Density of Low-Cost Housing Settlements in Asian Developing Countries

How does density affect people's living standard?

Pia Schreckenbach

1 Introduction

Urbanization is a complex process all over the world. But especially in the developing world, it proceeds very rapidly and it is hardly controllable. This often leads to formation of informal settlements that lack all the basic needs that should be provided for adequate living as they are described in the Habitat Agenda. These settlements without sanitation, open space, waste management and appropriate housing structures deteriorate the conditions of the poor even further.

According to the book "More Urban, Less Poor", Asia has the largest slum population in the world. People want to live close to the city centres and their work place when moving to cities. They try to occupy vacant land. Land, that the government usually would not built on, because of its dangerous or unsuitable condition. So living close to rivers, railway tracks or even on dumpsites gives them some kind of guarantee that their often improvised dwellings are not replaced by formal buildings straight away.

People usually have a minimum amount of space and generally they share one room with the whole family. That lack of space also results in very dense areas that almost only consist out of built up space, where people live very close to their neighbours. However, according to a study

called "Alternative Routes to Urban Density"[1] by IIED and UNFPA, it is also a fact that *"Historically, urban success has been rooted in high densities: the concentration of many people in small areas. Bringing people and their economic activities into close proximity with each other can be economically and even socially liberating."*

So if density is such a complex subject in urban design, how is it possible to find the right balance between too dense areas and design that uses space in a wasteful way?

2 Density as a Factor Shaping Urban Shelter Design

A General Definition

Wikipedia describes population density as "...a measurement of population per unit area or unit volume."

Referring to buildings, you could say that density is the proportion of built-up space compared to open space. In the part "Actions", paragraph 76g of the Habitat Agenda, it is advised to use space as efficient as possible, to keep the density adequately high but also provide open and public spaces: *"Make full use of existing infrastructure in urban areas, encouraging <u>optimal density</u> of the occupation of available serviced land in <u>accordance with its carrying capacity</u>, at the same time ensuring the <u>adequate provision of parks, play areas, common spaces and facilities</u>, and plots of land for home gardening, as appropriate...".*

Also it is written there that it often occurs in the process of urbanization that cities grow in an unplanned and unhealthy way. This mostly leads to a waste of space and unsustainable settlements. It is important to draw on existing infrastructure in order to use it more efficiently and to save valuable space. To improve this occurrence, they say *"... it is necessary to promote <u>land use patterns that minimize transport demands, save energy and protect open and green spaces</u>. <u>Appropriate urban density</u> and mixed land use guidelines are of prime importance for urban development"* and in order to keep this development sustainable, plans of development need to be discussed on the national, sub national and local level.

---

1   Retrieved from: http://d6.iiedlist.org/routes-urban-density/shared-lessons-cities-spaces-equity

Which Factors are Influenced by Density?

A Social Matter

In paragraph IV, 30 the Habitat Agenda says that the living standard of people depends *"...on the physical conditions and spatial characteristics of our villages, towns and cities."* and also that *"...City layout and aesthetics, land use patterns, population and building densities...have a crucial bearing on the <u>liveability of settlements</u>."*

So, density really has a major impact on the social aspects in a neighbourhood. Because no matter where people live, they generally have a strong bond to their direct neighbours. If you have people living close to you, you meet them more frequently than others, get to know them and start to develop a community feeling. This will most likely lead to a cleaner and safer neighbourhood as everyone starts to develop a sense of belonging and to feel more responsible for the area. Another aspect is that the closer people live to each other, the more watched is the area around them. This is an important security matter as empty spaces are more suitable for criminal activity than lively areas.

Cost Efficiency

In "A Home in the City" by the United Nations Millennium Project, population density is approved of as it can reduce the costs in the process of upgrading, *"...according to task force experts, a doubling of densities can reduce costs per person by a third."* As well as that, higher population density can also lower the cost a single unit has to pay for basic services.

Negative Effects

However, too dense areas involve other problems. There are often worse health conditions, bad thermal comfort and it also influences safety issues if places are for example not accessible for fire and rescue service. It also affects people's well-being if there is not enough day light or poor air quality as it can be seen in a lot of existing informal settlements.

Existing Conditions in Both Slums and Resettlement Projects

Density of Squatter Settlements

As many informal settlements, the squatter settlement in the barangay Damayang Lagi, Quezon City, is overcrowded and insecure. With about 4500 persons/ha it is a highly dense area considering that most of the built structures are not higher than two stories.

As population growth continues steadily, and the number of family members increases, people start adding to the existing structures and the area gets even more densified. This leads to very dark alleys, and hardly any air circulation. A nice quality that it creates though, is small and shaded public spaces which are also protected of traffic. There is a network of narrow paths reaching through the area, but in case of an emergency there would be no possible access for rescue service. There is also no waste management that makes the area even more polluted and unhealthy.

It is common that people insist on having their own piece of land. This is why you usually find one storey or low-rise buildings. According to "More Urban, Less Poor", this is caused by bad policies leading to the unsecure tenure ship.

Density of Resettlement Areas

In the upgrading process of slums, people are often relocated to other areas than the one they lived in before. Sometimes that is reasonable as many informal settlements are situated in very dangerous areas and safe vacant land for a new housing area is hard to find in city centres. So people are often relocated to huge areas in the outskirts of cities. However, moving to other places, people often lose all their social bonds and have to get used to a completely new environment.

Visiting a resettlement site in Muntinlupa, Metro Manila showed that the areas are not always planned in an efficient way. It often occurs that only one-storey row housing is built which is spread over a huge area with quite a big amount of infrastructure as well. This actual waste of space could be prevented by considering multi-storey housing and limiting the space for infrastructure which could rather be used for public spaces.

Places to socialize are of high importance, especially for those people who have just been relocated to new places and want to get to know the people they live close to. In plenty of

resettlement sites, there is a high amount of open space, but often those places are directly exposed to the sun and do not offer any thermal comfort. Sometimes they are even used by cars at the same time which does not make it a safe and comfortable place for people to spend time at. But since those are the only common spaces in resettlement areas, you often find the whole social live happing in the streets.

The other extreme of how to work with high density, is to have medium to high-rise apartment blocks. This solution makes it possible to have more open space or to accommodate more people in a smaller area. The Smokey Mountain Resettlement Area in Metro Manila is such an example. It consists of five-storey buildings with quite a big amount of open space. However, in this case the 20 metre high apartment blocks, with around four metre high units on each storey, stand quite close to each other. Considering the height of the buildings, the alleys between the buildings have a dark and rather insecure atmosphere. On the other hand, the public spaces are very wide, but totally exposed to the sun, do not have any vegetation yet and are also not separated or fenced off from the streets.

What is Appropriate?

"The state of the world cities" states that *"Overcrowding, noise, air pollution, and lack of green spaces and communal meeting places such as parks, are associated with increased stress levels among city residents"*. So it is essential that you keep open space for public activity and a healthy environment.

The UN Habitat document "The state of the world cities" describes the impact that high-rise apartment blocks can have on low-income residents: It *"...is linked with social isolation and lack of access to amenities that aid well-being. Women staying at home with their children are particularly vulnerable; several studies have shown that women in high-rise housing report more loneliness and less social contact with their neighbours than those in other housing types, owing in part to distance from communal meeting places, such outdoor gardens, play areas, porches, terraces, and patios."* This should definitely be considered when designing new settlements for the poor as the process of socialization is of high importance in order to improve their whole living standards.

On the other hand, high density is what makes cities and it would not be possible if you only find one or two storey buildings in an urban area. And high density does not have to be a

disadvantage, as long as the urban management and planning is done in an efficient way. So it is hard to find an answer to the question of appropriate density but there are at least ways how to work with density to create good living space.

3 The Role of Architects

Designing housing projects for the poor cannot be successful if it is only done by one professional. Urbanization is a complex process and it needs to be examined carefully. It is important to have the experience of national and local development organizations who have worked with projects of this topic before in order to create sustainable settlements.
Also working with the local communities is necessary to make it possible to consider the needs of the residents.

It is a major point to involve the dwellers themselves. Self-help housing is a way to meet people's needs which is necessary to sustain settlements in the long run. If units are planned in a way that offers an adequate amount of space considering the number of people in the family, it will not make it necessary for them to move or built new structures onto their house.

Besides, people should put more effort in considering the improvement or the upgrading of slums instead of relocating people to far places, as "...*increasing suburbanization, and the decline in community life and longer commute times associated with it, is also being blamed for increased stress among women and men, regardless of the presence of outdoor amenities and single-family.*" according to the UN Habitat document "The state of the world cities". But this does only apply as long as upgrading is possible and does not extremely exceed the cost of building new units.

4 Proposals for More Sustainable Settlements

Create Space to Support Social Activities

According to "A Home in the City" by the United Nations Millennium Project *"The public spaces that are so important when housing densities are high and that many take for granted - play areas, green areas, shade-giving trees, spaces that encourage a public social life - are usually deficient or absent as well."* So it is essential to provide public space in dense areas and it needs to be accessible for everyone. Especially if people are resettled to an area far

away from the city centre, they should have public places, sport and recreation facilities provided within the settlement.

A way to create more open space that could be shaped for common use, is to reduce space for streets. Keeping some places free from traffic will lead to less wasted space for streets and could be replaced by more narrow alleys as well as creating some leftover space for public activities.

Consider Vertical Density

In order to combine open space with high densities planners should consider multi-storey housing. If you provide medium rise apartment blocks you could accommodate more people in the same amount of space that is used for one-storey row houses now. If you keep the distances between the houses small, but still appropriate for air circulation and good light conditions, you can save space and shape very comfortable shaded alleys and green terraces between the houses. Even if those places are quite small compared to big open plazas they will most likely create a more comfortable atmosphere in a climate with high temperatures and high solar radiation.

On the other hand, there is the fact that multi-storey housing limits flexibility. Units of a multiple family dwelling are always harder to extend than a single-family house. One of the few possibilities is to provide a bigger height of the units to keep the option of adding a loft, a low second storey that can be used as a bedroom. Another way could be achieved by making it possible to combine two units of same or different sizes to adapt them to family sizes. Although that would be problematic if families start to grow after having moved in, as the chance that the apartment next to them would not be occupied seems to be quite low.
But apart from that, the first step is to make people be willing to move into apartment blocks. The movie "Alternative routes to Urban Density"[2] of a project by UNFPA and IIED describes quite well how important an own piece of land is to the poor. There, a Pakistani slum dweller who has been relocated says: "Yes it is far from the city but the most important thing is that I have shelter. I own my house and I don't have to pay rent, no one can kick me out of here. Secondly I work here, this is where I earn my living. When my brother got married we built a room on our roof, when I get married I will do the same." Since this is mainly caused by

---

2   retrieved from: http://www.youtube.com/watch?v=DAhyRbDxAbk, for more information, see:
     http://d6.iiedlist.org/routes-urban-density/shared-lessons-cities-spaces-equity

misguided policies that lead to unsecure tenure ship, this is the first point that needs to be improved.

Providing Flexibility

Although it is necessary for planners to provide land use patterns and housing structures for a new neighbourhood, it should as well be included to give people an amount of freedom and flexibility in designing their units. Giving people the opportunity to extend their homes, offers them a more adequate space for living. Especially, people that come from squatter settlements, are used to shaping their space depending on their needs or to their financial situation. Flexibility will make settlements more sustainable as they can be modified and adapted to changes. It is obvious that it has it limits, especially when designing apartment blocks since the units are always surrounded by others. But even providing different sizes of units or structures that can easily be modified would help to give every family an adequate place for living.

Consider Climate Aspects

An important factor to consider in the tropical climate is ventilation. Too dense areas often lack appropriate air circulation. In order to maximize ventilation within a settlement, the orientation of buildings should be adapted to the wind direction. According to "Urban Design and Outdoor Thermal Comfort in Warm Climates" by Erik Johansson orientation of streets have a good influence on the thermal comfort of an area. If streets between buildings are oriented in the main wind direction, wind intensity can be increased otherwise buildings might break the wind and lower its speed.

References

Acioly Jr., Claudio and Forbes Davidson

1996   *Density in Urban Development.*
        retrieved from: http://www.hdm.lth.se/fileadmin/hdm/BI_Volume_08_3_1996_Density_in_Urban_
        Development.pdf (02 April 2010)

Johansson, Erik

2006   *Urban Design and Outdoor Thermal Comfort in Warm Climates-Studies in Fez and Colombo*
        retrieved from: http://www.hdm.lth.se/fileadmin/hdm/E_Johansson_Urban_Design_and_
        Outdoor_Thermal_Comfort.pdf (01 May 2010)

Tannerfeldt, Göran and Per Ljung

2006   *More Urban, Less Poor: an introduction to urban development and management.* London: Earthscan.

ISBN 978-1-84407-381-8.

United Nations Millennium Project

2005 *Task Force on Improving Lives of Slum Dwellers. A Home in the City.* London: Earthscan
      retrieved from: http://www.unmillenniumproject.org/documents/Slumdwellers-complete.pdf
      (24 April 2010)

United Nations Population Fund

2007 *State of World Population 2007. Unleashing the Potential of Urban Growth.*
      retrieved from: http://www.unfpa.org/swp/2007/presskit/pdf/sowp2007_eng.pdf (25 April 2010)

UN Habitat

1996 *The Habitat Agenda Goals, Principles, Commitments and the Global Plan of Action.*
      retrieved from: http://www.unhabitat.org/downloads/docs/1176_6455_The_Habitat_Agenda.pdf (29
      March 2010)

United Nations Human Settlements Program

2003 *The Challenge of Slums.Global Report on Human Settlements.*London: Earthscan.

United Nations Human Settlements Program

2008 *The State of the World's Cities.* London: Earthscan.

Urbandensity.org

2010 International Institute for Environment and Development and United Nations Population Fund
      retrieved from: *http://d6.iiedlist.org/routes-urban-density/shared-lessons-cities-spaces-equity* (26 April
      2010)

Wikipedia

2010 retrieved from: http://en.wikipedia.org/wiki/Density (26 April 2010)