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Towards Smart Urban Regeneration: Findings of an Urban Footprint Survey in Port Louis, Mauritius

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Abstract: The Smart City Scheme, as part of the Smart Mauritius initiative, adopted by the Government of Mauritius in 2014, heavily incentivised the emergence of new smart cities in greenfields. The resulting migration of business and residents from existing cities to new cities affected the liveability standard of existing cities and encouraged property speculation. This shift reduced home pricing affordability further from the grasp of young professionals. With the Mauritian *Landlord and Tenant Act of 1999* discouraging investment in Mauritian city centres, property developers were additionally encouraged to invest in housing projects in these emerging Smart Cities. As part of the Smart Urban Regeneration strategy of Port Louis that sought to reduce competition between new and existing cities, the provision of housing was seen as paramount to enabling the Smart Cities concept as promoted by the Government. The findings of this paper, which explores the urban footprint of Port Louis through field survey, provides insights, as to the components of the city, that can assist policy-makers and developers to better shape projects that are more responsive to the Smart Urban Regeneration plan.

Keywords: smart city; urban regeneration; Port Louis; Mauritius; footprint; urban survey

1. Introduction

Urban regeneration internationally is theorized as a process aiming to regenerate predating urban areas to improve the quality of life of their host community [1]. According to La Rosa, et al. [2], urban regeneration is viewed as an effective approach to achieve sustainability goals. Recent urban planning enterprises have accentuated the need for regeneration of several parts of under-used portions of big cities. In Venice, authorities proceeded by developing a survey questionnaire and distributing it to a sample of the inhabitants of the city. The outcome was highly favourable as Venetians strongly demonstrated that individuals were willing to help out in different redevelopment projects, hence enabling multiple approaches by policy makers [3]. As primary work for the city of Port Louis has been done by various authors [4–6], a similar survey method has been adopted for this study.

According to the World Bank [7], a lot of once popular cities encountered decline in their socioeconomic profiles but with informed urban regeneration plans and supporting legislative, policy and government organizational reforms, they have once again been reinvigorated and experiencing growth. Some of the World Bank referenced examples included Ahmedabad (India) [6], Buenos Aires (Argentina), Johannesburg (South Africa), Santiago (Chile), Seoul (South Korea), Shanghai (China), Singapore and Washington DC (USA).

The island and nation of Mauritius lies in the Indian Ocean where its capital city, Port Louis, extends over an area of 47.7 km². With a total population of 119,333 inhabitants as at December 2016, Port Louis is the most densely populated geographical district of the island with 2954 P/km² [8]. Port Louis is host to the primary activities of the nation, accommodating the only port of the island, and stands, for over two centuries, as the political, judicial and economic node of the nation.

However, with the emergence of the Mauritian Smart City Scheme, from 2014, greenfield cities [5], Port Louis is slowly being faced by unhealthy economic competition from Smart Cities [6]. The emerging Smart Cities are heavily incentivised [9] including attractive fiscal incentives and tax discounts that encourage former sugar barons to trade land in favour of real estate ventures [5]. The new Smart Cities, equipped with fiscal mechanisms, can provide better services at an unfair pricing level to the severe disadvantage of existing cities resulting in a decline of economic attractiveness and business retention. Mauritian cities like the Municipal City Council of Port Louis are therefore losing capital investment and suffering business erosion that is further impacting negatively upon municipal rates and revenue [10]. This situation is further hampered because 95% of revenue and rates gathered by the Municipal City Council are oriented towards paying administrative and internal budgetary operations [11]. This adds to an environment where the Municipal City Council cannot invest in the maintenance and embellishment of the City and its infrastructure despite identifiable areas of major need and potential regeneration [4,10]. While there is a seemingly lack of focus on cultural and youth dimensions in a City that boasts a rich historical, cultural and multi-ethnic heritage and culture [12], this attribute differentiates Port Louis from other cities on the island. Additionally, the cultural dimension of the City has suffered from a lack of public funding in the conservation of heritage buildings [13]. This trend is set to continue with businesses increasingly deserting the City due to a decline in consumer demand and the reducing in the market catchment density.

In a bid to redress this situation, the Port Louis Development Initiative (PLDI) proposed an Urban Regeneration Scheme (URS) [6] in 2018 to the Government of Mauritius. Adopted in the Mauritian National Budget of 2018–2019 [14], this Scheme encourages investment in the public realm and was devised to catalyse the injection of funds in property assets with the aims to revitalise urban fabric and to increase liveability levels through the application of Smart Technologies.

The aim of this study dwells into researching the footprint of the city of Port Louis to provide policy makers with data on the dimensions and directions for the application of the URS.

2. Background

The URS, as showcased by Allam and Newman [6], is an innovative fiscal mechanism that aims to attract private investment in the public realm, and to catalyse the financing of projects. This is enforced at the governance level by the adoption of a policy that garners attractive fiscal benefits to private developers. Figure 1 showcases the scheme. A particular aspect is that it encourages private investment in urban areas through the dimensions of Culture, Governance and Metabolism. This reduces the investment required by Government and public bodies for urban embellishment or regenerative projects, as the scheme will organically encourage urban regeneration led by economic gains.

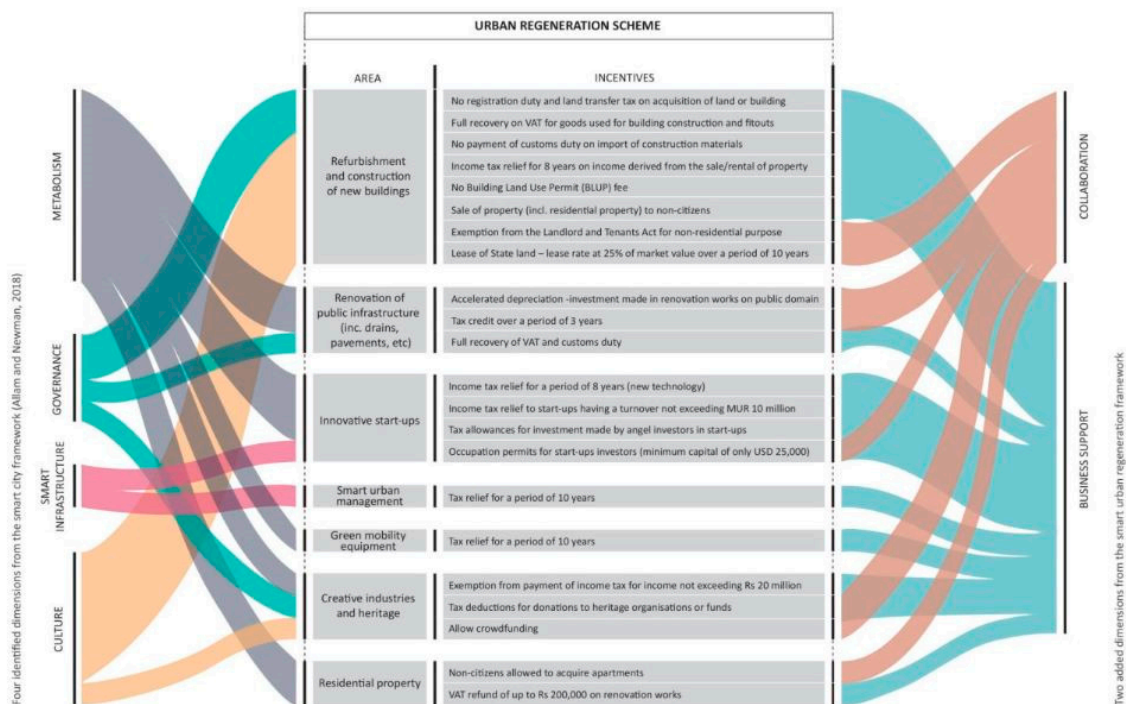


Figure 1. The Urban Regeneration Scheme (URS) as depicted by Allam and Newman [6].

There are numerous projects that emerged from the Urban Regeneration vision of Port Louis and some have required, for the first time in Mauritius, a Public Private Partnership (PPP) structure (REF). Those have been seen to the adopted in both urban terminals of Victoria and Immigration Square (REF). Allam and Newman [5,6] through extensive reviews of governance at urban level, believe that the proposed scheme will further encourage PPP structures oriented towards urban regeneration.

While the URS presents a highly attractive fiscal package, the rate of adoption is and can be expected to be slow. This response can be explained through the common concept of resistance to change often evidenced in fields of product development [15], marketing [16], and economic infrastructure [17–20]. However, Hon, et al. [21] highlights that overcoming this resistance to change may lead to a more innovative and creative urban environment.

To further encourage the successful adoption and implementation of the URS incentives by the private sector, in particular to encourage private investment in projects in Port Louis, it is dependent upon the capacity of Port Louis to investigate the extent regeneration opportunities and its potential to attract private and public investment capital. A review of Port Louis policy guidelines, and academic and professional practice literature by the authors revealed that no prior occupancy cadastre mapping of Port Louis existed, and this knowledge had been little noted [7]. The only and most relevant authoritative research involved an investigation of multi-level wind flow characteristics and pedestrian comfort in Port Louis [22].

With this gap in knowledge, as to the current urban space occupancy patterns in Port Louis, the authors proposed and undertook an urban survey mapping the various components of the City with the aim of identifying areas that may provide new investment opportunities for potential policy makers and investors.

3. Methodology

This mapping and research applied a survey methodology. This approach is well documented in being a reliable and cost-effective method for qualitative data gathering in both public and private organisations [23]. For Parker and Tritter [24], participants can be engaged in the process due to a shared lifestyle circumstance or condition, which provides stronger data. Lewis [25] supports the

robustness of similar methods in providing insights on a specific issue from a group of selected participants. Because this research was not aimed at studying emerging theories based on interactions between participant interviewees, no conducive environment was required. However, the opportunity was provided for participants to express their thoughts and values about their occupancy situation; this methodological approach is supported by other researchers [26,27].

Massey [28] provides a deeper understanding on three key dimensions and expected data outcomes from participant interviews related to the adopted approach: (1) Articulated data, where participants express thoughts and values from a direct question; (2) Attributional data, where the moderator discreetly provokes discussion; and (3) Emergent data that refers to normative understandings.

4. Data and Methods

This research investigation builds upon the previous research of Allam and Newman [6] whom proposed a framework for economically incentivising positive urban regeneration in Port Louis. Because this framework shares insights on components hindering investment in the Central Business District (CBD) of Port Louis, the following aspects were taken into account for this research investigation:

1. **Landlord and Tenant Act of 1999.** It was noted that buildings constructed prior to 1999 are subject to the *Landlord and Tenant Act of 1999*, and thus may host a commercial population that enjoys a rent that does not reflect the current property market. However, there is no research that identifies the area encompassed by the provisions of this *Act* in Port Louis, and thus its occupant population. The authors therefore included this dimension as part of their survey research.
2. **Commercial and Residential** A specific focus in the survey research was to identify commercial and residential buildings, and whether the occupants are property owners and or residential tenants.
3. **Heritage** While there are 81 listed heritage buildings in Port Louis [29], there are many other buildings in the CBD that have high heritage values [5,12]. The official list of the Municipality of Port Louis is thus restrictive, and the characterisation of 'heritage' building has been criticised as being arbitrary (REF). To ensure a better inclusion, and survey, of the heritage buildings for the purpose of this study, the authors expanded from the official heritage list, and included other buildings that possessed significant historical, cultural and architectural attributes or values.
4. **Government buildings** Because this survey research assessed the urban footprint of the CBD, with an interest in understanding the ownership characteristics of property, there was a need to understand how much property was owned by State or Municipal governments or Parastatal (government corporation) owned buildings. However, for this survey research, no distinction was made between State, Municipal, and Parastatal owned buildings.
5. **Green and Public Spaces** To understand the urban typology and spatial footprint, green and public spaces were also been surveyed.

The Port Louis CBD area was divided into two distinct areas (featured as Section A and B in Figure 2). Section A was later subdivided into two portions for ease of data gathering (Figures 2 and 3). Each allotment or plot of land in the chosen site boundary was identified using the Ministry of Housing and Lands' Land Administration, Valuation and Information Management System (LAVIMS), a high-resolution digital cadastral database, and then re-drawn using AutoCAD to ensure accuracy of land surface measurements. Each plot was then verified and surveyed on foot by a two-person researcher team.



Figure 2. Extent of the Urban Survey.

A general Plain Language overview of the purpose of the research was delivered to each building occupant and the following three questions were asked, according to identified building type(s):

For Commercial Operators:

- *Are you a tenant or landowner of this plot?*
- *Did you occupy this building before, or after, 1999?*

For Residential Buildings:

- *Are you a tenant or landowner of this building?*

These questions were specifically designed to elicit ease of participant responses to help the interviewers to quickly move onto the next interviewee. This direct approach also discouraged the influence of broad discussions by participants and ensured that data was relevant. This approach has been hailed by Massey [28].

5. Results of the Footprint Survey

Data derived from the Waterfront and Inland Sides of Section A (see Figure 2 in the Methodology section) are illustrated in Figures 3 and 4. Section A, which is the Business zone of Port Louis, hosts the waterfront that is a major tourist attraction, the harbour, major shopping centres as well as places of worship. It is the busiest place on the island during the day.

A major portion of land in Section A is privately owned land comprising an area of 130,912 m². The government-owned land consists of an area of 109,576 m².

As shown in Figure 5, the total land occupied by tenants comprised 115,447 m². Of this, those falling under the Landlord and Tenant Act (i.e., before the year 1999) occupies an area 42,236 m² and those after the year 1999 occupies an area of 73,211 m². Green space in Section A comprises an area of 4786 m² while paved parking spaces occupied nearly twice of that of green space.



Figure 3. Waterfront side as part of Section A.



Figure 4. Inland Side as part of Section A.

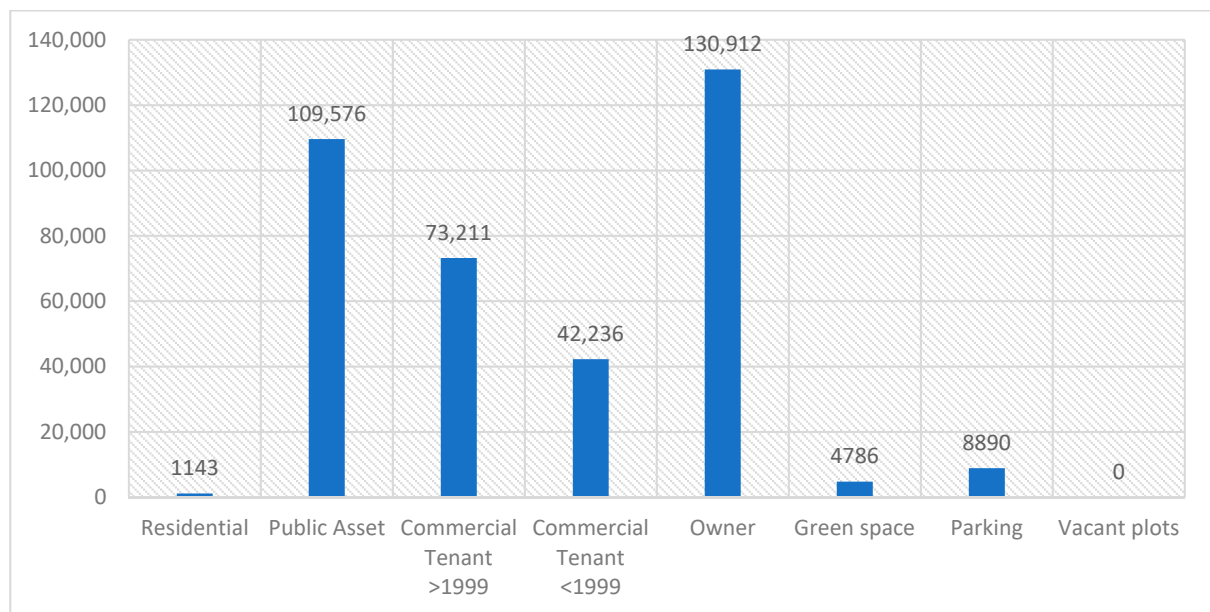


Figure 5. Summary of findings for Section A in m².

The respective areas covered in Section B, and the findings for ground coverage are depicted in Figure 6. Unlike Section A, the governmental land is in the majority in this section. Section B houses wholesale shops, business places, the Mauritius Telecom tower as well as the Mauritius Police Force's Line Barracks. One of the major governmental areas is the historic Line Barracks (identified as the large grey square). Figure 7 highlights that the privately owned land comprises of 190,729 m² while tenants occupied a total area of 51,315 m². The green space is more than twice that of Section A while parking spaces occupy nearly thrice that of Section A.



Figure 6. Section B.

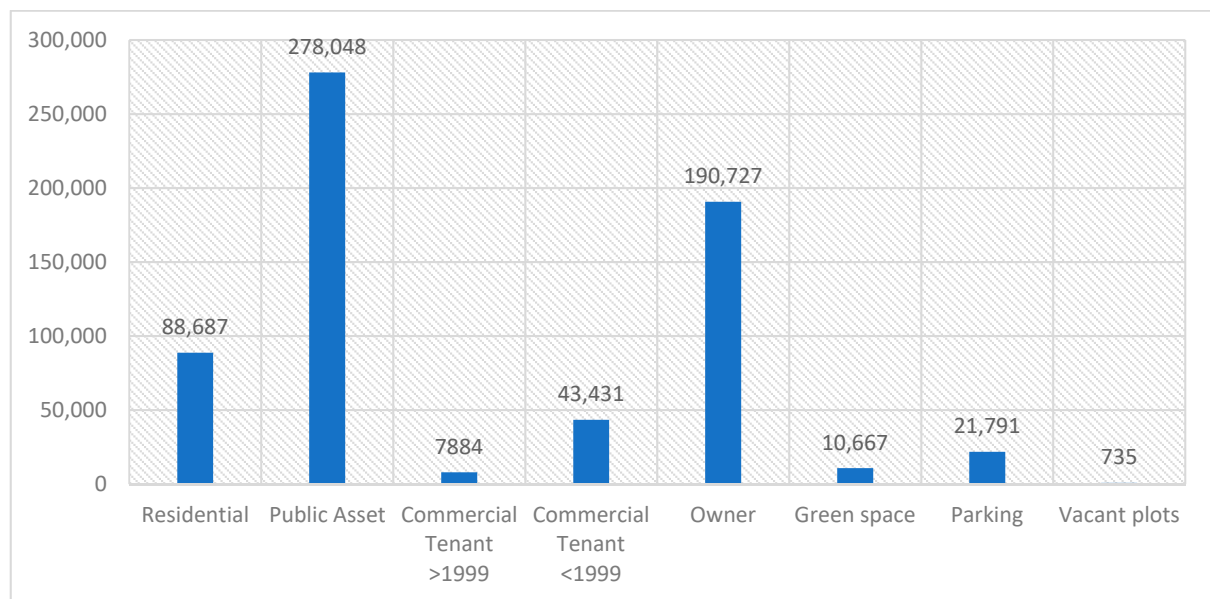


Figure 7. Summary of findings for Section B in m².

Figure 8 illustrates that 65% of the area covered is privately owned in contrast to 21% being tenancy for commercial spaces. In conclusion, some 15% of land space in the CBD of Port Louis hosts residents.

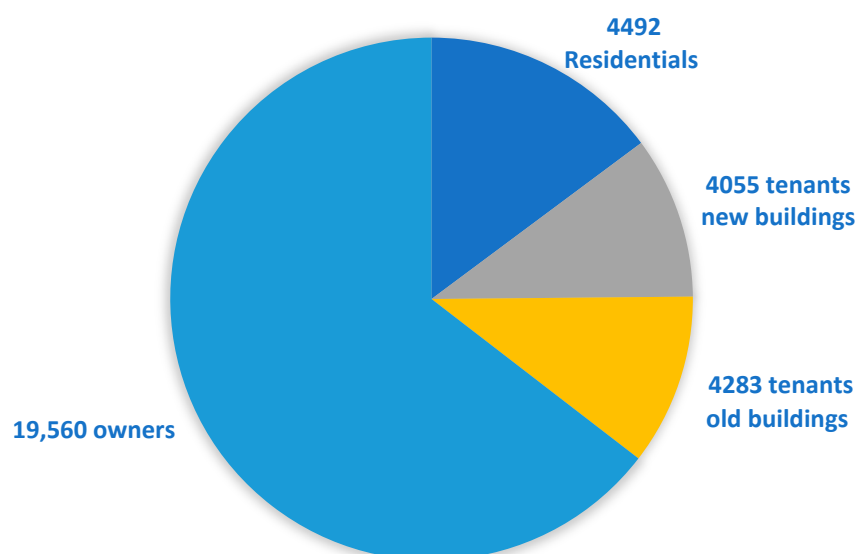


Figure 8. Summary of occupancy findings.

A map of the surveyed area has been generated that graphically illustrates the various statuses of each identified plots is shown in Figure 9 and Table 1 provides a summary of the findings for the surveyed area.

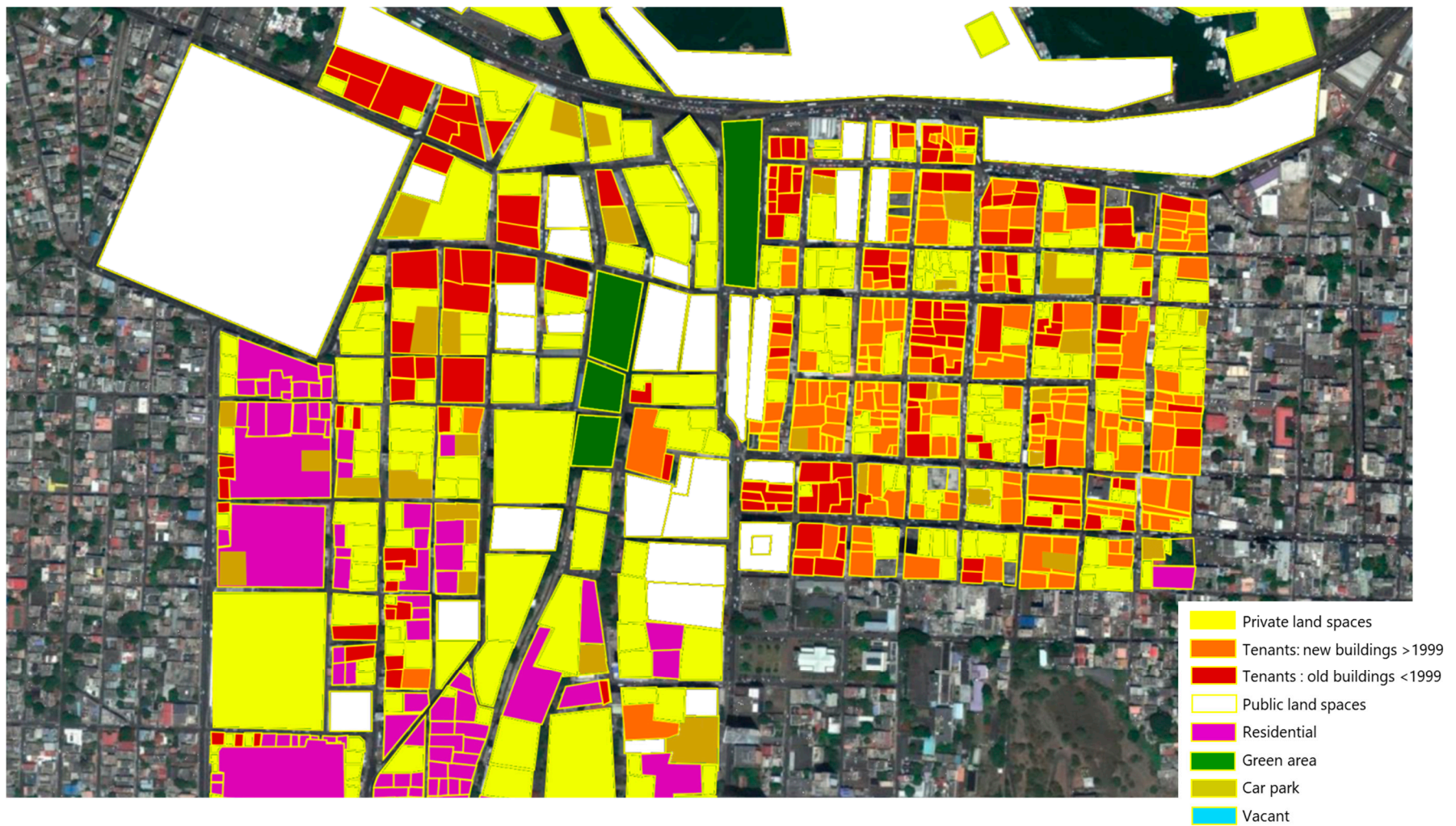


Figure 9. Cadastre Map showcasing the results of the survey.

Table 1. Summary of the Survey's findings.

Entity	Parameter	Value (in %)
Occupations Affected by the <i>Landlord & Tenant Act of 1999</i>	Footprint	8
	All Floors	6
Ownership	Public	37
	Private	63
Occupation	Residential	8
Buildings	Heritage	35
Open Space	Green	1

6. Discussion

Massey [28] shares that numerous uncertainties may arise in human participation during the various stages of data collection, analysis and interpretation. While interviews can be a primordial tool to highlight basic understandings, they fail to do so with statistical relevance. Thus, this study does not claim to support statistical validity but rather seeks to spark discussions on possible avenues to improve the successfulness of the Smart Urban Regeneration of Port Louis.

To safeguard validity of data, it is worth noting that the collected results were not cross-verified with the participants, who may doubt the originality of claims of others. This method is supported by Morse, et al. [30], as synthesised results are normally abstracted and participants do not have the ability to analyse data in its raw form without bias.

Interestingly, the findings of the survey revealed that the Port Louis CBD hosted more private owners than tenants, and that tenants affected by the *Landlord and Tenant Act of 1999* represent only 8% of the CBD. This statistic evidence that the Landlord and Tenant Moratorium is only minimally deterring the Smart Urban Regeneration of Port Louis. There is also a notable lack of green space (1%) and a high percentage of heritage buildings. This further highlights the potential of Port Louis as a cultural city.

The other and highly interesting conclusion is that public ownership is the second highest after private ownership. However, because the public sector does not have the financial means to invest in the City, there is an increased need for Public Private Partnerships (PPP) investments and projects. Allam and Newman [6] further showcases that for the city of Port Louis, an increased collaboration between both the private and public sector can foster a more economically sustainable City resulting in better design policies tailored for the betterment of the urban fabric. The need for enhanced collaboration between the public and private sectors has been identified by many researchers as a key dimension for positive development [31,32]. Longa [33] associates the term Public Private Partnerships (PPP) closely to redevelopment. Allam and Newman [6] demonstrate how this can be achieved in Port Louis through fiscal measures. Another item of interest is that while there are not many vacant plots in the CBD, the findings highlights that most vacant plots are being used as parking lots. This has been highlighted in a previous study [6] as being a result of the Landlord and Tenant where owners are not encouraged to invest in a building as they may be in economic disfavour from the *Landlord and Tenant Act of 1999* and from the World Heritage List-associated Aapravasi Ghat Buffer Zone.

The primary findings from this research provides a detailed urban footprint survey of the City of Port Louis. This is particularly of interest to investors and policy makers interested in investing in the Port Louis through the URS to achieve a Smart Urban Regeneration. Interestingly, it was concluded that the *Landlord and Tenant Act of 1999* does not on its own deter the Smart Urban Regeneration of Port Louis. This evidence goes against contemporary beliefs that tenancy legislation negates urban regeneration initiatives [10,34]. A review of literature highlights the absence of prior research in Mauritius regarding urban surveys and their related findings in Mauritius. This research concludes that data that is helpful for both the public and private sectors in better understanding urban regeneration

processes, opportunities and processes in the City of Port Louis, and can contribute to knowledge in the field of urban planning in Mauritius. There are authors that believe [10,11] that the strong planning regulations of the Aapravasi Ghat World Heritage Listed cultural zone is a deterrent to development. Allam and Newman [6] further showcases that this can be tackled by innovative models like the URS. As this study covers the Aapravasi Ghat World Heritage Listed cultural zone, the findings highlight the density of the area on a block scale. This opens other avenues for research and policy making oriented towards developmental models. One such model is the trading of air development rights that have been researched and are enforced in numerous places [35–38].

7. Conclusions

This research explored the urban occupancy footprint in Port Louis of Mauritius through a detailed survey. Its findings revealed the detailed spatial and occupancy composition of the Port Louis cityscape as to public and private ownership, residential and commercial activities, heritage, green and public spaces. The findings underline that the City of Port Louis possesses a high heritage value where 35% of land is occupied by buildings with historical and or cultural significance. The research survey also highlighted the need for Public Private Partnership ventures because 37% of land is owned by the public sector that lacks the financial capacity to invest in their assets. This research study thus adds to literature and unveils the housing, cultural and investment attractiveness potential for the City of Port Louis.

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