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PROGRAM ON ALTERNATIVE DEVELOPMENT

Informal Settlement on UP Diliman Campus

A Preliminary Study of Spatial Conditions and Possibilities

Kim Dovey and Redento B. Recio

upcids Alternative Development

UNIVERSITY OF THE PHILIPPINES
CENTER FOR INTEGRATIVE AND DEVELOPMENT STUDIES

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"A typical squatter area in the Philippines. Houses made of hollow blocks and corrugated sheet metal."

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SDG 3: Good Health and Well-Being
SDG 11: Sustainable Cities and Communites
SDG 9: Industry, Innovation, and Infrastructure
SDG 8: Decent Work and Economic Growth

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Top: view from the top of Quezon Hall, which houses the administration building.
Bottom: map of UP Diliman campus, including informal settlements, based on Google Maps/Earth.

Informal settlements on UP Diliman campus

Buod/Summary

Ang Unibersidad ng Pilipinas Diliman campus ay tahanan ng tinatayang 30 *informal settlements* na nakatirik sa humigit-kumulang 93 ektarya ng lupaing pag-aari ng Unibersidad ng Pilipinas. Marami sa mga residente ang naninirahan nang higit sa tatlong dekada sa loob ng campus; ang ilan sa kanila'y nagsimulang manirahan sa komunidad bago pa mabuo ang Diliman campus. Ang pagisisiyasat na ito'y isang panimulang pag-aaral na naglalayong maging ambag sa mga susunod pang mas malalim na mga pananaliksik at pag-unawa ukol sa kalagayan at posibleng pagsasaayos ng mga komunidad. Sinusuri sa ulat na ito ang mahahalagang usaping may kinalaman sa espasyo at materyal na kondisyon sa mga pamayanan—sa tulong ng mga binuong mapa at kuhang larawan. Tinatalakay din ang mahalagang papel ng mga komunidad sa 'buhay campus' sa pamamagitan ng serbisyong hatid ng impormal na transportasyon at pagtitinda sa kalye. Ang mga pamayanang ito'y nagsisilbing lugar para sa abot-kayang pabahay, daanan o paradahan ng mga pampublikong transportasyon, at tahanan ng mga manggagawa sa loob at labas ng campus. Hindi madaling bilangin ang eksaktong populasyong nakatira sa mga lugar na ito, pero batay sa mga nakolektang datos tinatayang mayroong higit 70, 000 na mga residente. Bukod sa pagtalakay ng kasalukuyang sitwasyon, nilalahad sa ulat ang ilang mga posibilidad na maaring magbukas ng serye ng mga pag-uusap ng mga pangunahing *stakeholders*—mga administrador ng Pamantasan, residente ng mga pamayanan, mga kapwa iskolar, opisyal ng Quezon City, atbp. — at upang pasiglahin ang debate ukol sa kalagayan ng mga komunidad at mga angkop na tugon sa mga isyung kanilang kinakaharap.

Kung susuriin ang mga mapang nakapaloob sa kasalukuyang LUDIP o *Land Use Development and Infrastructure Plan* ng UP Diliman, karamihan sa lupang kinatitirikan ng mga komunidad ay nakatakda para sa gawaing pang-akademiko, o kaya'y nakalaan para sa planong *Science and Technology Park, Open Space at Resource Generation Zone*. Kung masusunod ang makulay na mga mapa sa LUDIP, maari itong mauwi sa dahan-dahang paglilipat (relokasyon) ng mga residente sa labas ng campus. Batay sa mga naunang pag-aaral sa iba't-ibang panig ng mundo, ang relokasyon ng mga *informal settlers* sa malalayong lugar ay kadalasang nauuwi sa pagkawala ng kanilang kabuhayan at paglipat ng mga nawalan ng tirahan sa ibang *informal settlements*. Sa kasalukuyan, *on-site upgrading* at *redevelopment* ang pangunahing rekomendasyon ng mga *international development agencies* tulad ng UN-Habitat—ang demolisyon ng mga

kabahayan nang walang tiyak at abot-kayang kapalit na pabahay ay isang paglabag sa karapatang pantao. Tinatalakay sa ulat na ito ang mahahalagang isyu at ideya para sa pagbalangkas ng angkop na tugon sa isyu ng *informal settlement* sa UP Diliman campus. Karamihan sa mga komunidad na ito ay maaaring isaayos sa kanilang kasalukuyang lokasyon; marami sa mga pamayanan ay matagal ng nasa proseso ng dahan-dahan at tuloy-tuloy na pagsasaayos sa loob ng mahigit na tatlong dekada. Ang ibang pamayanan ay humaharap sa mas matinding mga problema (madalas binabaha, matinding siksikan, kakulangan sa *open space*, atbp.), at nangangailangan ng mas malalim na pagsusuri upang pag-aralan ang angkop na tugon para sa hinaharap. Mahalaga ang pakikipag-ugnayan sa mga komunidad para sa inklusibo at makataong campus plan ng UP Diliman, isang planong sumasalamin sa saligang prinsipyo ng Pamantasan: "dangal at husay na may malasakit."

The UP Diliman campus is home to up to 30 informal settlements that occupy about 93ha of campus land. These settlements have occupied this land for varying lengths of time, including the pre-campus period in some cases. This research report sets the ground for a better understanding of the future for these settlements. It maps the spatial extent and material conditions of informal settlement across the campus and demonstrates the degree to which they are integrated with campus life through informal transport and street vending. The settlements provide affordable housing, cheap labour, transport, and retail services throughout the district. The populations of these settlements are difficult to measure accurately but estimates based on available data indicate over 70,000 residents. The report also explores some possibilities for these settlements with the aim to open up conversations with key stakeholders and to stimulate debate and understanding.

The maps in the current UP Diliman Land Use Development and Infrastructure Plan (LUDIP) indicate that the plan is for gradual relocation and rehousing of these residents off-campus, releasing this land for academic function and other purposes. Displacing these populations would result in a loss of livelihoods and more informal settlements in surrounding areas. On-site upgrading and redevelopment is now the broad policy position of major global development agencies including UN-Habitat – demolition of informal settlements without sustainable and affordable replacement housing is a violation of human rights. This report offers an evidence base for

sustainable redevelopment of the settlements on the campus, without consuming additional land. Most of these settlements can be improved or upgraded on existing locations – indeed many have been under processes of continuous upgrading for over 30 years and are clearly permanent. Other settlements are more problematic, contested and vulnerable, but there is scope for on-campus redevelopment of all existing settlements over time. The reputation of the University requires a just and evidence-based approach to the social inequities that are currently embodied in the campus. The future of the UP Diliman campus requires an effective engagement with the informal settlements to produce a humane and inclusive campus plan—a vision that reflects one of the core values of the University of the Philippines: "honor and excellence with compassion".

1 Introduction

The view from the Board of Regents Room in Quezon Hall, the administration building of the University of the Philippines (UP) System, reveals the core of the UP Diliman campus as a beautiful and well-manicured place—a vast green lung within the dense and often intense Metropolitan Manila (page i). As is less known, and the map on the cover shows, the large campus is also home to informal settlements that occupy about 20 percent of the original campus land grant. This report is an investigation of this informal urbanism on the Diliman campus of the University of the Philippines (UPD). It maps the spatial extent and material conditions of informal settlements across the campus, and demonstrates the degree to which they are integrated with campus life through informal transport and street vending. The report also explores some possibilities for these settlements with the aim to open up conversations with key stakeholders and to stimulate more in-depth studies to better understand the issues on the ground.

UPD comprises 493 ha of land, of which about 93 ha are occupied by residential settlements—depending on how one defines an informal settlement. We define it as land where urban plans and/or buildings and key infrastructures have been largely self-organized rather than formally planned. Many of these areas have been settled for over 30 years, and the livelihoods of these resident populations are thoroughly integrated with the campus and its broader context. The settlements provide affordable housing, cheap labor, transport, and retail services throughout the district. The populations of these settlements are difficult to measure accurately but estimates based on available data indicate over 70,000 residents.

The maps in the current UP Diliman Land Use Development and Infrastructure Plan (LUDIP) indicate that the university is for gradual relocation and rehousing of these residents off-campus, releasing this land for academic purposes. Displacing these populations could result in a loss of livelihoods and more informal settlements in surrounding areas. On-site upgrading and redevelopment is now the broad policy position of major global development agencies including UN-Habitat and World Bank—the demolition of informal settlements without sustainable and affordable replacement housing is a violation of human rights. Previous studies and organizational reports have shown that on-site upgrading or redevelopment can work

when undertaken with significant involvement of key stakeholders on the ground, particularly the community residents (ACHR 2016; Dovey et al. 2019; Cash 2021; Dovey and Recio 2023; Irawaty et al. 2023). This report expands on these empirical insights and offers an evidence base for inclusive and sustainable redevelopment of the settlements on the campus, without consuming additional land. Most of these settlements can be improved or upgraded on existing locations—indeed, many have been under processes of continuous upgrading for over 30 years and are clearly permanent. Other settlements are more problematic, contested, and vulnerable, but there is scope for on-campus redevelopment of all existing settlements over time.

In the context of Metro Manila, the UP Diliman campus is a vast landscape, one of the largest on the planet, that can be better connected to the larger city. The core academic zone offers a relaxing environment for the UP community and serves as a good public park during weekends. However, the entire land area of UP Diliman has very low-density, making it unwalkable. As we will show, the informal settlements perform a key role in connecting this urban design to the larger city. The future of the campus requires an effective engagement with the informal settlements that are already an integral part of campus life. The reputation of the University requires a just and evidence-based approach to the social inequities that are evident on campus.

We will argue that many of these settlements are permanent in the sense that the investment in durable housing and infrastructure over many decades has made replacement costly for both the current informal settlers and UP or other concerned state agencies. Such cases require ongoing improvement of the existing settlement. In other cases, demolition and resettlement on other parts of the campus may be necessary. The University can become a global leader in the on-site improvement and redevelopment of informal settlements. However, this can only be done in collaboration with both community residents and the Quezon City government.

This report proceeds as follows. After this introduction, we provide a broad contextual discussion of the informal settlement in the Diliman campus and explore UP's historical approach to deal with it. We then explain how we became interested in the informal settlements in UP Diliman and describe our research approach. This is followed by the discussion of the spatial and material conditions of 23 to 29 settlements depending on how they are identified. These settlements have been clustered into six geographical sectors. There is a brief discussion of possibilities for each settlement and cluster. We also present a typology of settlements based on morphological and material conditions. After this, we demonstrate how the location of informal settlements is inherently linked to livelihood opportunities, particularly in relation to two other dominant modes of urban informality: *informal transport* and

street vending. We also outline three potential approaches that UP and other state agencies can explore to address the decades-old problem of informal settlement within the campus. Finally, we underscore the importance of getting the communities involved in any future upgrading or redevelopment of their settlements.

2 Context

UP Diliman is situated within Quezon City (QC) which is the largest component city of Metro Manila, covering 160 km² with a population of about 3 million people. QC was initiated in 1939 and planned as the capital city of the Philippines when self-government was emerging from the American colonial period (Pante 2017). The new city was intended to relieve the congestion of central Manila with a modern car-based design of broad boulevards laid out across what was mostly farmland with a few villages. About 5 km² of land was allocated to the UP Diliman campus, radiating northeast and on the axis with the central national monument of the Quezon Memorial Circle. The land was part of the Diliman Estate, which was acquired by the state at that time.

The Diliman Estate was a colonial hacienda that was formerly "owned" by the Tuason family. It incorporated a number of traditional villages with adjacent farmland. The presidential decree on the purchase of the land said that it should be developed in accordance with "the improvement of the living conditions of the laborers and low-salaried employees, be they employed by the Government or by private concerns" (Commonwealth of the Philippines 1938). The charter of the University requires that this land be used for university (academic) purposes and a Congressional charter in 2008 prohibited UP from selling any land.

In November 2022, the university's Board of Regents (UP System's highest governing body) approved a Land Use Development and Infrastructure Plan known as LUDIP 2022–2038 (UP Diliman 2022). It incorporates a brief analysis of existing informal settlements but there is no clear plan of how to deal with them. It includes an aerial photograph (see figure 1) which locates 19 settlements, although there is no spatial analysis, and the settlement boundaries are inaccurate. The LUDIP states that "currently there are 9,787 informal settlers in UP Diliman" (UP Diliman 2022, 55). This number actually refers to informal settlement families (ISFs) and does not include the settlements of San Vicente and Krus na Ligas. A recent study of six of these settlements by the United Nations Development Programme–Manila (UNDP 2022) revealed an average of four residents per household. If we multiply the figures in the LUDIP report by 4 and add the additional settlements (based on 2015 census

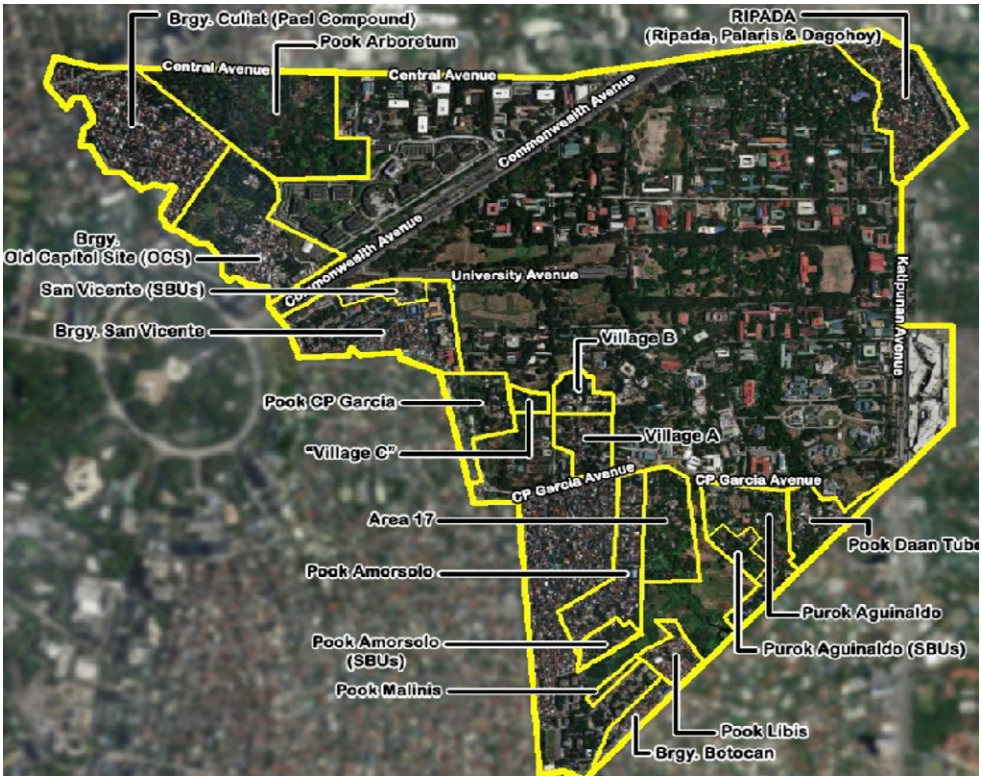


Figure 1: Informal settlements listed in the UPD LUDIP 2020–2038 (UP Diliman 2022, 77)

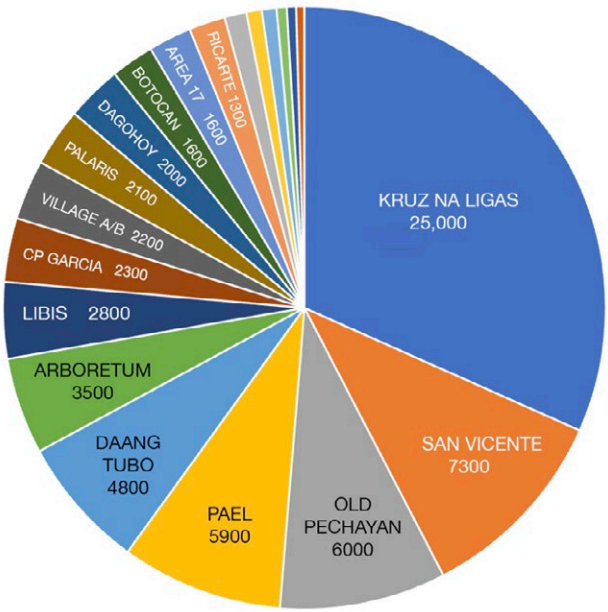


Figure 2: Estimated informal settlement populations in 2015 based on data from the Office of Community Relations (OCR 2020). No available data for Amorsolo SBU

data), we arrive at an estimate of an on-campus population of about 69,000 informal settlers (excluding Amorsolo SBUs for which we have no reliable data). Figure 2 shows the distribution of populations between the settlements. It shows that the bulk of this population resides in the more developed settlements, and the remainder live in smaller and more vulnerable settlements.

The LUDIP also includes a land use map (see figure 3) wherein almost all informal settlements are proposed for demolition and replacement with functions such as "Science and Technology Park" or "Resource Generation Zone." While the plan does not specify how this envisioned land use can be realized, a more nuanced set of possibilities is evident both in this document and in development practices on the ground.

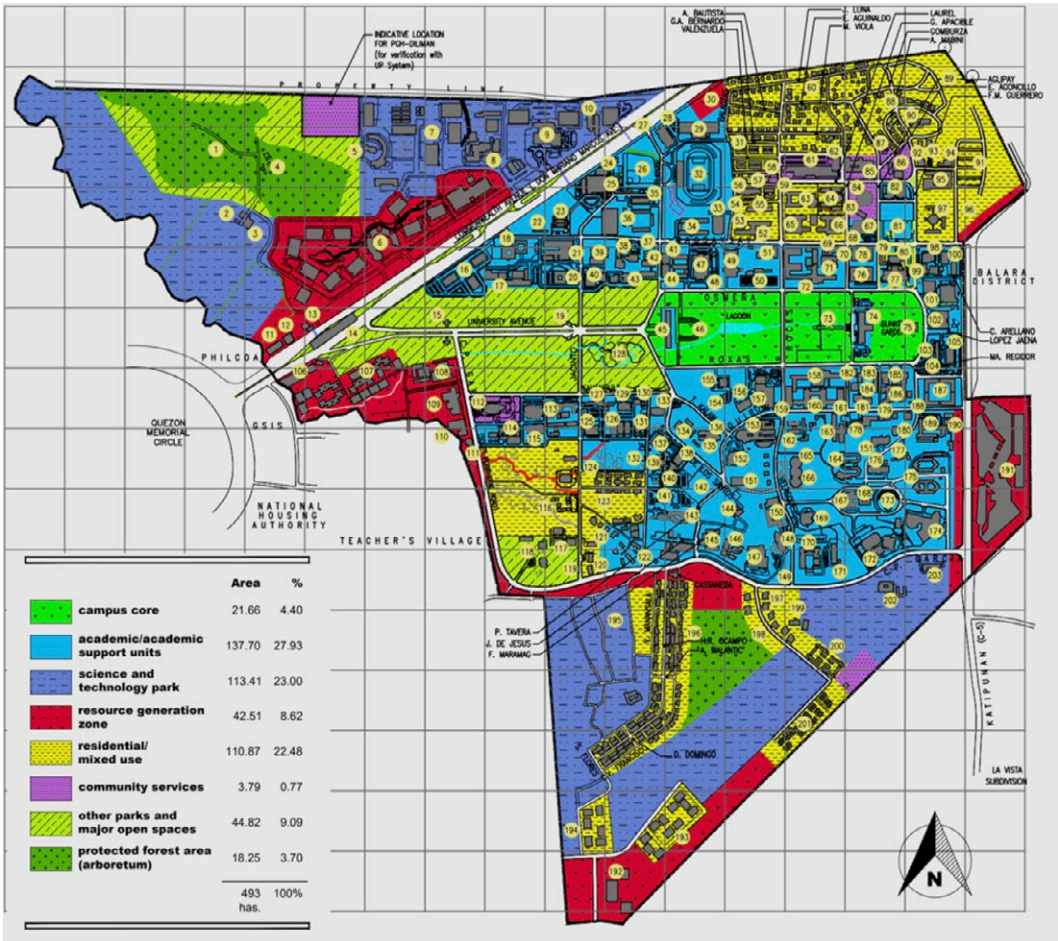


Figure 3: 2022–38 Land Use Plan (UPD LUDIP) (UP Diliman 2022, 67–68)

The LUDIP refers to existing informal settlements in a range of contexts. It is conceded that "[t]he issue on informal settlements within the campus still needs to be addressed" (UP Diliman 2022, 36) Later, the Plan states that "[t]here is a need to gradually see development potentialities on buildable areas where low-density informal settlements are documented. . . ." Neither these areas nor their potentials are clearly documented. The most positive statement about the future of the settlements states that "properly screened and registered informal settler groups… will be transitioning to possible formal stature (in a manner and iteration that is aligned with the best interests of the UP Diliman campus mandates of teaching, research, and extension" (77). The details of this plan are unclear and ambiguous, but it essentially has three strategies: *containment*, *temporary relocation*, and *upgrading*.

Containment generally involves the construction of walls and fences, which can be considered "proactive measures to assure that the current boundaries will no longer extend outwards" (UP Diliman 2022, 66). This has been apparent in many settlements. We note that in stabilizing settlement boundaries, these fences also serve to legitimate settlement up to that boundary—they produce *de facto* tenure.

Temporary on-campus relocation is a practice of decanting selected resident groups onto temporary sites: "identified informal clusters will be engaged with, leading to them moving to an area where development is not yet to happen; all the while it should be made clear to the community . . . that relocation is likewise temporary in nature, until such time that a more long-term solution could be arrived at" (UP Diliman 2022, 63). We note in this passage that the outcome is a *fait accompli*, and the "engagement" is to enforce a decision that has already been made. The plan is for temporary relocation to what is termed *"transitional housing"*—residents are in "transition." Yet the question of "transition to what?" remains ambiguous since there is no long-term plan. We will discuss several such relocation practices below under the settlements of Libis and Marilag.

The need for upgrading existing settlements is acknowledged only in relation to fire risk: "with the proliferation of hazard-prone materials and non-codal compliant accessibility routes. In this regard . . . it would be wise to also fund infrastructure projects that will improve accessibility of emergency vehicles, to help mitigate such risks" (UP Diliman 2022, 53).

We finally want to stress the way the very expansive initial land grant for the university in 1939 has generated many of the current issues but also embodies the opportunity to address them. This profusion of unused land and the distance it

creates from the city has provided both the land and the market for the informal settlements. The university is constrained from selling this land and the LUDIP has been simply colored with ideas that lack a robust analysis of existing socio-spatial conditions on the ground. This vast campus is both a problem and an opportunity. A large part of this opportunity is to utilize parts of this land to demonstrate how inclusive and sustainable on-site upgrading of informal settlements can be achieved.

3 Research Approach

Our interest in studying the informal settlements on UP Diliman campus started in early 2020 when we organized an International Travelling Studio on Informal Urbanism in Metro Manila in partnership with the UP School of Urban and Regional Planning (SURP) and the College of Architecture. One of the communities we studied was Pechayan (Old Capitol Site), where we saw both the vibrant urban life in the neighborhood's denser section, as well as the "rural-like" agricultural activities near the Hydraulic area. During the height of the COVID-19 pandemic, some of our Hub members contributed to a fundraising drive led by Filipino scholars[1] to extend assistance to some urban poor communities in Metro Manila, including Pechayan and Arboretum. From late 2020, we began to look more closely into the spatial dynamics (e.g., morphogenic processes and material conditions) in other settlements on the campus. This scholarly engagement is consistent with the broader goal of the Informal Urbanism Research Hub (InfUr-, a research cluster at the University of Melbourne's Faculty of Architecture, Building and Planning) to interrogate the role of urban informality in the production of cities of both the Global South and North. This includes the many ways "urban informality intersects with formal urban systems, and a better understanding of the logic and resilient capacities embedded in self-organized urbanism" (InfUr Hub n.d.). This is part of a broader interest in the ways livelihoods are integrated with informal settlement, street vending, and transport, along with the ways urban design and planning can engage more creatively and effectively with the problems that emerge.

We begin from the position that informal settlement is a self-organized form of urbanization, a mode of production, and is not a euphemism for "slum" (Dovey et al. 2021). The outcomes may or may not be substandard in a range of different ways—low durability of construction, lack of services, poor access/egress, lack of light/air, and lack of open space are among the primary issues that may emerge. Lack of tenure and overcrowding are also part of the cluster of characteristics included

1 In April 2020, members of the Cities and Environments Research Network or CERN launched the *Street Fund* campaign, a relief drive that helped informal workers and some urban poor communities to address their health and nutrition needs during the COVID-19 lockdown. CERN is a network of Melbourne- and Manila-based Filipino postgrad scholars, PhD researchers, lecturers, and alumni of Australian universities with research interests in the Philippines.

in UN-Habitat definitions of the word *slum*. While these critiques are crucial, our focus is on understanding how self-organized urbanism works as an evidence base for understanding how *in situ* upgrading or redevelopment can work. We do not seek to identify "slums" but to understand the campus as a space of possibility. Many informal settlements are a form of production of affordable housing.

Informal settlement is mostly evident in an irregularity and incrementality of the urban morphology—the buildings and access networks. Regularity and increment size are matters of degree, and there is no simple continuum of formal to informal settlement types. The regularity of street networks ranges from the labyrinth of narrow lanes in most informal settlements through semiregular grids to the strict geometry of the formal city. The regularity of buildings ranges from makeshift shacks to durable and formal ones. Increment sizes range from single-room additions and lanes that twist every 10 m, to large compounds developed as a singular vision. Many neighborhoods have a mixed morphology with large and small increments, regular and irregular buildings, and street/lane networks. The informal settlements on campus include everything from makeshift encampments to upgraded four-story neighborhoods—our criterion for inclusion is that they are self-organized. Some are formally subdivided but informally developed. By this definition about 93 ha of the 500 ha campus is informally settled (figure 4).

Based on an earlier work (Dovey and Kamalipour 2018), we analyzed the settlements loosely into about 40 ha of highly informal settlements and 53 ha of semiformal ones. However, the settlements differ enormously in terms of density, morphology, tenure, and durability. We will describe each settlement in turn; while we will attend to questions of durability and substandard conditions, this will also require more detailed research. Some settlements lack open space, some access/egress lanes are unsafe, and some neighborhoods are overdeveloped in the sense that interiors and/or public spaces lack light or ventilation. Others are poorly serviced with electricity, water, sanitation, and drainage.

While tenure conditions are crucial, this is not a study of such conditions. In formal legal terms, all the campus settlements are illegal because they are on university land. Yet in practice, the settlements all embody some degree of *de facto* tenure—a presumption of tenure that is based on both the length of occupation and the degree of upgrading, community development, and relations with various levels of state bureaucracy. Rather than a simple relation of residents to land, *de facto* tenure incorporates relations to the history of the settlement, length of occupation, durability and extent of buildings, community infrastructure, political ties, and informal documentation. *De facto* tenure ranges from recent residents to those who

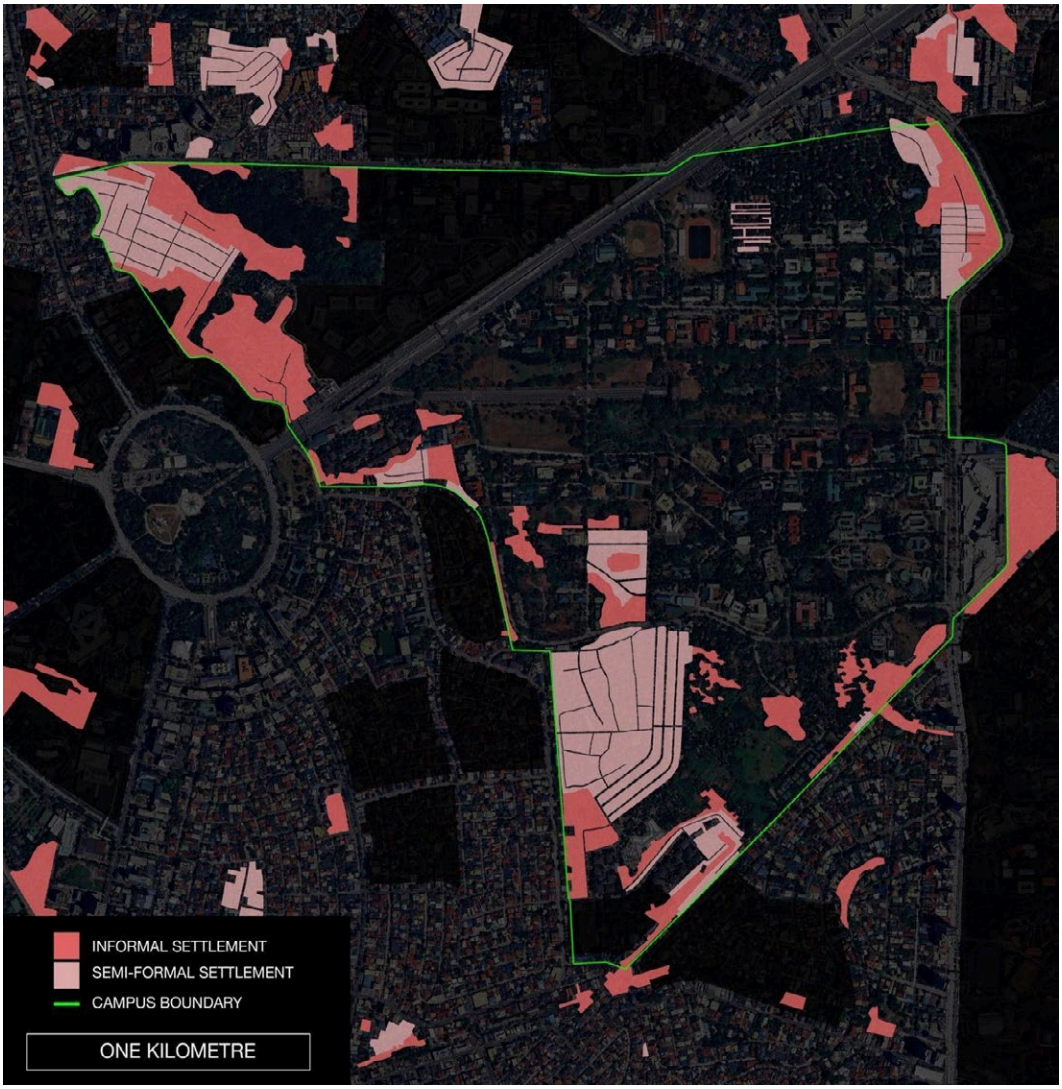


Figure 4: Informal Settlements on and around the UPD Campus (Based on Google Earth data)

can trace their occupation to the colonial period. It is complicated by the ways both actions and inactions of the university have lent legitimacy to forms of occupation.

We have included two settlements that are not included as informal in the LUDIP report (figure 1). The largest settlement of Krus na Ligas (KNL) has already been practically ceded as a "permanent" settlement and negotiations have been underway to incorporate it into Quezon City governance. We have included it because it is still formally part of the university campus and because it is characterized by highly

irregular and incremental morphologies. We have also added parts of Area 2 where formal housing has become encrusted in informal additions.

This research was undertaken during field trips in January–February 2020, March–May 2022, and May–June 2023. An initial fieldwork on the Pechayan settlement was undertaken as part of a joint studio between the UP College of Architecture, School of Urban and Regional Planning, and Melbourne School of Design in January–February 2020. The United Nations Development Programme (UNDP) Manila Office initiated an enumeration study[2] (Manila Office), in collaboration with local leaders in Arboretum, Pechayan, San Vicente (Manatili), and Ripada (Ricarte, Palaris, and Dagohoy) communities (UNDP 2022). Beyond these studies, this analysis is based on six main research methods: archival research, photographic survey, GPS data from mobile phones, Google Street View surveys, Google Earth surveys, and interviews, all under the umbrella of University of Melbourne Research Ethics approval: reference number 1955844.2. The research is based on methods developed and published through InfUr- at the University of Melbourne over the past decade (Dovey et al. 2018; 2021; 2022; 2023; Dovey and Recio 2023; Dovey and Recio 2024; Mateo-Babiano et al., 2020; Recio 2021; Recio and Dovey, 2021; Recio 2022).

The virtual research methods are primarily based on Google Earth, Google Maps, and Google Street View and were undertaken prior to the on-ground fieldwork. The walkthroughs have largely served as a form of ground-proofing—adding depth, breadth, and accuracy to an established framework. Google Earth contains an archive of aerial photographs dating from 2004; many are of high resolution with good evidence of morphological change over time. We have very little evidence of the morphogenesis of the campus during the 20th century. The mapping of street/lane networks is based on Google Earth, Google Street View, and Open Street Map augmented by ground-proofing. Google Earth does not provide accurate data for settlements located within forest areas. We have used GPS, Google Street View, and photographic survey during site visits, but this data remains patchy. Google Street View provides an archive of anywhere from one to eight sets of photographs dating from 2013 to 2023 of all accessible streets. This has been used to map and analyze morphological change in the buildings, street life, livelihoods, and appropriations of public space. The photographic survey adds to this visual database, and in many cases, repeat visits have been useful to better understand change. The interviews

2 The UNDP Team uses their Development through Local Indicators and Vulnerability Exposure Database or DevLIVE+ tool to collect, organize, visualize, and manage data and information (e.g., vulnerabilities and exposures to climate change and natural hazards) in order to identify development pathways toward a sustainable and progressive communities (UNDP 2021).

include more formal discussions with scholars and officials from UP Diliman and the Quezon City government, as well as informal discussions with community leaders and residents.

This is a preliminary and limited study. Our analysis of these settlements has a primary focus on the spatiality of each settlement as a basis for better understanding its possible sustainable and inclusive futures. We hope this can open a more informed debate and a program for upgrading and redevelopment.

4 Settlements: Overview

Figure 4 above sets the ground for this study; it maps all the informal settlements on and around the UPD campus, including all those to be studied in this report. It shows that the campus is part of a city with relatively high levels of informality and that the academic core of the campus is exceptional in being relatively free of informal settlement. We have distinguished between informal and semiformal development: a semiformal settlement is either an informal settlement that has become formalized or a formal street plan with informal buildings (Dovey and Kamalipour 2018). These distinctions will become clearer in each case. We do not mean to necessarily indicate clear boundaries between settled and unsettled areas nor between formal and informal settlements—this map is a means of understanding the larger picture before we zoom into the details.

Figure 5 shows all areas of informal settlement that have been demolished or developed since 2004 (the period for which we have data). It shows that most of the demolition has been off-campus, and nearly all the expansion is within the campus. Most of the informal settlements are aligned along the edges of the campus and largely surround the academic core of the campus on all sides. They service this core and the broader city, connecting between the two. While there are often strong boundaries with the formal parts of campus, none of the settlements to be discussed here forms a discrete territory separate from other settlements. We will divide the campus into six sectors, marked in figure 5, each containing between two and seven settlements (see table 1), depending on how one draws distinctions between settlements. While we will discuss them individually, we are keen to draw the connections between settlements. We begin in the Northwest sector and proceed counterclockwise to the Northeast. We will begin with a map of each sector to locate the different settlements and their connectivity with each other and their broader spatial context. We have included many photographs which are important forms of evidence. These images cannot fully describe the complexity of informal settlements, but they capture key morphological issues and spatial conditions such as density, durability, open space, infrastructural services, street life, and functional mix. The photographs also reveal the urban character and sense of place of these settlements for those who may never have entered them.

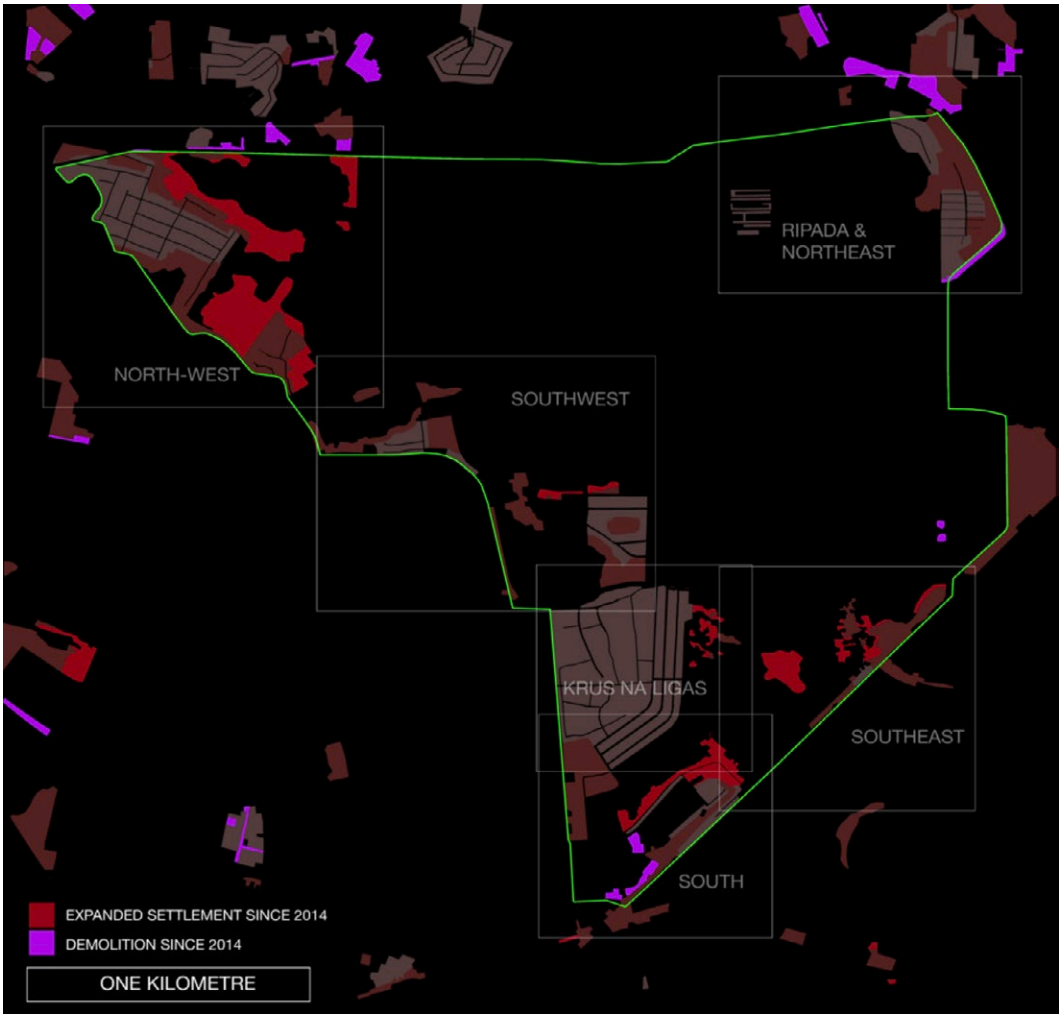


Figure 5: Expansion and demolition of informal settlements since 2004 (Based on Google Earth data)

Within each sector, we will briefly describe and analyze the morphology of each settlement, the ways it has developed and is changing, and the possibilities we can see. These possibilities are largely confined to improving the connectivity of public access networks—the ways they are connected within and between settlements as well as to the campus and the broader city. This stems from our analysis that street networks outside the core have often developed in a convoluted manner that prevents connectivity. These are in no way complete or rigorous assessments, but preliminary to the deeper research on each of these settlements that is necessary for effective improvement and/or redevelopment.

Settlement Sectors	**Communities**	**Estimated Population** *(based on the data from UPD-Office of Community Relations)*	**Campus Plan** *(based on UPD LUDIP)*
Northwest	Arboretum	3,520	Protected Forest Area; Open Space
	Pael Subdivision	5,896	Science and Technology Park
	Pechayan (Old Capitol Site)	6,628	Resource Generation Zone (Commercial)
Southwest	San Vicente	7,274	Resource Generation Zone
	Manatili	Included in San Vicente	Open Space
	BLISS Garden	No data	Resource Generation Zone
	CP Garcia	2,332	Residential/Mixed Use
	Village C	532	
	Village A/B	2,180	Academic/Academic support units; Residential/ Mixed Use
Krus na Ligas	Krus na Ligas	21,513	Science and Technology Park
	Amorsolo	No data	Residential/Mixed Use
	Area 17	1,568	
South	Sitio Lambak	Included in Krus na Ligas	Science and Technology Park
	Sikatuna BLISS	No data	Residential/Mixed Use

	Amorsolo (SBUs)	372	Science and Technology Park
	Marilag	No data	
	Malinis	796	
	Libis	2,776	
	Botocan	1,576	
Southeast	Aguinaldo	332	Science and Technology Park; Protected Forest Area
	Daang Tubo	4,844	Science and Technology Park
Northeast	RIPADA	5,492	Residential/Mixed Use
	Area 2	No data	

Table 1: Informal settlements and the Campus Plan.

5 Northwest Sector

This sector encompasses all settlements north of the major arterial of Commonwealth Avenue and well away from the academic core of the campus. Much of this land has been used for public/private partnerships in the form of "technohubs," and it incorporates the informal settlements of Arboretum, Pael and Pechayan (Old Capitol Site), as in figure 6.

Figure 6: Informal settlements of the Northwest Sector

Arboretum

Informal entry

Fenced in

Main laneways

Main public space

Figure 7: Arboretum: Main settlement

UP Arboretum is a beautiful and biodiverse forest of about 18 ha which lines Central Avenue on the north of the campus, framed by the Philippine Nuclear Research Institute (PNRI) (to the east), Pael subdivision (southwest), a sewage treatment plant, and the private Ayala TechnoHub (south). The Department of Agriculture established the arboretum in 1948 as a human-made forest where exotic and endangered flora have been cultivated and studied (Agoncillo 2020). Data from the UP Diliman Office of Community Relations indicates that settlement began in the 1960s and has expanded continuously since then (Alcantara et al. 2021). Settlements have expanded within the forest over the past 20 years in four main clusters.

The main settlement along the southern edge is effectively the northern edge of the Pael subdivision—there is no clear boundary with Pael (see figure 6). A chain-link fence has been constructed for about 700 m along the northern edge of this cluster to prevent further encroachment (see figure 7, upper). The main road access is near Central Avenue on the west, and the road near the sewage treatment plant on the east. It is also accessed through narrow pedestrian lanes from the Pael subdivision in the south and through holes in the fence to the north. This settlement is low–medium density with poor durability and very informal infrastructure. It is located on low-lying land, and some parts are subject to flooding. An open basketball court has been constructed roughly in the middle of the settlement (see figure 7, lower).

The second cluster is a strip along the edge of Central Avenue to the north. This cluster is geared toward street vending and tricycle transport along Central Avenue, including two major tricycle nodes (see figure 8). Parts of the wall along this campus boundary have been adapted to accommodate makeshift ladders. Some shops serve customers across the top of the wall.

A third cluster in the northeast corner incorporates similar forms of settlement on Central Avenue but is mixed with semiformal university staff housing that is fenced in large compounds with car parking and gates (see figure 9, center right). This cluster is facing the threat of eviction and displacement because it is the site of a proposed hospital. In 2022, a substantial fence was constructed around most of this northeastern settlement. At the same time, a smaller compound was fenced to the southwest along Central Avenue as a resettlement site for those who are going to be displaced. The resettlement process is somewhat informal and opaque. At the time of fieldwork (June 2023), the relocation site had been cleared (see figure 9, lower), yet no plans had been released and both UP and the QC government were clear that no agreement had been reached as of June 2023.

Figure 8: Arboretum: Central Avenue settlement

The fourth cluster in the southeast of Arboretum is a small low-density makeshift encampment with substantial informal agriculture (see figure 9, upper right). In 2022, these residents were under strict surveillance and were supposed to take down their tents daily. Some settlement practices in the Arboretum are undertaken in negotiation with UP guards, who have become de facto agents/representatives of UP.

Population. The 2015 census suggests Arboretum housed 880 ISFs (perhaps 3,500 residents). The 2021 UNDP study counted 550 ISFs (and 2,079 residents).

Possibilities. The LUDIP suggests that all settlement within the Arboretum area will be demolished and that it will revert to "Protected Forest Area" and "Open Space." As we have seen, the real plan is to use significant parts for a hospital and resettlement for those displaced. While there may be a case for a narrow commercial frontage along Central Avenue, the Arboretum forest is highly valued as a biodiverse urban open space and should not be otherwise developed. The challenge is to establish clear boundaries that can lead to tenure security for residents and the protection of the forest. An expansion of the Pael subdivision across the hydraulics compound immediately to the south of Arboretum is one option, if it can also be effectively connected with the broader city.

Figure 9: Arboretum: Northeast settlement and resettlement site

Pael Subdivision

Pael Subdivision is a semi-formal and largely gridded settlement of about 80 ha in the northwest corner of campus between the Culiat Creek and Arboretum. This subdivision reflects the contested nature of land ownership on the campus. While the subdivision is formally part of university land, the Pael family, who claimed ownership, subdivided it in the late 20th century. There were several court cases concerning this property which were resolved in 2003 in favor of UP Diliman (*Pael v. Court of Appeals* 2000). Thus, it remains an unauthorized settlement.

The urban design is a semiregular grid with 15 m × 20 m plots forming blocks of about 100 m × 40 m. Many of these plots have been further subdivided over time. The more formal streets are about 7 m to 8 m wide, with half-meter-wide sidewalks that are mostly blocked with parked vehicles, potted plants, and sidewalk traders (see figure 10). Buildings range from makeshift to highly durable; heights range from one to four floors, with occasional higher peaks (see figures 10–11). New development is proceeding on many sites, including middle-class rental housing with absent owners.

This more formal street grid merges into more informal settlements on all sides: along Culiat Creek to the southwest; the interface with Central Avenue to the northwest; and the Arboretum and Pechayan settlements to the northeast and southeast, respectively. Access to these more informal patches is mostly through small 1 m–2 m lanes that form laterals off the original gridded streets (see figure 11). The creek itself is largely hidden and contained within high concrete walls. However, some parts of the settlement near the creek are flooded on a semiregular basis.

There is a large covered basketball court just off the Central Avenue entry, but there is no other dedicated open space. The streets are widely used for social activities and informal trading. The district is well served by tricycle nodes which are key linkages to the jeepney and taxi connections on the main roads. There are relatively few cars within the subdivision. A range of morphogenic processes are evident within Pael Subdivision: densification through increasingly intensive development of the original plots; decreasing grain size through subdivision of the original plots; informal encroachment of sidewalks; expansion of the settlement in all directions through informal laneways; and increasing durability of buildings over time.

Population. The 2015 census counts 1,474 ISFs (about 6,000 residents) in the Pael Subdivision, although these boundaries are unclear.

Figure 10: Pael Subdivision

Figure 11: Pael—informal sections

Possibilities. The LUDIP suggests that the Pael Subdivision will become a "Science and Technology Park," but the bulk of the settlement is clearly permanent with medium-rise housing and demand for new development. While there remain issues with durability, access to some parts of the settlement, and a lack of open space, the more formal parts of Pael are a good example of how small-lot subdivisions can develop within the campus context. There has been very substantial upgrading and intensification of the gridded parts of this settlement. The off-grid sections in the north and south have poor access, and the southern section badly needs open space.

While the subdivision is internally permeable, the connectivity to the broader city can be significantly enhanced. South of the creek is a contiguous cluster of government enclaves that almost entirely block access in this direction. There is one informal connection across the creek to a narrow walkway that has been created between the Bureaus of Animal Industry (BAI) and Fisheries. A gate into the compound is opened during business hours to provide access to employees from Pael. This walkway is simply a fenced-off sidewalk of the street that was once within the compound (figure 12). This connection demonstrates the ways these large government compounds and the settlements depend on each other for labor and livelihoods respectively. If further connections could be provided to and through these enclaves, then that could generate more economic opportunities and facilitate better social interaction with other adjacent communities. Some possibilities are mapped in figure 15.

Figure 12: Connecting Pael to government offices

Pechayan (Old Capitol Site)

This settlement comprises the southern parts of figure 6, almost contiguous with Pael and Arboretum but with good access to the major boulevard of Commonwealth Avenue to the south. This settlement is also known as Old Capitol Site, but not to be confused with a barangay of the same name that extends well to the south. It has developed in two phases, which we will call "old" and "new" Pechayan although the boundary between them is now largely erased. Old Pechayan was initially settled well before the 21st millennium, but at that time, it was a well-hidden settlement that began about 150 m back from the expressway entrance surrounded by agricultural land and backed onto the boundary wall of an open "hydraulics compound" that incorporates a sewage treatment plant. By 2010, this settlement had expanded to the expressway frontage and intensified. A large public space and basketball court were developed and protected from the earliest phase of settlement and roofed in 2012. A range of other public facilities have been constructed over time. The buildings of old Pechayan are mostly durable and have intensified incrementally by two to three floors. The main streets are about 5 m wide, are lined with shops, are accessible by vehicles, and connect a range of smaller highly social public spaces (see figure 13). Some parts of the settlement, particularly the newer parts in the north, have low durability with negligible open space (see figure 13; center left).

New Pechayan is also called Hydraulics Compound because it is the part that expanded beyond the wall to the northeast since 2011. This is a dispersed low-density settlement of mostly detached houses connected by tracks in a semi-agricultural landscape (see figure 14). While beginning as an extension of old Pechayan, it has now dispersed across the compound to its borders with the sewage treatment plant to the northeast, Pael to the northwest, and Culiat Creek to the southwest. It has vehicular access from the edge of the Arboretum in the northeast. New Pechayan is currently in a phase of significant expansion and upgrading.

Population. The 2015 census suggests a population of old Pechayan of about 6,000 (1,516 ISFs) and about 600 in new Pechayan (141 ISFs). The UNDP study in 2022 suggests a fourfold expansion of new Pechayan in six years (418 ISFs and 1,700 residents).

Figure 13: Old Pechayan

Figure 14: New Pechayan (Hydraulics Compound)

Possibilities. The LUDIP suggests that the commercial frontage of Pechayan will be redeveloped as a "Resource Generation Zone" (commercial), and the rear parts will become a "Science and Technology Park." This commercial frontage plays an important role in the livelihoods of the community, and it is crucial to maintain the residents' existing access to and from Commonwealth Avenue. Most of Old Pechayan could be effectively upgraded incrementally on the existing morphology, as has been happening for decades. Some parts are overdeveloped and may need replacement. New Pechayan is much more recent, less developed, and could be seen as an opportunity for resettlement. Figure 15 shows some possibilities of greater connectivity for this settlement.

Possibilities—Northwest Sector

A major problem in the northwest sector is a lack of permeability. However, there are some key opportunities to provide access routes through it while also opening up

some areas for resettlement. Figure 15 shows one such set of possibilities, where the Pael network is extended across the hydraulics compound and connected through Pechayan. The ring road surrounding the Ayala enclave could be opened up as a public street that will provide better access and new development opportunities. However, the institutional enclave housing the Department of Agriculture to the south is over 600 m long and forms a huge barrier to development in this sector. Security for these agencies could be at the building or plot perimeter, and the street networks between them could be publicly accessible.

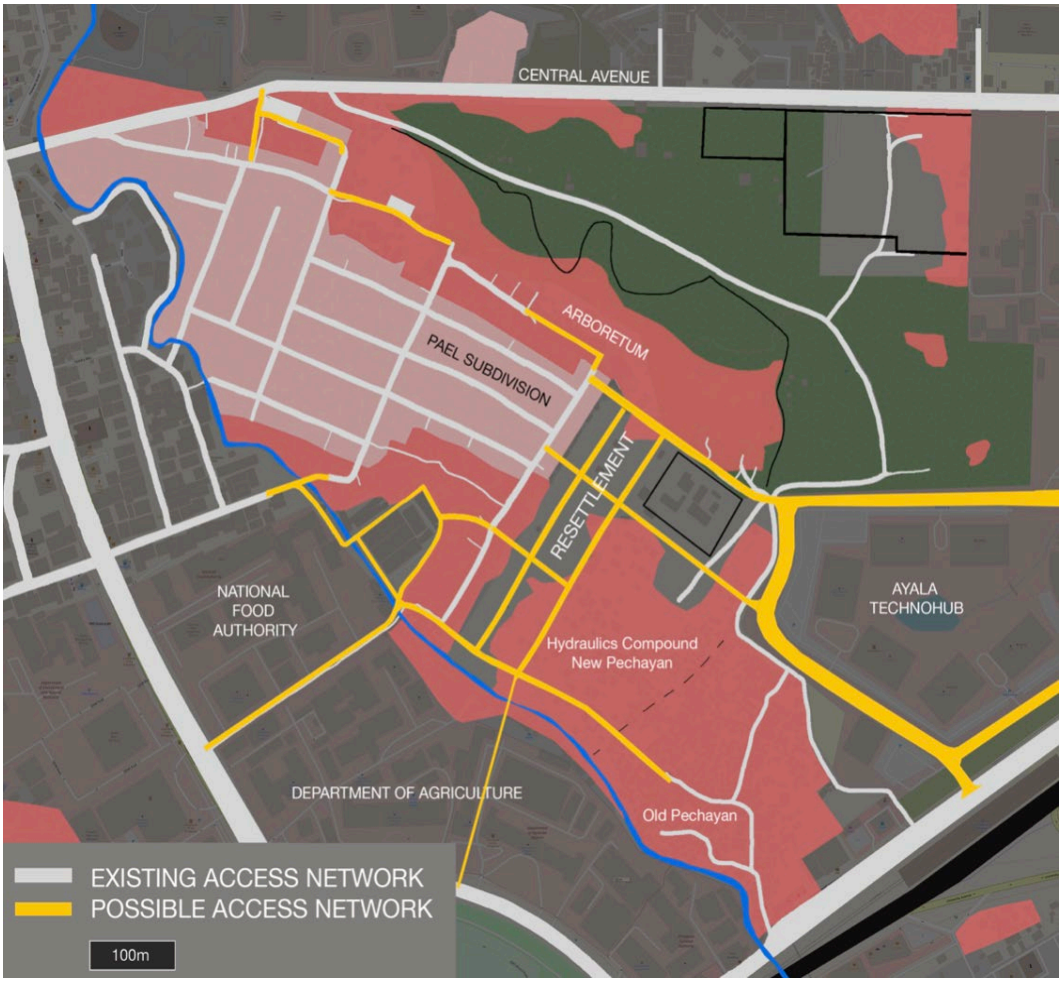


Figure 15: Possible Network Connections in the Northwest Sector

6 Southwest Sector

Figure 16: Southwest Sector

This sector along the southwestern edge of the campus encompasses a string of informal settlements on both sides of C. P. Garcia Avenue from San Vicente through C. P. Garcia Blocks 1 to 4 and Village A, B, and C. Krus na Ligas in the lower right is immediately across C. P. Garcia Avenue from Village A but will be discussed as part of the following sector.

San Vicente

San Vicente is a settlement of about 4 ha that mostly lines the Culiat Creek, just south of the main university entrance on Commonwealth Avenue. The history of this settlement is unclear, but San Vicente was developed well before the turn of the 21st century and probably much earlier. While the creekside settlement has a highly irregular morphology, the more formal street grid to the south is more formalized with community facilities including a health center, a barangay hall, a school, and a covered basketball court. The main street is 8 m wide with sidewalks, while smaller streets are 5 m wide without sidewalks. Lanes that are 1 to 2 m wide then access the deeper sections of settlement along the creek.

The main settlements of San Vicente are mostly two-floor buildings, but three- and four-floor buildings have increasingly emerged since 2014 (see figures 17–18). The settlement is developing rapidly (see figure 17, upper) and has very high ground coverage. Durability is mixed but generally increases with distance from the creek. A small formal park in the main street was redeveloped through government support in 2021 as a "Livelihood Center"—essentially a small community shopping center (see figure 17, lower left). The more formal parts of San Vicente have had significant investment in upgrading and are clearly permanent. The creekside sections (figure 18) have not been upgraded and are problematic in terms of density, durability, open space, and access; there is evidence of a fire in one section.

Population. The 2015 census listed a San Vicente population of 7,274 (1,869 households, which was an increase from 5,878 in 1990 (1,122 households).

Possibilities. The LUDIP suggests that San Vicente become a "Resource Generation Zone," although what that means is unclear. It is already a flourishing shopping strip that has been on an upgrading pathway for decades and is clearly settled permanently. The most pressing need is access to those areas that are currently less than 2 m wide. San Vicente is developing rapidly and is in danger of overdevelopment from buildings that cantilever across narrow lanes and will produce tunneling without some form of control.

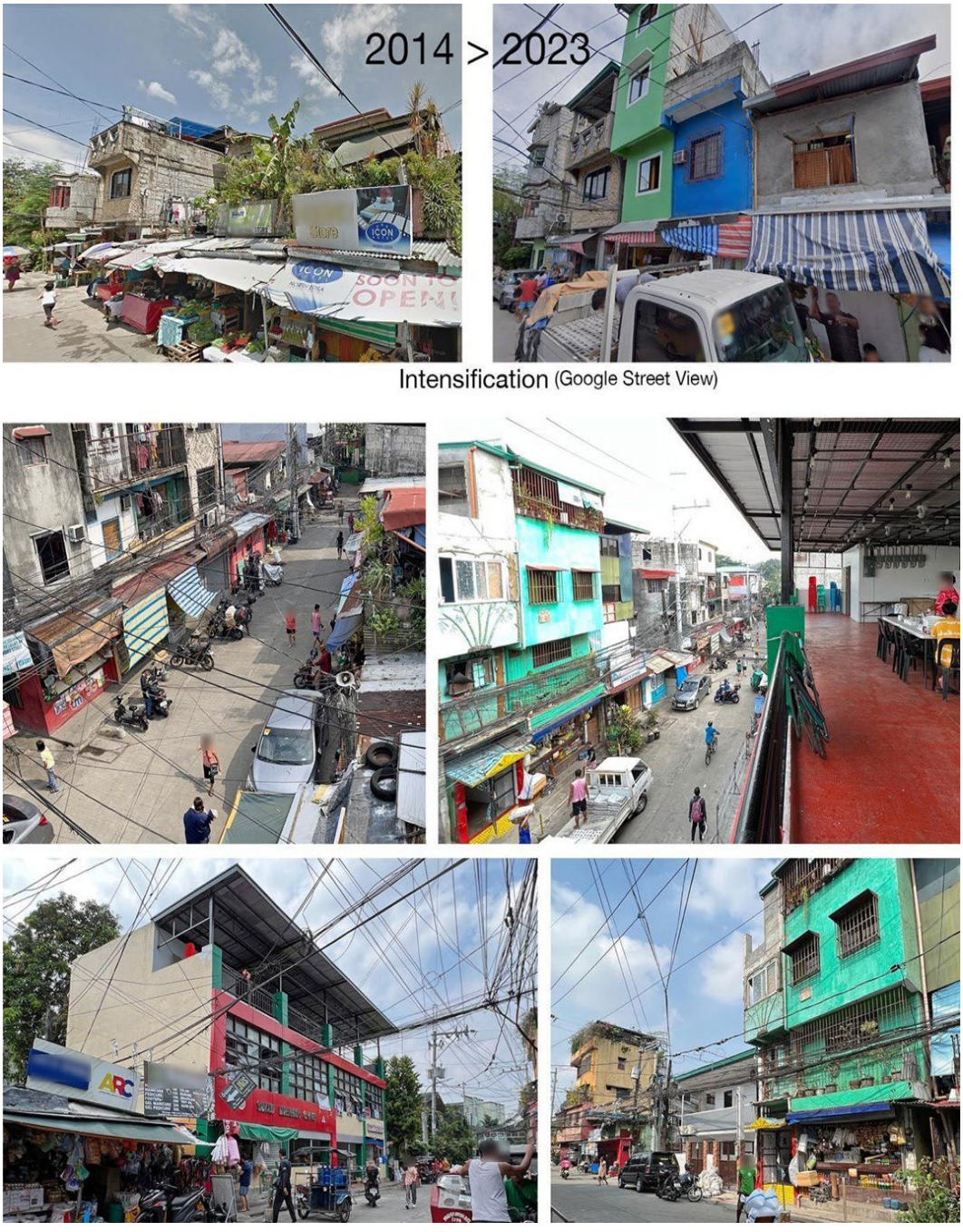


Figure 17: San Vicente—main streets

Figure 18: San Vicente—laneways

Manatili

Figure 19: Manatili

The settlement north of the creek and often considered part of San Vicente is known as Manatili (also Riverside San Vicente and San Vicente SBUs; see figure 19). The settlement (labeled San Vicente SBUs in figure 1) extends along the creek to

a frontage on C. P. Garcia Avenue to the northeast where residents run fruit and vegetable stalls. In 2020, a high green fence was built along the northern extent of this settlement to stop further expansion. This fence also screens the settlement from the view of University Avenue about 50 m away. The entry road to the settlement was also widened and rebuilt at that time, with about 1 m of the housing demolished and a fence to stop further encroachment. These residents affected by the road widening were then "permitted" to build a second floor as compensation (see figure 19, lower right).

Population. The 2015 census registered 76 ISFs (about 300 residents) in Manatili. By the time of the UNDP survey in 2022, this had quadrupled to 309 ISFs and 1,120 residents.

Possibilities. This is a vulnerable settlement partly due it its proximity to and visibility from University Avenue, the main ceremonial entry to the campus. The current LUDIP suggests that this central axis should be reserved as an open space for aesthetic and park-related purposes. In fact, Manatili is already set well back from the avenue. It is located outside the campus gateway and the green fencing already renders it invisible. This settlement is highly organized, and community leaders are keen to explore possibilities for on-site upgrading or redevelopment.

Bliss Garden

A small settlement known as BLISS Garden occupies a compound to the west of Manatili, fronting directly onto University Avenue but well outside the symbolic university gateway (see figure 20). The settlement is visible but contained behind a fence between the avenue and a staff housing project (SV BLISS). This area has been settled since the 1980s, originally by gardeners and drivers of BLISS residents and has expanded incrementally since 2000. The buildings are mostly single storey with high coverage and mixed durability. Gardening and home-based enterprises are typical livelihood activities. With a side road for access, this northern frontage is a significant commercial opportunity. The site has good walkable connections to the Commonwealth Avenue interchange where a major metro station (MRT-7 line) is under construction.

Possibilities. This settlement is relatively recent with low-durability and high visibility on a key location, making this settlement highly vulnerable. It is an ideal site

for resettlement with a commercial frontage at ground floor along Commonwealth Avenue. Options to integrate it with the BLISS project could be explored.

Figure 20: BLISS Garden Compound

C.P. Garcia

C. P. Garcia is a settlement along C. P. Garcia Avenue, a short walk east of San Vicente. The main parts were settled on former farming land prior to 2011. These areas, known as Blocks 1–3, are set back about 100 m from C. P. Garcia Avenue (see figure 21). This is a low-density and low-durability settlement that has become geared to street trading along the avenue in recent years, mostly the selling of houseplants. There is also some agriculture on adjacent farmland. The University has recently constructed a formal fence along the avenue, but its primary function is visual screening. There is both formal and informal access through it for the community, including a substantial tricycle parking area. Vehicular access is limited within

the settlement where most lanes are unpaved or poorly paved. There are unpaved basketball courts but no formal infrastructure. This settlement is in serious need of an upgrading or redevelopment plan, particularly since some parts of the settlement are vulnerable to flooding during the rainy season.

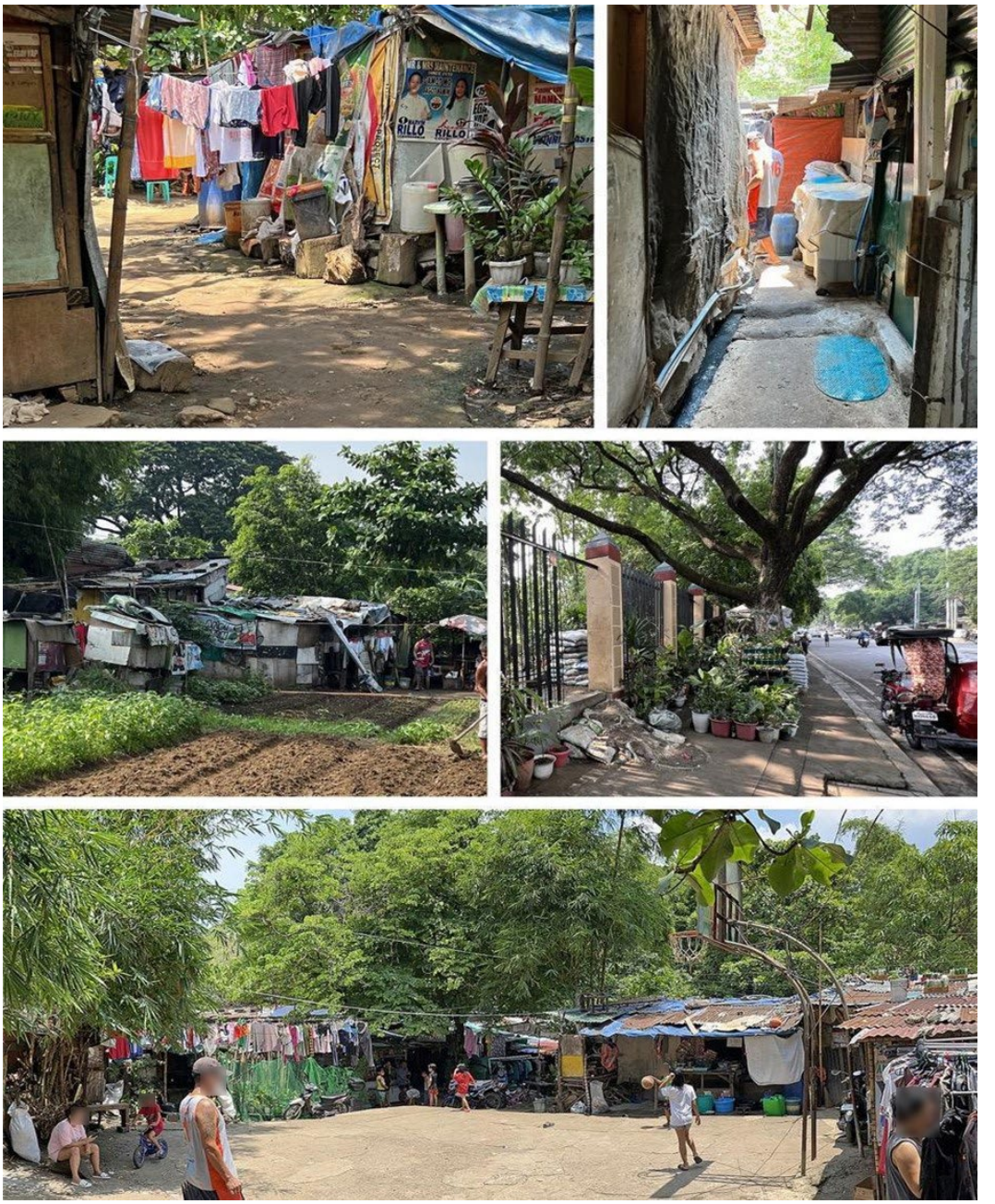


Figure 21: C. P. Garcia—Blocks 1–3

C. P. Garcia Block 4 is a 15 m wide strip of informal settlement along the western frontage of C. P. Garcia Avenue, effectively filling the gap between the expressway and the campus boundary. This strip is highly visible, with higher density and durability than the rest of the settlement. Residents are engaged in home-based enterprises and selling of plants and cooked food. There is also a number of parked tricycles suggesting that some of them work as tricycle drivers (see figure 22).

Figure 22: C. P. Garcia—Block 4

Population. The 2015 census showed C. P. Garcia housing 583 ISFs (around 2,000 residents).

Possibilities. The LUDIP suggests that the C. P. Garcia area will remain residential/mixed-use. Given the density and stage of settlement, there is a good prospect for

incremental upgrading of the existing settlement, using the existing main access routes, and upgrading or replacing the existing housing while adding community facilities. If resettlement is a high priority, then it could be designed as a site-and-services scheme on adjacent land while maintaining the close connection to CP Garcia Avenue.

Block 4 has high commercial value with direct access along C. P. Garcia Avenue; the LUDIP suggests this will become a "Resource Generation Zone." This strip could be effectively upgraded on site leading to higher density development with a commercial ground floor frontage. However, the narrowness of the strip would limit community facilities and open spaces. C. P. Garcia Block 4 is also part of a barrier at the larger scale, as will be discussed under network possibilities below.

Village C

Figure 23: Village C

Just to the east of C. P. Garcia is a small settlement of about 0.25 ha marked on the UP map as Village C. It is accessed by tracks from C.P. Garcia Avenue to the west and Village B on the east. The settlement initially developed between 2001 and 2004, and the eastern parts of it were demolished to make way for a new staff housing compound in 2021. The displaced residents were housed in the first phase of Marilag (discussed below). Village C has low density and low durability, with negligible formal infrastructure and there has been very little upgrading (see figure 23). The settlement is invisible from public streets, with limited vehicular access and very few home-based shops (*sari-sari* stores, which sell a variety of goods). There is some agricultural activity on the surrounding land.

Population. The 2015 census registered 123 ISFs in Village C (about 500 residents) but this will have declined due to the relocations in 2021.

Possibilities. This is one of the most precarious of settlements on the campus. This is a prime case for resettlement. The LUDIP zones this area for Residential/Mixed Use.

Villages A and B

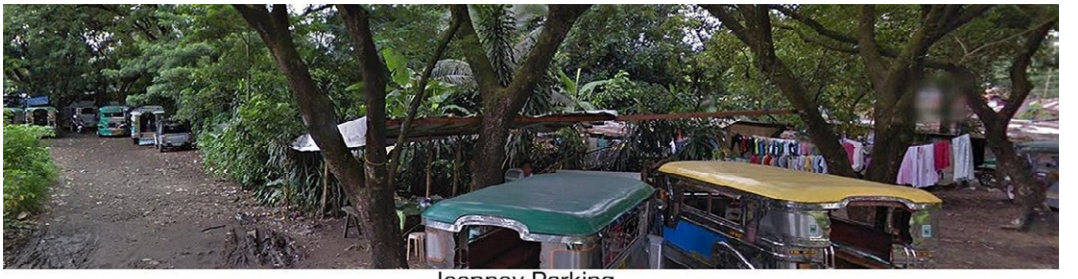
Villages A and B are separated in the UP Diliman map (figure 1), but this is essentially a single settlement that incorporates a range of different conditions in terms of the street layout, morphogenesis, and buildings. The settlement fills a roughly 10-ha site between Jacinto and Delos Reyes streets north of C.P. Garcia Ave. The site was initially developed as formal staff housing in the late 20th century. These are essentially single-floor row housing set back from formal street frontages. Two orthogonal streets named "Village B" and "Village A" form a 2-ha northern section of the settlement. The much larger area to the south is part of the same subdivision but has a different street alignment to take account of some small creeks. This southern area has become more intensively informalized and is referred to as "Village A."

The formal streets are 5-m wide plus 1-m sidewalks that have largely been encroached by adjacent properties. These frontages are widely adapted to commercial purposes which also service the wider campus community (see figure 24, upper). The original staff housing was in the form of single-floor row-houses 4 m wide and 8 m deep, located on 20-m deep plots with generous front and rear yards. Informal additions have long covered most of these plots and the settlement has also expanded to the northwest, across the creekbeds and along the frontage with C.P. Garcia Avenue

to the south. The original formal architecture is now invisible from the street. The formal street spaces have not been encroached and vehicular access is maintained. However, the rear areas and creekbeds are only accessible through a labyrinth of 1- to 2-m lanes (see figure 24, lower). Village A and B residents call these parts of the community "looban" (interior), mostly composed of self-built housing units behind the formal housing for UP employees (Demacaling et al., 2022). In these deeper sections, density increases, and durability declines. Nearly all buildings are single-floor, with some two-floor buildings emerging in the deeper areas. A major fire in May 2022 destroyed a large section of this deeper area (see figure 25, center right) affecting 105 families. The displaced residents were resettled in Marilag (discussed below). The formal roadways were rebuilt in 2018, but the rear lanes have not been upgraded. The settlement has two full basketball courts (see figure 25, center left) and some half courts on the streets (figure 24, center right).

Jacinto Street, which lines Village A and B to the west, is a major jeepney route through campus. This settlement is a key site for both jeepney and tricycle parking (see figure 25, top). The southern edge of the settlement has a frontage along C. P. Garcia Avenue, which is entirely commercial. The establishments mainly offer auto repairs and sell furniture (see figure 25, lower). Delos Reyes Street to the east is blocked where it abuts C. P. Garcia. It, therefore, has limited commercial capacity.

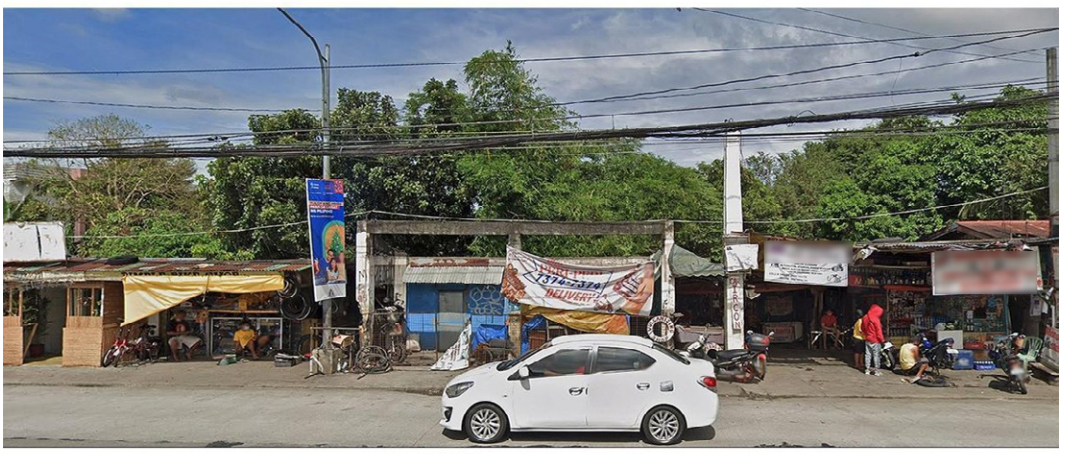
Figure 24: Village A/B (Upper photos: Google Street View)



Jeepney Parking

Basketball court & shrine

Aftermath of the fire



CP Garcia Avenue frontage

Figure 25: Village A/B (Upper photo: Google Street View)

Population. The 2015 census suggests that Villages A and B collectively housed 545 families (about 2,200 residents) but are now reduced due to the fire.

Possibilities. The LUDIP suggests that the southern and northern sections of this settlement will be demolished and allocated for academic activities. Meanwhile, the

bulk will remain residential/mixed-use. In our view the entire area could remain as residential/mixed-use. However, the deeper parts of the southern section need better access routes to enable incremental upgrading and open space. The fire in the central section has generated an opportunity for better access in this regard.

Possibilities—Southwest Sector

The most significant connectivity problem in this sector is the way the gated enclave of UP Village East forms a 500 m–long urban barrier against east–west mobility. This barrier lowers the connectivity and amenity of all surrounding properties, reducing the capacity to effectively develop this sector of the campus. A new public road connection through UP Village East is essential for the effective development of this sector (see figure 26). Such new connections would provide better public transport and walkable access to shops. UP Village has very low density. Meanwhile, San Vicente has double the population on a quarter of the land area of UP Village.

Figure 26: Possible Network Connections in the Southwest Sector

7 Krus na Ligas Sector

Across C. P. Garcia Avenue from Village A is the very large settlement of Krus na Ligas. It is lined to the east and south with the strip subdivision of Amorsolo and a more recent settlement of Area 17 to the east (see figure 27). This sector lies entirely outside the academic core of the campus on land whose ownership has long been contested by Krus na Ligas residents (Castillo Llaneta 2019).

Figure 27: Krus na Ligas Sector—Informal settlements

Krus na Ligas

Figure 28: Krus na Ligas, main streets

Krus na Ligas (KNL) is the most developed informal settlement on the UPD campus. It is regarded by the University as an exception in the sense that they seek to sell rather than redevelop. The settlement pre-dates the establishment of the University and has been continuous on this site since at least the Spanish period (Castillo Llaneta 2019). Originally a farming village, its residents have always claimed ownership of both the settled land and surrounding farmland. The town is centered on a church and plaza that date from the 18th century and is considered an important national heritage site. The community played a crucial role in the Philippine independence struggle (Navarro and Abejo 1998). A walk through KNL reveals a dense, vibrant, walkable, and largely car-free neighborhood where incremental upgrading has been underway for a very long time (see figures 28–29). This is a highly urbanized mixed-use settlement with its own barangay, schools, and public facilities.

The QC government undertakes many municipal tasks, but the settlement remains under university jurisdiction. The QC government cannot levy land taxes, which limits the capacity for upgrading. In 1986, then UP President (Angara) granted 15.8 ha (the northern part) to the residents of KNL (via the QC government). However, an incoming UP President (Abueva) soon revoked this order on the basis that certain conditions were not met (Castillo Llaneta 2019). The University now wants to sell KNL to the QC government at "market value," but the QC government cannot recover these funds since the residents have a legitimate claim to customary ownership or have bought it from the original owners. The southern boundary of KNL is unclear since the barangay includes a southern section beyond the 15.8 ha, which is also within the campus boundaries and is known as Sitio Lambak. This section has a slightly different morphology, and we will consider it separately below.

The current morphology of KNL is one of highly intensified development on an informal street access network with streets and lanes that range from 1 to 12 m. KNL is a rare example in Manila of a highly walkable neighborhood because it is both dense and highly mixed with a labyrinthine street network that is largely protected from car traffic while well-served by tricycle taxis. The mix is both functional and social with a recent increase in middle-class apartment buildings. The remnants of the more informal settlement from which KNL has evolved are evident in the deeper laneways.

The recent morphogenic process is one of increasing grain size and durability as small grain makeshift buildings are incrementally replaced by taller buildings on larger land parcels—increasing the building density (see figure 28). Google Street View evidence over time shows that recent development has removed a number of small

laneways that previously provided access to deeper parts of the access network. Thus, the settlement is also becoming less permeable. Krus na Ligas is currently developing rapidly with the construction of apartment buildings of up to seven floors. Nowhere is the transformation more visible than on the C. P. Garcia Avenue frontage where a row of smaller makeshift buildings have been replaced by three- to four-floor mixed-use buildings in recent years (see figure 30).

Figure 29: Krus na Ligas—lanes

Figure 30: Krus na Ligas—Current transformations on C. P. Garcia Avenue (Google Street View)

Population. The 2015 census suggests a population of 21,000 residents in KNL (including Sitio Lambak).

Possibilities: KNL has a vibrant urban character (much celebrated with videos on YouTube), and the greatest threat is gentrification and damage to walkability and livelihoods through increased car usage. The university's plans are ambiguous. While the current LUDIP suggests the land will become a "Science and Technology Park," they are also negotiating to sell it to the QC government but cannot agree on a

price. This standoff will remain until UP acknowledges that ownership of this land was never ceded. The KNL community needs more open spaces and protection from overdevelopment. The QC government has the capacity and is well-placed to do this.

Amorsolo

Lining the eastern and southern perimeters of KNL is a subdivision for staff housing that was constructed on the traditional farmland of KNL residents in 1970. Amorsolo is an example of a formal settlement that has become informalized. It began with continuous strips of single-floor row housing with generous front and rear setbacks on 12 m × 30 m plots. Over time, almost every house has been informally extended on both front and rear yards to generate almost 100 percent net coverage. Narrow lanes at the rear have long been blocked.

The street network has blocks that extend for over 350 m, making this a very impermeable street network. For walkability, 100 m is generally considered the maximum. This has also constrained commercial opportunities and social life. While shops and street vendors have emerged near the intersections, the midblock sections have very little urban life. The streets are 15 m wide with 1-m sidewalks, many of which are encroached. There is one covered basketball court but no other open space. The Amorsolo area is excluded from formal tricycle zones, but pedicabs have filled the gap (see figure 31).

This informalized settlement appears relatively formal from the street. These properties are owned and rented out by the University, but partially constructed by residents. Ground floor additions have been tolerated, but upper floors have mostly been prevented (see figure 31). This is dramatically evident along the boundary with KNL where substantial investment in durable four-floor apartment buildings line one side of the street while the other side is contained to one floor (see figure 32).

Population. The 2015 census recorded 93 ISFs in Amorsolo. This would appear to be inaccurate since there are over 500 houses in the subdivision.

Possibilities. Amorsolo is a settlement that needs urban design and planning interventions to establish greater permeability, open space, and density. The street network badly needs new connections that can only be established by the demolition of selected properties (see suggested changes in figure 34). The prohibition on

second floors has led to high coverage on large plots with a resultant proliferation of windowless internal space. One approach here could be to put in place an urban design and planning framework that encourages both increased density (up to four floors) and reduced coverage (to enable better light and air). The LUDIP suggests that Amorsolo will remain as a residential/mixed-use area.

Figure 31: Amorsolo (Upper photos: Google Street View)

Figure 32: Contrasting densities: Krus Na Ligas and Amorsolo (Left: Google Street View)

Area 17

Figure 33: Area 17

Area 17 is a settlement that has emerged since about 2000 on farmland to the east of Amorsolo near C. P. Garcia Avenue and has continued to expand incrementally since then. The settlement ranges from a higher density area with mixed durability near C.P. Garcia Avenue, to lower density and durability on the farmland to the south where it is also subject to flooding from a small creek (see figure 33). Vehicular access is available from CP Garcia Avenue and from Amorsolo but the settlement is largely invisible from formal streets. There is a full open basketball court near the main entry, and considerable jeepney and tricycle parking. This area is largely contiguous with the northern parts of Amorsolo, abutting the rear of those properties. Livelihoods include tricycles, pedicabs, jeepneys, street vending and agriculture – all of which are mostly reliant on the main access routes.

Population. The 2015 census suggests that Area 17 houses 392 ISFs (about 1600 residents); we would expect this to increase in coming years.

Possibilities. With its frontage on C. P. Garcia and good access to the main campus, Area 17 is a key site for the future of the campus, but not required for academic purposes. It is an opportunity for on-site redevelopment and resettlement, which could be considered as an extension to the Amorsolo grid (see figure 34).

Possibilities—KNL Sector

The high level of permeability that helps to produce the vibrant street life of KNL is noticeably absent in adjacent Amorsolo. It would be a relatively simple matter to acquire a few selected properties in order to convert the long blocks into a more permeable network. Pedestrian connections would serve the purpose at this scale. A new connection in the southeast from KNL through Amorsolo to Libis could enhance economic activities, local mobility, and social interaction of all these settlements. An eastward extension to the Amorsolo grid could also be developed for a resettlement scheme.

Figure 34: Krus Na Ligas Sector—Possible New Connections

8 Southern Sector

Figure 35: Southern Sector Settlements

This sector is contiguous with Amorsolo and KNL to the north. It encompasses a complex set of relations between seven different settlements or more, depending on how we define them. While we will describe them separately, the spatial interconnections shown in figure 35 are crucial.

Sitio Lambak

Figure 36: Sitio Lambak

On the east of this sector is Sitio Lambak, a neighborhood of about 4 ha located south of KNL. It must be noted that Sitio Lambak was not part of the planned 15.8 ha donation to the KNL residents in 1986. Also, its original ownership is unclear. It embodies a different morphology with a smaller grain-size and primary access through 1–4 m laneways. It is currently developing rapidly with durable four-floor buildings (see figure 36). The settlement is situated back-to-back, featuring middle-class housing to the west and boarded by enclaves containing the police headquarters to the south. The Sikatuna BLISS housing project is also located in the east of the area. The primary frontage is the site of home-based enterprises, such as sari-sari stores, and a major informal tricycle node that serves the larger district.

Possibilities. The LUDIP suggests that Sitio Lambak become a "Science and Technology Park." This settlement needs further research to better understand the original land ownership. The clearest pathway forward is continuous incremental upgrading and replacement of nondurable buildings without the change of the existing access network. With a proliferation of four-floor buildings in close proximity to narrow laneways, the main threat to the settlement is overdevelopment. Sitio Lambak could be included in any agreement to shift formal control of KNL to the QC government which is best equipped to manage this development.

Sikatuna Bliss

Figure 37: Sikatuna BLISS - informal additions

Across the street of the southern part of Sitio Lambak is a social housing project known as Sikatuna BLISS, one of a series of BLISS projects funded by the national government. Sikatuna BLISS Phases 1 and 2 were constructed on this part of the

campus during the early 1980s, with four-floor buildings set well back from the street behind high walls. These projects are included here because much of the leftover space between the buildings have been informally built out over the years, both as extensions of the housing and as shops along street frontages. Phase 1 was designed to close off adjacent settlements of Botocan and Libis with high walls and long impermeable rows of garages. Some of these projects are now in line for redevelopment, and these sites are opportunities for new higher-density, properly integrated mixed-use development. These and other BLISS projects on campus show that campus land has been used for social housing for over 40 years. This is a practice that could be revived but with much higher quality urban design.

Amorsolo (SBUs)

Figure 38: Amorsolo SBUs (Upper: Google Street View)

On the southwestern edge of Amorsolo is a small informal extension. This area lines the street opposite Lambak, and backs onto farmland to the south. This area is labelled in the LUDIP as Amorsolo SBUs or 'self-built units.' It is called as such to distinguish the area from Amorsolo which is only partially self-built. It has been settled ~~in~~ since 2014 on land that has long been claimed by traditional farmers from KNL. This is a largely hidden settlement that is accessed by 1 m-wide lanes from the formal streets and also by tracks along the agricultural edge (see figure 38). It

has close connections to a major tricycle node and a stretch of street vending carts. The settlement is dense with low durability. The resettlement compound of Marilag to the south now abuts this settlement and is planned to expand more. Those who claim ownership maintain vigilance to prevent further University encroachment (see figure 38).

Population. It is likely that the inaccurate count for Amorsolo (93 ISFs) refers to the population of this settlement in 2015 (about 400 residents).

Possibilities. This is a highly vulnerable settlement, generally low-density and durability, squeezed between the formal section of Amorsolo and the expanding Marilag resettlement to the south. The University has thus far avoided forced eviction, but Marilag is clearly designed for further expansion.

Marilag

Marilag is the most recent low-income housing resettlement scheme, developed on agricultural fields between Malinis and Amorsolo between 2020 and 2023. While the LUDIP suggests this site as a 'Science and Technology Park,' this project reveals the actual planning and design that is taking place. The scheme has proceeded in two distinct phases. In the southwest is the first phase. This area was primarily created to house residents displaced from Village C when their houses were demolished to make way for formal staff housing. This phase was designed as a site-and-services scheme with 7 m × 4 m plots formed in rows separated by lanes that vary from 2–3 m wide in blocks of up to 100 m long (see figure 39). This morphology ensures that every dwelling has access, light, and air from 2 different lanes—generally a wider lane and a narrower one. The inconsistency in the width of lanes suggests that this phase may have been designed incrementally. The site was originally low-lying land which has been raised by about 2 m to form a plateau. While this fill will avert flooding on the new site, it has exacerbated flooding of adjacent settlements. The serviced sites were developed formally to floor level. Subsequent construction has also been informal (see figure 40). There is some intermittent encroachment onto the wider laneways but there are no two-floor buildings at this stage. Construction quality ranges from makeshift to durable. These narrow lanes are generally well-appropriated, lively, and green.

Figure 39: Marilag Development – 2017>2023 (Google Earth)

Figure 40: Marilag – phase 1 site-and-services

There is a stark difference in the second phase of Marilag which was developed to house residents displaced by a major fire in Village A in 2022. Here, the housing type is fully developed with back-to-back row housing on 6 m × 4 m plots. The housing is formally and durably constructed but without the rear lane access—less natural light, no cross ventilation, and little capacity for adaptation. The urban design is also markedly different with 8 m–wide concrete streets plus 1-m sidewalks (figure 41). This is a very urban-scaled street, designed not for these houses but for denser housing that might replace them. This housing is framed as temporary by overdesigning the streetscape for a future that is not yet possible. Each of the apartments has a plate saying "Transition Housing," but it remains ambiguous exactly what "transition" means. Is this a transition to more permanent housing or is this an *ad hoc* solution in transition to becoming permanent? One official told us: "UP will never say that it is 'permanent.'"

Figure 41: Marilag Phase 2 "transitional" housing

Possibilities. The future of Marilag remains unclear. The main street stops abruptly and is clearly designed to be extended into the leftover farmland. However, this land is claimed by the traditional owners/farmers who have set up a constant watch for any new construction activity (see figure 38, lower right). While Marilag Phase 1 is semiformal, Phase 2 will likely become semiformalized over time with second-floor additions. A key imperative is to turn around the enclave mentality that has driven the urban design of Marilag and connect it with the surrounding settlements to form a sustainable and integrated urban fabric. Some suggestions are mapped in figure 47.

Malinis

Malinis is a settlement that has emerged along the rear of a formal road (Mapagkumbaba Road) that frames the Sikatuna BLISS 1 project. Malinis is lined with residents' garages for its entire length of over 300 m. Malinis is a linear settlement that has developed since 2015, initially along an unpaved track at the rear of this strip of garages. Most buildings in Malinis have one floor, are of low durability, and are invisible from the formal street. Over time, this settlement has expanded up to 30 m deep into the adjacent agricultural fields. There are now many

shops and a small open space with a half basketball court and some tricycle parking. In 2022, the main street was formally paved, producing a significant rise in greening, trading, and livability (see figure 42). The new areas off the main access road are less durable and the access lanes remain unpaved. The construction of the Marilag project has stopped encroachment into the adjacent fields.

Figure 42: Malinis

Population. The 2015 Census suggests that Malinis houses 199 ISFs (maybe 800 residents) but it has been growing rapidly since then.

Possibilities. Malinis is one of the most vulnerable settlements on the campus. The LUDIP suggests it will become a "Science and Technology Park." One prospect is to extend the plateau with the site-and-services section of Marilag and design it to connect with Malinis Road and integrate with the BLISS project to the south as in figure 47.

Libis

Libis is a settlement of about 4 ha that borders on farmland. It is adjacent to Malinis, Sikatuna BLISS 1, and Botocan (see figure 35). The settlement has a diverse morphology that encompasses low and high densities, as well as formal and informal street networks and various levels of durability. There are some informal middle-class houses (see figure 43, upper left) and a site-and-service scheme (see figure 43, lower).

Figure 43: Libis

Figure 44: Libis

The settlement mostly has houses of one to two storeys, with lots of evidence of greening and incremental upgrading but relatively few new buildings. Parts of the settlement are accessible from a semiformal grid of 8 m–wide streets (see figure 44, upper), while other areas have smaller laneways (see figure 44, center left and upper right). Two covered multipurpose courts (see figure 44, center right) are used for various community activities such as sports, garage sales, exercise, and funerals. Livelihoods include informal transport, street vending, home-based enterprises, and agriculture. The settlement is isolated from the main networks of the city but is serviced by a busy tricycle hub.

The site-and-services scheme was developed between 2007 and 2010 along the north-western edge to accommodate displaced residents from other parts of the campus. Serviced plots of 4 x 6 m were laid in a continuous strip and developed within a two-storey limit. Facing onto an 8 m-wide street. This has developed successfully through self-organised incremental upgrading into a durable row of two-floor houses, including many shops and home-based enterprises (see figure 43, lower). Many of the houses have now been further extended into farmland at the rear. This successful street could serve as a prototype for how site-and-services schemes might work for many other settlements across the campus.

Population. The 2015 census suggests a population of 694 ISFs (around 2,800 residents).

Possibilities. This is a settlement that needs detailed study and diagnosis since some parts are highly durable with good access and open spaces, while other parts are more problematic. The most significant general problem is that Libis is highly disconnected from the larger city and the campus. New road connections to Amorsolo to the north and the broader city to the south could enhance the settlement's economic opportunities (see figure 47). The LUDIP suggests that Libis will be demolished and replaced with a "Science and Technology Park."

Botocan

Botocan lines Botocan Road, a long straight road that runs for over 600 m just inside the campus boundary. This boundary runs from the southern tip of the campus in a northeast direction to connect with Libis and beyond (see figure 35). This road, which is about 5 m-wide with no cross streets for most of its length, aligns with the campus boundary and with the Daang Tubo road in the northeast (discussed below).

Much of the settlement is bounded by gated compounds on both sides: an off-campus gated community known as Xavierville on the southeast, the police headquarters, and Sikatuna BLISS 1 (see figure 35).

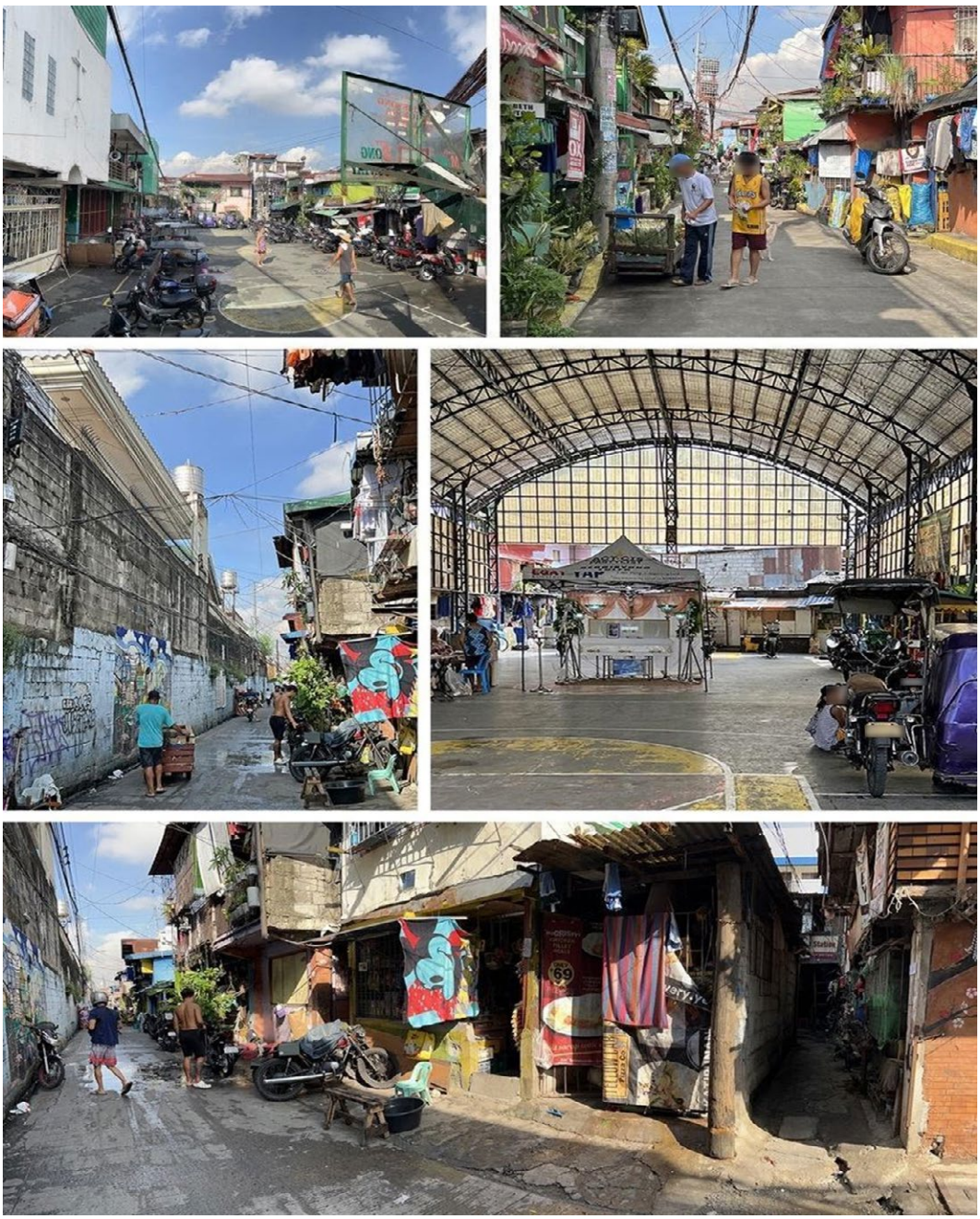


Figure 45: Botocan

While access is constrained, Botocan Road is a lively, colorful, and well-greened shopping strip lined with mostly durable two to three buildings (figure 45). For much of its length, it is bounded on one side by the high concrete and barbed wall of the gated community (see figure 45 – center left). A plaza is formed near the midpoint of Botocan Road lined with a Barangay Hall and church. While it is often used for parking, the plaza is also a community space and basketball court (see figure 45 – upper left). The areas along Botocan Road are undergoing significant redevelopment with new or upgraded buildings of up to three floors.

Those parts of the settlement off the main street are accessed via a labyrinth of 1 m–wide lanes (see figure 45 – lower right). This broader strip of settlement is high density and coverage, with lower durability and access than along Botocan Road. In the center of this settlement is a covered basketball court that also serves as a community space (see figure 45, center right). The basketball court is accessed from the street near Sikatuna BLISS. This street is lined with garages for the BLISS residents, which also prevents access to the settlement.

Tricycles are the key form of transport throughout Botocan, although parking is scarce. A major tricycle node is located just beyond the southwestern end of Botocan Road. While local permeability through 1-m lanes is high, for vehicles, this is a highly impermeable neighborhood.

Population. The 2015 census suggests that Botocan houses 394 ISFs (around 1,600 residents).

Possibilities. The main street of Botocan is upgrading effectively but the deeper sections need attention to ensure better access and durability, and to protect against overdevelopment. Access to and from Botocan is very difficult. New access routes through the BLISS housing scheme could improve the settlement's connectivity to the broader city, but the greater challenge lies in opening up access to and through the gated elite enclave to the southeast (see figure 47). The current LUDIP suggests that Botocan will be replaced with a "Science and Technology Park."

Possibilities—Southern Sector

A model of the future campus (displayed in Quezon Hall in 2022) shows this sector of campus with Libis, Botocan, Malinis, Marilag and Amorsolo all demolished and replaced with high rise housing (figure 46). The vision is inconsistent with the UP

Diliman LUDIP 2022–2038. However, it does suggest a newly integrated street network which is a key part of what is necessary here.

Figure 46: UPD plan to replace Libis, Botocan, Malinis, Marilag and Amorsolo (displayed in Quezon Hall, May 2022)

This southern sector of campus is distant from the academic core and could be redeveloped as an integrated part of the larger city. It is currently one of the most constrained street networks, which means that the possible uplift from new connections is enormous. Marilag needs to be connected with Malinis, Amorsolo, and Sikatuna BLISS, which in turn needs to be integrated with Libis and Botocan. The gated community of Xavierville to the south could be opened or partitioned into smaller enclaves in order to connect this sector to the broader city. The future of

the entire cluster of contiguous settlements, both formal and informal, can be more economically viable and socially inclusive if they were integrated with the larger city.

Figure 47: Southern Sector - Possible Connections

9 Southeast Sector

Figure 48: Southeast Sector

This sector incorporates three settlements that are largely invisible from the public streets of the campus but occupy locations that are crucial for campus development.

Aguinaldo

Aguinaldo is a relatively small, low-density, and low-durability settlement area in a remote part of the campus that is otherwise developed as staff housing (see figure 48). The settlement initially developed around 2007, and has expanded since 2015 within a forest on the edge of farmland. There are some shops and a basketball court near the access point on Aguinaldo Road (see figure 49). Most of the settlement is out of sight from the road. Agriculture appears to be a key source of livelihood for Aguinaldo residents, including rice fields, vegetable farms, and cock farms (see figure 49, upper right). Tricycle and jeepney parking along with mobile street vending carts indicate other sources of livelihood (figure 49).

Figure 49: Aguinaldo (Lower photos: Google Street View)

Population. The 2015 census registered 83 ISFs in Aguinaldo (perhaps 250 residents) although it has expanded since then.

Possibilities. The area occupied by Aguinaldo is marked on the LUDIP as a "Science and Technology Park" and "Protected Forest Area," although much of the "forest" is farmland. Aguinaldo could be upgraded on-site, but the area is situated on one of the least desirable locations, on a cul-de-sac about 300 m from C. P. Garcia Avenue

and a kilometer from any campus entry. Parts of Aguinaldo are less than 100 m from the settlements of Daang Tubo and Area 17, but there are no interconnections. The Varsity Hills subdivision to the southeast largely prevents the integration of this part of campus with the city. A possible strategy for this area, including the staff housing, is to design new connections with the broader city through the Varsity Hills subdivisions, as well as to Amorsolo, Libis, Botocan, and Daang Tubo (see figure 52). This part of campus has enormous potential for future development. It is remote from academic activities. The existing formal land use is mainly staff housing.

Daang Tubo

Daang Tubo is a large and diverse settlement that has formed along the 600 m–long easement above a major water pipe on the southeastern boundary of the campus. The settlement name means "Pipe Way." The northeastern end of the settlement has a 60-m frontage onto Katipunan Avenue where there are two vehicular roads into the settlement (see figure 48). This frontage is a commercial strip with a pedestrian overpass, a tricycle node, and street vending. The 5 m–wide road along the easement is the armature of the settlement that extends southwest along the campus boundary—the settlement has also expanded in a north-western direction where it eventually has a second frontage onto C. P. Garcia Avenue. About 300 m along the easement road, a different settlement known as Marytown branches off-campus to the southeast and connects back to Katipunan Ave (figure 48). While it is off-campus and therefore outside this study, Marytown is largely invisible from public streets, and it has become overdeveloped, with narrow, dark access lanes and negligible open space. Its integration with the Daang Tubo settlement suggests that it be upgraded and/or resettled as part of an integrated approach.

The Daang Tubo road continues past Marytown but gradually narrows down to 3 m, 2 m and 1 m wide before it is blocked entirely. This road originally continued to become Botocan Road along the edge of Libis. Parts of the Daang Tubo settlement were demolished and this connection was blocked when a staff housing project was constructed here in 1991 (Castillo Llaneta 2019). The settlement along the pipe easement generally forms a vibrant main street with mostly durable buildings and some small plazas (see figure 50). However, durability and open space decline as access is gradually blocked (see figure 51, center left).

Figure 50: Daang Tubo

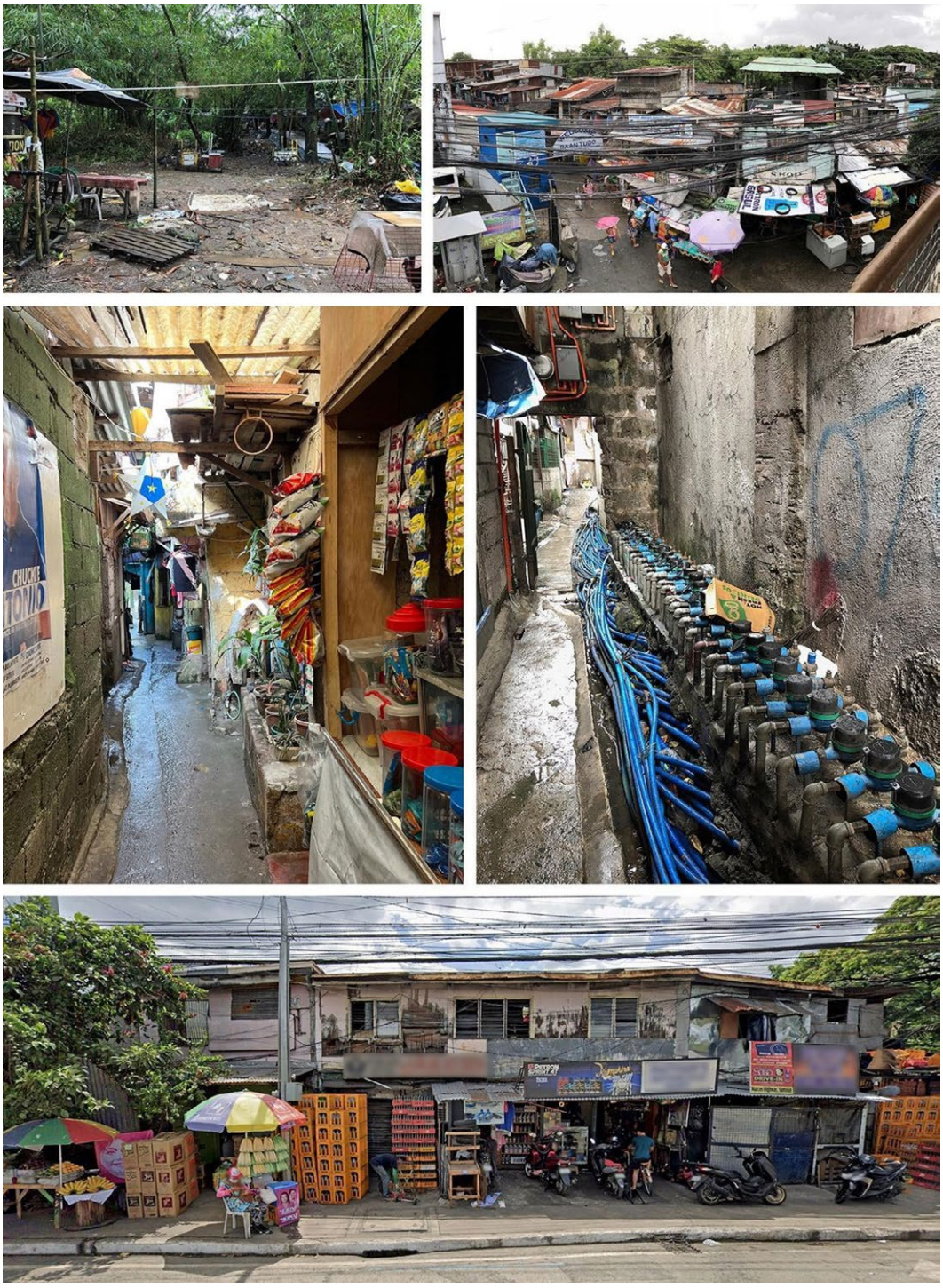


Figure 51: Daang Tubo (Lower: Google Street View)

The broader settlement to the north ranges from high-density along the Katipunan Avenue frontage (see figure 51, lower) to low-density near C. P. Garcia Avenue (see figure 51, upper left). Durability varies, and the back laneway access is mostly narrow and labyrinthine. The road that marks the northern boundary of the settlement has been recently paved and fenced to prevent further expansion. A day care center and adjacent basketball court form a central plaza for the settlement. These community amenities were constructed before 2007. There has been some expansion and intensification of the northwestern part of the settlement since 2015, albeit with minimal upgrading.

Livelihoods in Daang Tubo are strongly geared to its public interfaces along Katipunan and C. P. Garcia with parking for informal vending and transport vehicles. The Katipunan frontage is a tricycle node and the border road along the north of the settlement has a good deal of vending storage. The northwestern edge of Daang Tubo houses a cluster of small Bonsai farms and a laneway of landscaping businesses.

Population. The 2015 census shows that Daang Tubo housed 1,211 ISFs (perhaps 4,800 residents). The LUDIP suggests it will be demolished and replaced with a "Science and Technology Park."

Possibilities. Daang Tubo is a settlement that is well-positioned for incremental on-site upgrading, some of the denser areas may require redevelopment to ensure access and open space. If the road along the pipe easement were reconnected to Botocan Road and Libis, this could provide an economic and social uplift to some of the more difficult areas. However, the future of Daang Tubo also needs to consider the contiguous but off-campus settlement of Marytown.

Possibilities—Southeast Sector

The capacity for network integration in this sector is relatively straightforward (see figure 52). First, the original road above the water pipe of Daang Tubo could be reinstated and continued to connect with Libis and Botocan Road in the south. Second, the barrier that the campus boundary has historically produced needs to be opened wherever possible to connect with the adjacent suburban street grid. Third, the QC government needs to address the problematic conditions of Marytown urgently; a first step would be to produce a livable open space and to upgrade connections to surrounding streets.

Figure 52: Possible Connections for the Southeast Sector

10 Northeast Sector

Figure 53: Ripada and the Northeast Sector

The northeast sector of the UPD campus, immediately north of the academic core, is almost entirely devoted to staff and student housing together with related community and commercial facilities (figure 53). In a leafy low-density setting, there are two churches, childcare, a health center, recreation facilities, a shopping center, and a hotel. The large subdivision of detached suburban housing is rented to faculty for the duration of their tenure and is a crucial benefit of university employment. This large northeastern precinct is only accessible through the academic core of the campus and is thus a semi-gated community. However, it is strongly interconnected with a strip of informal settlements that line the eastern edge of an area collectively known as Ripada, and provide much of its labor force. Parts of the staff housing known as Area 2 have also been informally adapted to provide services that are otherwise missing.

Ripada: Ricarte / Palaris / Dagohoy

Figure 54: Dagohoy

Ripada is a collective name for the Ricarte, Palaris, and Dagohoy neighborhoods that line the northeastern section of the campus bounded by Tandang Sora Avenue, which forms the campus boundary. These neighborhoods are not distinct from each other, although Dagohoy is generally the gridded section to the south while Ricarte and Palaris are less regular sections to the south and north, respectively (see figure 53). Ripada occupies a creek valley that becomes informalized as it gets lower and closer to Tandang Sora Avenue.

The Dagohoy Street grid is a small-lot subdivision that was formed prior to 2004, and there has been no expansion of the settlement since that time. The subdivision appears to have been a site-and-services scheme, formed with plots of about 8 m × 12m in back-to-back formation. These plots produce blocks of about 25 m × 80 m. An 8 m–wide street forms a spine with side lanes of 5 m. Plot boundaries have long been eroded through a mix of subdivision and amalgamation; most plots are developed to 100 percent coverage. This is a generally successful and sustainable settlement where there is very little street/lane encroachment, public space is very social and green, and relatively protected from cars (see figure 54).

Palaris to the north is essentially an extension of a curvilinear street network with low-density staff houses but becomes high-density and informal as the land drops down to the east and merges into a dense labyrinthine settlement that lines the expressway (figure 55). Palaris also connects informally to the gridded network of Dagohoy to the south. The settlement becomes highly informalized along the eastern edge where it crosses a small creek and then climbs up to a commercial strip along Tandang Sora Avenue. Before 2007, this was a two-lane road, which was then widened into a six-lane expressway; some settlements on the opposite side of the road were demolished at that time. The expressway is almost entirely lined with informal settlement along about 750 m of frontage with a sidewalk that varies from 0–3 m with many encroachments (see figure 56). This strip is a mix of residential and commercial spaces with many cafes, bakers, motor repairs, and other small businesses. The buildings along the strip are replete with advertising, much of which is for off-site products such as holiday resorts and phone services. Thus, there is a captive audience of drivers who are stuck in traffic. A bicycle lane was added in 2021 but is largely used by motorcycles; there is limited scope for parking. A large median strip along the center of the expressway is used by residents for raising chickens although crosswalks are about 500 m apart, and access is dangerous. There are 19 informal pedestrian connections into the settlements from Tandang Sora Avenue, all 1–2 m wide (see figure 56). The strip of settlement within 40 m of the expressway is the most informalized, often with narrow dark laneways and negligible open space. Areas

Figure 55: Palaris

near the creek are subject to flooding. The retail frontage is clearly a key source of livelihood for these communities.

There is a profusion of greenery throughout most of these settlements including some of the narrowest lanes (see figure 55). Open spaces include two large covered meeting halls/basketball courts, a small park, and a number of half-basketball courts that also work as mini plazas (see figure 55, upper left). There are many shops within the settlements, even on minor laneways (see figure 55). The buildings throughout have one to two floors (occasionally three floors) and are of mixed durability. Streets and lanes are widely used for parking. Tricycles are formally excluded because the main access road from the south (Dagohoy Road) is blocked (figure 54, upper right), but there is considerable tricycle parking in practice. There is a major tricycle node near the Magsaysay Avenue campus entry to the south but not within the settlement. There is evidence of self-organized upgrading in all areas of this settlement since 2015.

The relationship with the campus is a key livelihood connection—a rear entry to the hotel compound from Palaris is clear evidence. However, there are many employment opportunities across the campus and a range of semi-organized street vending locations that provide crucial services. Access to the Tandang Sora commercial strip is also crucial.

Figure 56: Tandang Sora Frontages (Google Street View)

Population. The 2015 census registered a total of 1,437 ISFs (around 5,700 residents), while the UNDP study in 2021 counted 1,164 ISFs.

Possibilities. Those parts of these settlements that are accessed by the main street network are relatively sustainable and could be developed through better open spaces, tenure reforms, and incremental upgrading of buildings. The areas accessed by the labyrinth of narrow lanes have a mix of durable and nondurable buildings. However, these areas could be incrementally upgraded using the existing lane network, as well as expanding and upgrading the open space with protection from flooding. It is also imperative that this area maintain good walkable access to both the campus and the expressway frontage to enhance the livability and livelihood activities of the residents. Selected laneway connections to Tandang Sora Avenue could be improved, as in figure 58. The area occupied by the Ripada settlements is designated on the current LUDIP as "Residential/Mixed-Use."

Area 2

Figure 57: Area 2 - Informal Additions

Area 2 is an integrated street grid within the northern part of the UPD campus where formal two-storey row-housing has been set back about 5 m from the street frontages, and these front-yards have been almost entirely covered with informal additions (see figure 57). This area is not clearly defined but is centered on Valenzuela and Laurel Streets to the east of Roces Street. These expansions range from carports and covered outdoor areas to extended apartments and shops that have converted this housing project into a dense mixed-use neighborhood. While the UP Diliman administration does not include Area 2 as an informal settlement, the morphology is not dissimilar to Village B and Amorsolo, which are considered informal settlements. Area 2 may have been excluded because tenure is secure, but this also appears to be an aesthetic and class distinction. Area 2 has a staff and student clientele. The informal additions do not encroach onto sidewalks although the activities and displays of the shops often do. There are also a small number of informal street vendors. This neighborhood stands out as a vibrant, walkable, and mixed-use area within the low-density campus. The case of Area 2 is best understood as an effective informal solution to monofunctional planning that has become an attractive asset of the campus. Some parts of this settlement, however, have expanded beyond additions to the formal housing, and there is some low-durability construction (see figure 57, upper).

Possibilities. Area 2 is more a solution than a problem. The informal additions could be encouraged, enabled, and upgraded. The particular form of urban design that has enabled mixed-use development and vibrant social interaction could be studied to enable more of it.

Possibilities—Northeast Sector

The easiest change in this sector is to remove the barrier on Dagohoy Road that prevents direct vehicular access to the Ripada settlements. A possible purpose of this barrier is to prevent access for tricycles, vending carts, and motorcycles—vehicles that are so crucial to residents' livelihoods. The more significant network connectivity issue in this sector lies in the pedestrian connections to Tandang Sora Avenue, which could be widened to at least 2 m and upgraded. This could also open more commercial opportunities along these routes—one possibility is shown in figure 58. Beyond the campus boundary to the north of this sector, a series of dead-end streets form an entirely disconnected neighborhood. Establishing pedestrian connections with these streets would expand the walkability and vitality of this

part of the campus. Just north of Area 2, one of the roads passes within 30 m of Commonwealth Avenue with no connection by pedestrian or car. A new connection here could ease traffic flows and better integrate the campus with the broader city.

Figure 58: Possible Connections for the Northeast Sector

11 Settlement Types

As we have outlined above, the on-campus settlements cover a very broad range of morphological conditions including the design of access networks, the durability of buildings, and the degree to which settlements have densified over time. These three factors—access, durability and density—are not the only salient factors necessary for a full diagnosis of network possibilities, but they are crucial for understanding the challenges of upgrading. The access network determines how people get around. Emergency access is crucial for crisis response and resilience. The durability of buildings is a health and safety issue. The density of buildings is linked not only to health and safety but also to open spaces and community vitality and resilience.

As settlements develop, they become denser with greater land coverage and taller buildings. The buildings generally become more durable, the public lanes become paved, and open spaces are developed and protected from encroachment. However, beyond a certain level of gross land coverage, the increasing height of buildings can lower the quality of both public and private space by starving it of sunlight and air – this is what we are calling "overdevelopment."

In figure 59, we have categorized the campus settlements into four broad types plus a mixed category. There are no clear boundaries between these categories and this typology is nothing more than a means of finding an overview of a very complex set of different spatial and material conditions, as a preliminary to more rigorous research on each of these settlements. While settlements are categorized by the morphological conditions evident on the ground, they also often reflect stages in development processes.

- **Low-rise informal** includes those highly informal settlements that have remained single-floor. Most of these are relatively recent expansions beyond the existing street grids and are often vulnerable to demolition and resettlement. Here the informal planning and design is in an early phase—often dispersed and initially makeshift. This category includes nine of the settlements we have discussed.

- **Highly developed informal** includes those settlements that have intensified to higher levels of both gross land coverage and building height, usually combined

with higher levels of durability. This category includes ten of the settlements we have discussed.

- **Semiformal: Site-and-services** refers to those settlements where the site has been formally subdivided with clearly defined and serviced plots, and the informal settlement has proceeded within that framework. This category includes three of the settlements we have discussed.

- **Semiformal: Core-plus** is where a formal housing scheme forms the core of a settlement that has become informalized over time. This category includes 4 of the settlements we have discussed.

Another way to analyze this range of settlement morphologies is across a field based on axes of density and formality (see figure 60). Here we find that the campus settlements are in various phases of densification and at varying degrees (and kinds) of informality. Some settlements are stable, while others are identified as being on trajectories of change towards higher or lower density or formality. There are clusters of similarly situated settlements with similar trajectories based on these criteria, but they do not fall into neat settlement types and may differ in levels of durability, street/lane width, and modes of expansion. On the top right side (red), the highly populous and dynamic settlements of KNL, Lambak, San Vicente, and Pael are already dense and becoming denser, but they are not expanding. It is important to ensure that the success of these settlements does not lead to overdevelopment. On the lower left side (green) is a set of expanding and intensifying settlements in a more nascent stage. Engagement with these communities in this phase could have a highly positive impact on the future of the campus. Three settlements on the center-right side are formal settlements becoming informalized. We will argue that these offer some clues for effective on-site upgrading or redevelopment. A range of settlements are relatively stable at medium density and with varying levels of formality. While we identify these patterns, we again underline the preliminary nature of this analysis and that every settlement needs to be understood in its own particulars.

Figure 59: Settlement Morphologies Compared

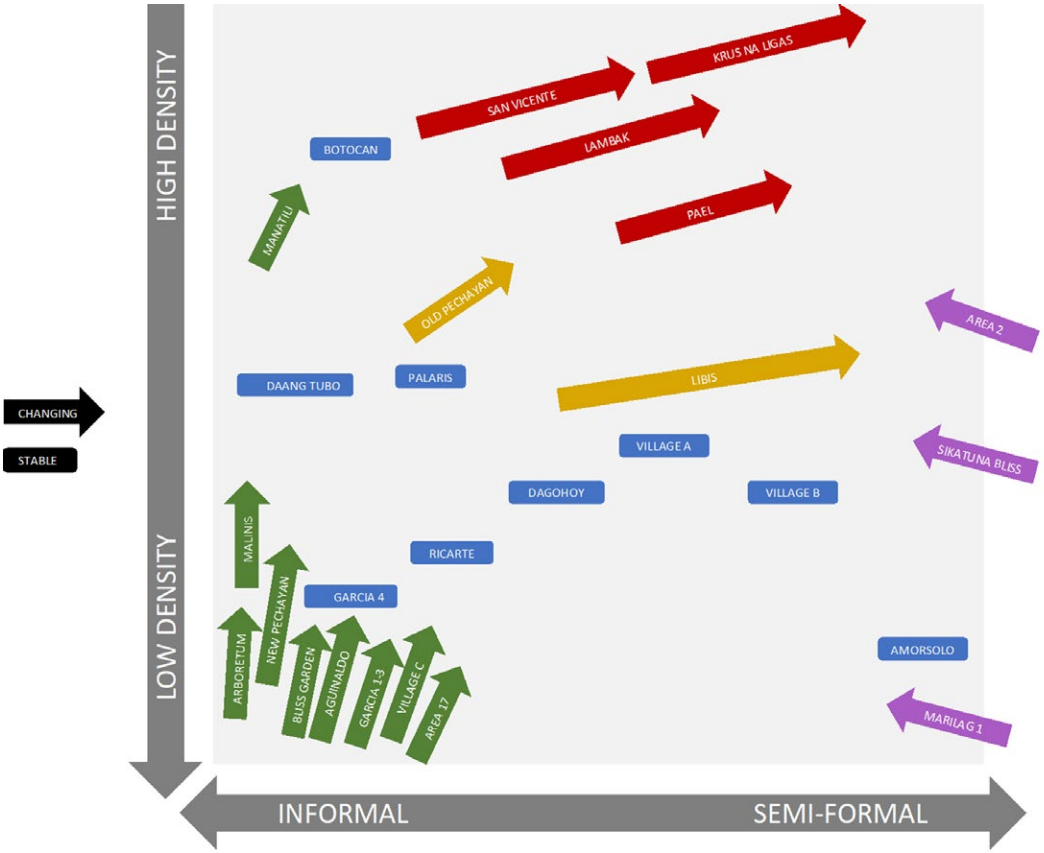


Figure 60: Densities and Formalities

12 Livelihoods

Informal settlements emerge where they do because that is where their residents can establish an economic foothold in the city. Livelihood, in an informal context, is a very complex concept. It includes access to jobs and all kinds of employment, but also the capacity to find or build affordable housing, to establish or enhance social networks, to start new enterprises, and to find affordable transport. An understanding of livelihoods is crucial to any approach to the improvement or redevelopment of informal settlements, which are in turn largely a product of their capacity for sustaining livelihoods.

In a recent work (Dovey and Recio, 2024), we argued that there is a form of socio-spatial logic we call "inventraset" that links the three most fundamental modes of informal production: informal street vending, transport, and settlement. "Inventraset" is an umbrella term designed to call attention to informal urbanism as an inventive, transformative, and enduring set of relations between street vending, transport, and settlement. It enables the invention and enhancement of livelihoods (Dovey and Recio, 2024). This assemblage is most easily envisaged at the small scale, such as along the Central Avenue frontage of Arboretum where street vending, transport and settlement co-locate to produce a livelihood (see figure 61, lower). However, these interconnections are also evident at larger scales where they can only be rendered visible in maps. Our approach here is to better understand how informal settlement is geared spatially into the transit and trading activities on and around the campus.

Figure 61: The inventraset assemblage – Sitio Lambak (top left), Daang Tubo and Arboretum

Semiformal Transport

Without the semiformal transit modes of tricycles and jeepneys, mobility on and around campus would be paralyzed. The jeepney routes are the lifeblood of what flows into and throughout the campus, which is far too large for walkability. Tricycles are formally banned from the campus, but there are exceptions that enable them to operate effectively as a mediating form of affordable transport that connects the campus to the larger city. We have seen how tricycles operate effectively on the campus within the informal settlements that are outside the academic core. They also operate or are parked within the other settlements in more restricted ways.

While tricycles are forbidden throughout the academic core, they operate through and around all the informal settlements. Tricycles and pedicabs are semiorganized into color-coded and territorialized groups, with nodal pick-up locations that are

Figure 62: Tricycle Nodes (Center: Google Street View)

very evident on the street (see figure 62). Nodes range from small but stable clusters of informally parked tricycles to highly organized transport hubs with shelters, queues, makeshift toilets, and offices (see figure 62, upper).

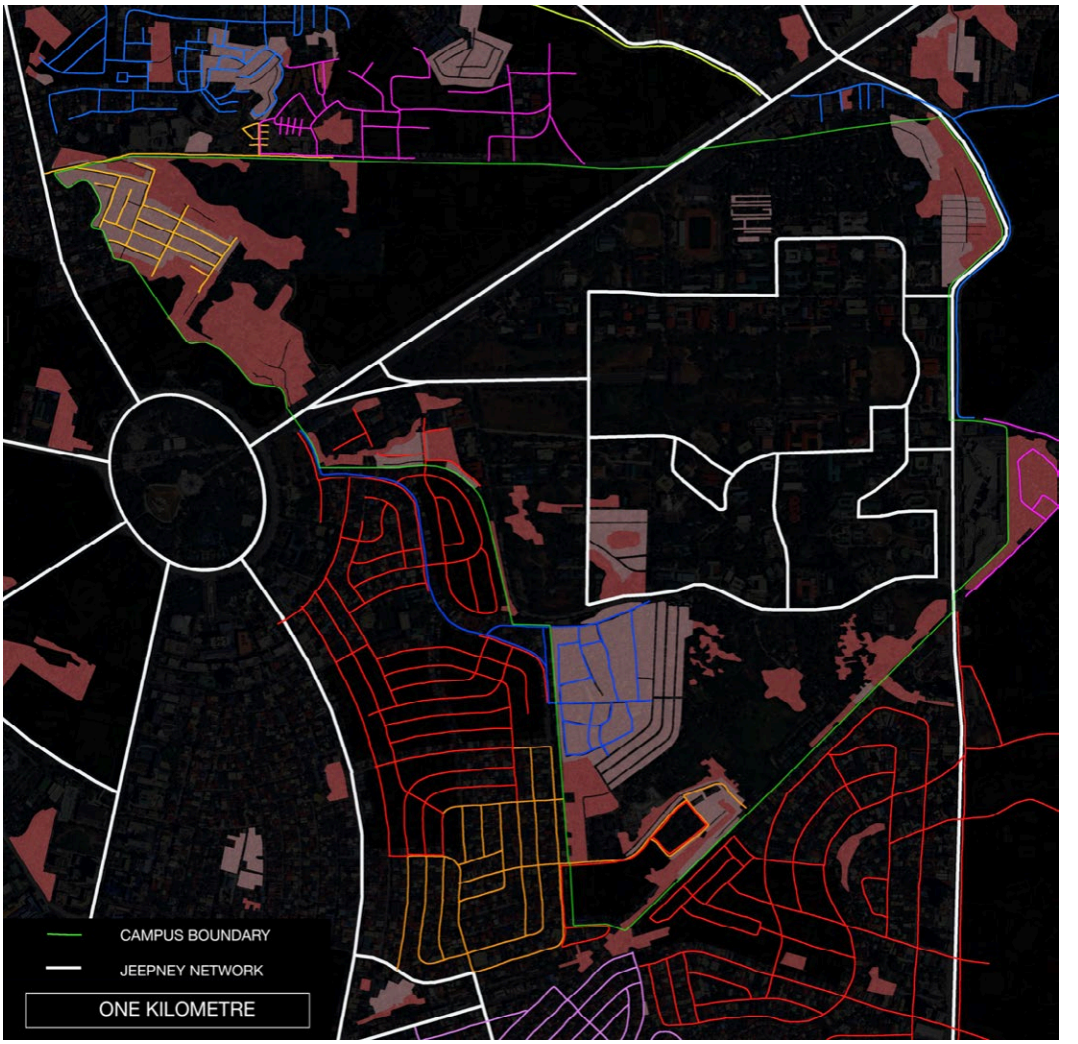


Figure 63: Formal Tricycle Territories and Jeepney Routes on and around UP Diliman Campus

Figure 63 maps all the formal tricycle districts on and around the campus based on QC's tricycle terminals and route maps—see colored lines which represent the different tricycle routes in the area. It shows a set of color-coded territories that form a continuous ring around the campus. The routes exclude the broad expanses of Commonwealth Avenue, which cannot be used or crossed by tricycles. These territories also extend into many of the elite gated residential compounds where

they can drop patrons but cannot pick up or wait for new ones. The territories range up to about 2 km². While they do not strictly overlap, some have "arms" that connect through other territories to particular destinations. One key node near Commonwealth Avenue sometimes has up to 100 tricycles waiting for customers (see figure 62). While these territories are highly constrained and designed to keep tricycles off the main arterials, they are also designed to enable certain connections and routes. This is an example of semiformal transport planning. We note that several of these tricycle territories extend well inside the UPD campus. This applies particularly to those neighborhoods that are more clearly developed and permanent such as Pael, KNL, and San Vicente—highly walkable and largely car-free neighborhoods that could not function without tricycles.

Evidence from the street shows that these formal territories do not represent the actual presence of tricycles, which expand in three main ways. First is an "extra step" rule where a blind eye is turned by several stakeholders (state authorities, drivers, and passengers) when patrons are dropped off an extra block or two beyond the formal territory. In this way, tricycles often encroach into the academic core of the campus. Second, many of the drivers do not live within their allotted territories and are permitted to commute home to settlements, such as those along C. P. Garcia Avenue, which is not a designated route. Finally, patrons can often negotiate access for drop-offs within gated communities, even when not part of the formal territory.

In all these ways, tricycles play a key mediating role between the campus and the surrounding neighborhoods, providing transport into, but not through the campus. The tricycle networks fill the gaps between the private enclaves and the campus as an enclave. They connect passengers between the areas from which they are largely excluded. As an agile and cheap form of transit for short trips, tricycles could be an ideal means of providing quick connections across the vast campus. The ease of electrification of tricycles also makes this mode of campus transit an environmental option. Granting access for tricycles to the academic core, even on an experimental basis, could be an effective intervention that integrates the campus and its informal settlements while sustaining livelihoods.

The jeepneys are the primary forms of affordable public transport, connecting across the broader city, as well as carrying traffic around the vast academic core (see figure 63). The future of jeepneys is a nation-wide issue that is far too complex for discussion here. This is a transit system that is highly reliant on local knowledge and deeply ingrained with the unique urbanism of Metro Manila. The campus jeepneys are also highly reliant on the cheap labor and parking capacities of the campus informal settlements. They are the lifeblood of campus mobility and clearly need to continue.

Street Vending

The home-based enterprises and street vending within the settlements, where markets are largely limited to residents of that community, are far too complex to map here. However, there is also a good deal of street vending and home-based trading on the main streets and road networks of the campus, as mapped in figure 64 and shown in figures 65–66. On frontages such as C. P. Garcia Avenue, the market expands to encompass university staff and students (see figure 65). There are also major vending strips on the public streets of the surrounding city. Some strips are focused on particular market segments such as vehicle repairs, furniture, house plants, or food. Street vending is largely prohibited within the academic core. However, exceptions do appear in semiformalized ways such as kiosks and organized hawker trolleys, where they are needed to meet specific demands and are generally connected to jeepney stops (figure 66).

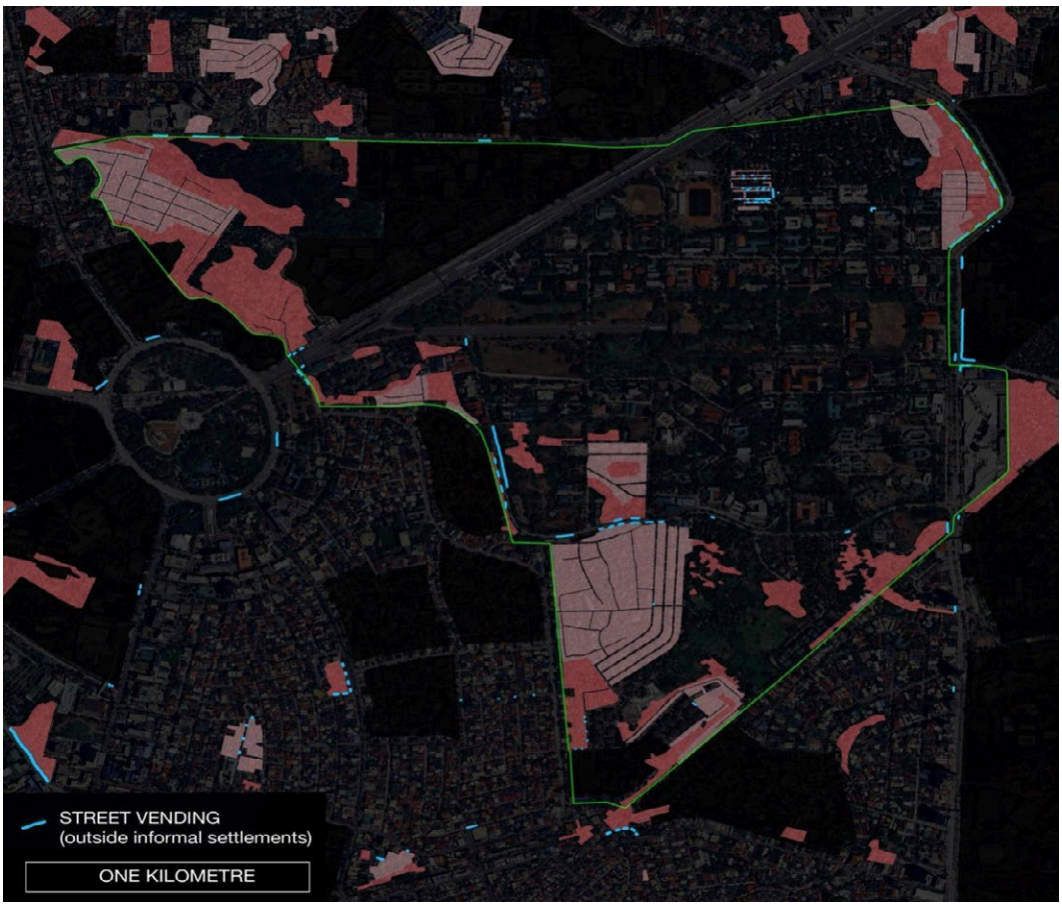


Figure 64: Spatial Relations of Street Vending and Settlement (based on Street View data)

Figure 65: Vending Strips

Figure 66: Street vending within the academic core (Google Street View)

"Inventraset"

The maps in figures 63 and 64 show how the three dominant modes of informal production—vending, transport, and settlement—are juxtaposed on and around the UP Diliman campus. This is what we call the "inventraset assemblage"—a set of interconnections between each of these three modes and their broader relations with the formal structures of both UP Diliman's administration and QC's governance. It shows a campus that is framed by a ring of informal urbanism, without which it would not effectively function. This is the evidence base of how UP Diliman actually works as an informal/formal assemblage. Any effective plan for the future needs to start here, with the existing campus conditions and the ways the livelihoods of residents are impacted. While our evidence in this regard requires further in-depth research, figure 67 sets out a preliminary analysis of how the different settlements are geared to different livelihood activities: agriculture, home-based enterprises (HBEs), street vending, and semiformal transport.

The location and morphology of informal settlements are based on the livelihoods that are enabled in these neighborhoods and surrounding areas. These urban livelihoods are primarily geared toward informal street vending and transport, industries that service the campus, as well as their own communities and the broader city. These livelihoods are also embodied in the urban design and architecture of the settlements in three main ways. First is affordable housing, which is only achieved through the capacity to occupy land, and to construct and expand a house incrementally, as funds become available. The incrementality and adaptability of room-by-room accretion are crucial to affordability. Second, this construction produces *de facto* tenure, a form of "adverse possession" that gains in security and value with continued occupation. The longer residents stay, and the more they can develop durable housing and infrastructure, the more *de facto* tenure accumulates. Third, livelihoods are embodied in the spatiality of the buildings and public spaces, as well as in the interrelations between them. This is the capacity to engage in home-based production and exchange, self-organized industries that spill into public spaces. The direct connection of houses to laneways and streets is crucial to such incomes and is often broken in resettlement schemes with compounds and high-rise apartments.

A livelihood is a bundle or assemblage of assets that is at once spatial, social, economic, and political. We have only investigated the spatial dimension of this assemblage because that is the focus of our field. Without the other dimensions, our understanding is incomplete—a condition that also applies to these other fields. The

spatiality of livelihoods is crucial because it is integral, and any form of upgrading needs to pay attention to this microscale spatial knowledge. The spatial bundle includes the house, its capacity for adaptation and its access to the street. It includes the site and its broader access to the neighborhood, to flows of traffic, and to the broader city.

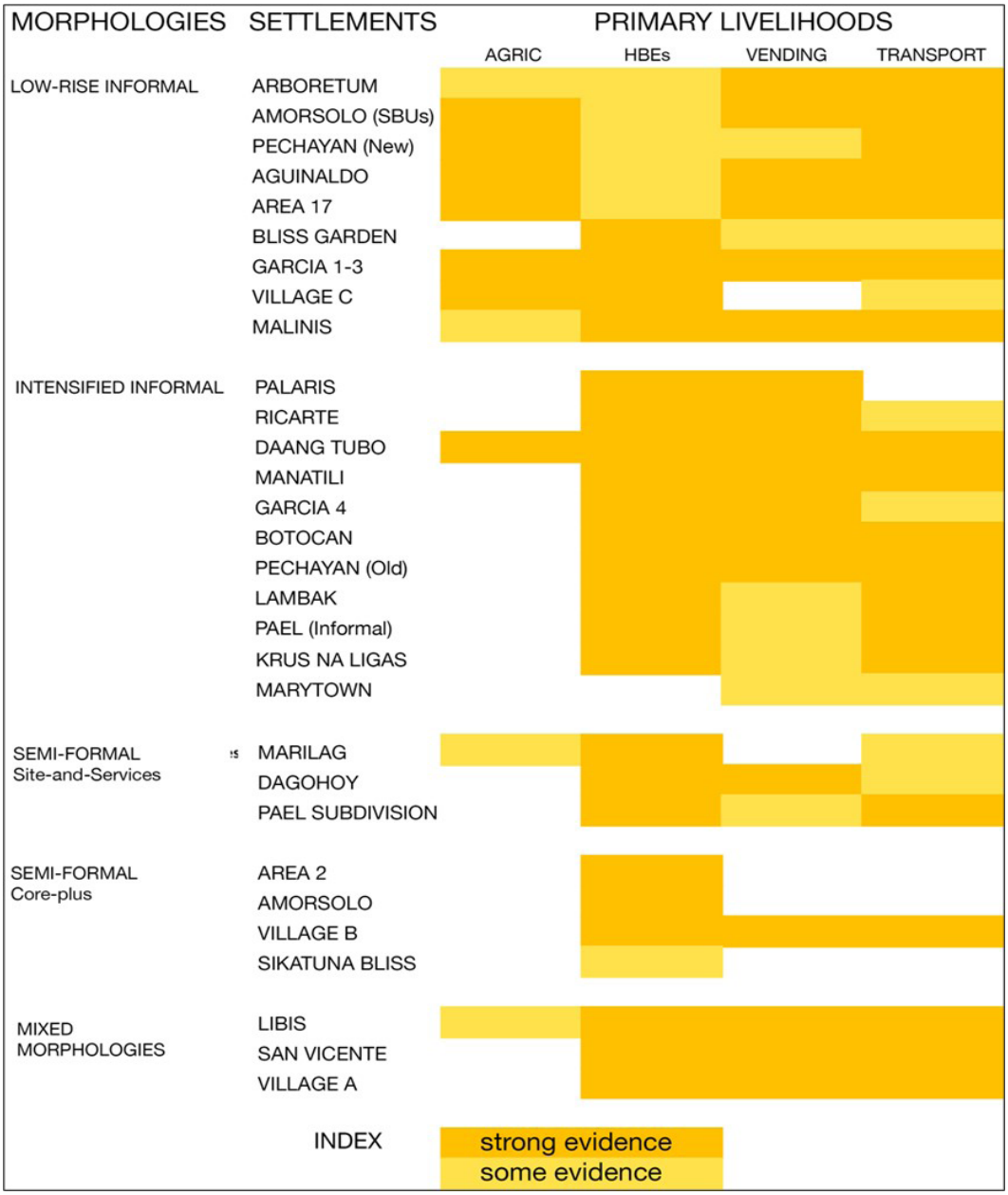


Figure 67: Settlement Livelihood Patterns

13 Redevelopment

De Facto Planning

We have noted in several cases throughout this report that both formal and informal planning processes take place on the UP Diliman campus. The formal process involves "master planning" in the form of the LUDIP report (UP Diliman 2022), wherein most of the informal settlements on campus, are designated as "Science and Technology Park" or "Resource Generation Zone" (table 1, p. 13)—vague signifiers for an indefinite future that everyone can agree with.

Yet we also find a kind of informal *de facto* planning, implemented on the ground without a formal plan. Many settlements have been upgraded with infrastructure, services, and public buildings. Barangay UP Campus incorporates many of the settlements, while other barangays such as Old Capitol Site, Vasra, San Vicente, Botocan, Culiat, and Krus na Ligas incorporate the rest. In Village C, Libis, Arboretum, and Marilag, we find a planning process where settlements that occupy sites needed for new campus developments are demolished. Residents are either rehoused on unoccupied sites within the campus or granted a new site to rebuild (see figure 68, lower). A portion of the Arboretum forest was recently cleared as part of this process, but the formal plan or agreement was not publicly available (as of June 2023).

We also find a much less visible "microplanning" process where the university keeps a close watch on the everyday encroachment of settlements through the security forces of the UP guards. At the main entry to the less developed settlements is a sign saying, "This land belongs to the University of the Philippines—no entry without permission" (figure 61, upper right). While access is not controlled, the guards are a typical presence. Many of them also live in informal settlements on campus along with other UP staff and students. Some staff have forms of long-term *de facto* tenure in spacious compounds (see figure 9, center right). Our conversations with residents of the less-developed settlements reveal that new construction can require informal agreement from the "UP guards" who have become *de facto* planning agents or representatives of the university.

At the micro scale, we find places where outcomes are the result of a formal plan that becomes informally adapted. Along C. P. Garcia Avenue, a high fence has been constructed to prevent access for street vendors yet informal gaps are then produced to enable access (see figure 21, center right). The high campus boundary wall along Central Avenue has a series of "stiles" that enable access through a partial demolition of the wall—the "gate" one can have when one cannot have a gate (figure 8, lower; figure 61 lower). These are negotiated outcomes that enable livelihoods to be sustained while keeping the illusion of formal planning in place.

The university's master plan is built upon two key suppositions. First, the university needs the land that has been informally settled in order to develop academically. Yet the informal settlements are nearly all outside the academic core of the campus. These areas have been settled because they are underutilized and in excess of requirements. The second premise is that all residents from informal settlements will eventually be permanently rehoused off campus. Yet no residents have been relocated and there is no plan for this to happen.

Ad hoc planning is taking place because UP Diliman has an abundance of unutilized land, and decanting residents to a new piece of it whenever they need some settled land is the easiest way forward. This is the *de facto* plan that is taking place in Marilag and Arboretum. The result, however, is to hold all informal settlements on the UPD campus in a condition of "permanent temporariness" (Yiftachel 2009), where no formalization is possible. All kinds of upgrading, including road construction, services, barangay halls, community buildings, health centers, and basketball courts, are carried out. In addition, a plethora of private constructions and adaptations are approved, or tolerated, but only under the umbrella of the temporary or "transitional" scheme. Every new house in Marilag has a sign above the door with this label, but transitional to what is not spelled out. Thus, the development of the informal settlements on campus proceeds with *ad hoc* planning but no formal long-term plan.

The UP Charter does not include city/municipal governance, and the University faces enormous challenges to manage these vast and diverse settlements effectively. Our engagement with QC officials suggests that they have the depth of experience and expertise necessary to take responsibility for the upgrading and formalization of the campus settlements if they were incorporated into QC governance. They have undertaken a wide range of upgrading projects on campus through various agreements with the university. However, they lack any capacity to levy land taxes or rates in order to pay for infrastructure. This is most apparent in the stand-off over KNL. Some university officials acknowledge that this village, which was settled prior

to the land grant, is permanent and should become part of the city management. The precedent for an effective approach was set in 1986 when then UP President Edgardo Angara signed a decree transferring the land of KNL to become part of Quezon City. While this decision was soon reversed, this was the path to a more inclusive future for all the campus settlements.

The Case for an On-site Upgrading and Redevelopment

The maps, descriptions, analyses, and diagnoses we have presented here in a preliminary manner are not ends in themselves. They are the research base for on-site improvement and redevelopment of informal settlements. The evidence base is necessary because any upgrading or redevelopment requires a good analysis of existing conditions. One could argue that informal settlements need to be demolished and replaced wholesale, whether on-site or off-site. This has been a prevailing view of many stakeholders across the university, but we wish to challenge this long-held position for four main reasons.

First, wholesale demolition and relocation violate the academic standards of critical thinking and social equity that UP holds as founding principles. Without looking hard at the evidence, there is no basis for deciding which settlements might need to be demolished and replaced. If there is a case for demolition and replacement, then land is available on campus for such relocation. Relocation to urban fringe locations is often unsustainable due to lack of livelihoods and dislocated residents often return to informal settlements nearby (Arcilla 2018).

Second, a good part of this report is evidence of how these settlements have already been improved through incremental investments and self-organized or collectively managed upgrading practices. Infrastructure and services have been built. Roads and lanes have been widened and paved. Makeshift houses have been made durable. Open spaces have been created within dense settlements and protected from encroachment. Meeting halls, basketball courts, and barangay halls have been added, as well as health centers, day care centers, and schools. To replace all this infrastructure is a very expensive investment. Many of the settlements on campus are working well or can be most effectively improved and upgraded while retaining the existing street/lane network and infrastructure. Such settlements can benefit from further on-site improvements but do not need wholesale redevelopment. They may need lane-widening and paving for emergency access, flood control, new and better open spaces, or community facilities. All settlements will need tenure reform

to ensure that residents will have the confidence to invest in their own buildings. They will need to negotiate rules where necessary to prevent overdevelopment and nondurable construction. This improvement cannot be undertaken without a deep understanding of existing conditions and without community support.

Third, even where major redevelopment is deemed necessary, when there is a good case for demolition and replacement of part of a settlement or all of it, this cannot be done sustainably without a deep understanding of how livelihoods and well-being are geared to housing types and urban design. Architects and planners who design resettlement schemes need to understand how incremental design and planning work and are geared to the flow of resources and livelihood opportunities. There are examples on campus of the different approaches to resettlement that have already been made—discussed below as "site-and-services" and "core-plus."

Fourth, this morphological analysis also reveals the visibility and connectivity of the settlements with the campus and the broader city. Many of these settlements occupy the backwaters of the city, inaccessible locations where they remain largely invisible from the major traffic routes of the campus. Settlements that are visible along Commonwealth, C. P. Garcia, and Central Avenues, as well as along Tandang Sora and Katipunan Avenues, are but a tiny percentage of those on campus. Even more exposed neighborhoods such as Pael and Libis have limited connections to their surrounding neighborhoods. There are many possibilities to open new road connections, which could enhance social interaction and economic opportunity across these settlements. Some of these potential urban interventions are mapped in the figures labeled "Possibilities" at the conclusion of each sector above. They require significant expenditure, but they will be cheap compared to the ongoing cost of current urban infrastructure that provides limited access networks. Such changes also require ideological change. The campus has generally developed with an enclave ideology[3] where housing is designed within walled compounds that are often large enough to disrupt traffic flows to and from surrounding neighborhoods. Inclusive cities are permeable, mixed-use, walkable, and integrated with the larger urban environment.

3 In a scholarly account of the history of UP officials' decision to relocate the university's main campus from Ermita (Manila) to Diliman (QC), the historian Michael Pante (2018) argues that the geographical isolation of the UP Diliman campus was a product of a Western 'university town' model. This campus plan reflects an "ideological expression in a way of life shielded from any urban contamination. The principle of the campus is separation, not only from the city but also from the rest of the territory..." ("Université, ville et territoire" 1976, as quoted in CERI 1982: 24). We share Pante's (2018) contention that while the physical isolation of the UP Diliman campus seems to fit the notion of 'university town', the socio-material conditions (e.g., poverty, inequality, informality) that saturate Diliman and the broader city have subverted the logic behind this enclave ideology.

Upgrading Approaches

There is little scope here to explore the myriad of possibilities for upgrading the campus settlements, but we want to point to three redevelopment and upgrading processes that are already evident and that could be effectively enhanced.

Site-and-Services

Site-and-services schemes involve a formal street layout with serviced plots (i.e., ready to be built on) to be developed informally. In other words, the design of serviced building plots, streets, and laneways establishes a formal framework within which the architecture follows incrementally and informally. This formalization of urban design while leaving the architecture largely informal was widely applied from the 1970s, and the World Bank funded many such schemes (Turner 1976; Laquian 1977; Wakely and Riley 2011). Three of the most sustainable informal settlements on campus can be understood as site-and-services schemes. This has been the process for the Pael subdivision and Pook Dagohoy, as well as the more recent relocation schemes that form part of Libis and Marilag. Pael was a new settlement, and Libis was well-integrated on the edge of an existing settlement. Both have relatively successful outcomes (see figure 68).

Leaving residents to build their own houses can seem both mean-spirited and a recipe for sub-standard construction. However, this has been a means to durable housing with good street/lane access while maintaining the adaptability of the informal process. Perhaps most importantly, it is a means to home ownership—replacement housing is generally financed by turning residents into renters. The success of site-and-services schemes will crucially depend on the size of plots, which can be too large and too small. The Dagohoy plots of 8 m × 12 m are an interesting precedent to study, while the Marilag plots of 4 m × 7 m are minimal.

Pael

Libis

Figure 68: Site-and-services schemes on campus

Core-Plus

Figure 69: De Facto Core-Plus schemes on campus (Lower: Google Street View)

A more effective result can be achieved by going one step further and providing a formally constructed and serviced core with space for self-organized expansion—often known as "core-plus." One of the earliest such approaches was used in the Tondo project in Manila (Laquian 1983, 77). The benefits of informal additions to formal housing include the expansion of crowded interiors, more efficient use of land, and rental income (Kellett 1993). In a global study, Tipple (1996) showed that construction standards are often better than the original housing. Studies in the Philippines show that self-organized additions to public housing are common and that they can alleviate crowding and produce better climatic conditions (Carrasco et al. 2016; Manalang et al. 2002). Our own work has shown how both core-plus and

site-and-services are currently working in other parts of Metro Manila (Dovey and Recio 2023). The examples on campus are de facto core-plus in the sense that they were designed as complete houses with plot setbacks enabling informal additions. The most successful example is Area 2, where the formal housing units have two floors, and the additions are single-floor. However, the informal parts of Amorsolo, Village A/B, and the Sikatuna BLISS projects have also been partly produced in this manner (see figure 69). Core-plus is, in many ways, a middle-ground between full replacement and site-and-services, and it represents an opportunity for a middle-ground between full ownership and rental.

Incremental Replacement

Incremental replacement is the process of demolishing and replacing substandard houses within informal settlements in an incremental manner. This process is evident in most of the settlements we have discussed and has been the primary upgrading process for the more developed settlements such as KNL and San Vicente (see figure 70). Tenure is the key to providing the incentive for such incremental upgrading.

Figure 70: Incremental upgrading and replacement (Upper left, lower center: Google Street View)

Community Organization

Inclusive and sustainable on-site upgrading or redevelopment requires an informed engagement with residents. This relies on at least minimal levels of community organization such that the interests of residents can be debated and effectively represented. Informal settlements embody local knowledge that it is necessary to engage if the outcome is to be sustained. Many, but not all, of the informal settlement communities on the campus have current forms of organization necessary to such processes. While not the subject of this study, this is a high priority and a necessary condition for the next steps.

Community-based organization ranges from the most informal of discussions in laneways, through settlement-wide meetings to assemblies of campus-wide alliances and networks of community leaders. The presence of publicly and privately funded community infrastructures we have described above indicates a range of sociopolitical ties with different state agencies, government officials, and civic organizations. This set of networks signifies varying levels of community organizations in many of the informal settlements on campus. There are currently two main networks known as AlsaDil (*Alyansa ng mga Samahan sa Diliman*) and KM (*Kilos Maralita*). Students and alumni of the university play a key role in KM, which focuses on livelihoods of the urban poor and is primarily associated with the most vulnerable settlements such as Arboretum, Manatili, Malinis, and Aguinaldo. Issue-based organizations such as the Save Arboretum Network are an offshoot of initiatives by student and youth organizations in UP Diliman. AlsaDil is a broader alliance of settlement-based community groups, including more established settlements such as San Vicente, Pechayan, Ripada, Manatili, and Arboretum. In areas such as Daang Tubo, Libis, Malinis, C. P. Garcia, and Aguinaldo, the level of organization ranges from district to settlement-wide and some are based on constituencies (e.g., women's associations, transport groups). In some communities, local leaders have been facilitating a "people's planning" process, a government-supported community-based approach that enables the informal settlers to take part in conceptualizing, planning, designing, and managing shelter projects.

A key test of any upgrading scheme is whether residents will prefer to live in it—they define what "upgrading" means. If residents will not voluntarily move to a resettlement scheme, then it means the scheme is poorly designed and planned, or badly communicated. It may also mean that the existing settlement embodies assets that are unrecognized by authorities. Any form of resettlement that fails to incorporate or improve livelihood conditions in the eyes of the residents will not

be sustainable. The UNDP survey undertaken in 2022 across six of the settlements (Arboretum, Pechayan, Manatili, Ricarte, Palaris, and Dagohoy) we have studied here showed that an overwhelming majority of residents in these locations indicated that their well-being has improved in their current community compared to their previous residential area. These percentages ranged from 72 percent (Ricarte) to 91 percent (Manatili) of surveyed residents. A clear majority also indicated they do not wish to leave their current place of residence—from 61 percent (Ricarte) to 72 percent (Arboretum and Palaris). These surveyed settlements are among the more vulnerable of the 23 settlements we have studied, and the results show that informal settlement has been a means to establish livelihoods and secure well-being. While some might be induced to leave, on-site upgrading or redevelopment will gain community support.

Besides the imperatives of community participation, it is crucial to explore appropriate financing schemes and institutional arrangements that can harness the resources of various stakeholders. For instance, the university can collaborate with the QC government and various barangays whose residents live on UP land to design programs of community upgrading, housing construction, and service provision. It is also important to design a multistakeholder collaboration that mobilizes institutional and financial support from the national government's Department of Human Settlements and Urban Development (DHSUD). With respect to addressing tenure concerns, a usufruct scheme—similar to the long-term lease system of the BLISS housing units in UP Diliman—can be a vital approach to ensure that residents will not face eviction.

Effective improvement and upgrading can be incremental and transitional. The attempt to fully formalize settlements in a single step is fraught with difficulty and danger. While the desire to provide fully completed and durable formal housing with good location, access, public facilities, and open spaces is a laudable aim, the funding is rarely available for more than a small cohort of residents who are then converted from ownership to rental. A scarcity of funding often results in poor designs that are soon re-informalized or difficult locations that are abandoned due to a lack of livelihoods (Arcilla 2018).

CODA: Defending the University

Figure 71: Arboretum Road

A wall mural that appeared in 2021 on Arboretum Road near Pechayan links the issues of a defense of the university's values, the protection of the rights of informal settlers, and resistance to phasing out informal public transport (figure 71). The mural captures the struggle of UP against the unwarranted presence of uniformed personnel on campus that threatens the university's academic freedom.[4] The artwork

4 On 20 January 2021, soldiers of the Armed Forces of the Philippines made their presence felt on the UP Diliman campus. This was five days after the Secretary of the Department of National Defense (DND) unilaterally abrogated the 1989 UP-DND agreement, which required prior notice to UP officials for the deployment of state security forces inside UP campuses (Mangosing 2021).

also foregrounds the enduring problems of many low-income workers and residents of informal settlements in UP Diliman. The signs (in Tagalog) held by residents say "help, not demolition" and "oppose demolition." As we hope to have shown, on-site improvement and redevelopment can be a viable option on this campus. The informal settlements of the UP Diliman campus are an integral part of its history and crucial to any kind of inclusive and sustainable future. As the mural makes clear, this is not only a struggle over the livelihoods and rights of the people. It is also a struggle over the core values of UP, and the right to call itself the country's premier university that upholds "honor and excellence with compassion."

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