Adapted materials for urban shelter built and design for people by people.

Increasing people's livelihoods through environmentally friendly materials

Christina Lochon

Student of Housing Development & Management, Lund University, Sweden

1 Urban Shelter Design Development

Urban shelter design has been developed through different paradigm over the last century. We will start with define urbanisation term before explain the main trends of the last decades.

Urbanisation is a historical process where the population living in urban areas is increasing. Since the industrial revolution, the economic system is changing from agrarian to a specialised (industrial, services, communication etc...) economy which concentrates people in urban nodes. "In 1800 the world was 3 percent urban; in 1900, 14 percent urban; in 2007, and 50 percent urban." [1] Today the main factors of this urbanisation is the natural growing population and, in a second position, the migration from rural to urban areas. North countries have never been confronted to this population increase pace and thus cannot be compared to the rapidly urbanising countries pace. *"fourth of the world's urban*

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[1]   Whole Earth Discipline, Stewart Brand

population is living below the poverty line. In many cities, which are confronted with rapid growth, environmental problems and the slow pace of economic development, it has not been possible to meet the challenges of generating sufficient employment, providing adequate housing and meeting the basic needs of citizens" [2]

During the last decades there had three main paradigm[3] followed one other about the response, given by states and housing professionals in general, to provide social housing.

During the "design-based" and command and control paradigm (after 2nde World War II) process (master planning, mass production, capitalism, top-down decision making, etc..), in the late 1960s, in Britain, the first reaction against the rigidity of this detailed master plan appeared.

This second paradigm had few movements like "Structure planning" where a key aspect was the recognition of the urban areas as a element endlessly changing; seeing cities as systems ("focused on rational decision-making on the basis of a large amount of data" economic, transport etc.). They argued the necessity of new type of professional planner based on economics and social sciences rather than urban design. During 1980s we talked about "guided land management" and "economic development planning". *"growing interest in urban efficiency as an element of economic growth, led to a focus on land management : land acquisition, allocation, transfer and registration. In the light of restricted capacity for formal (administrative or market) land allocation for the growing numbers of urban poor, the majority of this group were accessing land informally, and this was becoming a major feature of urban land use"*. While urban planners and politicians saw informal city as something to eradicate some economists though informal economy is important and necessary and should be integrated in the formal sector[4] . In the same period (1980s) it grew a certain awareness about environmental aspects. Some groups was already talking about this topics in the seventies like example the French magazine "La Gueule Ouverte" (the open trap)

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2   United Nation general assembly, 25 e special session, 16 august 2001
3   Planning and Housing in the Rapidly Urbanising World p 137
4   Planning and Housing in the Rapidly Urbanising World p 144

who start in 1972 and pointed out the centralized system, multi-national and use of fossil energy in the buildings process. Another movement against the master planning, developed by Otto Koenigsberger, is "Action planning" [5], where he worked from the materiel reality (survey) to monitoring feedback through a step by step process which involved the community on the process and avoid the collection of an important montant of data as Structure planning or Master planning. This introduces what was developed mostly in the 1990s :

Finally the third paradigm is planning as negotiation where the population and communities participate to upgrade their conditions. It is a bottom-up decision making about urban shelter design. The notion of "advocacy planners" emerged where is required to represent the interest of the group. *"United Nations funded programmes and projects in the late 1980s and 1990s focused on 'empowering' local communities and 'enabling' these to manage their own development"*[6]. The idea is to see the housing as a process and not as a product. Including the same idea of involving the communities the notion of self-help housing emerged too. Some key worlds to represent this movement are human scale, decentralized to the local level with a horizontal instead vertical organizations of the decision making process.

The following text will describe the specific case of a Damayang Lagi[7] slum in Philippines which illustrate well the question of how to incorporate the informal city into the formal city and are the driving force and the slow down.

Damayang Lagi is a spontaneous human settlement situated in a strategic spot in Quezon city (in Metro Manila). More than 2000 families live there and the settlement has been established since the 1960's. Quezon city is the most important city in the Philippines with 2 861 091 people; of which a significant

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5   Planning and Housing in the Rapidly Urbanising World p 139
6   Planning and Housing in the Rapidly Urbanising World p 149
7   In Tagalog, it does mean "Help each other everytime"

amount live in the slum areas or on the street. There is an urgent need to provide adequate shelter, in an adequate way for these citizens.

Around the site there are all public services (hospitals, college, school, shopping centre etc...) and commercial facilities. These parameters give the land high value as it is well located in the city. Since 2007 Quezon city has expressed its interest for a joint development of the Damayan Lagi property with the Privatization Management Office (PMO). The basic intention is to open the market for a public and also private partnership.

The site has a triangular shape where the boundaries are San Juan River in south (extremely polluted), E. Rodriguez avenue in the North (heavy traffic) and a dense, compact urban pattern in the East. The site itself is overcrowded by buildings, mainly constructed out of concrete blocks, with labyrinthic streets 0, 7 to 3, 7 meters wide organized with a certain hierarchy. The most stressing problem is the infrastructural one. There is lack of for example street lighting, water supply, electricity, sewage (at the moment going directly into the river) etc. These factors are for the instant not provided in a safe manner, they are not durable because they are non-existing. This has lead to that the infrastructure is managed in a very informal manner.

Association life is strong in this neighbourhood. As the building pattern, the social network grew up by itself in a spontaneous way. People organized themselves to provide some little open space such as a basket ball playground, a church, a market, a little square were associations have their headquarters and a lot of shops along the main road E Rodriguez avenue. But there are not enough green spaces and the buildings are not adapted to the hot and humid climate of the Philippines.

There have been previous negotiation to sell the land to the current occupants but nowadays the land is unaffordable for them. Due to this, the different organisations present on the site are protesting against the project of relocation.

In our case study it seems that the formal city is eating the informal city and more over the last news are the site burned and made one victim. We can wonder what is exactly the cause of this fact in a period of election campaign. Is it an accident? Is it from the government to clean and have a good means to relocate this people? Is it the people themselves to try to attract the eyes on their conditions of living?

The question is by which ways can we achieve a free city for everyone? Why relocate this people? Is not be able to afford the land a good raison? Is it possible for the city to find a way to integrate the informal citizen into the rest of the citizens?

"Equitable human settlements are those in which all people, without discrimination [...] have equal access to housing, infrastructure, health services, adequate food and water, education and open spaces. In addition, such human settlements provide equal opportunity for a productive and freely chosen livelihood;[...] equal opportunity for personal, spiritual, religious, cultural and social development; equal opportunity for participation in public decision-making". [8]

"Democracy, respect for human rights, transparent [...] in all sectors of society, as well as effective participatory by the civil society, are indispensable foundations for the realization of sustainable development" [9]

If the only raison to evict this people from where they lived since about 50 years is financial we can find financial raisons to keep them here.

2 Factors Shaping Urban Shelter Design

The most serious problems confronting cities and towns and their inhabitants include inadequate financial resources, lack of employment opportunities, spreading homelessness and expansion of squatter settlements, increased poverty and a widening gap between rich and poor, [...], improper land use, insecure land tenure, rising traffic congestion, increasing pollution, lack of green spaces, inadequate water supply and sanitation, uncoordinated urban development and

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[8]   UN HABITAT Istambul Declaration on Human Settlements 1996, Chapter II, I . 4
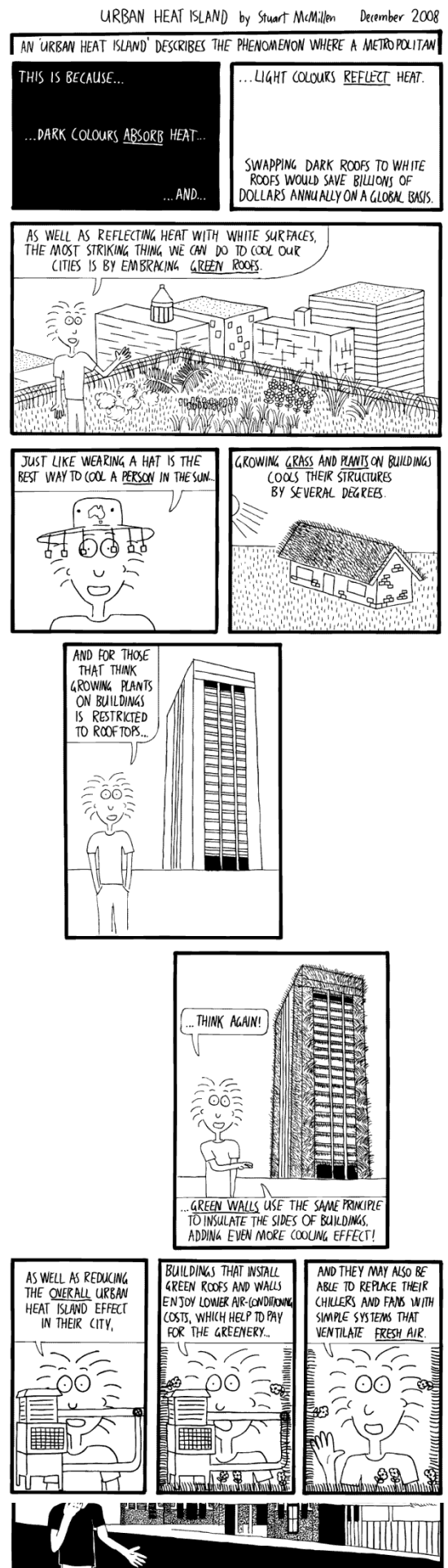[9]   UN HABITAT Istambul Declaration on Human Settlements 1996, Chapter I . 4

an increasing vulnerability to disaster.[...]unsustainable patterns of production and consumption raise these problems in especially acute forms. In these cities and towns, large sections of the world's urban population live in inadequate conditions and are confronted with serious problems, including environmental problems, that are exacerbated by inadequate planning and managerial capacities, lack of investment and technology, and insufficient mobilization and inappropriate allocation of financial resources, as well as by a lack of social and economic opportunities. [10]

Can these unsustainable patterns of production and consumption be switched to a durable solution? In the natural evolution, in the nature every link of the chain is as important as an other one. If break one every other links are concern. Following there is a non exhaustive list that is shaping the most important factors in urban shelter design internationally

- Lack of facilities and infrastructure
- Huge amount of slum dwellers
- Modernity and tradition
- Climate adaptation
- Available and local materials
- Environment limits (cities sprawling, Urban heat island , cf the adjacent cartoons by Stuart McMillen)
- Patterns of production and consumption
- Cities as a link of the nature chain

In more details:

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10   UN HABITAT Istambul Declaration on Human Settlements1996, Chapter I . 8

URBAN HEAT ISLAND by Stuart McMillen   December 2008

- *"Pollution of underground water supplies (solid waste, sanitation and excessive extraction);*

- *Occupation (especially residential) of unsuitable land (e.g. slopes, natural drainage zones and ecologically fragile areas);*

- *Destruction of vegetation and forests for solid fuel and development, increasing flooding and erosion as well as decreasing natural bio-diversity;*

- *Increasing atmospheric pollution through solid fuel burning;*

- *Uncontrolled dumping of solid waste "*[11]

3 The Role of Architects

There is a huge gap between countries in developing and developed. This gap is at any level, not just about housing but also about food, international trade, and environment topics etc... About architecture and urban planning architects have to find a balance to access to a healthy, secure, equal and environmentally respectful and freedom cities without discrimination at any level. All human have the same rights to access to education, work opportunities, freedom to build up their own philosophy and to be proud of his culture. This is possible at one condition: if the basic physical conditions are enough (shelter for people and families; access to adequate public green and open spaces; sport and cultural infrastructures; sanitations etc...). There is many way to find a balance where all human will have the same chances but only one must be something that link all those way: they must be made aware and part of improving process.

This is not a matter of developing countries only but clearly and non balance between North and South where first have abundance and spend too much resources, energies (the list is long) and the second one are in lack of even a shelter. This is an international real awareness. People from western capitalist countries must be made aware of this big gap and resist against the pattern of production and consumption. People have much more strength together than any government or industry.

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[11] Planning and Housing in the Rapidly Urbanising World p 146

Architecture is not just a matter of physical means. The first steps must be solidarity, education, human rights, democracy, rise local means to improve housing for inhabitants.

How can we, architects and city planners, intervene in the social housing process, at all steps of urban planning, with people? With people in order to design adequate solutions of common and individuals needs and to share knowledge. We have to propose and not impose, research, and work in partnership with communities, NGO, private sector and governments.

Above all how can we give tools for people to continue to improve their condition of life after the project and to achieve the aim: respect nature? Architecture can be compare to a tree, which step by step, with a long but durable process provides adequate responses to shelter its inhabitants and be part of the environment. Architecture is also politics and economics, therefore social and democratic. Where should architects be positioned?

Our role is to provide equal opportunity for all people without discrimination to have an adequate shelter and a free city. It is to propose to the people (and not impose) solutions according to the society and the environment needs and limits.

Provide enough, appropriate and good quality building construction, grounded in people's culture and their climate with respect their dignity by giving them a key place in the architectural project process is crucial.

4 Design of Sustainable Shelter and Neighbourhoods

Education and participatory process bring people together into a deeper awareness and a stronger power to act. How can we propose a durable solution to renewal the informal city and incorporate it in the formal city? Which means can we use to provide better possibilities of livelihood for the inhabitants of the slums? Everythinks is link. Have as much as we can green around and in buildings is a key issue to both cool the atmosphere in hot humid climate and to allowed a way to improve livelihood or simply to feet the inhabitants (urban agriculture). But we won't discuss about urban agriculture in this chapter.

Firstable we will talk about the need to built appropriate spaces in the design. Then we will discuss to the need of participatory process and will conclude by the

proposition of a materials fabric as a sustainable way to improve the livelihood of the citizens.

Possibilities to appropriate spaces

Since the 1960s, the first critics about the rigid master plan, we know that if we can use standardisation for the building material to make affordable housing but it doesn't mean to standardize the spaces as well. It is a necessity to let the place in homes to express different identities, especially in an urban context. Customization and standardization can make the housing cheaper and thus affordable for the poorer. Extensions of the house through private to public spaces is also a means to allow more freedom in the use of the spaces fot each inhabitant. In that sense improve common spaces are really important especially in a tropical countries where people are often outside (shadow and ventilated commons spaces). With more adequate public services and public spaces it is more acceptable to design little spaces apartment in order to be affordable fot the inhabitants.

Propose to the inhabitants flexible and adaptable spaces instead rigid one is a necessity to allowed people to appropriate their own spaces and implied to maintain the future spaces. Once again urban shelter is a process, like a backbone, a frame, onto we can add elements and change over the time, and where people can built their own philosophy.

Participatory process and education

"It bring people together, involves them, because it is a world which they have helped to make [...] the daily users of buidlings know more about their needs than anyone else; so the process of participation tends to create places which are better adapted to human functions than those created by a centrally administered planning process."

"people need the chance to make active decisions about environment. This is a fundamental human need. It is a need to create; and need to control. "[12]

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[12] Christopher Alexander (and other authors) , The Oregon experiment, 1975

In order to respect social sustainability and to work in a long term goal we need to think the architectural projects together with people to find adequate answers. Decentralizing the responsibilities and the decision making to the local level is indispensable in order to reach all levels of society and to respect human rights and needs. It is also a way to provide diversity in the urban and architectural patterns as a mirror and richness of our personality and cultural diversity.

Our future generations' awareness of the respect to the nature is necessary, therefore education is the key to a sustainable human development over the time: *"youth develop and enhance effective skills and provide education and training to prepare young for current and future decision making"* [13] and *"children: secure the living conditions of children and of youth and to make use of their insights, creativity and thoughts on the environment."* [14]

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"The issue is not the shelter alone or isolated physical components which synergise into habitat, but the total environment facilitating employment, services and formations of communities of which shelter is a by product and vice-versa". [15]

Planning and managing social housing project with people, producing environmentally friendly construction materials with them and encouraging recycling at any level are important in order to provide a durable solution to the problem of homelessness. This way of thinking is efficient for both increasing the livelihood of people, therefore increasing the governments benefits, and for providing materials that are adapted to the climate and the available local resources. Sharing skills and knowledge about construction and environment is a challenge, let's take it: *"Promoting education about, and training on, environmentally sound technologies, materials and products"* [16]

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[13] UN HABITAT Istambul Declaration on Human Settlements1996, Chapter VIII C.45.a

[14] UN HABITAT Istambul Declaration on Human Settlements1996, Chapter I.13

[15] A. K. Jain _ Building systems for low income housing _ 1992

[16] UN HABITAT Istambul Declaration on Human Settlements1996, Chapter III, 43 u

How to provide building materials adapted to environmental conditions and economical problems of people? How to provide cheap and environmentally friendly materials? Is it possible for people in such spontaneous urban human settlement to provide themselves with materials to build proper homes and generate more income for both the neighbourhood and surroundings? Is it possible to use recycled material as the main construction material?

Architecture governs our physical life, our movements in the space, the lighting that we have indoors, but it is also the reflection of how our society works.

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