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HUMAN SETTLEMENTS AND INFORMAL SETTLER FAMILIES IN DAVAO CITY: IMPLICATIONS FOR SUSTAINABLE URBAN DEVELOPMENT

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ABSTRACT
The research examines how Informal Settler Families (ISFs) distribute across Davao City space and evaluates its impact on sustainable human settlement development. The research combines quantitative data from official government sources with qualitative insights from policy documents to determine ISF concentrations across the 11 administrative districts. The highest ISF-to-population ratios appear in Districts 1 and 2 particularly in Talomo, Poblacion, Bunawan and Agdao districts which demonstrate significant urban pressure and insufficient housing and environmental risk exposure. The rural districts of Paquibato, Marilog and Baguio demonstrate minimal ISF presence because of their limited accessibility and low land demand and economic activity. The research demonstrates that an approved Local Shelter Plan (LSP) represents an immediate necessity to execute socialized housing programs and resettlement plans and inclusive urban development strategies. The research findings offer policymakers data-based recommendations to create specific housing solutions which promote spatial equity and sustainable city development.

Keywords:
Informal Settler Families (ISF), Human Settlements, Davao City, Sustainable Development, Housing Policy

INTRODUCTION

Urbanization at a rapid pace in the world is leaving the housing shortage behind and offering unequal service access and informal settlements (UN-Habitat, 2020). The spread of urban development across different areas in developing countries results in spatial inequality because it restricts people's access to fundamental infrastructure (Angel, Parent, & Civco, 2011).

Major cities in the Philippines experience rapid population growth which exceeds the ability of local governments to build sufficient housing and provide necessary services. The combination of poor land management with insufficient low-cost housing and insecure property rights has led to the expansion of informal settlements (Ballesteros, 2010). The development of urban areas remains unbalanced because various population segments face substantial differences in receiving infrastructure and service delivery (Porio, 2014

The fast urban sprawl has resulted in the spread of informal settler families (ISFs) who are residing in dangerous and disadvantaged areas. The 2020 actual population of Davao City reached 1,776,949 while the number of households stood at 480,256 but only 400,675 housing units were occupied (PSA, 2020). The current housing shortage drives the expansion of informal settlements on the basis of these statistical analysis. The research explores the significant increase of ISFs in the 11 administrative districts and evaluates the conditions to identify the contribution to human settlements planning and social development.

The research shows on how informal settler families (ISFs) spread across Davao City's 11 administrative districts in relation to population. The research calculates ISF-to-population ratios to identify the areas with high human settlement pressure through density categorization. The analysis provides essential information for evidence-based urban planning to determine where socialized housing and infrastructure and basic services should be allocated. The research supports the development of human settlements that are inclusive and equitable and resilient while ensuring vulnerable populations receive equal opportunities in the city's growth.

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OBJECTIVES

The main purpose of this research is to study how Informal Settler Families (ISFs) are distributed throughout Davao City's 11 administrative districts based on population numbers to determine which areas face excessive human settlement pressure. The research has three main objectives which are:

- The research calculates ISF-to-population ratios to determine which districts have high, medium or low ISF densities.
- The study evaluates how informal settlements are distributed across the city and how people access housing and basic services.
- The study evaluates the current state of relocation sites and the effectiveness of current shelter programs through an assessment of their infrastructure and accessibility and social service delivery.

METHODOLOGY

The research utilized mix approached a quantitative descriptive to analyze a high concentration of human settlements in 11 administrative districts in the context of providing quantitative descriptive analysis and qualitative data on the ISFs and actual population. The research utilized different approaches to provide a holistic description of spatial inequalities and political-social determinants of settlement development.

The quantitative analysis focused on creating systematic measurements to evaluate the ISF distribution patterns across the 11 administrative districts. The qualitative approach focused on understanding policy interventions and land use constraints and community experiences to analyze complex urban development challenges (Creswell & Poth, 2018; Patton, 2015).

2.1 Research Design

The research employed a quantitative descriptive approach to examine the distribution of informal settlements throughout the 11 administrative districts. The research design allowed the measurement of ISFs numbers in relation to total population figures across each administrative district. The research aimed to detect both spatial inequalities and human settlement planning areas of concern.

Data Sources

All data were obtained from existing and publicly available documents produced by government and development institutions. These included:

- City Planning and Development Office
- Philippine Statistics Authority (PSA),
- Relevant academic and institutional publications on urban development and settlement issues.

Data Analysis

The main analytical procedure involved determining the ISF-to-population ratio for each district through the following formula:

ISF to Population Ratio = (Number of ISF/Total Population) x 100

The ratio shows what percentage of residents in each district reside in informal settlements. The ISF density classification used quantile distribution to establish thresholds which resulted in three categories: High, Medium and Low. The method enabled district comparison to analyze spatial inequality patterns which helped develop recommendations for human settlements planning.

Housing Backlog

The growing numbers of ISFs are adding to the growing shortage of Davao City housing. The main reasons for such are the insufficient number of socialized housing projects and the lack of appropriate land because of land banking by private developers (CDP, 2023). The CDP requires the development of 25 hectares of land for socialized housing and sets a target to deliver 11,678 affordable units by 2028.

Conditions of Existing Ressettlement Sites

The Comprehensive Development Plan (CDP) 2023–2028, Davao City has 95 relocation sites to address the housing needs of ISFs. These are categorized based on the city-owned, Urban Land Reform Program (ULRP), Slum Improvement and Resettlement (SIR) and City-Assisted Relocations. Despite the city's best efforts. The majority of the relocation sites are reported to lack basic infrastructure and social support facilities, such as drainage facilities, open green spaces, parks, accessible facilities for children and persons with disabilities

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(PWDs), and sustainable livelihood programs (CDP, 2023). The absence of these basic elements most frequently results in beneficiaries abandoning the sites, which subsequently causes the re-emergence of informal settlements in the city.

Category of Relocation Site	Number of Sites
City-Owned	14
Urban Land Reform Program (ULRP)	62
Slum Improvement and Resettlement (SIR)	6
City-Assisted Relocations	3
Total	**95**

Source: Comprehensive Development Plan 20223-2028
Table 1 Existing Relocation Sites

To assess the pressure on urban development and service provision, the ISF-to-population ratios for each district were calculated and used to classify settlement pressure levels. The classification used tertile ranges to identify High, Medium, and Low-density areas. Districts with the highest ISF-to-population ratios were interpreted as areas facing more critical social development challenges, such as housing insecurity, service access gaps, and spatial inequality.

District	No. of ISF	Population
District 1		
Poblacion District	10,501	173,896
Talomo District	26,850	444,833
District 2		
Agdao District	4,619	98,891
Buhangin District	6,597	310,094
Bunawan District	9,535	172,327
Paquibato District	22	52,846
District 3		
Bagauio District	20	38,919
Calinan District	1,403	102,485
Marilog District	114	61,005
Toril District	5,719	171,032
Tugbok District	2,857	150,621

Source: Intelligent Community-Based Monitoring System (ICBMS-CPDO)
Table 2. ISF and Population by District in Davao City

RESULTS AND DISCUSSION

The research data shows that Davao City has 68,237 Informal Settler Families (ISFs) who make up 3.84% of its total population of 1,776,949. The spatial analysis indicates substantial spatial discrepancies between districts which stem from urbanization levels and land use enforcement and housing availability differences.

The district of District 1 shows the highest numbers of ISFs both absolutely and relatively. The ISF population ratio in Talomo District and Poblacion District reaches 6.04% which means that 1 in every 17 residents' lives in informal housing conditions. The CDP situational analysis shows that Talomo and Poblacion exhibit "increasing population density and constrained developable land and informal housing clusters that form along coastal and riverine and road right-of-way areas" according to the 2023–2028 Sectoral Development Plan: Social Sector.

District 2 ISF trend demonstrates diverse trends in its districts. The proportion of the Bunawan District is 5.53% and that of the Agdao District is 4.67%. The aforementioned districts suffer from "coastal vulnerabilities and high exposure to informal coastal communities" as per the CDP 2023-2028 document. The Problem-Solution-Finding (PSF) Matrix classifies these districts under the problem "inadequate access to affordable and secure housing" which mainly affects areas that experience flooding and lie near public facilities. Buhangin experiences high

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population numbers but its ISF ratio reaches only 2.13% because zoning and housing standards receive strict enforcement.

The 22 Informal Settler Families (ISFs) in Paquibato District are the sole ones in this district as it is predominantly rural and forested. The CDP asserts that "upland and remote barangays have few informal settlement problems because they are hard to reach and lack urban attraction" as cited by the Land Use Assessment section of the CDP 2023-2028.

The three rural areas within District 3 show the lowest ISF densities because Bagui-o has 0.05%, Marilog has 0.19% and Calinan has 1.37% which are all lower than the city average. Among the District 3 areas Toril District presents the highest number of 5,719 ISFs which corresponds to 3.34%. PSF Matrix determines that these districts have low ISF rates due to "low in-migration rates and no commercial activity and continuous agricultural preservation activities."

The very high ISF density in District 1 and parts of District 2 are indicative of informal urbanization trends as a result of uncontrolled migration and uncontrolled land use and housing shortage these as the priority areas for resettlement schemes and in-city housing and enhanced informal community development.

The Problem-Solution-Finding Matrix highlights key issues:

- Problem: Proliferation of informal settlements in danger zones and government properties
- Root Cause: High cost of formal housing and lack of access to socialized housing programs
- Proposed Solution: Implement community-driven shelter planning, strengthen enforcement of zoning ordinances, and allocate idle government land for ISF resettlement

The strategies need to focus on Talomo, Poblacion, Bunawan and Agdao because these districts display the most critical ISF-to-population ratios. Shelter programs need to follow an inclusive urban planning approach that connects housing opportunities with both economic development and environmental protection according to the CDP. The resettlement plans need to provide shelter combined with socioeconomic integration measures to stop informal housing developments from moving back into forbidden zones.
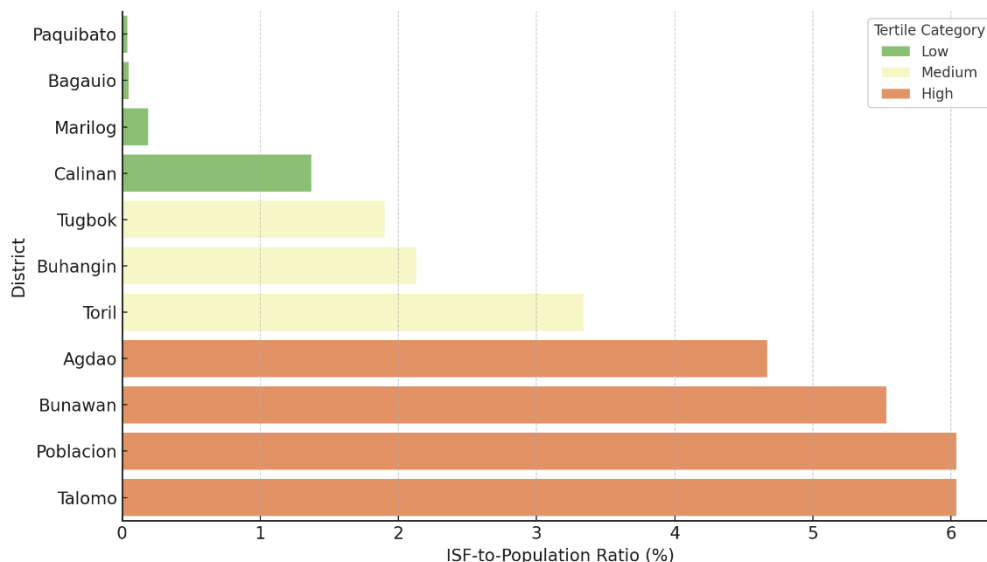

Figure 1 Tertile Classification of ISF-to-Population Ratios by District in Davao City

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CONCLUSION

Davao City ISFs' spatial pattern analysis creates critical urban conditions because Districts 1 and 2 are already past the urban benchmark of the 5% ISF-population ratio with 5% and above. The districts are also strained because of the exponential growth of its population in addition to insufficient housing facilities as well as limited access to safe and affordable settlements. The current situation drives informal settlements to multiply in risky areas with poor service delivery which threatens urban resilience and environmental safety alongside inclusive development.

Rural areas like Paquibato, Marilog and Baguio show little evidence of ISF settlements because their accessibility and land demand and economic activities create spatial differences. The Comprehensive Development Plan (CDP) and Problem-Solution-Finding (PSF) Matrix has identified root causes and potential solutions but the Local Shelter Plan (LSP) remains without approval. Without an approved policy to guide policy Davao City struggles to connect its budget with land acquisition and program implementation for housing and resettlement.

The research demonstrates that ISF challenges need solutions through combined efforts of data-based planning with institutional partnerships and community participation. The research results provide important data for planners together with policymakers and local government units who want to develop cities that fulfill national targets and achieve SDG 11.

The following recommendations serve as a guide for sustainable human settlements planning in Davao City based on the research findings and analysis:

- The approval process of Local Shelter Plan (LSP) should receive top priority
- The LSP serves as a fundamental requirement for matching housing programs with available funding and urban development and land use planning goals.
- The city should expand its In-City Socialized Housing Programs by concentrating on Talomo and Poblacion and Bunawan and Agdao districts to build well-serviced accessible in-city housing solutions.
- The planning process should incorporate Geographic Information Systems (GIS) to create maps of ISF locations which will improve zoning decisions and hazard mapping and resettlement planning.
- The shelter planning process must include ISF participation to guarantee that relocation sites fulfill all beneficiary requirements for social and economic and environmental needs.
- The rate of site abandonment will decrease when basic infrastructure including drainage systems and road access and green spaces and facilities for children and people with disabilities are improved in existing relocation sites.
- The planning process should address the specific requirements of vulnerable populations by including gender and age and disability perspectives to create people-centered inclusive solutions.

REFERENCES

[1] Angel, S., Parent, J., & Civco, D. L. (2012). The fragmentation of urban landscapes: Global evidence of a key attribute of the spatial structure of cities, 1990–2000. *Environment & Urbanization, 24*(1), 249–283. https://doi.org/10.1177/0956247811433536

[2] Ballesteros, M. M. (2010). *Linking poverty and the environment: Evidence from slums in Philippine cities* (Discussion Paper No. DP 2010-33). Philippine Institute for Development Studies. https://ideas.repec.org/p/phd/dpaper/dp_2010-33.html

[3] Davao City Planning and Development Office. (2022). *Comprehensive Land Use Plan 2019–2028*. City Government of Davao. HLURB. (2017). *National Urban Development and Housing Framework (2017–2022)*. Housing and Land Use Regulatory Board.

[4] Davao City Planning and Development Office. (2024). *Comprehensive Development Plan (2023-2028)*. City Government of Davao

[5] Laguerta, M. F., & Ramos, J. P. (2021). Informal Settlements and Risk Exposure in Davao City. *Journal of Philippine Urban Studies*, 8(1), 45–62.

[6] National Economic and Development Authority. (2023). *Philippine Development Plan 2023–2028*.

[7] Porio, E. (2014). Climate change vulnerability and adaptation in Metro Manila: Challenging governance and human security needs of urban poor communities. *Asian Journal of Social Science*, 42(1–2), 75–102. https://doi.org/10.1163/15685314-04201006

[8] UN-Habitat. (2020). *World Cities Report 2020: The Value of Sustainable Urbanization*. United Nations Human Settlements Programme.

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International Journal of Engineering Technology Research & Management
Published By:
https://www.ijetrm.com/

[9] United Nations. (2015). *Transforming our world: The 2030 Agenda for Sustainable Development*. https://sdgs.un.org/2030agenda

[10] Asian Development Bank. (2021). *Urban development outlook: Strengthening inclusive cities in Asia and the Pacific*. https://www.adb.org/publications

[11] Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). SAGE Publications.

[12] Department of Human Settlements and Urban Development [DHSUD]. (2023). *State of the Philippine human settlements 2023 report*. https://www.dhsud.gov.ph

[13] Patton, M. Q. (2015). *Qualitative research & evaluation methods: Integrating theory and practice* (4th ed.). SAGE Publications.

[14] United Nations Human Settlements Programme [UN-Habitat]. (2022). *World cities report 2022: Envisaging the future of cities*. https://unhabitat.org