



URBAN DESIGN CHALLENGE TO BUILD SUSTAINABLE CITIES

PRESENTATION AT THE ECOEDGE CONFERENCE

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SETTING THE CONTEXT

A PREDOMINANTLY URBAN WORLD CHARACTERIZED BY GROWING POVERTY

- ◆ The world population is becoming increasingly urban
- ◆ The 21st century has been dubbed the urban millennium
- ◆ The year 2007 marked a turning point in human history as half of humanity lived in cities and towns
- ◆ According to UN-HABITAT three quarters of the world population will be living in cities by 2030
- ◆ So mankind has transformed from being *homo sapiens* to becoming *homo urbanus*
- ◆ The rate of urbanization has been unprecedented. Statistics show that in 1950 there were only 86 mega cities but today there are over 400 and by 2015 there will be at least over 550
- ◆ The bulk of the urban population growth is taking place in developing countries
- ◆ Currently three quarters of global population growth is occurring in the urban areas of the developing countries
- ◆ The Average annual increase in the cities of developing countries is estimated at 64 million or 175 persons per day
- ◆ The urbanization process in the developing countries has been characterized by growing poverty especially of women



MOST OF THE URBAN POPULATION IS LIVING IN SLUMS

- ◆ Of the 3 billion people who live in cities today, one out of three or one billion people are slum dwellers
- ◆ Slums are the emerging human settlements of the 21st century
- ◆ UN-HABITAT research shows that the growth of slums in the last 15 years has been unprecedented
- ◆ In 1990 there were about 715 million slum dwellers in the world
- ◆ By the year 2000 when the millennium Declaration was made by world leaders and set the goal to improve the lives of 100 million slum dwellers by 2020 as one of the Millennium Development Goals, the number had grown to 912 million
- ◆ Today the slum population stands at about 998 million and if we continue with business as usual the projected slum population will be 1.4 billion by 2020. The daily growth of the slum population is estimated at 100,000.
- ◆ Sub-Saharan Africa has the highest prevalence of slums in the world as 71.8 percent of its population live in slums whose population doubled from 101 million to 199 million between 1990 and 2005.
- ◆ The slum population growth rate and urban growth rate in this region are almost at par at 5.53 and 4.56 respectively



REASONS FOR THESE ALARMING GROWTH RATES OF SLUMS

- ◆ Mis-conceived international development policies
- ◆ Changing dynamics of urban economics
- ◆ Mis-informed government priorities



WHAT IS A SLUM

THE 5 INDICATORS OF SHELTER DEPRIVATION

- ◆ The UN-HABITAT defines a slum based on 5 indicators which are known as “shelter deprivations”. These include:
- ◆ Lack of durable housing
- ◆ Lack of sufficient living area
- ◆ Lack of access to improved water
- ◆ Lack of access to improved sanitation
- ◆ Lack of secure tenure

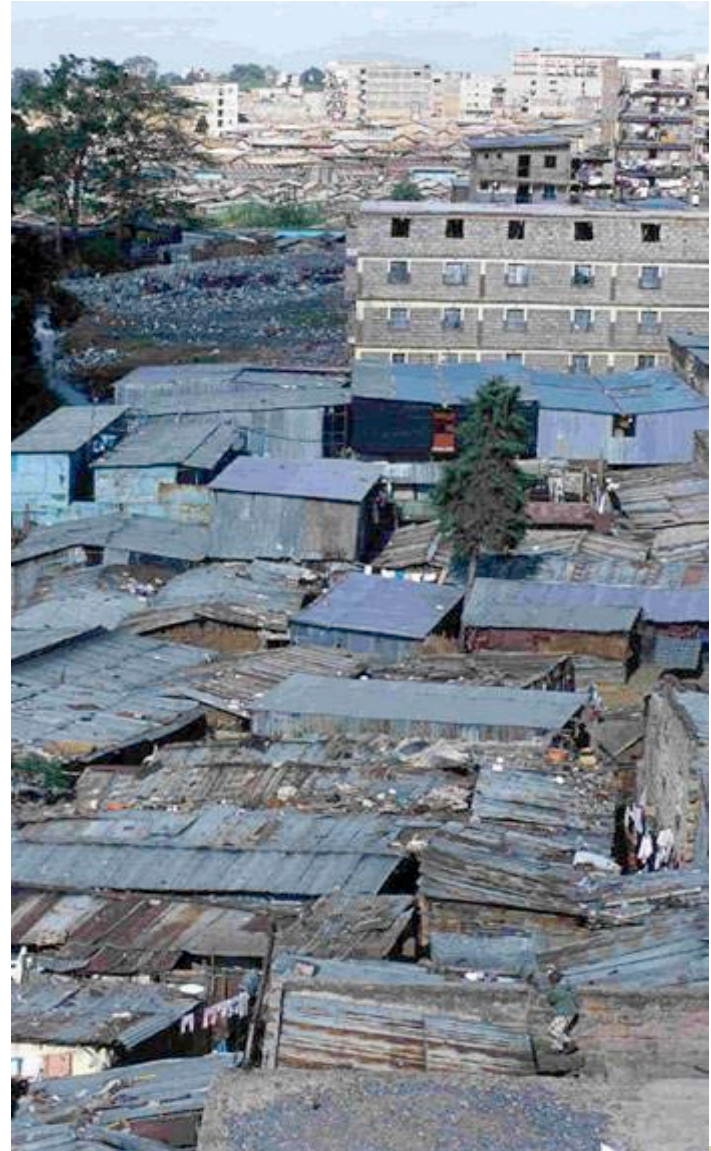
Slum Housing





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Lack of durable Housing





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Overcrowding: Almost 50,000 – 200,000 persons per km²



Kisumu, The third largest city in Kenya

Slum population is 60 per cent but they live on 8 percent of the residential land





THE UN-HABITAT AND THE HABITAT AGENDA

- ◆ The mission of the UN-HABITAT is to promote socially and environmentally sustainable human settlements development and the achievement of adequate shelter for all. Its activities are underpinned by the following:
- ◆ **Advocacy:** Drawing the world's attention to crucial human settlements problems and spurring governments and other organisations into action.
- ◆ **Research and monitoring:** Coordinates global efforts that monitor human settlements conditions and progress in the implementation of the Habitat Agenda by identifying innovative solutions and practices
- ◆ **Training and capacity Building:** UN-HABITAT strengthens the capacity to plan, develop and manage human settlements, particularly at the local government level.
- ◆ **Technical Cooperation:** UN-HABITAT provides to national and local governments advocacy services and technical support including assistance with mobilizing financial and human resources to implement sustainable projects. UN-HABITAT is involved in hundreds of such projects in over 54 countries around the world.



SUSTAINABLE CITIES

- ◆ **Sustainable urban development is the way to achieving sustainable urbanization. Ten principles:**
- ◆ **Rediscover the city**
- ◆ **Redefine city value**
- ◆ **Involve every day experts**
- ◆ **Breakdown silos**
- ◆ **Redistribute urban decision making**
- ◆ **De-design Urban Planning**
- ◆ **Promote corporate urban responsibility**
- ◆ **Go Global**
- ◆ **Embrace chaos, Crisis, and Change**
- ◆ **Encourage passion in urban leadership**



THE UN-HABITAT SUSTAINABLE CITIES PROGRAMME (SCP)

- ◆ Launched by the UN-HABITAT in 1991 with the aim of assisting city governments and their partners in the public, private and community sectors to develop improved environmental planning and management capacities that they require in order to deal effectively with the process of urban growth. In 1995 the governing bodies of the UN HABITAT and UNEP decided to make the SCP a joint facility. 6 characteristics of the SCP.
- ◆ Central focus on the environmental/development interactions
- ◆ Broad based participation by public, private and community sectors
- ◆ Concern for inter-sectoral and inter-organizational aspects
- ◆ Reliance on bottom up and demand-led responses
- ◆ Focus on processes: Problem solving and getting things done
- ◆ Emphasis on local capacity building



EXPERIENCE WITH THE SCP

- ◆ The programme has been quite successful in building city capacities for environmental planning and management (EPM)
- ◆ However, the programme has not been able to change the way cities do business. Instead it has been seen as a parallel programme to other planning and management programmes at the city level
- ◆ Weaknesses of municipal finance systems have crippled the ability of the SCP as ambitious plans did not have investment follow up to make sure that they were implemented.
- ◆ As such the programme has not had a major impact on the process of urbanization in developing countries, and definitely it has not been able to deal adequately with the challenges of slums in urban development.



WHAT ROLE CAN DESIGN PLAY IN BUILDING SUSTAINABLE CITIES

- Core to building sustainable cities is to minimize the ecological footprint of development on the environment leading to a balance between the built and natural environment in cities
- In today's times, building sustainable cities also requires that policies and strategies are put in place to reduce green house emissions into the biosphere which are responsible for global warming in addition to mitigation and adaptation to the effects of climate change
- What role can design play and in this context slum areas?



URBAN DESIGN

- ◆ Urban design as one of the professions dealing with the built environment follows the “modernistic” approach to urban planning. Cities which follow this planning approach are characterized by the following:
- ◆ Prioritisation of the aesthetic appearance of the built environment
- ◆ High rise buildings with low plot coverage and large set backs releasing large amounts of open space between them following the super block concept
- ◆ Dominance of free-flowing vehicular movement routes, traffic is organised into hierarchy of routes, traffic modes are separated and car ownership is assumed
- ◆ There is separation of land use factions by zoning into residential, industrial, commercial, public/community areas and open spaces and parks. The different zones are separated by buffers of green open space and take access of higher order movement routes
- ◆ There is different residential density for different income groups often organized into neighbourhood units. Wealthier families have lowest densities and full infrastructure and services on their plots



URBAN DESIGN CHALLENGES WITH “MODENISTIC” APPROACH AS IT RELATES TO SLUM AREAS

- ◆ A major problem with the “modenistic” approach to urban planning and design is that it has failed to accommodate the poor and who are the majority of people in the rapidly growing cities in the developing countries
- ◆ An informal city has developed alongside the formal city and which is home to slum dwellers
- ◆ For urban design to improve the lives of people living in slum areas, sustainable design models that integrate multiple sustainable strategies for habitat, energy, transport, water and sanitation are required



URBAN DESIGN AND CLIMATE CHANGE

- ◆ Urbanisation is inextricably linked to climate change as:
- ◆ 75 percent of global energy consumption occurs in cities
- ◆ 80 percent of Greenhouse gas emissions that cause global warming come from cities
- ◆ The “modernistic” approach to urban planning and design as described above is unsuitable to reducing greenhouse emissions (GHE) unless transport demand management measures are put in place
- ◆ Designing compact, dense cities which are energy efficient and address the challenges of slums for sustainable cities would be more appropriate as these would have less ecological impact on the environment. But what does this really mean in practice for slum areas?
- ◆ Slums are already very compact and dense and land use is for multiple functions.
- ◆ Need for innovative and creative green design in the planning and design of slum up-grading areas.



BUILDING DESIGN FOR SLUM UP-GRADING SCHEMES

- ◆ Building design in the context of up-grading schemes for slums should aim at ecologically sound and cost effective building materials, energy efficient passive designs, and improvements in the indoor climate and environment
- ◆ They should encourage the use of energy efficient locally available building materials
- ◆ Designs should provide for minimum multiple use spaces, high densities, green verandas, and green tops which could be used for urban agriculture

Kenya- city of Kisumu: KENSUP Project. A part of Nyalenda Area before the project was implemented





Kenya- city of Kisumu: KENSUP Project. A part of Nyalenda Area after the project was started to improve the housing, infrastructure and greening the area



Area after resource centre was built





DESIGN FOR ENERGY EFFICIENT COOKING STOVES FOR SLUM AREAS

- ◆ An energy balance shows that wood fuels and petroleum products are the main sources of fuel at the household level in the cities of developing countries
- ◆ In slum areas, wood fuel (firewood, charcoal, and coal) and petroleum products are the main sources of energy
- ◆ All these have negative impacts on the environment at the household, neighbourhood, local and regional level due to emissions of particulates, Carbon Dioxide, Carbon Oxide, and Sulphur Dioxide
- ◆ The use of firewood and charcoal leads to deforestation and health and safety problems during the conversation of biomas into charcoal
- ◆ Design for sustainable energy use at the household level in slum areas should focus on the production of fuel efficient wood fuel and petroleum products cooking stoves



DESIGN FOR TRANSPORT MOVEMENT IN SLUM AREAS

- ◆ About half of the greenhouse gases comes from burning fossil fuels in cities for urban transport
- ◆ Urban transport is now recognised to be the planets fastest growing source of green house gases.
- ◆ Designing transport movement in slum areas in the context of up-grading schemes should aim at promoting environmentally friendly means of transport such as walking, bicycles, horse carts, etc
- ◆ It should promote public transport, and there should be minimum travel distance to this service
- ◆ The private car should be discouraged.

Nyalenda area before the road was constructed



Nyalenda area after the road was constructed





CONCLUDING REMARKS

- ◆ Slums are the emerging human settlements of the 21st century. They are there to stay and will no doubt increase with urbanization
- ◆ The struggle to achieve the Millennium Development Goals will be won or lost in cities and by extension in slums
- ◆ The urgent design challenge to build sustainable cities is in the slums of the world
- ◆ Innovative design models which integrate multiple sustainable strategies for habitat, energy, water, and sanitation, and empower the slum dwellers to improve their own housing through the provision of secure tenure will go a long way in building sustainable cities in the 21st century