

The challenges of pedestrian mobility in the face of commercial occupation of sidewalks in Abomey Calavi

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Summary: Road planning involves providing dedicated traffic lanes for each user. However, the growth of economic activity is creating an increasingly pressing need for space for various uses. Under these conditions, sidewalks once reserved for pedestrian mobility are disappearing, despite frequent crackdowns by public authorities during operations to free up public space and repair urban planning.

As a result, this category of actors is forced to use other users' traffic passages to move around. Such interference by commercial actors on the free movement of pedestrians is the cause of numerous traffic conflicts. This reflection, therefore, set out to question the practices of occupation of pedestrian space and to consider solutions for the sustainability of pedestrian mobility. The investigations revealed that development choices, infrastructure maintenance policy and the development of commercial activities in built-up areas are the main determinants of the diversion of sidewalks from their use. Therefore, the implementation of actions based on these three pillars will promote the equitable sharing of public space.

Keywords: remedial urban planning, infrastructure sustainability, public space, mobility, urban services.

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Introduction

The organization and management of urban public space are a major concern of public policies (Wade and al. (2010). Lafarge (1996, p. 24) even considers that

Since independence, the street has been a place where public power is expressed, either directly, through the use of force, or underground, through the circulation of informants, or metaphorically, through the organization of demonstrations to the glory of power.

Steck (2006, p. 73) adds after assessing the situation in certain African cities that:

The development of small urban commercial and craft activities belonging to what we have become accustomed to calling the informal sector is most often accompanied by significant occupation of the street, in various forms, both itinerant and sedentary, temporary and permanent.

In the particular context of Beninese cities marked by a predominance of informal economic activities (Gbaguidi, 2016, p. 107), the interest in thinking about urban public spaces is even

greater. In Abomey Calavi (on the northern outskirts of Cotonou in Benin), the spontaneous and anarchic occupation of sidewalks, verges and roadsides is a recurring phenomenon that continues to increase (Gbaguidi et al. (2017, p. 403) The arbitrary installation of traders, the illegal parking of vehicles and the display of items for sale (such as clothing and furniture) make it difficult for pedestrians, for whom these facilities are supposed to be intended. The only options offered to these road users in these conditions are to squeeze between the various obstacles or to use the roadway with the subsequent risks. In line with these observations, Maître and al. (2016), note that "Pedestrians also constitute a category of users who are more vulnerable in terms of the severity of injuries."

Based on these findings and to better understand the contours of this deviation from the norm, the safety study of traffic on the 6.23-kilometer-long Carrefour Marché de Womey – Carrefour centre Anouarite street highlighted the ins and outs of the anarchic congestion of the sidewalks. Following a review of road geometry, the modes of occupation of pedestrian space as well as the walking practices adopted, innovative and contextualized solutions were considered for the sustainability of the occupation of pedestrian space.

1. Methodological approach

The deciphering of the occupation of the space dedicated to walking aims to understand the foundations of the practices of monopolizing the common good and, therefore, to identify possible solutions that can lead to a normalization of respect for the lane of each road user. Specifically, this study addresses:

- identify the limits of the design and implementation of urban road developments;
- list the different uses of sidewalks and,
- understand the determinants of sidewalk usurpation.

To continue the reflection, the reading of the use of the public domain dedicated to pedestrians was based on the postulate according to which the usurpation of this space is favored by construction factors, but also by conditions of operation of the road.

Specifically, the study verified that:

- street design and layout impact sidewalk appropriation;
- cluttered sidewalks encourage pedestrians to use detoured paths;
- Poor application of urban planning rules encourages the monopolization of pedestrian space.

To test these hypotheses, a survey carried out from a cross street built in an area of high population concentration gives a glimpse of the extent of the phenomenon under observation. This choice is justified by the fact that the area served by this infrastructure is expanding rapidly and is highly densified. It also provides a mixed function combining residential and subsistence commercial activities. This constitutes a dominant characteristic of contemporary urban centers. This reading grid is an extension of

Thomas's thinking (2004, p. 163) which identified that three (03) processes determine the monopolization of public space in urban areas: the physical opening of places to urban practices, the regulation of pedestrian traffic and the organization of ways of being together.

An eight (08) day campaign of direct and/or participant observation was therefore carried out on the road axis. The examination of the use of sidewalks based on these processes establishes with a certain ease that the choices of road development are an explanatory factor in the monopolization of sidewalks. Furthermore, the nature of the economic activities practiced by residents, coupled with the laxity of the public authorities in the application of the rules of regulatory urban planning, seems to be a catalyst for the emergence of this form of incivility.

2. Results and discussions

2.1. Presentation of the study area

The Carrefour Marché de Womey – Carrefour centre Anouarite section is a backbone road that crosses a large part of the Abomey Calavi district on the west side. With a length of 6.23 km, it feeds the National Interstate Route No. 01 through five penetrating roads starting with intersections, one of which is a roundabout. It connects the central district to the districts of Godomey and Houèto, which are home to more than 200,000 inhabitants. No public infrastructure borders this street, which is home to several private school complexes, health centers, gas stations, shopping centers, places of worship and, above all, highly dense residential areas. The figure below illustrates, in reinforced lines, the route of this road

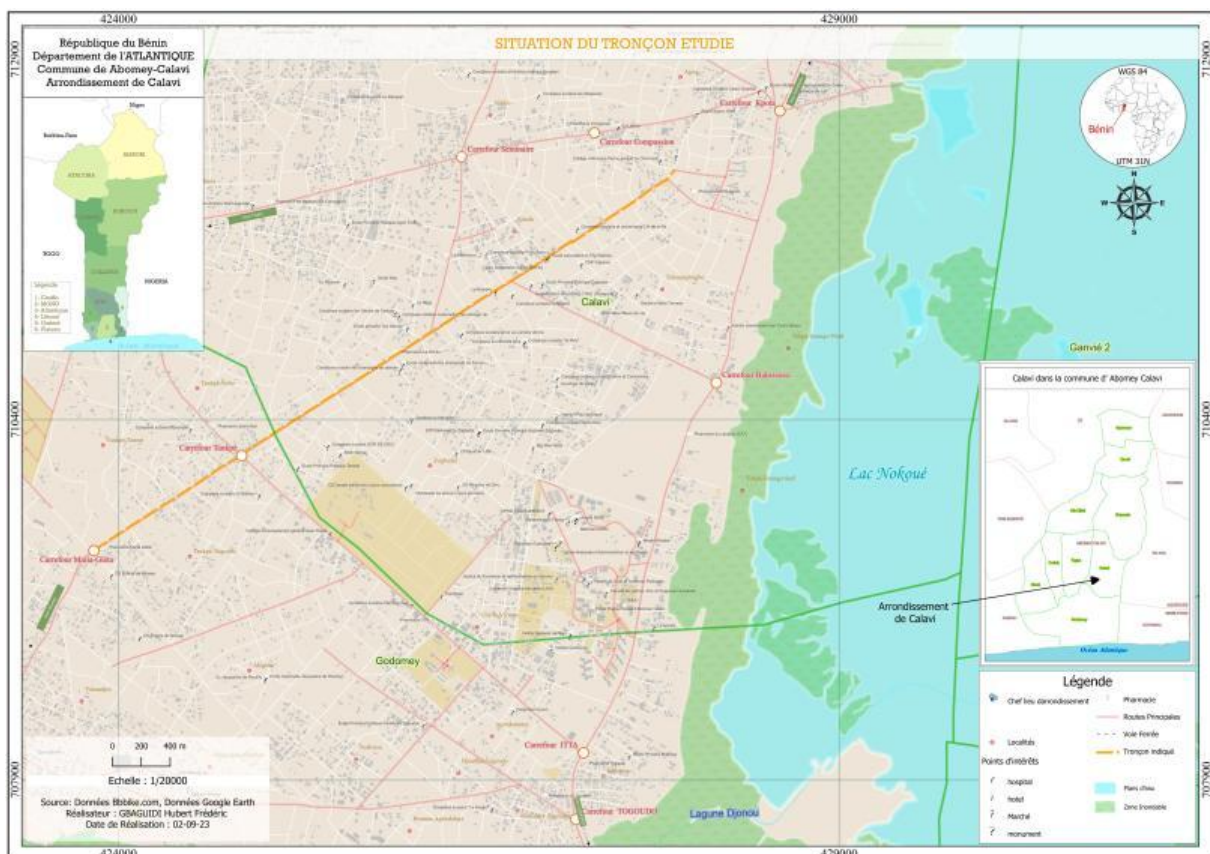


Figure1: Geographical location of the Carrefour Marché de Womey – Carrefour centre Anouarite road

2.2 A development that is not conducive to a fair sharing of public space

Based on the observation of road geometry (distribution of different spaces in the plan and in space), the materials used to cover the body of the road and the sidewalks, as well as road signs, it is easy to see that the roads as they are laid out offer very little space for pedestrians.

Thus, the route reveals a two-way roadway of two (02) lanes, each 3.5 meters wide, delimited on either side by a reinforced concrete gutter of variable section, extended by a sidewalk merged with the shoulder. The overall right-of-way of the street is approximately 20 meters. This roadway is used for both car and motorcycle traffic (which constitute the bulk of the traffic). A few roadway beginnings mark the route and serve, for the most part, as entry points into built-up areas. A few speed bumps of the speed bump type are installed on the roadway. These concrete devices constitute obstacles to the flow of water in the direction of the longitudinal profile of the roadway. As a result, puddles of water mark the route during rainy seasons.

In terms of covering materials, the roadway is covered with trief-type concrete paving stones. The reinforced concrete gutters are not fitted with a cover slab over a large part of the street, as illustrated in the figure below.



Figure2: Uncovered gutter

Given the greenish color of the fluid overflowing from the gutter (generated by algae), it is easy to conclude that it is stagnant water. The lack of cleaning and/or undersizing could explain this failure. Further observation of Figure No. 2 also shows that the sidewalk is not artificialized. This configuration is likely to permanently fill the gutters with sandy materials from runoff (the cross-section showing a convergent slope towards the gutters). The lack of development of the sidewalks whose substratum is of a clay-sand nature also creates puddles and potholes that hinder easy pedestrian movement during the rainy season as shown in Figure No. 3.



Figure3: Puddles on the road and sidewalk after rain

Furthermore, there are no provisions for the co-use of different parts of the road by people with disabilities. Similarly, there are no vertical, horizontal, or illuminated signs on either the roadway or the sidewalks.

All of these obstacles noted are likely to divert pedestrians from the normal use of the sidewalks and/or to encourage the monopolization of this space for other uses.

2.3 The occupation of the pedestrian space in question

The anarchic occupation of public space has long characterized cities that have been confronted with reparative urbanism (Gbaguidi H. F. and al. (2017, p. 393). Indeed, in the absence of precise rules, populations settle according to logics contrary to the principles of urban planning and often in complete disregard of legal provisions. The land consolidation operations that follow to correct this fait accompli last indefinitely and are generally carried out in the absence of competent actors. This configuration of space limits the capacity for action during the development of networks essential to the provision of urban services (water, electricity and telecommunications).

Political will led to a vast campaign to free up public space starting in January 2017, which led to the recovery of sidewalk space. But very quickly, Gbaguidi et al.(2017, p. 408) have observed a recolonization of these spaces through innovations in incivility. Thus, "the permanent installations having disappeared, the practice is then to display the goods on the ground or under mobile parasols." Over time, the reappropriation of the previously vacated public space has intensified. Now, the installations made from permanent materials are replaced in the same spaces by precarious equipment used for activities in the informal economy (Figure No. 4).



Figure 4: Permanent congestion of pedestrian space

To better understand the risks associated with walking, it seems necessary to better understand the different uses of pedestrian spaces. Table No. 1 below shows the various obstacles preventing pedestrians from using the lanes dedicated to them as well as the timing of the congestion.

Painting1: Temporality of sidewalk congestion

Type of obstacle	Temporality of the obstacle
Puddle of water	Temporary
Car intended for rental or sale	Permanent
Trade exhibition	Permanent
Parasol	Permanent
Advertising sign	Permanent
Refreshment bar	Temporary
Installation of vulcanization workshops	Permanent
Uncovered gutter	Permanent

It emerges from the analysis of this table that most situations of pavement congestion are permanent and linked to structural failures (such as unfinished construction of gutter cover slabs, lack of road signs) and/or circumstantial (flooding, commercial exposure, occupation for commercial activities, etc.).

In response to these obstacles, Thomas (2004, p. 248), concludes that pedestrian access to the city results from "a process of continuous creation: depending on the places, the times, the presence or absence of the crowd, the pedestrian will adjust his action according to the characteristics of the environment"

3. For sustainable pedestrian mobility

In order to begin some elements of response to the recurring conflicts caused by the usurpation of public space, highlighting the failures has made it possible to detect the main bottlenecks of the phenomenon under observation, which are of a structural and cyclical nature.

Structurally, the inadequacy of developments to the real needs of space use and the commercial practices of local residents are all situations that must be taken into consideration when setting up road projects. In these conditions, it is important to find a compromise between the different possibilities of conflict in the use of pedestrian space during the designs because, as Gbaguidi and al. note (2017, p. 403), "the occupation of the public domain is essentially due to the narrowness of the active space devoted to creation and exhibition." Such a prescription could involve redefining the notion of the sidewalk, as well as regulating local economic activities requiring an increased need for window space. Bergeron, J. and al., (2008, p. 163) describe the pedestrian as being "very mobile, less rigid and more intelligent than a vehicle" in that he can "establish his trajectory as he sees fit, in particular with few constraints in space". The flexibility of the pedestrian is therefore a favorable asset for the redefinition of sidewalks in urban environments.

Conclusion

Pedestrian accessibility to designated urban public spaces is a concern in light of increasingly recurring conflicts. Our approach to analyzing the phenomenon was that identifying the structural and cyclical causes of pedestrian space occupation would help us devise solutions that could contribute to the equitable sharing of public space.

Based on the conditions for the possible performance of pedestrian movements, and in agreement with Lavadinho and Pini (2005, p. 2) who believe that "the attractiveness of a pedestrian path depends on a complex assortment of factors", the study considered ways to guarantee each user of the public road space their right to equitable access. Following this reasoning, two conclusions are offered. Redefining the concept of sidewalks and adapting road development to local realities are then elements whose consideration in future road projects could be factors promoting living together in pedestrian spaces.

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