

Urban dwellers' view on hazards and disasters; and, the COVID-19 pandemic: implications for resilient urban housing in the post-pandemic period

Minerva Rosel¹ and Isidoro Malaque III²

^{1,2}*University of the Philippines Mindanao, Davao City, Philippines*
{*mcrosel1*¹, *irmalaqueiii*²}@up.edu.ph

Abstract: This paper aims to assess the housing needs and conditions of the city population, particularly in the central business district (CBD), as a pre-requisite for design intervention towards urban resiliency and enhanced quality of life. In the southern part of the Philippines, a comprehensive study was conducted in Davao City on urban dwellers' view towards hazards and disasters, through a survey covering more than 1,000 respondents from the CBD's daytime population, that was carried out in the latter half of 2019 prior to the community quarantine restrictions due to COVID-19 pandemic. Study shows that most city dwellers belong to the working population who prefer co-living arrangements, whether transient or permanent. This implies a need for new design parameters in urban housing design, as an alternative to conventional configurations. Furthermore, learning from the current pandemic, utmost consideration for health protocols in shared spaces must also be considered. With the onset of the pandemic, the real estate industry saw a shift in market preferences, particularly in high-density housing. Considering other urban hazards and disasters concerning the city dwellers as identified in the comprehensive study, new design insights and parameters are hoped for resilient infrastructure and housing developments in the post-pandemic period.

Keywords: Mindanao urbanization; mass housing; urban resilience; resilient cities.

1. Introduction

The growing number and concentrations of populations exposed to hazards make cities as the most vulnerable areas in our rapidly urbanizing world, and most of them are in Asia. In a ranking of urban centers' exposure to a range of environmental and climate-related threats, data revealed that 99 of the world's 100 riskiest cities are in Asia, and over a billion city dwellers facing environmental risk (Nichols, 2021). For years, Philippine authorities are concerting efforts to be prepared for the "Big One" – a worst case scenario of a 7.2-magnitude earthquake, deemed to be inevitable in a country along the Pacific Ring of Fire – in Metropolitan Manila, the most densely population region in the country. In the southern islands cluster of Mindanao, the center of urban development is Davao City. Metropolitan Davao is rapidly urbanizing, currently expanding towards its neighboring local government units in the region. While Davao

City is less congested than the major cities such as Manila and Cebu in the Luzon and Visayas islands clusters respectively, the aggressive housing and infrastructure developments created an emerging concern towards the natural environment and risks for disasters.

City planning traces its roots from the need to address societal problems during the industrial revolution. The poor housing conditions for workers in the city were at the core of various planning theories and concepts, giving birth to urban and regional planning principles and movements. These include the invention of complex road networks and popularization of suburban living, as introduced by early town planners from the west. The resulting urban sprawl and creation of car-centric societies, however, are now among the subjects concerning sustainable development, particularly in rapidly urbanizing regions in Asia. As rapid urbanization continues to shape the global economy, finding ways to provide the right infrastructure and services in cities will be a crucial problem to solve for communities and organizations (Ghosh, 2019). On one hand, suburban living may offer a better alternative to housing in the city but requires additional travel time and transportation cost. On the other hand, housing options may be available in the city, but are cramped and/or expensive. Neither option provides a better quality of life for low-income urban workers.

Communal living, an arrangement that has been in place for centuries in western societies (Kopec, 2006), is one solution that addresses affordable housing needs of urban dwellers. In the Philippines, living in dormitories and boarding houses is very common, not only to students but to young urban professionals as well, as typically provided by the private sector, such as families with spare residential spaces. As land value and construction costs continue to rise, real estate specialists are beginning to consider “co-living” spaces as a major player in the residential sector (JLL, 2019). With the emergence of a sharing economy and shift of traditional workforce to collaborative digital nomads, co-living spaces are seen to gain popularity as a sustainable alternative to underused but excessive traditional housing configurations. Prior to the COVID-19 pandemic, the demand for co-living spaces was expected to rise in the United States and drastically change design and urban development parameters (Grozdanic, 2016). Today, co-living has become more than just a housing model; it has become a solution for the market demands of a growing younger generation (Mahl, 2021).

The COVID-19 pandemic, a hazard that affected the whole world, highlighted some parameters that are crucial in urban space planning and design, more so on shared areas such as co-living spaces. Co-living spaces’ popularity comes from the fact that many people want to be around others and form connections (Di Risio, 2022). Community lockdowns may have temporarily reduced workers mobility, but greatly increased capacities for remote work. Humankind’s ability to adapt to virtual platforms has paved ways for more technological advancements and virtual collaboration in the new normal. Health protocols requiring social distance made physical space even more valuable socialized housing program are favorable to the private developers and not to the intended beneficiaries.

2. Background

As pointed out by Habitat for Humanity in 2021, adequate and affordable housing leads to benefits in health, education, and economic opportunities. Having one’s own place to live is not just an accomplishment but is also an enforcement of resilience against economic and natural disasters. Unfortunately for Filipinos, the country’s huge housing backlog is yet to be addressed despite the existence of several key shelter agencies (KSA) in the Philippines (Fernandez, 2021).

Socialized housing projects are typically located away from people's livelihoods, increasing the need for transportation, and reducing land for food production. Meanwhile in the CBDs, high density residential developments and townships are proliferating for the rich minority (see Figure 1).



Figure 114: Residential area along the Pasig River in Manila, with upscale condominiums in the background and residential community in the foreground that are providing housing units for transient residents. (photo by Dolly Anne Zoluaga, 2016).

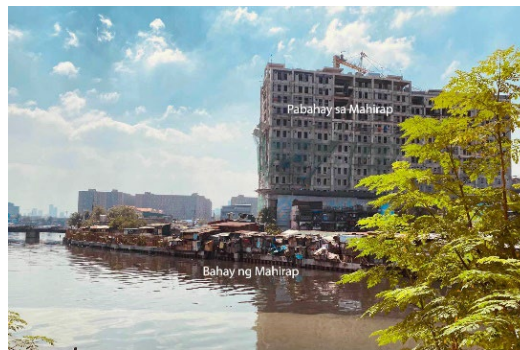


Figure 2: Residential area along the Pasig River in Manila, with existing informal settlement in the foreground and socialized housing project in the background (image by Joy Dawis-Asuncion, 2022).

The creation of the Department of Human Settlements and Urban Development (DHSUD) in 2019 aims to streamline government bureaucracy and ultimately deliver decent and affordable housing units to the Filipino masses. This includes high density residential buildings located in the CBD (see Figure 2). In the photo, “Bahay ng Mahirap” means “house of the poor”, while “Pabahay sa Mahirap” means “housing for the poor”. Similarly in Clark, a freeport and special economic zone north of Manila, authorities are already eyeing the establishment of workers' housing, for continuity of the manufacturing industry, as key to economic recovery (Silverio, 2020).

In Davao City, low-cost housing is provided through subdivision developments, none of which is in the CBD. Typical dwelling units are single detached, duplex and row house configurations, wasting valuable vertical space for higher density and horizontal space for parks and gardens. Moreover, the so-called socialized housing packages can hardly be considered affordable, with the government prescribed price range of PhP 0.45-1.25 Million (My Davao Property, 2022). These housing packages are available through bank loans, that the poor do not have access to. In 2021, a case study was conducted in Davao City, to probe if the government's socialized housing program truly addresses the needs of low-income households (Yares 2021). Results of the study showed that housing units are overpriced, and the socialized housing program is prone to abuse, as the majority of the socialized housing owners do not really belong to the low income sector. Furthermore, the study supports criticisms that the development outputs of the socialized housing program are favorable to the private developers and not to the intended beneficiaries.

3. Aims and objectives

Considering that the Philippines ranks third among the countries with highest disaster risks in the world (World Risk Report, 2018, as cited in Malaque III and Golimlim 2019), there is a need to integrate the COVID-19 pandemic implications on housing, as a pre-condition for resilience of urban dwellers of Davao City, through the daytime population of its CBD. The study aimed to profile the urban dwellers from the daytime population of the CBD and to sieve the perceptions of those who are living in from those who live outside of the CBD. Furthermore, the study aimed to compare the respondents' confidence in disaster resilient public infrastructure. The final objective is to compare how much time and money the respondents spend on transportation and housing, as inputs on design parameters for resilient workers' housing. For the discussion, this paper recommends and enumerates the benefits of an alternative configuration for city housing.

4. Case study areas and sampling

Davao City as the case study area, the comprehensive survey was conducted at Poblacion District as the urban area within the political boundary of the city. A ten-question survey questionnaire was designed covering three components, other than respondents' profile, to include: housing; transportation; and, disaster risk awareness. For the distribution of surveys, the study area was divided into eight zones. Fifty (50) research enumerators were deployed to conduct the survey all the zones covering a total of 1,026 respondents who participated in the survey. Research respondents include the daytime population, when the survey was actually conducted, in the Poblacion District who either lived within or outside of the case study area. For this article, results were analyzed from the two (2) cohorts to represent the city and non-city dwellers, respectively. The survey was conducted from November to December 2019, most of which were gathered in the first half of November. Incidentally, the region experienced a phenomenal swarm of earthquakes around the same period from September to December 2019.

5. Research results

To profile the respondents, we asked what they were doing in the CBD, anticipating that majority are students, with the number of schools and university campuses in Davao City. Results show that majority (54%) of the respondents are workers, and only seventeen percent (17%) are there to study. Almost a quarter (23%) stated that they are just visiting, and a few (5%) are merely residents. Majority of the respondents also live in the CBD. 52% declared that they are Poblacion residents, while an additional 6% consider themselves as transient residents. The 42% reside outside the CBD. Integrating these data, we

found out that majority 362 out of 532 (68%) of the respondents are workers who are living within the CBD. It is interesting to note that there is a substantial number 274 out of 464 (59%) of worker and student respondents are not living in the CBD (Figure 3).

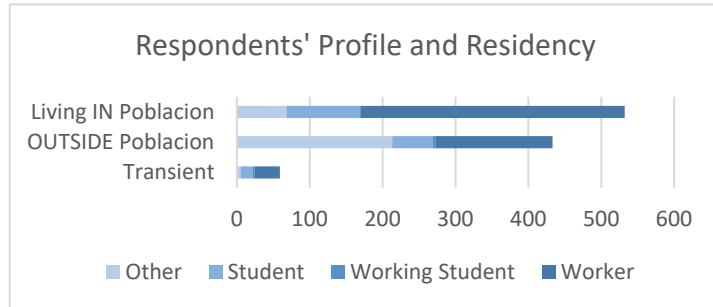


Figure 3: Respondents' profile and residency.

To get an overview of the respondents' monthly transportation expenses and compare the results from the two cohorts, the third question on the survey was "How much do you spend on transportation?". For those living within the CBD, majority spent the least amount ranging from 0 to 500 pesos. For those living outside the CBD, majority are spending up to 2,000 (Figure 4). As to their daily travel time, majority of those living within the CBD were only spending up to 30 minutes on the road each day. For those living outside the CBD, the top response was up to 1 hour of commute, with a notable number of responses revealing up to 4 hours of daily commute (Figure 5). Even if travel time is not computed with monetary value in this study, research results show that those living outside the CBD are already spending more as compared to those living within the CBD.

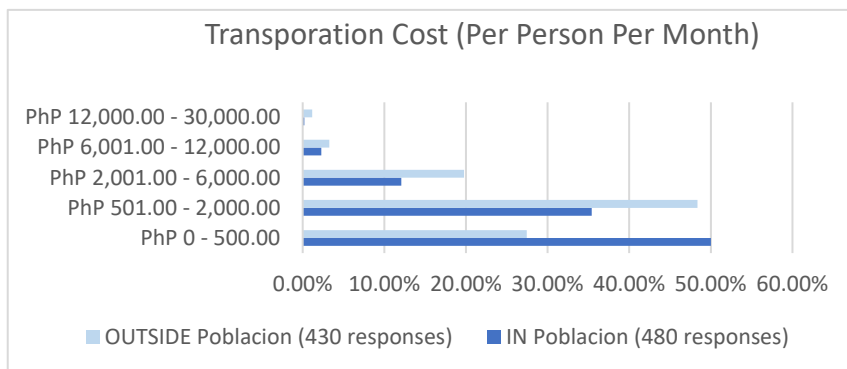


Figure 4: Transportation cost (per person per month).

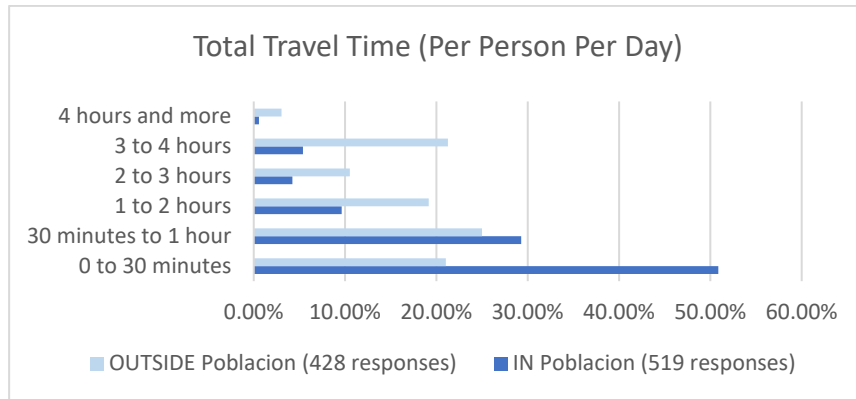


Figure 5: Total travel time (per person per day).

The study aimed to compare the cohorts' perceptions on hazards and their confidence on their respective community's resilient infrastructure. Asked if they were aware of public infrastructure to protect their houses from hazards, there were more respondents from those living outside the CBD who admitted that they do not know. In general, only a minority of the respondents, from both cohorts, are aware of such infrastructure. As to the hazards, "fire" is a concern for more city-dwellers than non-city dwellers. On the other hand, more non-city dwellers are concerned of "typhoons" and "landslides", than city-dwellers. For both cohorts, "flood" was equally identified, and "earthquake" was the most identified hazard (Figure 6). For evacuation areas, while majority (59%) of the respondents from both cohorts believe they have access to one, many (41%) are not aware of their availability or accessibility (Figure 7).

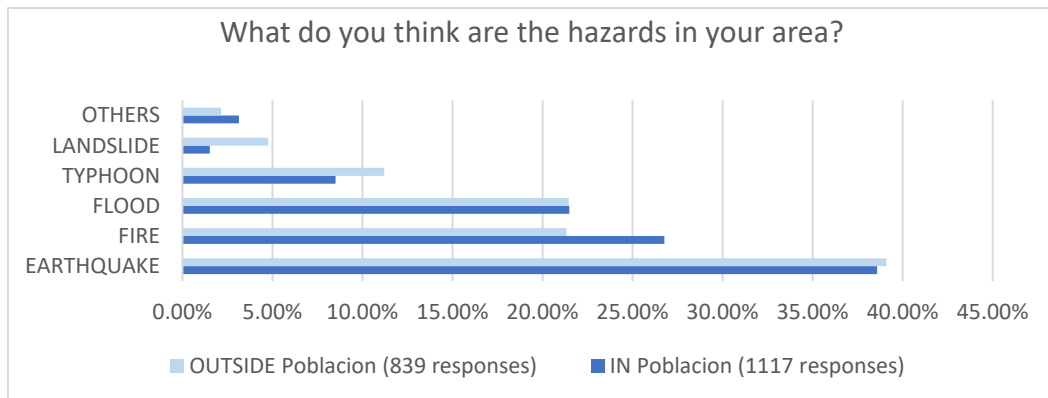


Figure 6: The perception of the population who live in, and outside the CBD with respect to the hazards in their area.

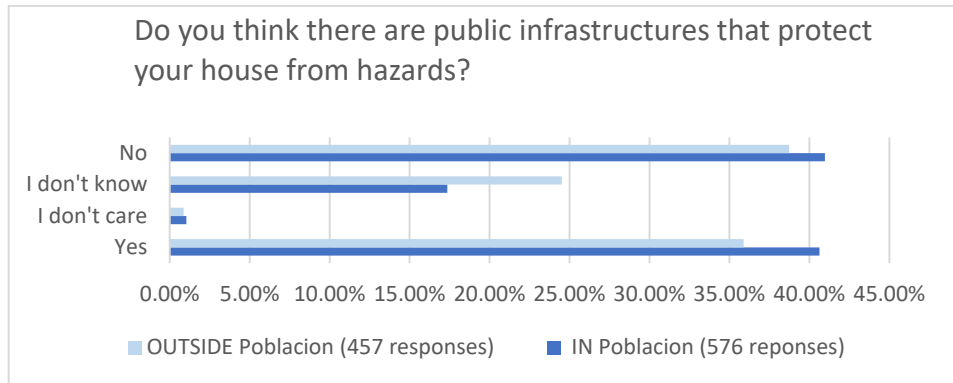


Figure 7: The perception of the population who live in, and outside the CBD with respect to public infrastructures in protecting their house from hazards.

As part of the respondents' profile, the survey also probed on the household size, or the number of persons living in the same housing unit. Of the total respondents, we filtered the responses to the city-dwellers, with the addition the transient city residents, resulting to 480 total responses. A considerable number (217 or 45%) of respondents belong to a household size of 5 and more, indicating that majority of the city-dwellers are co-living or sharing their dwelling unit. Only 48 respondents or a mere 10% of choose to live alone (Figure 8).

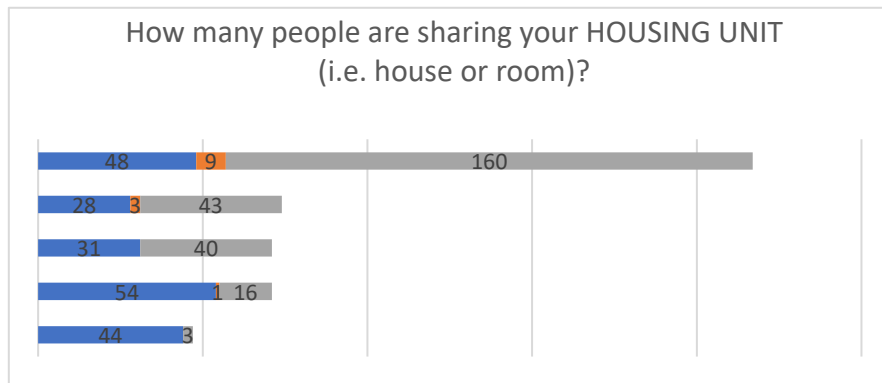


Figure 8: The number of people sharing their housing unit, whether it is through rental, amortization, or free/owned.

As we investigated the housing expense of city dwellers, majority (55%, or 262 out of 480 respondents) claimed to have no expenses spent on housing. For purposes of determining the affordability of city housing, we further filtered the data to consider only the figures for housing payments, both rental and

amortization, from the remaining 45% (or 218 out of 480 respondents). Majority of the respondents spend between PhP 1,000.00 to PhP 3,000.00 per person per month on housing in the CBD (Figure 9).

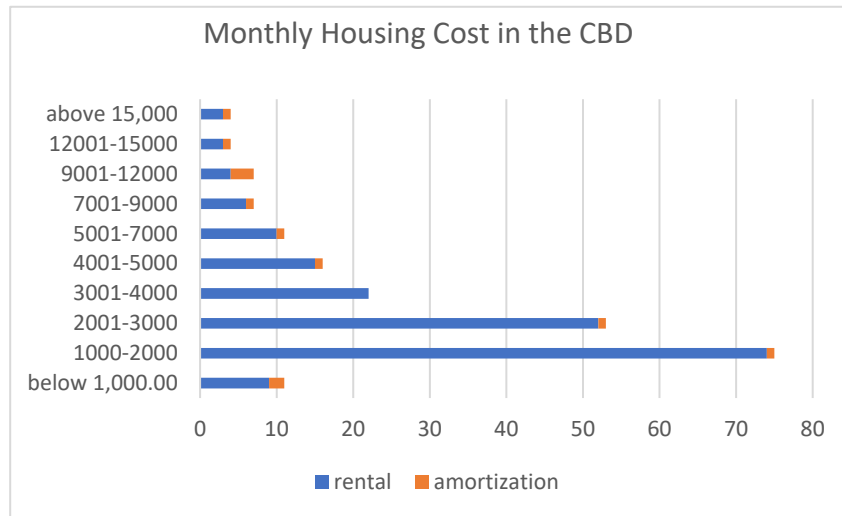


Figure 9: Monthly housing cost in the CBD.

6. Conclusion and Recommendations

There is a demand for housing in the CBD as evident the respondents' profile, as only 52% of the respondents permanently live in the CBD. Workers, students, and working students are potential market for housing in the CBD. Vehicular and pedestrian traffic volume as well as budget for transportation can be reduced by providing housing for workers and students. Considering other design parameters for resilient infrastructure, housing should particularly address resilience to earthquake, fire, and flood, to attract as an added value to city dwellers. Housing should cater to a household size of 5 and more to be marketable. The housing cost to be borne by an individual city dweller, is ideally within the affordability range of PhP 1,000-3,000 (in 2019), to be marketable, and ultimately sustainable. The benefits and practicalities of co-living arrangements may be introduced to city housing design, as an alternative to conventional configurations of individual or single-family housing unit, with utmost consideration for health protocols in shared spaces. The definition of socialized housing should be revised and expanded to include vertical developments that is appropriate in a CBD.

References

- Chandran, R. (2018) [online] Manila's homeless set to move into more empty homes if official handover delayed. Reuters. https://www.reuters.com/article/us-philippines-landrights-lawmaking/manilas-homeless-set-to-move-into-more-empty-homes-if-official-handover-delayed-idUSKBN1H41L7?fbclid=IwAR3wdQoaJgnwSahjYwGkyCfL0tHXZdNaRYpSU9TRS_eFyRdyQEFcAEBCW-A (Accessed 15 July 2022)

- Di Risio, A. (2022) Global Coworking Growth Study 2020 | Market Size & Industry Trends. [online] Coworkingresources.org. <https://www.coworkingresources.org/blog/key-figures-coworking-growth> (accessed 14 July 2022)
- Fernandez, D., 2021. Robes says PH needs P50B to solve 'worsening housing backlog'. [online] INQUIRER.net. Available at: <<https://newsinfo.inquirer.net/1514753/robes-says-ph-needs-p50b-to-solve-worsening-housing-backlog>> [Accessed 15 July 2022].
- Grozdanic, L. (2016) How Coworking and Coliving are Redefining Space as a Service. [online] ArchDaily. <<https://www.archdaily.com/785550/how-coworking-and-coliving-are-redefining-space-as-a-service>> (Accessed 15 July 2022)
- Ghosh, I. (2019) Mapped: The Dramatic Global Rise of Urbanization (1950–2020). [online] Visual Capitalist. <https://www.visualcapitalist.com/map-global-rise-of-urbanization/> (accessed 14 July 2022)
- Habitat.org. (2021) Housing and the Sustainable Development Goals, The transformational impact of housing. https://www.habitat.org/sites/default/files/documents/Solid-Ground-SDG_booklet-update-2021.pdf (accessed 14 July 2022)
- Ilo.org. 2022. Recommendation R115 - Workers' Housing Recommendation, 1961 (No. 115). [online] https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:R115#:~:text=As%20a%20general%20principle%2C%20the%20competent%20authority%20should%2C,and%20take%20appropriate%20measures%20to%20enforce%20these%20standards.
- JLL.com. (2019, July 23) Co-Living: A Viable Alternative to Metro Manila Living Experience. <https://www.jll.com.ph/en/newsroom/co-living-a-viable-alternative-to-metro-manila-living-experience> (accessed 14 July 2022)
- Kopec, Dan. (2006) Environmental Psychology for Design. First. New York: Fairchild Publications, Inc.
- Mehl, B. (2021) Global Coworking Growth Study 2020 | Market Size & Industry Trends. [online] Coworkingresources.org. <https://www.coworkingresources.org/blog/key-figures-coworking-growth> (accessed 14 July 2022)
- Nichols, W. (2021) Asian Cities in Eye of Environmental Storm – Global Ranking. [online] Verisk Maplecroft. <https://www.maplecroft.com/insights/analysis/asian-cities-in-eye-of-environmental-storm-global-ranking/> (accessed 14 July 2022)