

# **Mapping informal settlements: an experience in São Paulo (Brazil)\***

## ***Cartografia di insediamenti informali: un'esperienza a São Paulo (Brasile)\****

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### **Background**

According to the UN-Habitat (2016), in 2014 there were around 880 million people living in slums, that is, human settlements where the households lack either improved water, improved sanitation, sufficient living area (more than three persons per room), or durable housing. We may expand this definition by adding tenure insecurity to the issues that may affect housing amongst the urban poor. In this way, I refer to this typology of human settlement (containing one or more of the aforementioned characteristics) as “informal settlements”. These types of settlements are mainly present in regions of the global South, where cities have faced explosive demographic growth in a context of high social segregation and poverty (Davis, 2006).

### **Informal settlements: urban planning & political perspectives**

Informal settlements pose great challenges to urban planners, as very often the data available on those locations is insufficient to inform planning decisions. For instance, demographic estimates are often approximate at best, what makes it difficult to dimension the basic services to be provided (number of schools, water and sanitation infrastructures, etc). In some cases, the very existence of these settlements is ignored (or omitted) by authoritative maps and records. Moreover, there are complex legal issues concerning the often illegal occupation of land; and even when the land is actually bought, the person who acquired it often has no document that is officially recognised – as land parcelling may have been done without following the rules imposed by the law, and/or without the transaction being registered in any cadastre. To sum up, the critical lack of information on those settlements constitutes quantitative and legal barriers to their urban and social development, as it is challenging for planning authorities to dimension and target interventions in an efficient way.

Although informal settlements often do not meet the conditions for proper human living in terms of the physical environment, there is a less material, *political* perspective behind these extra-legal, self-help processes of housing construction that must be noted. In this regard, the sociologist Teresa Caldeira (2017) coined the term “peripheral urbanization” to refer to what she describes as a global phenomenon in the cities of the south, from New Delhi to São Paulo: “what makes this process peripheral is not its physical location but rather the crucial role of residents in the production of space and how as a mode of urbanization it unfolds slowly, transversally in relation to official logics, and amidst political contestations.” According to Caldeira, it is not only houses that are being auto-constructed in this process, but the very citizenship of those engaged in it – by actively participating to the production of the urban space, those individuals aim to legitimize their claims to be effectively integrated to the “formal” city. Informal settlements can therefore be considered as the materialization of the struggle of socially marginalized individuals to be recognized and acknowledged as citizens with plain rights – amongst which the “right to the city” (Lefebvre, 1968).

## **Mapping informal settlements: spatializing claims to citizenship, and (re-)quantifying citizens' needs**

The questions raised above seem to be connected to one general issue: the *invisibility* of a large proportion of the urban population that cannot be found in any official record or in any official map. In order to address this invisibility issue, I present a mapping solution that has been developed over the past years in collaboration with the NGO Teto-Brasil, which proposes, precisely, to bring visibility to the most vulnerable populations in urban areas, thus filling in the informational gap between the “formal” and the “informal” city (Pessoa Colombo & Pacifici, 2016). In fact, this experience is an interesting example of how new technologies are facilitating bottom-up, citizen initiatives to produce spatial data useful to support urban development and promote social integration.

This presentation focuses on two case studies located in the metropolitan area of São Paulo, where, in 2010, it was estimated that more than 2 million people lived in “favelas” (IBGE, 2013). These case studies present two different sets of tools that can be used to map informal settlements, all based on recent geospatial technologies that have been largely democratized in the past years. The first method is based on the use of virtual globes (Google Maps and Google My Maps) to get aerial imagery and open-source software (QuantumGIS) to draw the plans. The second method is more sophisticated, and uses drones to get high resolution aerial imagery (and even 3D models), while relying on the same open-source software to draw the plans.

Finally, an emphasis is given to the potentially replicable nature of the methods presented. Because they rely on relatively accessible tools – often more accessible than safe water and sanitation infrastructures – it would be possible to expand this experience to other vulnerable settlements, eventually at a much larger scale. If the methodology can be appropriated by the dwellers themselves, they may count on a new instrument to support their struggle for visibility and plain citizen rights.

## **References**

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