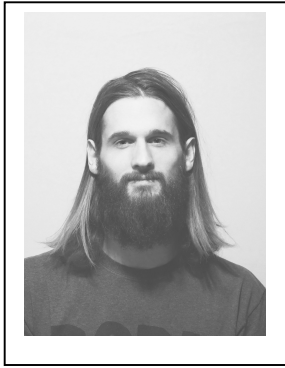# Horizontal living in vertical buildings

How ground-dwelling communities can thrive in high-rise buildings

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1 Introduction

The question of urban shelter in a global scale has been left unattended for a long time, but becomes more and more important, as the percentage of slum dwellers of the urban population grows – making up over half of the total population of some cities (Correa, 1987). Among the migrants to cities are many who due to high land prices and unstable livelihood conditions are forced to live in informal settlements (Moreno, et al., 2016). Many have also lived in informal settlements for long periods or even their whole lives and have not known any other way of living. As central areas of the city are gradually developed, informal communities are forced out of their homes to the peripheries.

This paper will examine the ingredients that tie local communities together and contribute to the functioning of a community in a ground-based settlement. It will give an outlook as to how these communities can be moved into appropriate urban dwellings while keeping a high residential density. The paper will also examine the key factors of a community upkeeping its structure in a vertical form of settlement in a high-rise building and compile thoughts about possible improvements of the new settlement typology. Finally, there will be a collection of thoughts about the role of the architect regarding human shelter for the urban poor.

2 Literature Review

2.1 The Informal Community

When researching about why a community functions the way it does, we have to consider many factors, that shape the way of living together. Among those factors, some are more crucial to defining the community than others. Any community, which dwells in a settlement, over time develops a sense of identity connected to the place. The theory of 'place-identity' assumes that the location and architectural features of the residential area define the residents' environmental relationships (Speller, et al., 2002). According to Harold M. Proshansky, place-identity is "those dimensions of self that define the individual's personal identity in relation to the physical environment by means of a complex pattern of conscious and unconscious ideas, beliefs [...] and behavioural tendencies and skills relevant to this environment" (Proshansky, 1978). Furthermore, Miriam Billig points out that physical environment and housing type may have a prominent effect on the preservation of community structure and community members place-identity (Billig, 2014). When analysing a community, which is supposed to be transferred into a different spatial environment from what it was before, the place-identity and the functioning of the person within this system has to be considered.

Connected to the place-identity is the circulation-method in a ground-level community, which - in case of most informal settlements - can mostly function without cars. Billig states that "practical, daily chores like hanging up laundry, gardening and yard work or watching over small children in the garden were something of a public affair; each task of this type was a possible opportunity to converse with neighbours or to make eye contact with passing guests and invite them in for a visit (Billig, 2014). Combined with the option of meeting in shared spaces like community centers or religious facilities, this 'horizontality' creates the possibility of frequent eye contact and promotes forming of a community between the residents. Moreover, clearly defined borders and distinct spatial characteristics of the settlement seem to strengthen a sense of ownership:

> "The settlement gate surrounded and defined the
> public space and imparted a sense of belongingness
> and responsibility to the residents in regard to the

space. Walking in the public space invited frequent
inter-personal contact among the residents and con-
tributed towards strengthening social relationships and
a sense of both belongingness and identification among
community members" (Billig, 2014).

2.2 The High-Rise

There are specific characteristics, which are connected to living in high-rise
typology, which various authors have focussed on earlier. The research Jean
Conway and Barbara Adams published in 1977 shows that density itself does not
seem to have a great impact on the satisfaction levels of the residents. Instead, it
becomes clear that "the physical attractiveness of the estate has a large influence
upon residents' general satisfaction."

However, high-rise living may be more suitable for some resident groups than for
others. "Studies in Holland and North America have concluded, that high-rise
living is really suitable for middle- and high-income groups" since they "are able
to compensate in a variety of ways not open to the poor. They get away for
vacations, send the kids to recreation clubs." Research shows that "families with
young children living off the ground experience severe problems". Those
problems are "closely related to the age of the children." Mothers report the "lack
of play opportunities, the strain of having to watch the children all the time and
the bad effects on the children of having to be indoors." Furthermore, "The
National Council of Women's report on life in high blocks pinpointed the
isolation of young mothers who were flat bound […] and also pointed out noise
problems associated with being flat bound with children."

General advantages of living off the ground contain the brightness and easy
manageability of the apartment. The residents also feel the air is fresher and
cleaner up high. Lack of noise and interesting views provide a source of
satisfaction as well as privacy, which in extreme extents is though also linked with
loneliness (Conway & Adams, 1977).

A big issue in high-density developments is the damage to the property in acts of
vandalism. In a study, the us-american architect Oscar Newman suggests that "the
lack of semi-private spaces in high-rise buildings […] means there is no neutral

zone between completely public areas and the privacy of the dwelling. Hence, all approaches to the dwellings are public and open to-and used by-anyone. Because they are public, residents do not have any territorial feelings towards those areas and do not 'supervise' them." The solution Newman then developed pointed to "dividing up the public area in such way that individuals feel responsible for their own part" (Conway & Adams, 1977).

2.3 Adaption to the new settlement

When examining the issues and problems concerning the adaption of a community to a high-rise building, Billig describes the adaption of a formerly ground-based community to the high-rise building as particularly difficult with regards to the public spaces. Those spaces were not clearly defined which led to a "blurring of the community's borders, making it difficult for people to engage in direct eye contact with other community members". Additionally, with the new settlement and its available spaces, some members of the community underwent drastic changes in livelihood patterns. Whilst before the move they had been farmers utilizing the land and keeping domestic animals, now they could not continue working in this profession hence the new urban environment (Billig, 2014).

In Singapore, since the 1970s the 'void-deck' has been a space for communal interaction beneath the towers, defined by the structural columns from above. Since upper level residents will be more and more disconnected from ground-level activities as high-rise buildings become higher and higher, the Singaporean Housing Development Board (HDB) introduced sky gardens. Connecting the seven towers of the project, the sky gardens run between the buildings on the 26th as well as the 50th floor, of which the latter is also open to the public. These 'social spaces' are separated into different areas catering to different user groups (community center, elderly fitness area, children's playground etc.) and are generally much appreciated. Though, due to "fear of anti-social behaviour, explicitly in the vertical realm […] stringent governing rules of otherwise dramatic, generous urban spaces" have fuelled "feelings of frustration and contested ownership among the resident" (Hadi, et al., 2017). In conclusion, less regulated social spaces give the residents more liberty to appropriate them.

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3 Discussion

From the previously examined literature and from experiences accumulated during the field trip to Manila, I developed a hypothesis, which I will verify in the following by examining arguments for and against it:

> High affordability, sanitariness and general appropriateness of the scale in central metropolitan regions leads to high-rise being a suitable typology for settling of informal communities in central areas.

3.1 Counterarguments

As seen before from literature analysis, high-rise living is not suitable for families with young children due to different factors. During the visits to several informal settlements in the National Capital Region (NCR) of the Philippines, it became obvious that virtually every family has at least three children, which makes them part of this user group. Among the issues this group faces are the disconnection from ground-level playing opportunities for children, which results in them, being bound to their units or stories in greater extents. As pointed out by Conway & Adams beforehand, the presence and play of children in buildings contribute to stress, noise levels and deterioration of the building. The stay-at-home-parents, in this case mostly the mothers, become flat-bound in order to watch over the children and are subject to a greater amount of isolation compared to watching over the children in the community.

Another issue contributing to social isolation is the way circulation functions in most high-rise buildings. Anonymous, long internal corridors and vertical connections by elevators do not encourage social interactions between residents and contribute to a clear separation in private and public spaces, which are shared with a group of unbeknownst other residents. This results in no appropriation and caretaking over those spaces by the residents (Conway & Adams, 1977). In addition, the anonymity of a building with unfamiliar residents leads to focussing on and retreating to the private unit since the public space seems unsafe. This

vicious circle of user-devoid public spaces and retreat to the private does not encourage more social interaction and can thus not be broken (Billig, 2014).

It should also be noted that the way of life, which many inhabitants of informal settlements lead cannot be sustained in a high-rise building without direct connection to ground level outdoor spaces. For many of those residents, the keeping of domestic animals like chicken presents a natural additional source of food and income, which can easily be supervised by a stay-at-home parent. For some, urban farming might also be a possible source of food. Both of those activities are much harder to carry out in or around a high-rise building. Outdoor spaces like balconies or corridors which are attached to the private space are most likely not suitable for those uses. In other public spaces within or around the building such activities might conflict with other uses of these spaces.

Lastly, living in a high-rise building presents a stark contrast to the own house often mentioned as part of the 'Filipino Dream' by low-income citizens. Part of this dream is inhabiting an own house with a piece of land around it. While the author respects and understands this wish, the reality in the NCR and especially the high density makes it virtually impossible to bring this dream to reality for the urban poor. Accepting the reality of a higher suitability of living in a housing unit could possibly improve the process of settling down in an apartment building.

3.2 Arguments

Informal settlements in urban central areas are mostly built on leftover lots on which the residents do not have legal titles and which have not been developed by the owner yet. As the pressure on the real estate and housing market increases and the prices for central pieces of land rise, selling those lots becomes more lucrative for owners. On the other side, the developers need to build a high number of housing units in order to render the project viable, mostly resulting in the construction of high-rise buildings. The former residents of the site are most likely not able to afford those housing units and are thus forced to the periphery of the city or other informal settlements.

In the Philippines, the National Housing Authority (NHA) mostly constructs low- or medium-rise buildings to avoid having to implement costly technical solutions such as elevators. The achieved density and financial power of the prospective residents is often not high enough to carry the project out in a central location, resulting in a separation of the residents from their livelihood sources through relocation. Resettling the informal communities into high-rise buildings located on site could be a cost-efficient solution, which provides high density as well as keeping the residents on site.

Elevated typologies also provide better access to daylight and ventilation. By stretching the settlement into the vertical dimension, compared to the informal settlement which is more sprawled into the horizontal and often has very poor microclimatic conditions, it is possible to offer better conditions to all residents with relatively low effort. Since in a high-rise pattern, the buildings are placed relatively far away from each other, it is possible to open all sides of the building for daylight. In addition, the higher wind speeds in higher levels above ground allow for a better ventilation of the building and could possibly make air conditioning obsolete.

Concerning public infrastructure such as roads, pavements, lighting and sanitation, high-rise typology may offer advantages when compared to horizontally spread detached houses. A high-rise requires central solutions for sceptic waste, treatment or connection to the public sewer system. In comparison with other typologies, in which each house is connected to the system or has a sceptic tank, here a much lower level of workforce and material is required to serve a big number of inhabitants.

3.3 Conclusion

Although high-rise living seems unsuitable for virtually all residents of informal settlements and it presents many difficulties of adapting a community to the new vertical settlement, there might be some chances in it for the urban poor. With changes to the circulation patterns of the building, introduction of dedicated social spaces and by promotion of appropriation of the building by the community, high-

rise typology might present a possibility for the informal community to stay on site while improving their living conditions.

4 Social Space Design

Concluding from the arguments presented beforehand, it is clear, that regarding the design of the typology, focus must be placed on spaces, which are used by all community members. Since the housing units themselves are often very small and do not offer enough space for leisure activities of all of its residents, "social spaces" must make up for that. Those are all areas, which can be appropriated for informal meetings between residents, such as circulation spaces, their neighbouring areas and dedicated public spaces. Creating bigger common spaces will keep the cost for the individual unit low while offering possibilities for interaction at the same time. Additionally, casual meetings could also take place over centralized household activities like washing laundry. Outsourcing things like a laundry area from the private unit would also free up space in the small apartment. Since residents living in high density settlements suffer in greater extent from stress and overcrowding, the quantity and size of these public spaces must be designed in relation to the population of the building. A good variety in size and atmosphere of the social spaces helps the residents finding an appropriate space for every mood and occasion.

Constructing big social spaces is of course an issue in the cost-calculation and drives project-costs up while not offering direct financial return. Social sustainability must be integrated as a project parameter and taken into account when calculating the long-term lifecycle of the project. The following increase in attractiveness will positively influence the community living, the external image of the project and eventually might even attract higher income groups to the building.

Part of the social spaces within the building and especially at the ground floor where the community meets the street level should be inviting for the public. At this intersection, both the public and the residential-private realm can influence each other in a positive way. For the residents, a market could be an opportunity to sell products. The pedestrian on the street could access the semi-public spaces

of the community and enjoy taking a break from the street. Designing and upkeeping the semi-public space in the building in a high quality fashion will also avoid the building, the area and the community from being stigmatized as informal settlement or no-go area. Instead, the quality would contribute to the well-being of the residents, visitors and to creating a strong identity connected to the living space.

These common spaces must be of high quality and appropriated by the community in order to maintain them. As concluded by Conway & Adams, it is very important for the whole development to keep a high level on maintenance. The quality of maintenance of the spaces represents the feeling of the community towards itself. A well-maintained environment will encourage residents to take care of it as well. Caretaking and maintaining the public area will also fuel the appreciation by the residents and lead to a higher usage of the public area. This can strengthen the community sense within the building. A similar process was observed in the vertical informal settlement in Torre David in Caracas, Venezuela. The democratically organized community occupied a high-rise building and established an own set of rules to keep the public space in shape such as a cleaning schedule (Venezuela's Tower of Dreams, 2014).

Self-governance or lesser regulations as mentioned by Hadi et al. might generally help with appropriation of the available spaces and using them in a way which suits the community best. This could also lead to a stronger sense of community and identification with the building.

5 The Role of Architects

As a player in the fast-moving building industry, it is at times hard to stand up to clients, contractors, regulations and internal instructions. Cost- and time-efficiency in planning and building is paramount and user-centered design seems to be nothing but additional hassle for everyone involved. As becomes evident in literature and the chapters above, user-oriented design and research is a central issue in planning for the urban poor and making the developments successful in a long-term calculation. In comparison with other participants in the process of

developing a site, architects must take on the responsibility to plan for the user and oversee the design process to keep everyone on track working towards a user-centered goal.

When social sustainability is taken into account as a project parameter, architects can focus on the design of the semi-public spaces which the community needs to compensate for the dense living conditions in the private unit. Circulation areas, semi-public park spaces, meeting areas or hallways should be designed with care in order to make them usable for residents.

For the cost-calculation of the project, the profit-centered mindset has to be changed into one, which encompasses social sustainability and focusses on not just building *some* homes following a given template. Instead, research must be undertaken and after the results have been evaluated, a settlement, which fits to the needs of the community, must be designed. Furthermore, the architect should see the life-cycle of a building in a more holistic perspective and take issues like the importance of maintenance and repair into account while designing.

Taking the design of the project to the construction phase, the architect should consider to whom the construction of the building will be possible regarding income generation. It is mostly the complexity of the building structure, which limits the possible contractors to specialized construction companies. At the same time, this prevents small companies or self-employed builders, masons and carpenters from being able to generate income out of a social housing project. Vernacular architecture, local materials and techniques as well small scale projects are keywords for including low-income builders into the construction process.

Finally, architects should not stop exploring new typologies since there can always be progress and improvement. Thinking the idea of a vertical city further, a new typology might be found which could fuel future high-density low-income developments in central locations.

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