

Medium Rise Shelter Solution for Low Income Community Groups

Integral design approach for a sustainable urban environment

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1 Shelter Situation Analysis

1.1 Basic General Data

Geography and Administration¹

The democratic Socialist Republic of Sri Lanka (former known as Ceylon) comprises one large Island and islets lying east of southern tip of the Indian subcontinent. The maximum north south of the island is 435km, and its greatest width is 225km. the island (including adjacent small islands) covers a land area of 65,610 sq. km. the Bay of Bengal lies to its north and east and the Arabian Sea to its west. Sri Lanka is separated from India by the Gulf of Mannar and the Palk Strait, between there lies in very shallow water.

Sri Lanka stretches from 5dig 55min to 9 dig 50 mIn North and 79Dig 42Min to 81 Dig 53Min East. About 75 per cent of the land comprises broad lowland plains. The hilly area is in the centre and has been the feeder area for all rivers that flow to the Indian Ocean in a radial formation. The island receives rain from southwest and northeast monsoons and thunderstorms.

¹ Source: Department of Census and Statistics Sri Lanka

Demography and Health²

The population is around 18.3 million with an annual population growth rate of 1.1 per cent. 57 per cent are concentrated in less than 25 per cent of the total land area. About 52 per cent live in the western, central and southern provinces.

The urban population constitutes 30% of the total at present and it is likely to reach 45% and 65% by 2015 and 2030 respectively.

Population density in the Country is 317 persons per sq.kms (2006). Average household size in this context is 4.31sqm. Life expectancy at birth, of a Sri Lankan is 71.7 years for male and 77 years for female. This factor is projected to increase. Considering the health factors, Government expenditure on health is 2.1% of G.D.

The sectoral composition of population is 72.2 per cent rural, 21.5 per cent urban and 6.3 per cent estates. Although there are provincial and district capitals, the population in the national capital Colombo is far higher, dwarfing the other main cities. Hence, most of the urban problems are acute in Colombo and its suburbs but are emerging in other cities as well³.

Economy

The growth of GDP in 1996 was 3.8 per cent, a lower percentage than the average growth rate of 5.5 per cent in the previous five years. The slowing down of the economy in 1996 was mainly due to the prolonged drought that adversely affected the agricultural production and electricity generation. Gross Domestic Product (GDP) at current market prices was estimated at RS 7,678,934 million. Per capita GDP rose to RS 41,984 (US\$ 760) in 1996 from RS 36,869 (US\$ 709) in 1995. This indicates that per capita GDP in Sri Lanka has reached the threshold of becoming a middle income developing country.

1.2 Shelter Related Fact and Figures

Access to Shelter

Due to rapid urbanization and related development activities and directly with the growing population housing has become an issue in various sectors. Recently it was escalated with the impact of Tsunami devastation. Under Served Shelter (USS) situation is very much highlighted in urban settings which has created social, cultural issues indicating poor management of shelter related aspects.

² Source: Sri Lanka Social Economic Data 1996 Statistics Department - Central Bank of Sri Lanka

³ Source: Department of Census and Statistics 1997

Facts Sheet on Colombo Metropolitan Region (CMR) and Colombo Municipal Commissions (CMC) Area

Indicator	CMR	CMC
Land Area (Hectares)	396,360	3,370
Population (1996)	4,640,500	728,000
Population Living in the USS (Estimated – 1998)	825,000	63,000
Total Number of Under Served Settlement (1998)	-	1,506
Total Number of Housing units in the USS (1998)	150,000	66,021
Total USS Population as %	18	50

Source: STP Survey of USS Mapping – 1998, CMRSP- 1998, PTFH and UD -1998

Year by year the number of USS is increased and the quality of living environments do not show the same increasing rate.

Occupancy – no of occupants in a considered house is often more than its physical capacity and having more or less negative comfort condition.

Most of the lands in which these settlements located are state owned and later encroached by them. In most cases these lands are the nodal points for other developments yet blocked by these haphazard settlements.

Construction of houses does not have involvement of experts or even authority to build. Most of them are unauthorised below standard housing units. Materials of easily and cheaply available are used in most cases and thus worsen the quality of houses even more.

Access to and cost of Basic Services/Infrastructure

Public transportation modes come as trains and buses but showing less efficiency due to poor transport planning and level of road network. Cost of travelling (time as an indicator) for a short distance is much more expensive compared to the actual transportation cost. This has increased the no of private vehicles on road complicating the situation even adversely.

Even the country does not have a frequent shortage of water, access to pipe borne water is still remaining unsatisfactory. Only 64% of population have access to safe water. 24% only get pipe borne water facility. Proper sanitation facility is received by 77% only.

Fossil-fuel-powered electricity production and its dissemination via a central electricity board are becoming increasingly expensive in Sri Lanka. Decentralized, renewable energy production is therefore becoming more acceptable and widely used. In Sri Lanka, ITDG's⁴ village micro-hydro projects are

⁴ Immediate Technology Developing Group

helping to deliver decentralized hydro-powered electricity to marginalized communities that have no access to grid-supplied electricity.

It is estimated that only about 54 per cent of the population has access to electricity, meaning that around 2 million households lack access to electricity from the grid. The household electrification rate in Sri Lanka ranges from 28 per cent to 36 per cent despite the fact that rural electrification programs began over half a century ago. Meanwhile, power demand in Sri Lanka is growing at over 8 per cent per year and the central electricity board is unlikely to be able to keep up with demand. There are 300,000 off-grid households who use power from car batteries that are charged from grid supplies, and this gives some indications of the large amount of unmet demand for electricity. The use of traditional grid-based approaches to meet the rural electricity demand has become increasingly expensive as lines are extended to disperse populations and fossil fuel costs have continued to increase⁵.

Access to and cost of Education

Granting of free education to the entire population has made a rapid upliftment in literacy levels and given an opportunity for both rich and poor alike to pursue higher education. Mid day meal program and the supply of free books and uniforms for school children are the most recent programmes launched by the government to further enhance the welfare package, implemented to improve the quality of education in the country.

The census of population conducted in 2001 found the literacy rate of populace to be 91%. Within the past 40 years literacy levels have reported a remarkable rise of nearly 20%. Female literacy has recorded a spectacular increase of 33% from 67% in 1963 to 89% 2001.

1.3 Housing Policy

Sri Lanka is still having an evolving policy for housing. Various Actors of shelter program of the country has different scenarios for implementation agendas triggered by the government. With the change of government political leadership time to time decide the policy to be implemented. Following is the political change and the respective change and adaptation of shelter policy of Sri Lanka.

1.4 Actors in Shelter Delivery and their Roles

Ministry of Housing and Construction

With the mission to formulate national policies on housing and construction ensuring effective implementation of same, ministry has a major role as an actor of Shelter agenda. Ensuring affordable

⁵ Source http://www.handsonTV.info/series5/09_ASwitchInTime_reports/report1.html

housing for all sustainable human settlements in the country and creating a conducive environment for the growth of the construction industry have become its projections for resolution of shelter discourse in the country.

National Housing Development Authority

The Authority with its head office in Colombo carries out its activities on an island wide basis through a network of 26 district offices and 2 metropolitan offices.

Authority's vision comes as *"To constantly monitor the housing sector of the country and develop programmes to cater to meet the short fall"*:

- Evolve strategies to make housing to affordable to all classes of societies.
- Facilitate individual families and private sector to create new housing.
- Facilitate management of existing housing stock of the country. Develop infrastructure complementary to settlement development.
- Creating confident, dignified society through home ownership.
- To build up a healthy relationship with the customers

The Urban Development Authority (UDA) is a multi-disciplinary organization engaged in urban planning and sustainable urban development in Sri Lanka.

Their vision comes as five fold:

- Formulating and submitting development plans, including capital investment plans
- Undertaking the execution of development projects and schemes
- Formulating and implementing urban land use policy
- Developing environmental standards and preparing schemes for the environmental standards and preparing schemes for environmental improvement of urban areas
- Providing technical planning services

According to Regulation and Acts governing construction projects and process of the country these Government bodies have the authority and regulatory powers to monitor each of the construction programs. Any development coming via private sector or an international mediation even should be in accordance with the guide lines provided by those authorities and relevant line ministries. This has very significant impact on regularising any development coming up.

1.5 Shelter Design

Physical Planning and Land Use

UDA has currently proposed guidelines for this in Colombo Metropolitan Regional structure plan. As it comes according to the regulation and contemporary policy parameters of the government, it would comply with the need. This can be further developed and modified once the most sensitive areas are identified, with the real estate development strategic planning guidelines. (*Michael Buckley*)⁶

Population Density

Currently it shows overcrowded and cramped situation both in USS s and relocated houses as well. Considering services and facilities management and health conditions together with social aspects this has to be regulated by introducing strict regulation on density for floor area.

Shelter Quality

Considering basic living status, optimum standards to be stated and a monitoring mechanism has to be developed and activated.

Personal safety, neighbourhood, regional and national wise regulations to be adapted considering, health, society, environment and economy.

Gender Issues

Within the community concerned differences in gender based activities and performances have become highlighted and can be favourably use for things coming up with active community participation.

2 Organisations

United Nations office for project services is a self financing and independent entity of the United Nations that provides effective project management and implementation services. The organization is specialised in sustainable and cost effective reconstruction in post conflict and natural disaster environments.

UNOPS LKOC commenced in January 2005 to support the tsunami reconstruction process as a Technical partner of UNICEF. The Ministry of Foreign Affairs formally accredited LKOC in October 2005. The UNOPS LKOC countrywide project portfolio comprises of shelter supporting , infrastructure and social care / health projects (more than 100 projects.., namely permanent steel bridges, emergency shelters, hospitals, social care centres, water sanitation and many reconstruction projects) also the organisation provides operations and research services.

⁶ M. Buckley is president of Haleyon Ltd. A development management and real estate advisory firm with offices in Haleyon, Miami, Washington DC, Sarasota and San Francisco.

3 Shelter Problem

Issue of low income housing in Sri Lankan urban setting – Colombo Metropolitan Region

Introduction of open economy to the country in 1977 made a huge impact on social cultural pattern which was prevailing at the time of agriculture based economic pattern followed by export market practice introduced by British colonialism.

Concentration of services and economic related production in few of the identified cities made a challenging demand for skilled and unskilled man power to channel from those rural areas to urban areas.

This migrated community has evolved for nearly about three decades now and has its own format of cultural and social interface acting as a transition of rural and urban population. Once it started proliferating it was sub standard and neglected but now identified as an important urban issue to handle as its impact figures out in social cultural and economical aspects with a direct link to urban physical planning environs more than ever.

As migration took place in an ad hoc way without regulatory measures similarly the settlements of those migrants took place in a haphazard way. Giving priority to the access and cost of services and infrastructure this low income category has encroached most of the prime locations of each particular urban setting resulting lack of potential land use for long term physical planning agenda in national level. CMR is one of the cases highlighted.

It is very evident that these USS come with lack of physical planning input, social considerations and with most of the sociologically identified parameters of poor quality of life.

(Poor sanitation and health, discontinuity in basic educational aspects, under utilisation of both human and other resources etc which further make such situations vulnerable)

According to the latest updates of census statistics 51% of urban population is in slums and shanties. This comprises a greater proportion of active participation of country's economy supplying skilled and unskilled man power. Upgrading quality of life of this category is directly an incentive to economic growth and personal strength at the same time.

Policy making body of government has now taken a step towards this dilemma by relocating them in places which reasonably fulfil the anticipation of inhabitants contributing to up lift physical, visual and functional faculties of urban fabric at the same time.

4 Proposal for Change and Improvement

According to applied vision of Urban Development Authority in Sri Lanka., Successful urban planning considers character of "home" and "sense of place", local identity, respect for natural, artistic and historic heritage, an understanding of the "urban grain" or "townscape," pedestrians and other modes of traffic, utilities and natural hazards, such as flood zones.

This clearly designates USS is not merely an issue which should be addressed by means of constructing houses any longer. Thus improvements of physical structure and landscape should essentially make provisions to start up with an integral approach in up coming proposals.

Following is the process were identified:

- Identification of USS within a physical area keeping to interactions and interdependency of physical, functional and geographical terms.
- Capacity building among different levels of social, cultural and economic groups. (even this categorisation depicts a social disparity it is not intended or encouraged to practice..., it stands as to identify different scenarios and capacities of approach each one of them) this has to initiate even before actual implementation happens.
- Identification of potential land uses based on their hierarchy, inter relationship etc.
- Phasing out of development considering its integral outcome.
- Enhancing stakeholder participation at each stage as per requirement.
- Master plan stage (physical and technical feasibility, economic viability, environmental compatibility and social acceptability are the factors that should guide the whole process)
- Implementation

Being fundamental to most of the action plan formulas the above is also provides a prototype case...!? Yet the emphasis here will be focussed on the *residual* kind of space design. In principle ..., this action plan is geared to take care of the connective tissue of a particular urban fabric which links up three dimensional edifice out of brick and mortar...a closer look may identify same as life giving mechanism of the city, urban fabric etc. contributing to a rich cultural landscape..., which is lacking in most of our cities today.

Study Focus

General data- Sahasa pura housing complex

Targeted community	- urban poor category in USS s in Kolonnawa (urban set up in Colombo metropolitan region)
No of housing units	- 870
No of floors	- 13
Area per unit	- 600m ²
No of rooms per unit	- 02



Identified STP areas in CMR

For the specific case study ...

*The objective proposal for change and improvement (what)

-upgrading quality of life of the inhabitants within relocated US settlements in a planned physical set up

*Need for such a study (why)

-even if the inhabitants are given a standardised household with access to basic services and infrastructure quality of life does not indicate a significant improvement.



Pilot project

*Methodology (how)

"The quality without a name is circular: it exists in us, when it exists in our buildings, when we have it in ourselves."

Alexander, Christopher. 1979. The Timeless Way of Building. New York, USA: Oxford University Press, p.62 (first Para of chapter. 4).



Spaces where further attention is needed

Interactions of inhabitants are happening most of the semi public areas of a settlement. This is more or less an informal activity which has to be given a weighted emphasis. These can be identified as spaces in between main entities which provide connective tissue for the main spaces. Namely pathways, staircases, linking bridges, pocket gardens, courtyards, services yard, corridors and patios. Specific concern is given to enhance these spaces to add life to the physical set up anticipating quality of social life within the community.

For this spaces above mentioned are given a design input with a general set of guide lines taking in to consideration of scale, proportion, lighting and ventilation, balancing connectedness to inside and outside etc. and following will be addressed in design process.

- Climate responsiveness.
- Sensitivity to lifestyle of the people.
- Social and cultural relevance.
- Appropriate use of technologies.
- Generation of meaningful work.
- Careful use of renewable and non-renewable resources.
- Active involvement of the community.
- People's participation in shaping of the built environment.
- Innovation in sustainable environmental design.

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