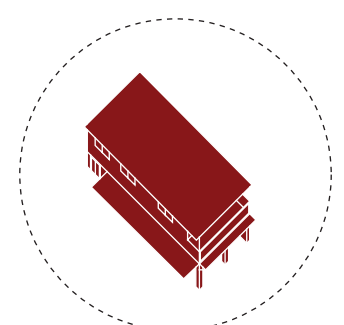
[residential
4-story]
multi-family



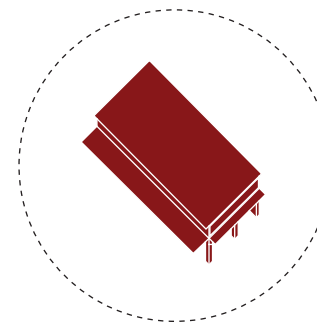
[mixed-use
4-story]



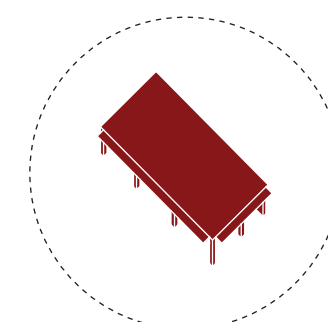
[mixed-use
3-story]



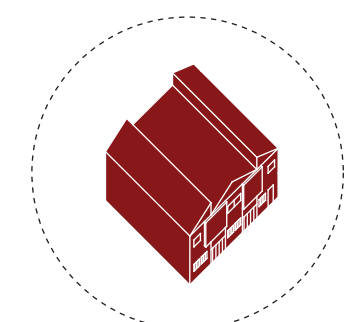
[mixed-use
2-story]



[commercial
1-story]

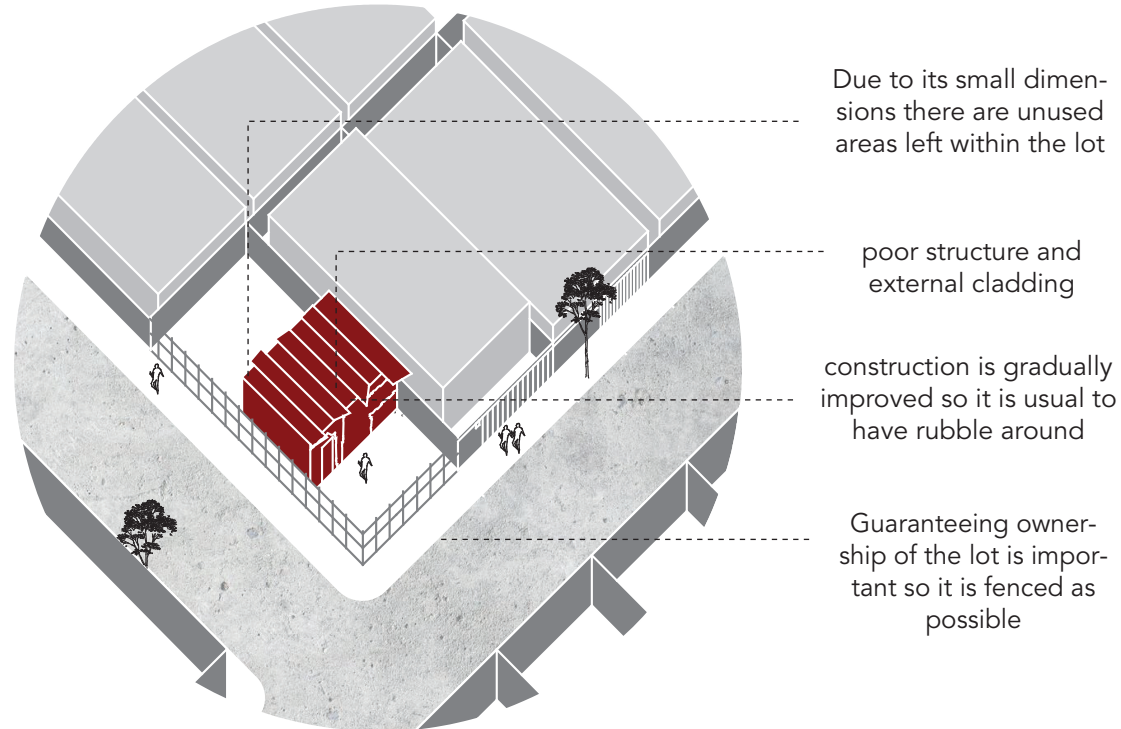


[public facility
1-story]



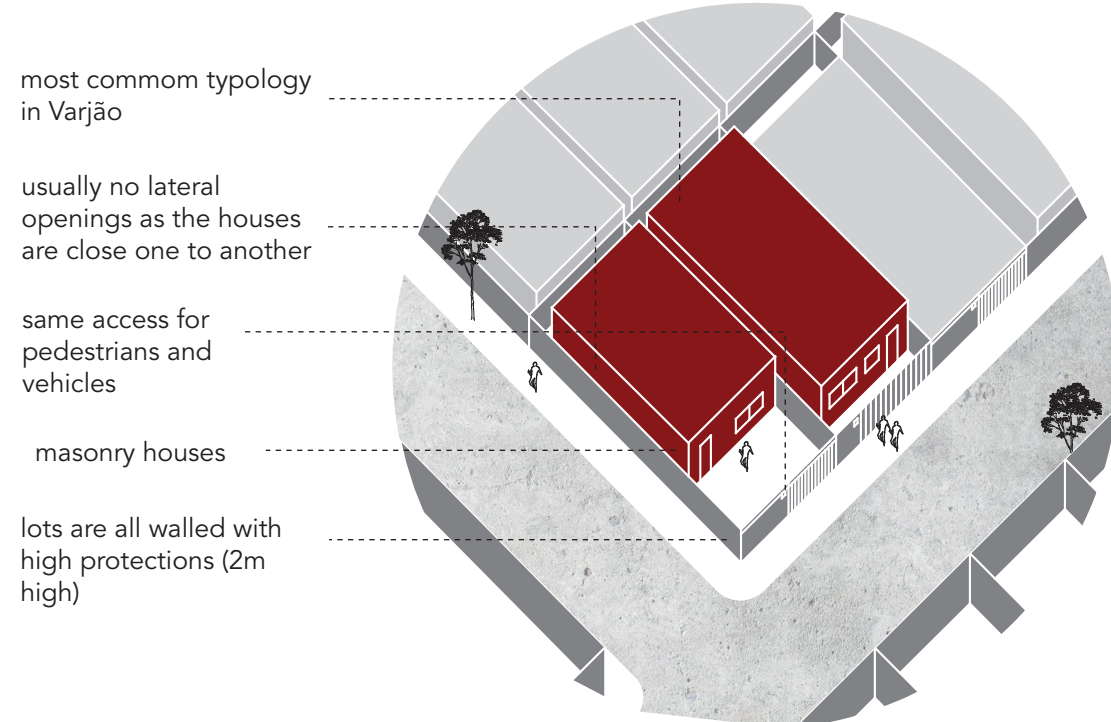
[residential
2-story]
multi-family

[residential precarious] single-family



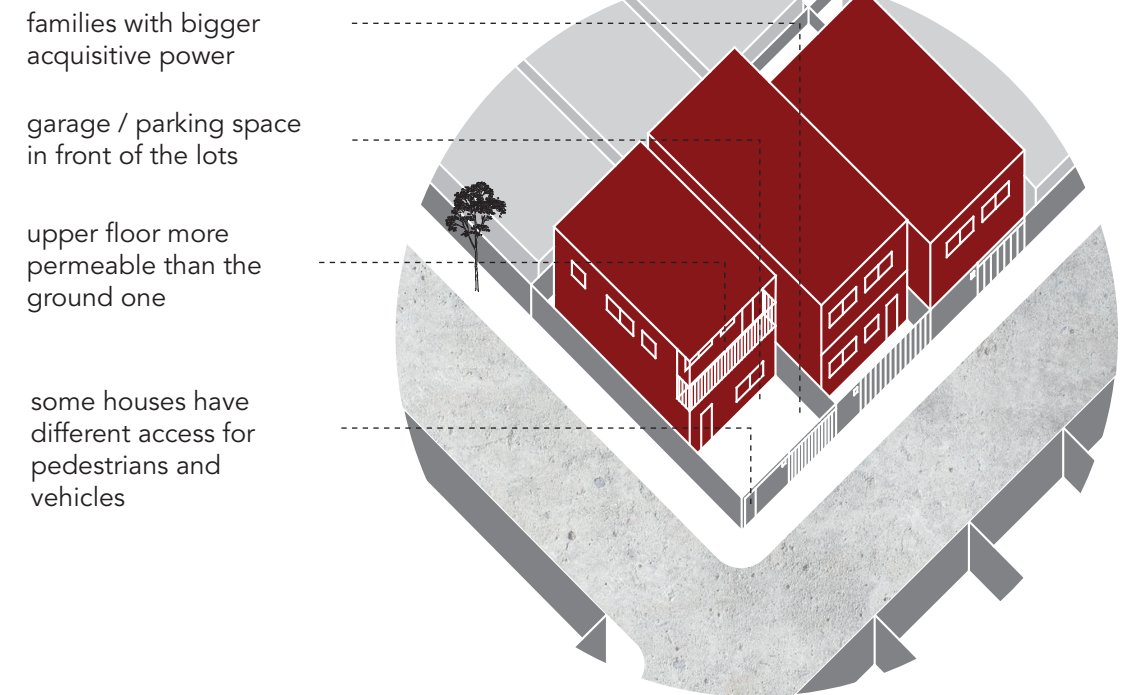
img 46. Typology 01 - residential precarious (single-family)

[residential 1-story] single-family



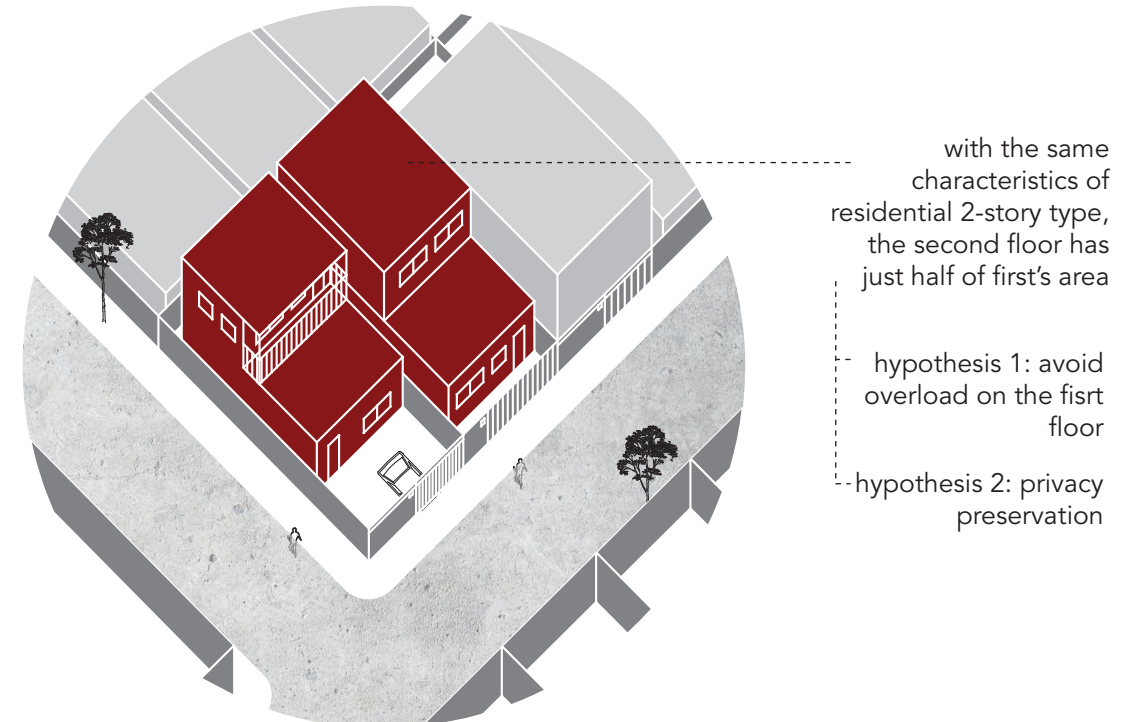
img 47. Typology 02 - residential 1-story (single-family)

[residential 2-story] single-family



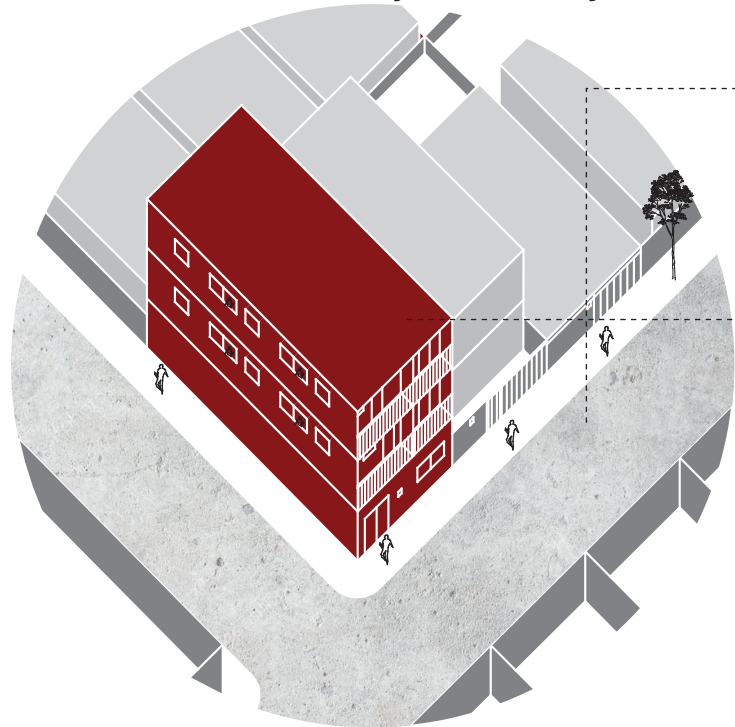
img 48. Typology 03 - residential 2-story (single-family)

[residential "L type"] single-family



img 49. Typology 04 - residential 'L type' (single-family)

[residential 3-story] multi-family



since they are located at local road's borders, 3 and 4-story residences do not foresee parking spaces

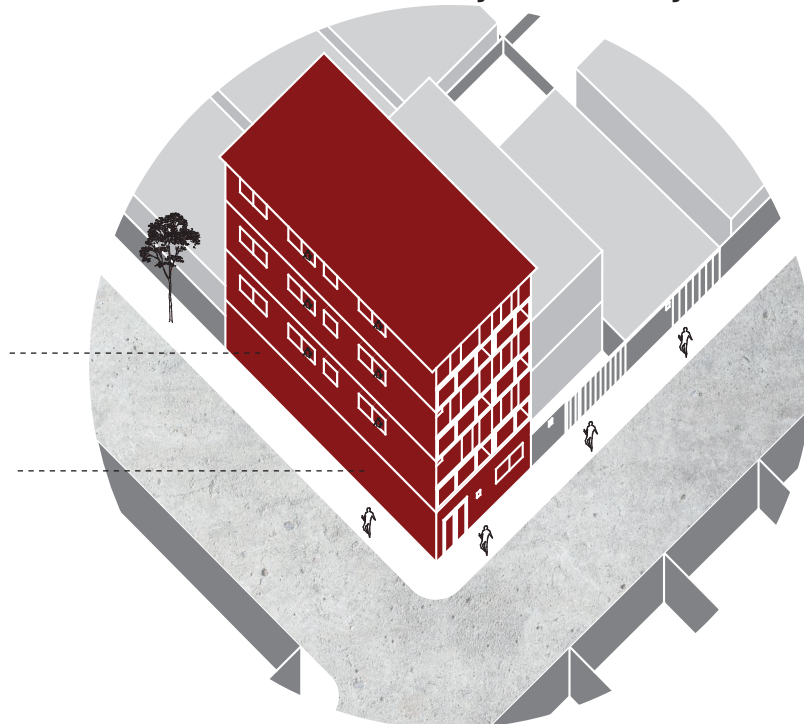
residential units with more than 2 floors usually are not in accordance with the LUOS as their built-up areas surpasses construction and occupation index

img 50. Typology 05 - residential 3-story (multi-family)

[residential 4-story] multi-family

as this and 3-story typologies occupy almost the total site area available they have no setbacks and the constructions themselves are the barrier between private and public spaces

multi-family residences usually present modern exterior cladding (recent constructions)

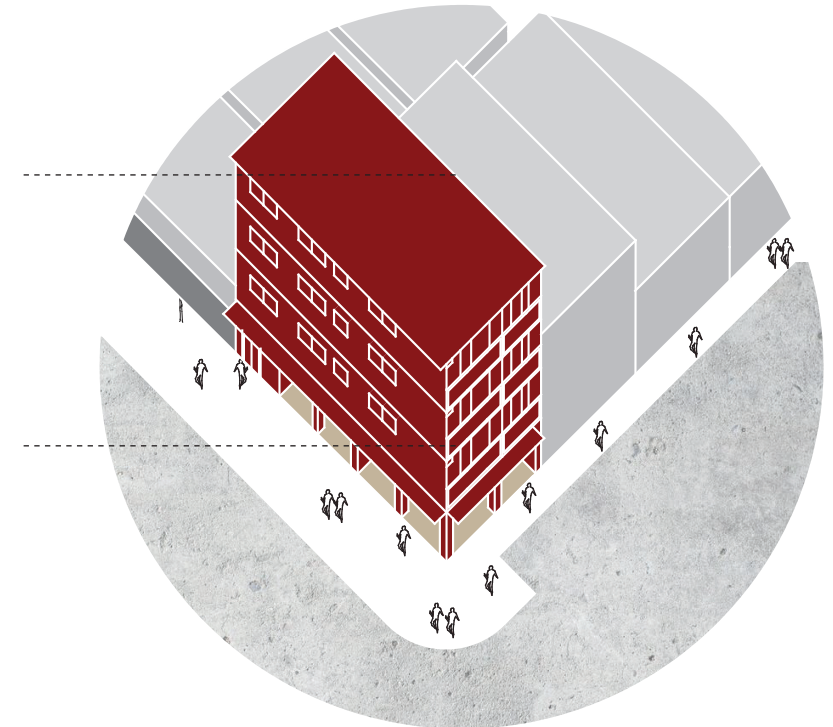


img 51. Typology 06 - residential 4-story (multi-family)

[mixed-use 4-story]

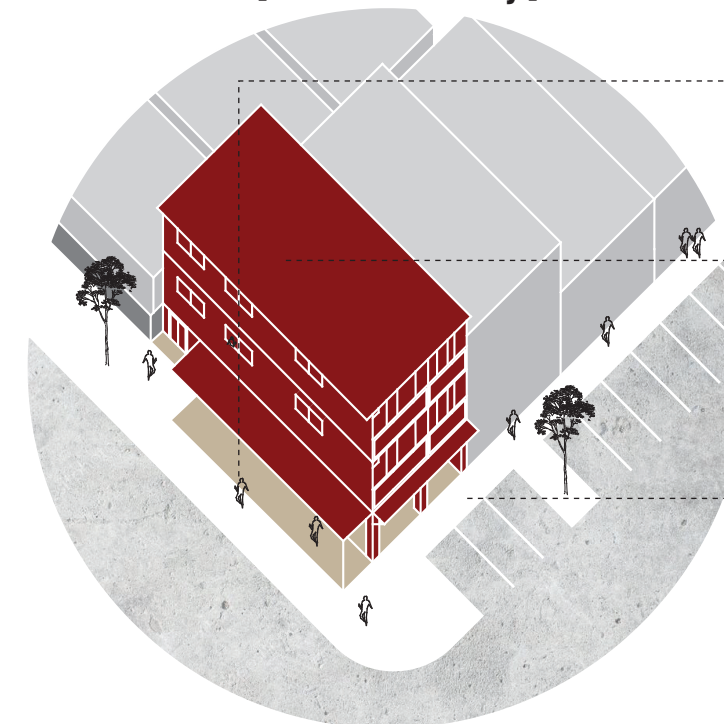
mixed-use units are concentrated on main roads' borders so although they don't have their own garage residents and clients have regulated parking space in front of the construction

as these are newer constructions, they have better exterior finishing such as metal and glass



img 52. Typology 07 - mixed-use 4-story.

[mixed-use 3-story]



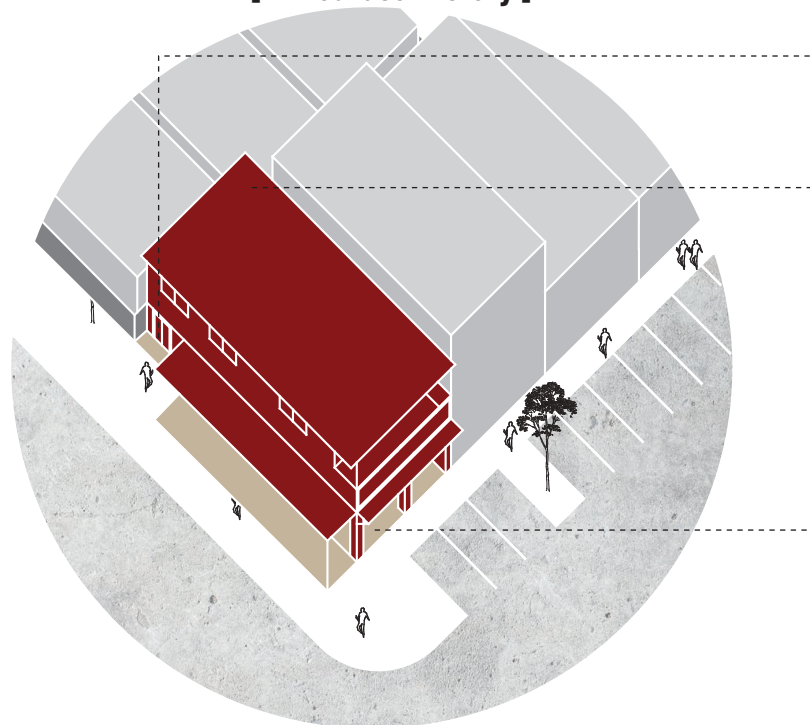
usually the stores extend their useful area occupying the adjacent sidewalks / public areas

since there are no setbacks required for CSIR 1 NO the constructions usually occupy the whole area available on the ground

the constructions at main road are allowed to have bigger heights so they have higher ceilings

img 53. Typology 08 - mixed-use 3-story.

[mixed-use 2-story]



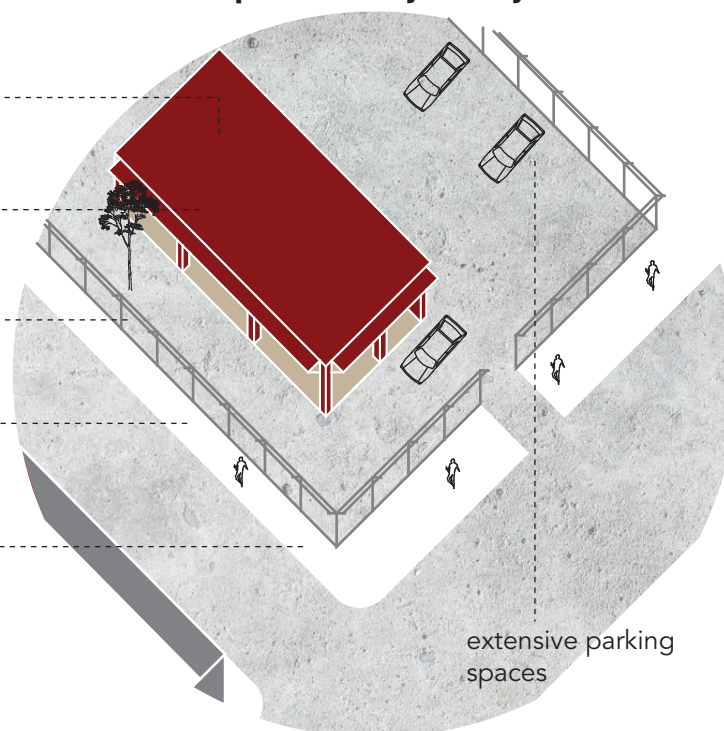
independent access for the upper floor

corresponds to the final stage of the 'adaptable house' where the ground floor of the residence becomes commercial and the owners move to the upper floor or rent it

contrast between open ground floor and closed residential upper floors

img 54. Typology 09 - mixed-use 2-story.

[public facility 1-story]



lots with great dimensions (police station: 873m²)

isolated building within the lot

vegetation inside

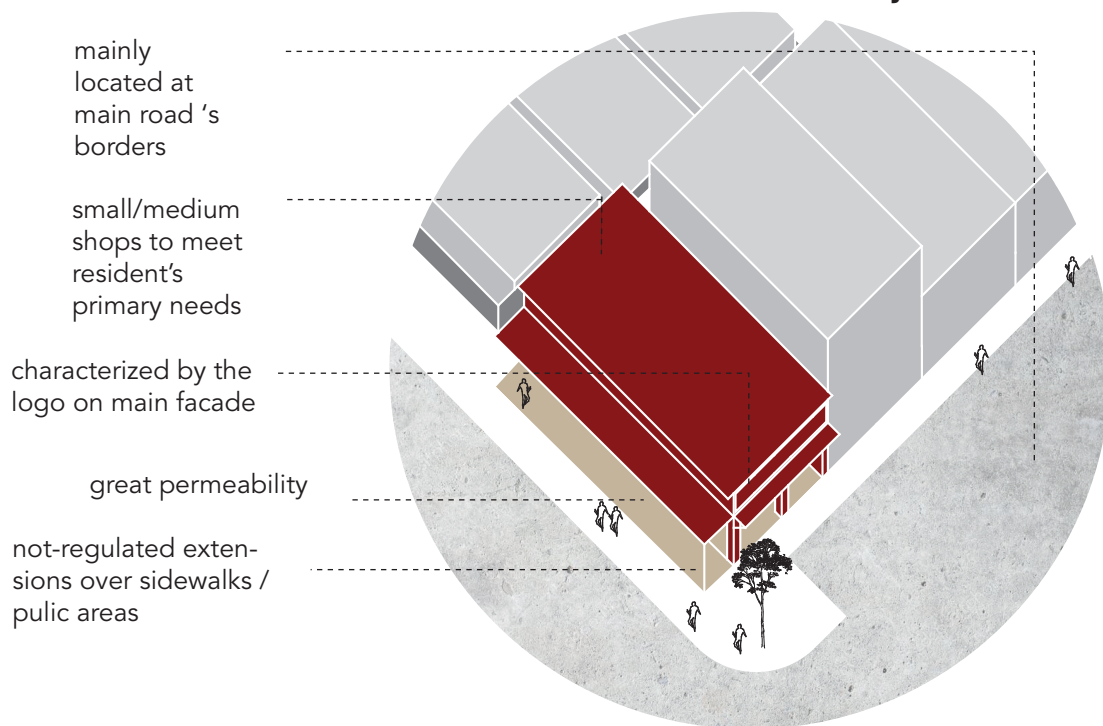
fences with high visual permeability

frontal and lateral setbacks

extensive parking spaces

img 56. Typology 11 - Institutional 1-story.

[commercial 1-story]



mainly located at main road's borders

small/medium shops to meet resident's primary needs

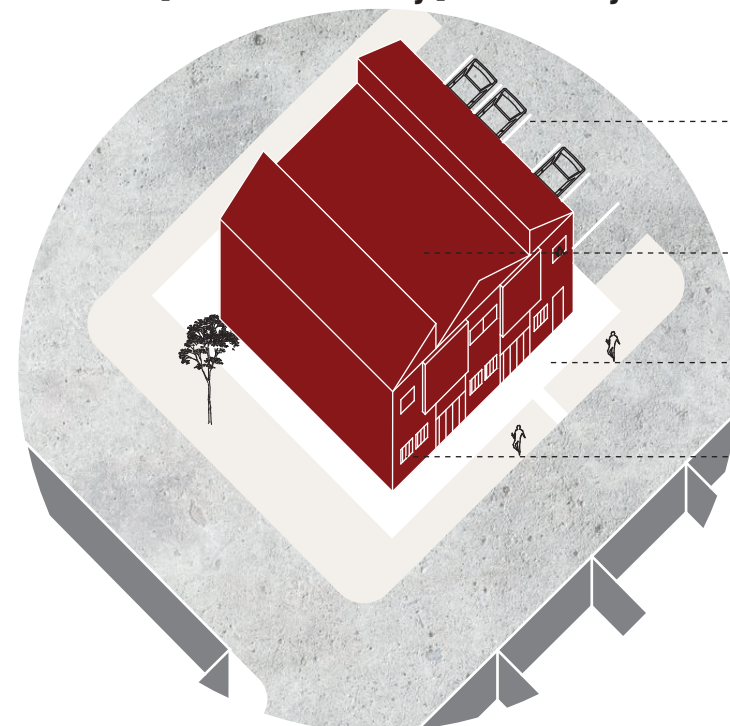
characterized by the logo on main facade

great permeability

not-regulated extensions over sidewalks / public areas

img 55. Typology 10 - Commercial 1-story.

[residential 2-story] multi-family



parking spots were foreseen

only typology not gated or walled

setbacks in all of its directions

openings have less permeability in the ground floor

img 57. Typology 12 - residential 2-story (multi-family)

infrastructure provision

Overall, the urban projects conducted in Varjão had a positive result. After the government recognized the existence of the occupation and began drawing up plans that culminated in massive infrastructure investments, **it was possible to overcome the rustic initial conditions of an informal settlement** through regular allotments, the establishment of a paved road system and the expansion of other supply lines offered by companies that already served Brasília. **These contributed to satisfactorily address the primary needs of the inhabitants** (running water, light, and sewage facilities), **reducing the level of previous environmental impact.**

The regularization process that the area went through was also responsible for giving those who were already there a complete address, an important element of citizenship. This first **regulation was essential for the change of status and the gain of autonomy, what fostered new changes in Varjão.**

From another perspective, however, these **interventions were unable to incorporate Varjão into the formal parts of the city.** Admittedly, other factors also influence segregation, such as the lack of external connectivity caused by a deficit in the public transport system, but today **there is no appeal or centrality that motivates people** from other parts of the Federal District **to go to Varjão.**



img 58. Infrastructure provision in Varjão: street lighting, paved sidewalks, asphalted streets, garbage collection service and even a public telephone.

failed oversight management

Costa defended that the creation of a new administrative region hindered urban planning and management actions, because it created a process of socioeconomic segregation in Varjão (Costa, 2011).

I particularly think this has weakened government monitoring because with the change of jurisdiction the verification is no longer the same, and it is this **lag in overlooking that allows the spontaneous dynamics associated with informality to arise.**

The mismatch between the need and supply of housing, for example, is increasing, as occupation cannot advance over the areas of environmental protection that surround Varjão today. This may result in the **occupation of inappropriate areas again if there is no strict surveillance.**

institutional lots



img 59.

Speaking of public facilities, the low occupancy rate allowed (50%) meant that the buildings were isolated in the plots, which have large dimensions and thus large areas are underused. Many of them have also parking spots inside their limits, even if they are located at the main road, with regulated parking not far from them.



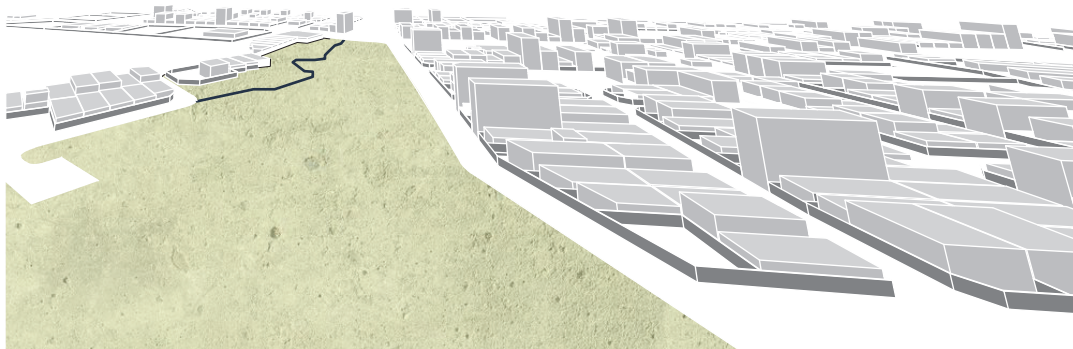
img 60.

img 59 and 60.
(Administration and police station respectively) Institutional lots with low occupancy rates and underused areas

configuration of public areas

Free areas and public facilities are not well configured and need maintenance.

Although areas for common use were secured in the first moment, urban furniture is lacking for people to remain in the spaces, that currently figure as urban voids. On the other hand, the population appropriate the local streets for leisure activities, especially children and adolescents. The older ones sit in front of their homes to observe the movement on a daily basis, as is common in the cities from which they probably came. (Costa, 2011).



img 61. Poorly configured public areas become urban voids at Varjão

informal commerce

The urban interventions held also maintained some dynamics associated with informality that already existed and were not well resolved, such as the permission to provide services and the reception of clients in residential lots. When LUOS proposed the RO2 category along the collection roads (residential use with the possibility of receiving customers / providing autonomous services) the goal was to bring greater vitality to these road corridors that are already longer than the local roads, but they eventually boosted the informal trade that already existed in the area. Authorities now play the role of overseeing irregularities, but it is not always easy to charge illegal activities as some businesses are not properly characterized as such.



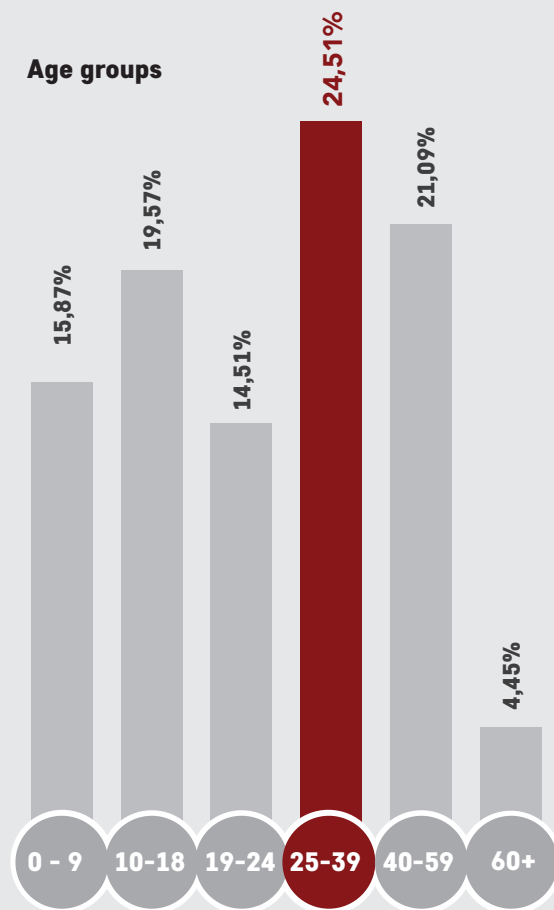
img 62. Informal commerce is boosted by category RO2 allowing autonomous activities (and receiving clients) together with the residential use.

socioeconomic vulnerability

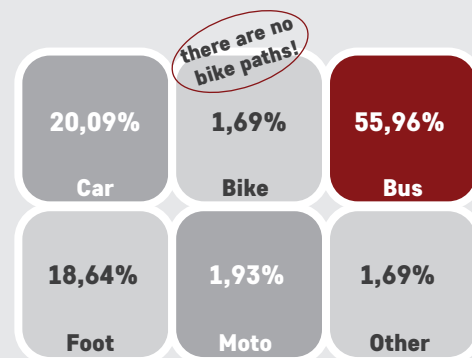
In addition, the current socioeconomic status of residents, although it has slightly increased over the years, still does not exclude many of them from a **socioeconomic vulnerability situation**, which **generates prejudice from other neighborhoods, who consider Varjão as 'dangerous'**.

Some families still live in quite precarious buildings and the general level of education / qualification of the residents is low. The unemployment rate is also high and there is a lack of diversified leisure activities for the population.

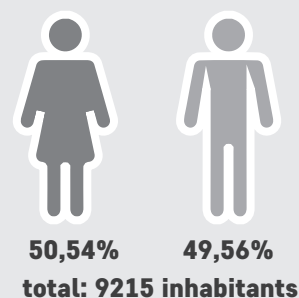
Age groups



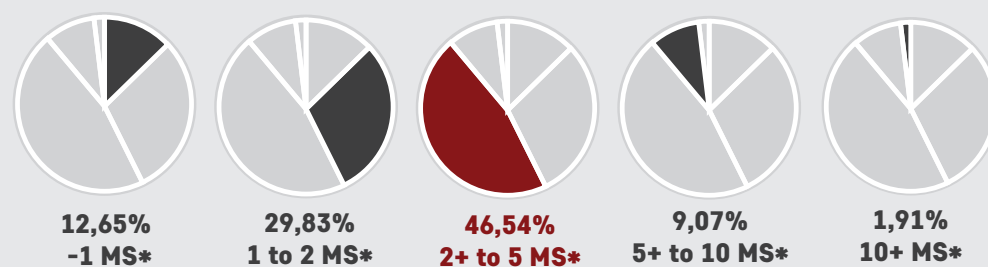
Transportation



Population composition



Average monthly income

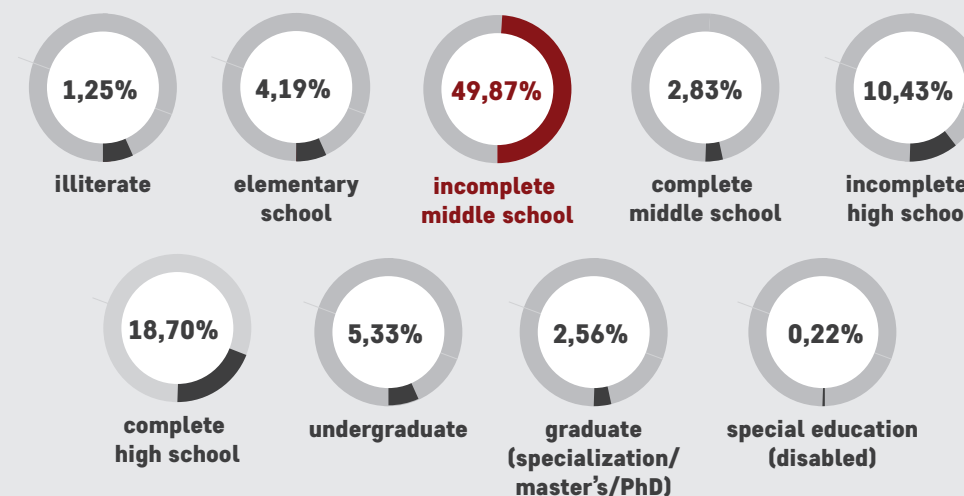


* In Brazil the monthly incomes are based on the minimum salary (MS) determined by the government . For 2015 the value of a MS is of R\$787,00 = €158 approximately.

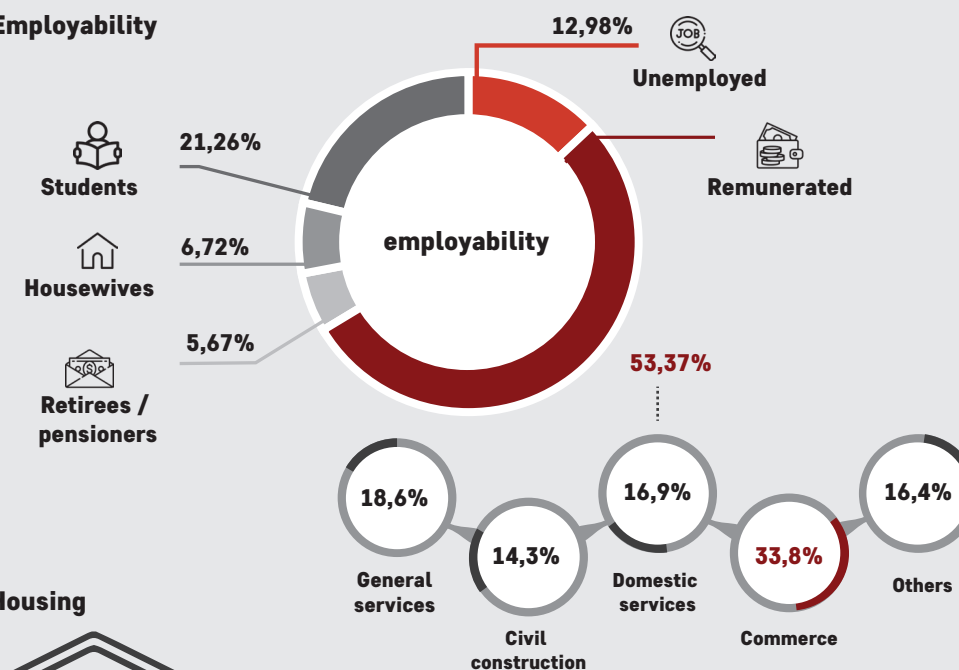
	average monthly income per residence		average monthly income per capita	
2011	R\$ 2060,11 (€412)	2,60 MS*	R\$ 555,15 (€111)	0,70 MS*
2013	R\$ 2190,64 (€438)	2,77 MS*	R\$ 586,93 (€117)	0,74 MS*
2015	R\$ 2274,48 (€505)	3,20 MS*	R\$ 627,81 (€140)	0,88 MS*

Educational level

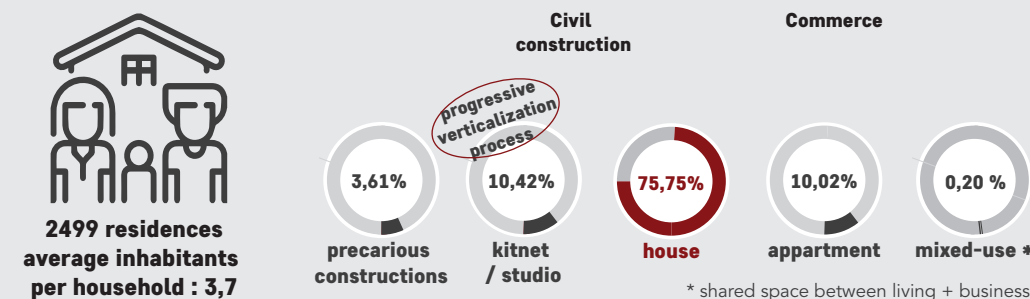
* 4,62% are children under 6 that do not go to school.



Employability



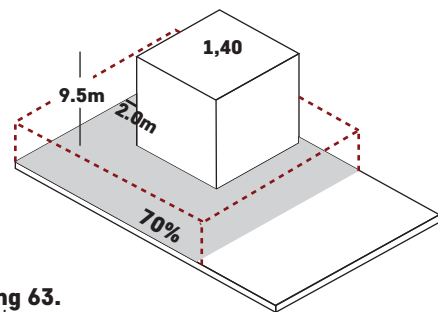
Housing



progressive verticalization

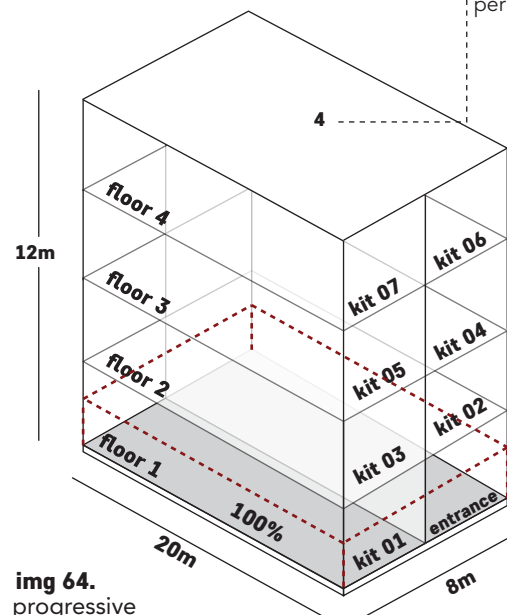
Another dynamic associated with the informality that remained in Varjão is the (irregular) subdivision of units that should be for single-family housing. This dynamic originated a process of verticalization in Varjão, increasing the construction and housing densities, which were not foreseen.

Lot owners are replacing their homes with small buildings where they allocate multiple families in *kitchenettes* and thus supplement their monthly income with the rent. The problem is that to maximize the size of the apartments, setbacks and occupancy rates established in LUOS are not being respected and the supplying networks are continuously being overloaded.



img 63. urban parameters specified for unfamiliar residential lots

	Specified Parameters	Verified situation
Occupation index	70%	100%
Construction index	1.40	4
Maximum height	9,5m	12m
Required setbacks	2m rear	-



img 64. progressive verticalization verified in Varjão



img 65. Residential building Joana Pereira Rios

more than the double permitted!

lack of universal accessibility + incorrect rubble disposal



img 66. Sidewalk lacking universal accessibility
Source: google maps

Universal accessibility was also neglected during the intervention and today the area lacks cycle paths, signage and obstacle-free pedestrian paths. The sidewalks in front of the lots are cured by their owners, who sometimes plant trees or uneven the walkway creating obstacles. When there is commerce, **products and furniture go beyond the boundaries of establishments** as a way to expand the display area of the goods so they occupy the public area in the form of 'extensions'.



img 67. Bussiness 'extensions'
Source: google maps



img 68. Rubble disposal in an empty lot
Source: google maps

Moreover, the **presence of rubble is a constant**, as residents are always improving their homes when there is an additional in the family budget. The first rubble disposal sites were the empty lots, but now the impact is already reaching public free areas, since the population does not use them.

contrasts in visual identity

[1]

main road



img 69. Active commercial ground floor

[2]

main road



img 70. Active commercial ground floor

[3]

main road



img 71. Improved structure and external finishing

Moreover, the intervention fostered a high level of contrast between the main road and the others. Construction finishing and visual identity change a lot when we compare what happens in the most visible road of Varjão with other more interior roads, exclusively residential.

[4]

main road - secondary road



img 72. Visual contrast in structure and external finishing

[5]

secondary road



img 73. Visual contrast in structure and external finishing

[6]

tertiary (local) road



img 74. Blind residential facades

Photos source: Google maps

Furthermore, as the main road is the only one served by public transport, this has led to slight real estate speculation regarding it, making not only the lots on its border more expensive, but also the nearest lots were economically valued because people need to walk shorter distances to reach the bus.

Another disparity between the main road and the others regards safety issues. On the main road, with active ground-level facades, and large pedestrian traffic, residents report a greater sense of security than amid the exclusively residential complexes, where the walled plots constitute extensive blind facades and there is no urban vitality.



To sum it all up, the persistent informality in the built environment of Varjão took visible forms with the new dynamics that emerged with the expansion of the administrative region XXIII.

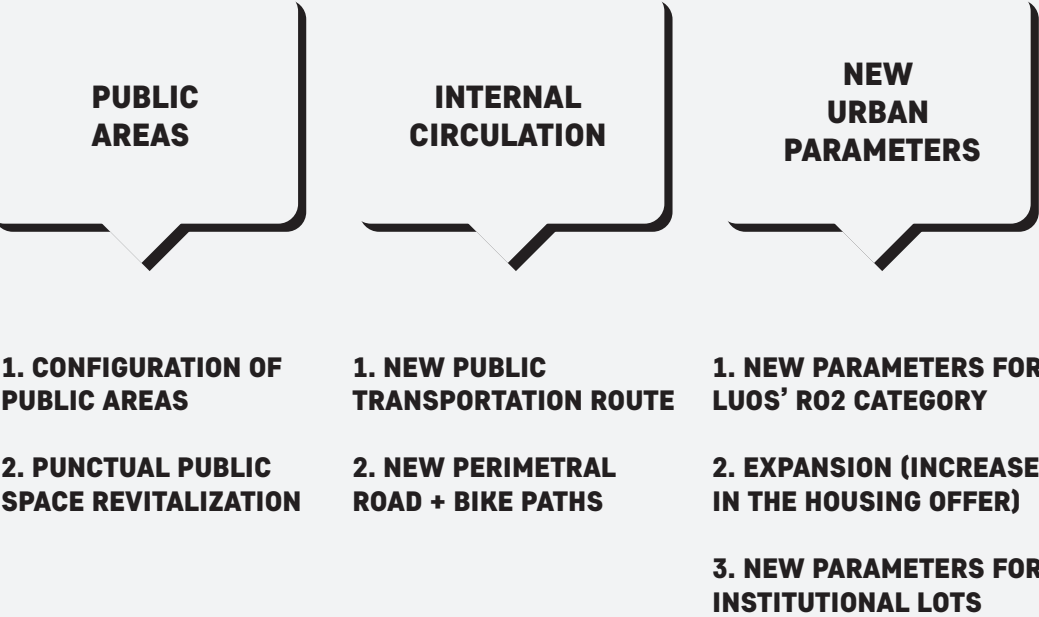
The current unmet needs of the population, together with negligence in supervision, are the cause to the boosting of informal commerce, the subdivision and self-construction of residential lots, the mismanagement and utilization of public facilities, the presence of rubble and the lack of accessibility.

Thus, we can conclude that the intervention formalized the site as to its infrastructure and could solve urgent problems in the first place, such as containing the growing environmental impact, but now is the time for further adjustments in the area, aiming to increase the comfort of residents and meet the new demands that have arisen over time.

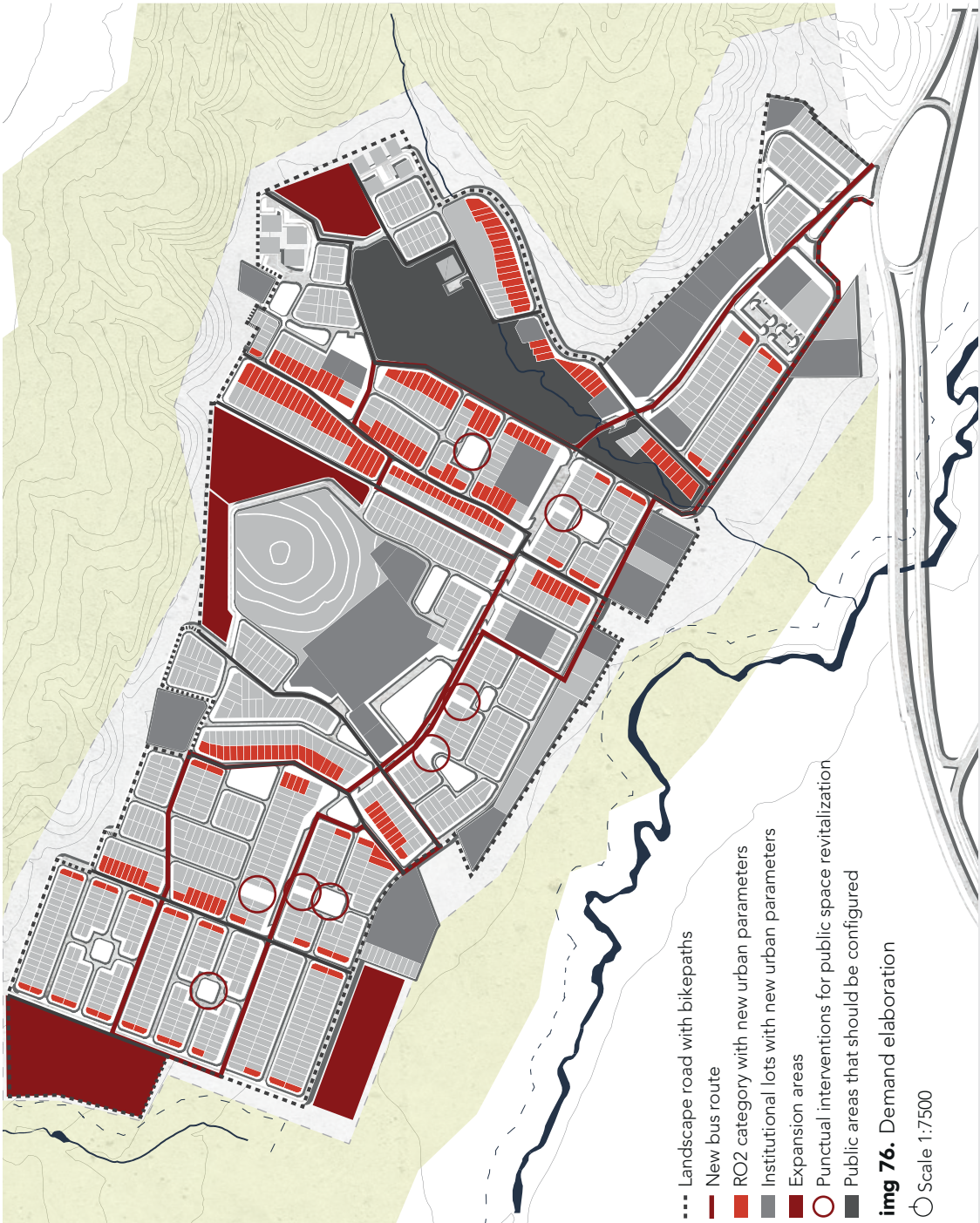
Nevertheless, not all aspects of informality are bad. Flexibility to change and more active dynamics, with stronger social ties, are essential fuels for the change that must happen in Varjão, so these aspects must be preserved.

[08]
demand
elaboration

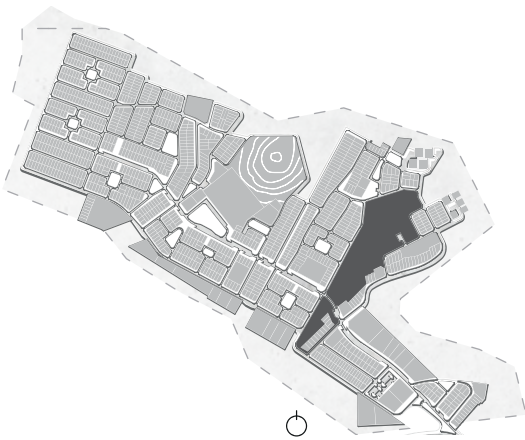
The demand was elaborated according to the previous conclusions. The potentials and limitations of Varjão led to the establishment of main needs to be addressed in further interventions, which mainly concern three themes:



All aspects of the demand respect the current urban polygonal defined for Varjão and were proposed within these limits, in a schematic way (first combined on the map of the next page and then separated with brief explanation). For further interventions they need to be deeper detailed in order to precisely tackle the needs risen.



[concerning public areas]



img 77. Configuration of public areas.



img 78. Punctual public space revitalization.

configuration of public areas

Specific intervention is now needed on the public areas that have been safeguarded for this function. The **insertion of urban furniture, better lighting and paving would allow the appropriation of the large public areas** that Varjão has and this would even help in the preservation of these areas.

As sports, leisure and contemplation activities are implemented / incorporated, the residents will stay longer in places that will be full of 'unofficial surveillance'.

punctual public space revitalization

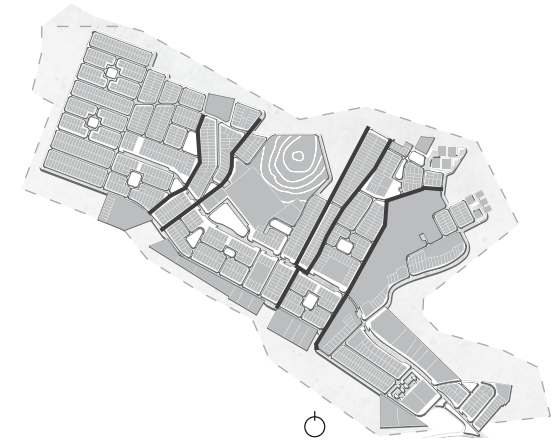
Creative public spaces could also **constitute new centralities** for Varjão, attracting people from other administrative regions of the Federal District to the area.

These spaces that are mainly passages between blind residential facades or small public squares among the houses can **bring vitality** to the neighborhood **and boost an active ground floor with more safety and visual attractiveness for the pedestrians**.

[concerning internal circulation]



img 79. New public transportation route.



img 80. New perimetral road + bicycle paths.

new bus route

Furthermore, a **change in the public transport route** would prevent residents from having to walk long distances.

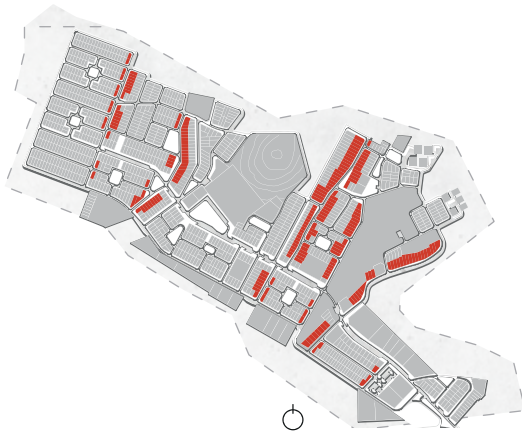
It is necessary to constitute a more integrated route with more stops and more lines circulating within Varjão.

new perimetral road + bike paths

The road system could also be expanded by **incorporating a perimetral landscape road** into the urban area of Varjão, creating a greater connection between adjacent ecological parks and the interior of the administrative region.

The concomitantly addition of **bike paths will improve accessibility and safety** for the residents.

[concerning urban parameters]



img 81. New urban parameters for RO2 category.



img 82. Expansion.



img 83. New urban parameters for institutional lots.

RO2 category - new parameters

The **lots that are currently classified as RO2 could become mixed-use lots, allowing up to 3 floors**. This way the owners could actually establish regular and properly characterized commercial activities on the ground floor, and settle their residences up on the higher floors, or even rent to third parties, contributing to the increase in housing supply in the area, which today is an increasing problem.

This change would help make the facades more active and thus attract more people to the corridors that exit the main road.

expansion

Varjão's growth was hampered not only by its physical barriers, but also because of its location in the midst of an environmental protection area (sustainable-use unit, as mentioned in chapter 3) which means it cannot expand beyond its previous established urban polygon. However, there are still **empty areas within this polygon that could be explored, creating new residential blocks**. With the proposed increase in housing offer, more people could live there solving the issue of currently saturated occupation.

institutional lots - new parameters

Changes on the LUOS are also required so that institutional lots can be better utilized and able to meet residents' current needs.

With **higher occupancy rates** and higher coefficient of utilization the **facilities can be expanded and refurbished. Other urban facilities could also be included** as a building consultancy center, where residents would be informed of construction possibilities and constraints and available architects and engineers provided by the regional administration could assist them with construction and renovation.

It would be also useful for the administration to monitor construction/refurbishment activities closely, preventing new irregularities from arising again.

[SAMPLE 01]

[public areas needing configuration]

Public areas that have become urban voids can be changed into well-configured **spaces that incentivate residents and visitors permanence.** Accessible structures / urban furniture can host leisure activities increasing life quality in Varjão. Existing waterbody and vegetation, however, need special attention.

structure / urban furniture
covered, paved and lighted path (promenade)
keep existing vegetation where possible
channeling / treatment for waterbody



Source: google maps

img 84. Actual configuration of a public area in Varjão



Collage by the author

img 85. Suggested configuration for a public area in Varjão

[SAMPLE 02]

[punctual interventions for public space revitalization]

img 86. Actual configuration of a public space in Varjão



Source: google maps

img 87. Suggested configuration for the public spaces revitalization in Varjão



Collage by the author

Narrow public spaces between blind residential facades **should have some features added** aiming to bring vitality to these corridors by incentivating residents to walk. Besides that, they should undergo universal accessibility addaptaion works.

iconic urban furniture (vibrant colors and shape)
gardening treatment
accessible pathway
efficient street lighting

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image list

img 01. Cycle of how representation works as a real tool for space transformation, according to Federighi (2018). Scheme by the author.

img 02 and 3. Main street of Varjão: dynamics in the space change when it is appropriated by vendors and pedestrians. Collages by the author over google maps photos.

img 04. Adaptable house. Original illustration by Fernando Neyra retrieved from nextcity.org/features/view/embracing-the-paradox-of-planning-for-informality. Access on october 21th, 2019. Edited for this document by its author.

img 05 and 06. Medellin's intervention. Photos by the Guardian retrived from theguardian.com/travel/2015/sep/19/medellin-colombia-city-not-dangerous-but-lively. Access on november 2nd, 2019.

img 07 and 08. Bogota's intervention. Photos by Colprensa in Caracol Radio website and El tinto- official facebook page, respectively.

img 09. Caracas' intervention. Photo by Caracas Virtual website.

img 10. Federal District and its administrative regions (RAs). Map by the author.

img 11. Connection Varjão - Brasília's center. Map by the author.

img 12. Brasilia's superquadras (multi-family housing quarters) were designed inspired by the 'garden city' of Ebenezer Howard. Illustration by the author.

img 13. Lago Norte was inspired by the american suburb model and is characterized by the 'cul de sac' streets, from french urbanism. Illustration by the author.

img 14. Varjão presents more compact urban fabric, with smaller lots and few free areas. Illustration by the author.

img 15. Solar analysis. Source: SOL-AR software. Illustration by the author.

img 16. Wind analysis. Source: SOL-AR software. Illustration by the author.

img 17. Site's physical characterization (before occupation). Map by the author.

img 18. Environmental protection. Map by the author.

img 19. Informal settlement environment. Illustration by the author.

img 20. Varjão's occupation by 1997. Map by the author.

img 21. Urban intervention proposal (106/01). Map by the author.

img 22. Sub-parceling detail of urban intervention proposal (URB 106/01). Illustration by the author.

img 23. Viary system. Map by the author.

img 24. Supplying networks. Illustration by the author.

img 25 to 30. Urban Parameters foressen by LUOS. Illustrations by the author.

img 31. LUOS (Land use and occupation law) - proposed uses / activities for Varjão. Map by the author.

img 32. Housing visual in the irregular occupation. Photo retrieved from google maps and edited for this document by its author.

img 33. Location of the irregular occupation within Varjão's urban perimeter. Map by the author.

img 34. Activities / land use. Axonometric by the author.

img 35. Heights. Axonometric by the author.

img 36. Public transportation. Map by the author.

img 37. Environmental aspects. Axonometric by the author.

img 38. Public facilities ideal influence radius according to Pitts (2004). Scheme by the author.

img 39. Public facilities. Axonometric by the author.

img 40. Entrance square. Photo retrieved from google maps.

img 41. 4-story building. Photo retrieved from google maps.

img 42. Commercial unit. Photo retrieved from google maps.

img 43. Tertiary (local) road perspective section. Illustration by the author.

img 44. Secondary road perspective section. Illustration by the author.

img 45. Main road perspective section. Illustration by the author.

img 46. Typology 01 - residential precarious (single-family). Illustration by the author.

img 47. Typology 02 - residential 1-story (single-family). Illustration by the author.

img 48. Typology 03 - residential 2-story (single-family). Illustration by the author.

img 49. Typology 04 - residential 'L type' (single-family). Illustration by the author.

img 50. Typology 05 - residential 3-story (multi-family). Illustration by the author.

img 51. Typology 06 - residential 4-story (multi-family). Illustration by the author.

img 52. Typology 07 - mixed-use 4-story. Illustration by the author.

img 53. Typology 08 - mixed-use 3-story. Illustration by the author.

img 54. Typology 09 - mixed-use 2-story. Illustration by the author.

img 55. Typology 10 - Commercial 1-story. Illustration by the author.

img 56. Typology 11 - Institutional 1-story. Illustration by the author.

img 57. Typology 12 - residential 2-story (multi-family). Illustration by the author.

img 58. Infrastructure provision in Varjão: street lighting, paved sidewalks, asphalted streets, garbage collection service and even a public telephone. Illustration by the author.

img 59 and 60. Administration and police station respectively) Institutional lots with low occupancy rates and underused area. Photos retrieved from google maps.

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img 64. Progressive verticalization verified in Varjão. Illustration by the author.

img 65. Residential building Joana Pereira Rios. Photo retrieved from google maps.

img 66. Sidewalk lacking universal accessibility. Photo retrieved from google maps and edited by the author.

img 67. Bussiness 'extensions'. Photo retrieved from google maps and edited by the author.

img 68. Rubble disposal in an empty lot. Photo retrieved from google maps and edited by the author.

img 69 and 70. Active commercial ground floor. Photos retrieved from google maps.

img 71. Improved structure and finishing. Photo retrieved from google maps.

img 72 and 73. Visual contrast in structure and finishing. Photo retrieved from google maps.

img 74. Blind residential facades. Photo retrieved from google maps.

img 75. Perspective main road. Illustration by the author.

img 76. Demand elaboration. Map by the author.

img 77. Configuration of public areas. Map by the author.

img 78. Punctual public space revitalization. Map by the author.

img 79. New public transportation route. Map by the author.

img 80. New perimetral road + bicycle paths. Map by the author.

img 81. New urban parameters for RO2 category. Map by the author.

img 82. Expansion. Map by the author.

img 83. New urban parameters for institutional lots. Map by the author.

img 84. Actual configuration of a public area in Varjão. Photo retrieved from google maps.

img 85. Suggested configuration for a public area in Varjão. Collage by the author.

img 86. Actual configuration of a public space in Varjão. Photo retrieved from google maps.

img 87. Suggested configuration for the public spaces revitalization in Varjão. Collage by the author.

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