

Spatial Utilization in Informal Settlements

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Abstract

This paper looked into the nature of spatial utilization in informal settlements. A survey of two informal housing settlements with contrasting locations was conducted to determine the way space is 'utilized' in relation to the geographical and demographic characteristics of the localities. Preliminary results of this initial study show that considerable differences indeed are manifest, altogether obvious though, coming as it should from the effects of geographic & economic factors involved. But the informal settlers' utilization of the spatial elements of the house shows a number of things more. Among others, it points to a common tendency among informal settlers to rationalize and to rise above geographic and demographic limitations, such that the resultant spaces being created are manifestations of an attempt to privacy, organization and utility –however crude these might be.

Keywords: Informal settlements, spatial elements, spatial utilization.

Background

The Philippines is bedeviled by a perennial housing problem. Continuous high population growth and economic crisis compounded by other equally debilitating factors contribute to the inadequacy of housing. Every year, housing backlog is increasing adding to the already mounting deficiencies. Despite the odds however, people find ways to provide themselves with shelter, most often regardless of location and the propriety of laws governing ownership and use of land. As a result, informal settlements nowadays appear to become an inevitable component of most communities and a pervasive element in the urban fabric.

The formulation of a structured solution to the housing problem may require both a comprehensive and intensive study to understand the underlying factors that characterize it. One aspect however, which could be of enormous interest to many is the nature of spatial utilization in informal settlements. How do informal settlers make, organize, render, use, or lay out spaces? Would there be significant differences or similarities on how spatial planning elements in informal settlement houses are determined, organized and utilized by residents who have perhaps little knowledge of formal design or planning, and whose only claim to practice is that there is a necessity for space - a need for shelter over their heads? How do the varying geographical features of the site as well as its

demographic condition bear on the nature of spatial utilization?

This fundamental study, being part of a larger research project in Housing, addressed this issue with the aim of clarifying and understanding the nature of informal settlements.

Scope and Method of Study

A survey was conducted in 2 informal settlements located at (a) 500 meter radius from Burnham Park in Baguio City (Figure 1) and (b) within 500 meter radius of Lapu-Lapu Shrine in Barrio Mactan, Lapu-Lapu City (Figure 2).

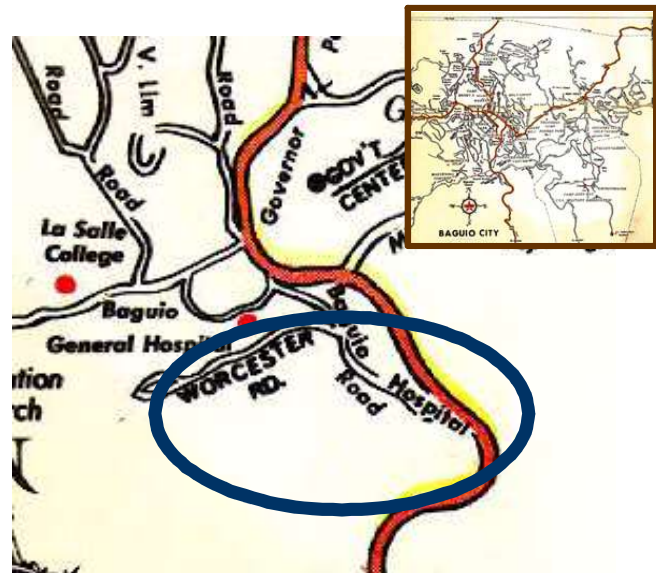


Figure 1 - Location of Surveyed Area with Inset Map of Baguio City

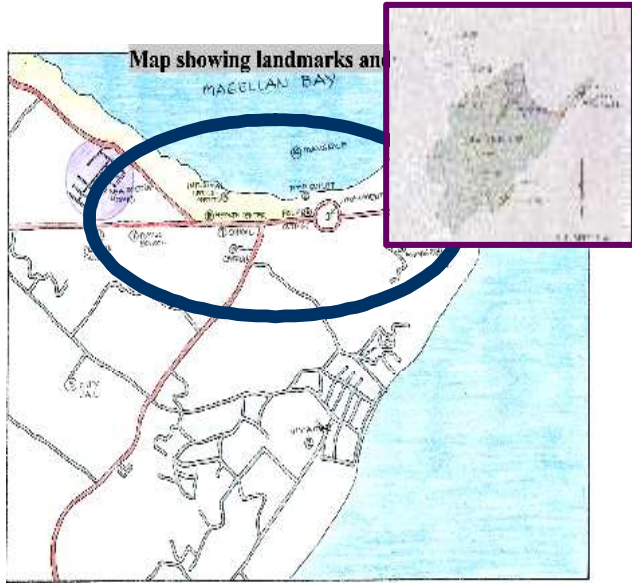


Figure 2 - Location of Surveyed Area with Inset Map of Mactan, Lapu-lapu City

Two contrasting locations were chosen to test the notion that spatial utilization in informal settlements does not vary greatly despite contrasting geographic and demographic characteristics.

The geographical character of the sites was documented through field investigation employing among other things actual measurements, mapping, photographs, taking into account key physical features and the size and type of roads and path arteries. The spatial elements of selected houses were also recorded via this method. Initially, 20 informal houses in each of the 2 sites were chosen as subjects. Personal interviews and interaction with the residents elucidated demographic data that include among others the number of family members, income, and types of occupancy.

Cross analyses of the data obtained from the 2 housing sites attempted to draw out patterns, inclinations, or trends that will lead to a better understanding of the nature of spatial utilization in informal settlements.

Data Presentation: Findings and Analysis

Geographical Features and Its Bearing On Spatial Utilization

Table 1 summarizes the contrasting features of the two sites. Comparison of the two surveyed areas reveals a notable difference in the average length, width, and configuration of road or path arteries.

Category		Baguio	Lapu-lapu	
Soil Type		Clay	Limestone	
Average Temperature		16 24 °C	24 32°C	
Road/Path Artery Classification	Major	Width	10 m.	8 m.
		Length	44 km.	19.6 km.
	Secondary	Width	6 m.	5 m.
		Length	2.8 km.	1.1 km.
	Foot Path	Width	0.70 m.	1.0 m.
		Length	180 m.	158 m.
Average Change in Elevation/100 m.		33.33 %	0.30%	

Table 1 – Profile of the 2 sites

Figures 3 & 4 show the location, orientation, and adjacency to road or path arteries of surveyed houses in Baguio City and Lapu-lapu City, respectively.

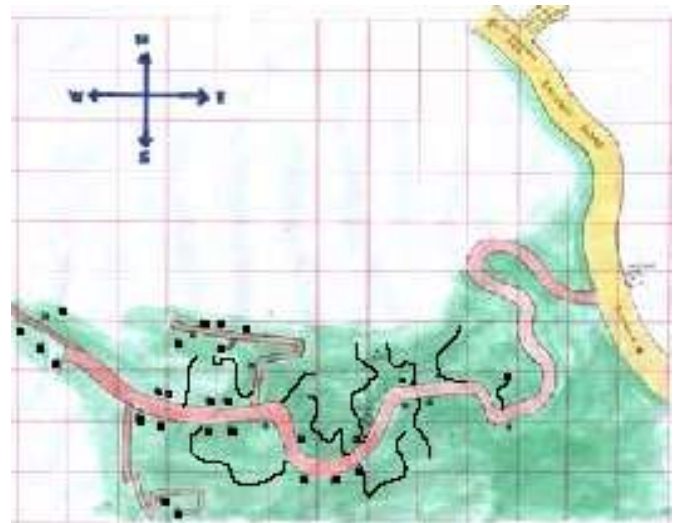


Figure 3 - Surveyed area in Baguio City

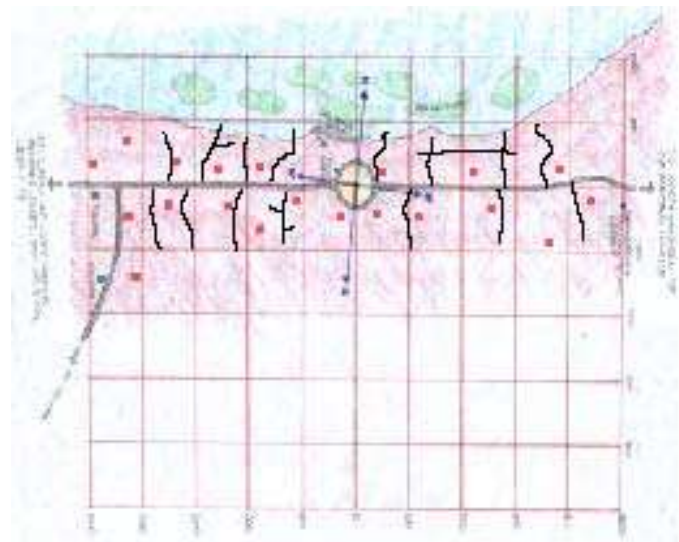


Figure 4 - Surveyed area in Lapu-lapu City

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A closer look at **Tables 1 & 2** (Road/Path Artery) (Orientation) in conjunction with **Figures 3 & 4** will indicate a tendency of orientation or location of houses in a rather variety of ways. This is because of the indiscriminate way also that the path arteriesⁱⁱ (where informal houses normally line along) are curved out from the major access road. This holds true particularly in Baguio City. The case of Lapu-lapu City indicates a tendency for houses to be oriented a little bit uniformly, incidentally because the path arteries stem almost uniformly perpendicular to the main access road.

The type of terrain where the houses stand can be classified into four (4) based on the ranges of percentage of slope and elevation, as illustrated by **Figures 5 & 6**.

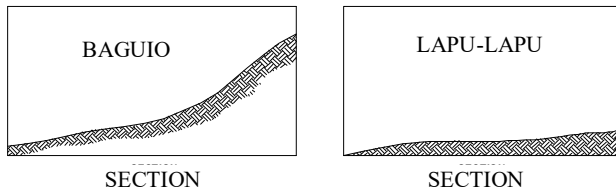


Figure 5 - Comparative Sections of the Sites

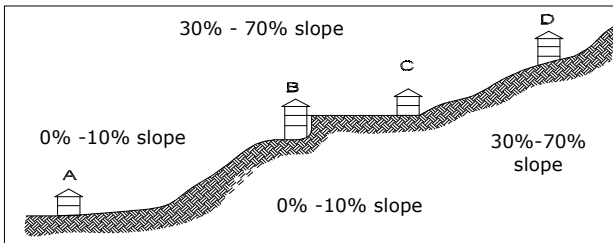


Figure 6 - House Classification Based on Terrain

Type A refers to a house located on a relatively flat terrain that runs generally through the whole of the informal settlement area ranging from 0% to 10% slope. **Type B** house is located on an area with 30% to 70% slope but the lot, being the footprint of the house, is a flattened area. **Type C** is located on a plateau type area (0% to 10% slope) within a 30% to 70% sloped terrain. **Type D** is one whose terrain (30% to 70% slope) is maintained and followed by the configuration of the house (**Figure 6**).

Figure 7 compares the surveyed areas in relation to the four types of houses previously identified. It shows that 100 percent of subject houses in Lapu-lapu City are under **Type A** classification while those in Baguio City are distributed among the **B, C, and D** types, emphasizing the stark geographical contrast between the two informal settlements.

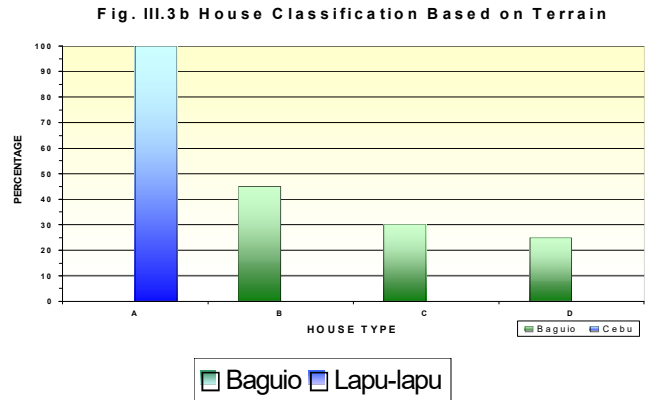


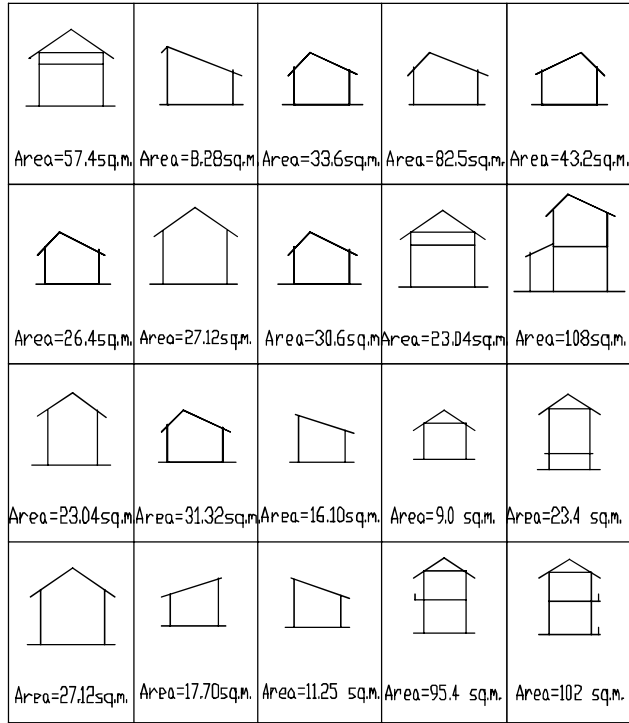
Figure 7 - Comparative House Classification

CATEGORY		Baguio	Lapu-lapu
House footprint	Maximum	66 sq.m.	60sq.m.
	Minimum	22 sq.m.	8.28 sq.m.
House Area	Maximum	162 sq.m.	108 sq.m.
	Minimum	22 sq.m.	8.28 sq.m.
Orientation	North	35%	60%
	East	30%	20%
	West	5%	5%
	South	30%	15%
Material	Light Indigenous	10%	15%
	Wood/Bamboo	0%	45%
	Combined Wood, Concrete & G.I.	40%	35%
	Concrete and Steel	50%	5%

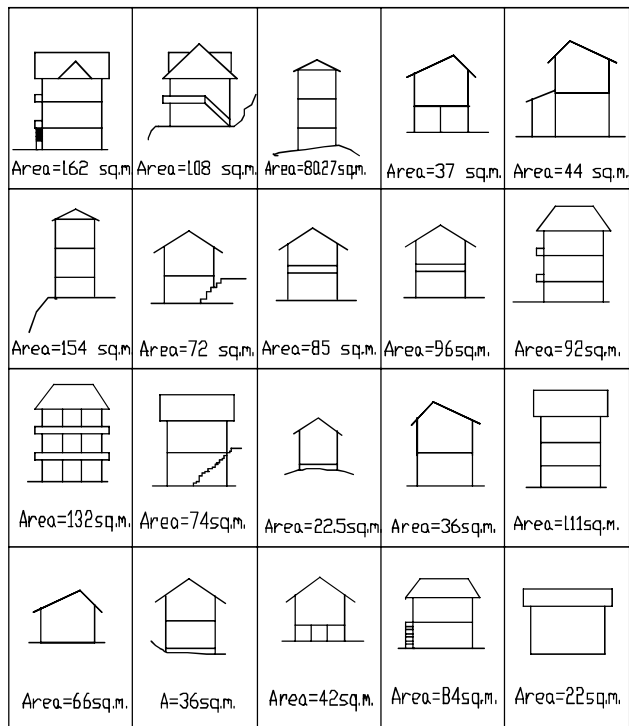
Table 2 - Profile of Houses

Table 2 shows the floor area and materials of construction profiles of the houses in the two settlements. While noticeable is the big difference in the use of materials of construction of the houses, a deeper look will show that interestingly, the houses did not vary greatly in terms of maximum house footprint although differing considerably in the minimum house footprint and in both their maximum and minimum floor areas.

Vertical expansion, resulting in a greater number of floors (and therefore the total floor area), as a consequence of the geographical character of the terrain, explains the tendency of the houses in Baguio City to be of larger floor area (**Figure 8**). Lapu-lapu City has higher density of houses than Baguio City as shown in **Table 3**. This to some extent limited the range of the house footprints. Given this condition, Lapu-lapu City houses could have followed the path of those in Baguio City, i.e., its houses expanding vertically also. But it did not turn out that way, as shown by the data. Other factors may have come into play here and as the next section will indicate, the economic conditions of the settlers in large measure bear influence on the nature of spatial utilization too.



Lapu-lapu City



Baguio City

Figure 8 - Vertical Profile of Houses

Figure 9 compares the spacesⁱⁱⁱ found in the surveyed houses, showing that not so much variation exists in the types of spaces identified in both settlements except for the provision of *attic area* found in those of Baguio City, which obviously is a direct offshoot of its distinct climatic condition.

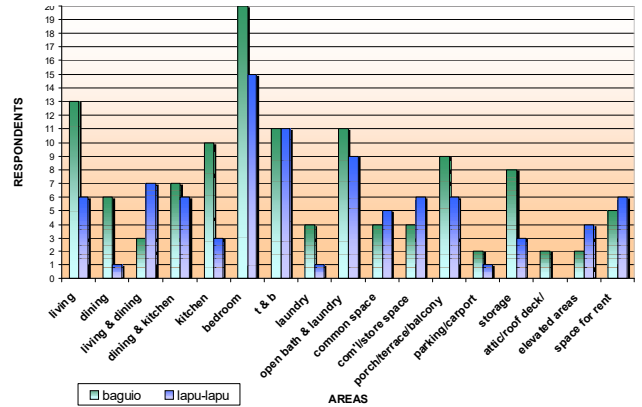


Figure 9 – Spaces in Surveyed Houses

But noticeable is the higher incidence^{iv} of space used as a combined living-dining area particularly in the case of Lapu-lapu City. This feature, taken together with that of the low incidence of living, dining and kitchen as *distinct*^v spaces, arises from the fact that the Lapu-lapu City informal settlement is of lower economic level compared to that of Baguio City (Table 3).

There is a clear intention here on the part of the informal settlers, especially those belonging to lower income brackets identified in Table 3, to rationalize in the way spaces are made and utilized. Combining dining and living functions in one small space is an obvious attempt to maximize utility, characteristic of informal housing where dwellers usually 'pack up' different functions within one spatial element. It is not uncommon to find in depressed areas houses of one very limited space serving the functions of living, bedroom, kitchen and dining, bath and toilet, etc., all rolled into one. And this applies to both Baguio City and Lapu-lapu City, which have settlers of less economic means who cannot afford to have decent housing of their own.

The organization of spaces as affected by the physical conditions of the site is further illustrated in Figure 10. Such is clearly exhibited on the location of the main entry that depends on the type of terrain (Figure 6) and orientation to path arteries (Figures 3 & 4) of surveyed houses.

As shown, the locations of the main entry of surveyed houses in Lapu-lapu City are generally on the ground level as an effect of the flat terrain of the area. It follows that second level areas are usually allotted for private spaces such as bedrooms while the living spaces remain in the ground floor area.

Comparatively, 55 percent of houses in Baguio City have main entry located on the second floor level. Such houses are usually classified under Type B (Figures 6 & 7) whose access to path arteries is also on the level of the second floor. This

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type maintains living areas on the second floor level. Bedrooms then tend to be located in either the ground or upper floor levels.

Another 30 percent of respondents in Baguio City have main entry located on the ground floor. Type C houses (Fig. 6) have these characteristics. This classification is similar to those of Lapu-lapu City. It follows a similar upward direction in the organization of private spaces.

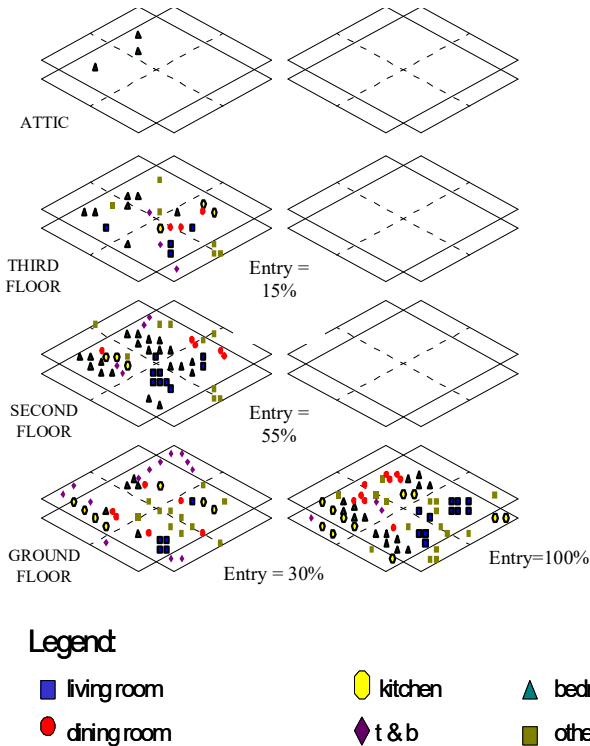


Figure 10 - Organization of Spaces per Floor Level

The remaining 15 percent have main entry on the third floor and spaces are organized such that living areas are located on the third floor and bedrooms are located downward on lower floor levels. *Type D* houses (Fig. 6) are mostly in this category.

In both settlements, regardless of the house types identified in Figure 6 but belonging to higher income bracket identified in Table 3, living areas are grouped or located in the same floor levels and private areas such as bedrooms occupy a particular level or are located farther from the main entry. Furthermore, living areas also follow the location of the main entry, which is usually oriented toward the nearest path artery.

The relatively flat terrain in Lapu-lapu City demonstrates a single upward direction of the composition of spaces. While in Baguio City, this tends to vary in both upward and downward directions from the point of the main entry where the house connects to the path artery.

As has been demonstrated, the difference in the organization of spaces in the two settlements is apparently attributed primarily to the geographical conditions of the sites. But regardless of geographic or physical influences however, it becomes evident that settlers, in particular depending on economic level, demonstrate a somewhat unwritten rule being followed in how the internal spatial elements of the house are made and organized. This is seen in the way the living spaces and the private spaces such as bedrooms are placed with observable segregation, albeit in a rationalized, (and in rather) rudimentary way.

Clearly, this can be considered a strong demonstration of how the concept of privacy is inherent to all people regardless of the absence of practical training in architecture and design in them.

Demographic Features and Its Bearing on Spatial Utilization

Category		Baguio	Lapu-lapu
Density per 1,000 sq.m.		9.0	15.72
No. of Family Members	1-4 members	40%	30%
	5-8 members	35%	60%
	8 above	25%	5%
Income Bracket	Below P3,000	35%	40%
	P3,001 – P10,000	40%	20%
	P10,001 – P15,000	20%	25%
	P15,001 Above	5%	15%
Type of occupancy	Single Family	40%	40%
	Extended Family	60%	60%

Table 3 - Demographic Profile

The density of houses in Lapu-lapu City is 40 percent greater than in Baguio City as shown in Table 3, apparently brought about partly by its mountainous condition. Shown also are statistics on the number of family members as well as income levels indicating considerable differences between the two settlements. Based on the figures of family size and income, Lapu-lapu City settlement is of lower economic level than that of Baguio City.

Figure 11 shows the status of occupancy in both informal settlements. In Lapu-lapu City, 50% are house and lot owners, 25% are renting the lot, 20% are squatters and only 5% are renting the house and lot. While in Baguio City, 60% are house and lot owners and 15% are renting house and lot, 15% are renting the lot and 15% are squatters.

It is shown that both informal settlements have dwellers falling under the category of squatters^{vi}. These are households who do not have tenure on the lot they occupy. As the survey data show, this type of dwellers belongs to the low-income bracket of the population. Close investigation of

the houses they built, both in Baguio City and Lapu-lapu City, shows that mostly, these are those with small house footprints and limited floor areas. Further, these houses are those exhibiting multiplicity of functions per spatial element basis.

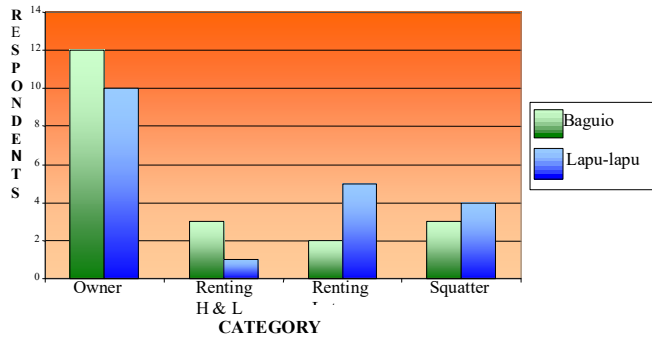


Figure 11 - Occupancy Status

Looking back at Figure 9 now (*Spaces in Surveyed Houses*), and relating its contents with those of Table 3 (*Demographic Profile*) and Figure 11 (*Occupancy Status*), it is noticeable that some types of space have very low incidence, especially in the case of Lapu-lapu City, indicating that there are houses with limited spatial provisions that even the very basic bedroom is not existing as a *distinct* functional space. As already indicated, dwellers with less in life tend to rationalize their utilization of space too such that the simple floor area of the house ends up as a virtual staging arena where multiplicity of functions takes place. The economic factor which is at work here in fact, cannot be overemphasized as a non-physical determinant of spatial utilization.

Figures 12 & 13 look at the need^{vii} for additional space in relation to income level of households. It is evident that dwellers in Lapu-lapu City, particularly those belonging to an income level of Php 3,000 & below, have need for more spaces than those of Baguio City who have the same income bracket.

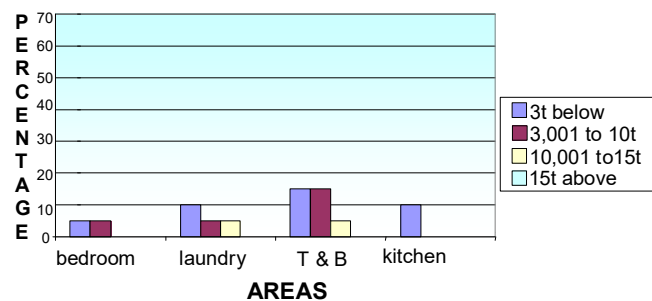


Figure 12 - Need for Additional Space in Relation to Income Bracket (Baguio City)

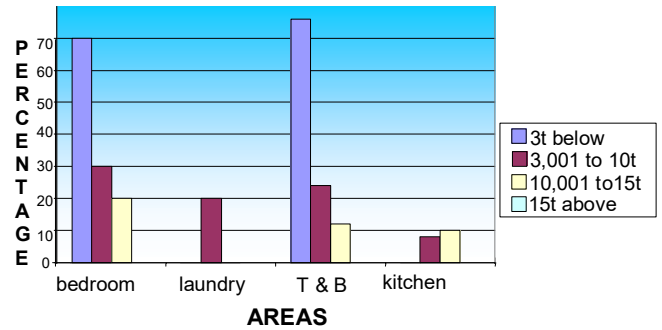


Figure 13 - Need for Additional Space in Relation to Income Bracket (Lapu-lapu City)

There appears to be a glaring discrepancy and perhaps there are varied factors that are coming into play here. The context from which the two different settlers responded to the query may not at all be discernible at this point. It could be economics exerting more bearing over the respondents than its geographic counterpart, or vice versa. Or it maybe that the point at hand is yet beyond the domain of this initial study to resolve. Whatever the case may be, it is apparent that spatial utilization is indeed a multifaceted front in the study of informal settlements and should be further pursued. The on-going research project intends to carry on with this daunting task.

Conclusion and Recommendation

Spatial utilization is analyzed in this paper through an investigation of two different urban informal settlements with contrasting geographic and demographic characteristics.

The findings reveal considerable differences in the way informal settlers create, organize and utilize the spaces of the house - primarily an obvious manifestation of the influences geographic and demographic limitations can have on particular people and places. As shown, such differences can be observed in things tangible like orientation, the internal organization of spatial elements, or even the functional nature of the spaces themselves.

But as used in this study, spatial utilization denotes not only actions that require corresponding physical manifestation in the house or space. It also carries with it the idea of intangible display of action the informal settlers can have vis-à-vis the space, or the spatial elements of the house.

The study shows that regardless of geographic and demographic conditions, informal settlers can be unanimous in certain aspects of spatial utilization. In this regard, they will rise above economic and physical limitations and will reflect no great variations in their attempt to achieve privacy, organization and utility in their

quest for space. This becomes apparent even in the absence of formal training in design and architecture, and regardless of how crude the resultant space can be.

The study is still in its initial stage. Further attempt should be done to deepen the consideration of varied factors dealing with spatial utilization. The scope and the subject households shall be enlarged further to enable the derivation of patterns or trends that would establish clear and accurate understanding of informal settlements. The mechanics of analysis advanced in this study can be reconsidered, overhauled if necessary, so that in the end a more binding description of spatial utilization is achieved.

Endnotes

ⁱ Spatial utilization, as used in this study, is how the residents make, create, organize, build, render, compose, lay out, use or utilize the spatial elements of the house. No existing single vocabulary encapsulates all these actions in one word. It can be all, or one of the actions, or group of these, that may manifest either the intangible or tangible resultant space.

ⁱⁱ Path arteries are informal footpath corridors or small irregular alleys usually originating from a major road access found in informal settlements and on which houses usually line along.

ⁱⁱⁱ These are the spatial planning elements such as bedroom, kitchen, dining, living, toilet, etc. which are common spaces found in a house.

^{iv} This denotes frequency, value, or amount achieved by an item under consideration, e.g., number of bedroom space identified from the survey, etc.

^v This means that the space is a distinct, identifiable area representing a particular function and not in combination with other uses.

^{vi} It does not necessarily follow that squatters are low-income earners. Many of this type of settlers in urban areas are known to be well off and in fact termed as professional squatters. Recently, questioned about its political

correctness, the word is accused of having derogatory meaning. The use of the word in this study however, should have nothing of that sort.

^{vii} Household respondents were surveyed as to what other spaces in the house they need.

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