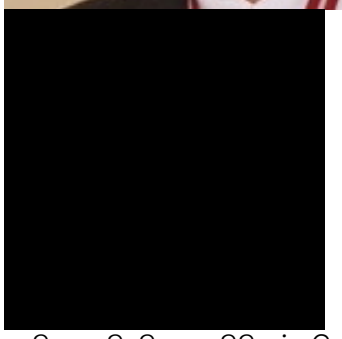

- திரு. திலினா கிரிங்கொட (Thilina Kiringoda) எழுபதுகளில் என்னுடன் மொறட்டுவபை பல்கலைக்கழகத்தில் கட்டடக்கலை பயின்ற சக சிங்கள மாணவர்களிலொருவர். கட்டடக்கலதை்துறையில் இளமானி, முதுமானிபட்டப்படிப்பை முடித்த இவர் ,நகர அமபை்புத்துறையிலும் முதுமானிபட்டப்படிப்பை முடித்தவர். நகர அதிகார சபயைில் பல வரடங்களாகப்பணியாற்றி ஓய்வுபெற்ற இவர் இலங்கயைின் தொழில் நிறுவனங்களை உள்ளடக்கிய அமபை்பின் தலவைராகவுமிருந்திருக்கின்றார். (the President of the Organization of Professional Associations of Sri Lanka). இவரது ஆங்கிலக் கட்டுரகைள் பல கட்டடக்கலை, நகரத்திட்டமிடல் பற்றியவை, பல ஆங்கில் ஆய்வடேுகளில் வளெியாகியுள்ளன. அவை அவற்றின் பயன் கருதி இங்கு பிரசுரமாகும். இவற்றை் பதிவுகள் இணயை இதழுக்கு அனுப்பி, பதிவுகளில் வளெியிடத் தமது சம்மதத்தை வழங்கிய திலிந்தா கிரிங்கொடவுக்கு நன்றி. அவர் அனுப்பிய கட்டுரகைளில் முதலாவது கட்டுரயைான, சூழலுக்குப் பாதிப்புறா வகயைில் நிறவைறே்றக்கூடிய கூடிமனகைள் விடயத்தில் இலங்கயைின் அனுபவம் பற்றிய கட்டுரயைான “Search for feasible and sustainable shelter: Sri Lanka’s experience” என்னும் கட்டுரை முதலில் இங்கு பிரசுரமாகின்றது. நகர அமபை்பு, கட்டடக்கலை, மற்றும் கூறநை்த சலெவிலான சூழலுக்கறே்ற கூடிமனகைள் பாேன்ற விடயங்களில் அனவைரும் அதிகமாகக் கவனம் சலெுத்த வணே்டியது அவசியம் என்பதாலும் இவ்விதமான ஆய்வுக் கட்டுரகைளின் தவேை அதிகமாகின்றது. - பதிவுகள் -

SRI LANKA ASSOCIATION FOR ADVANCEMENT OF SCIENCE SECTION C PRESIDENTIAL ADDRESS 2014: “Search for feasible and sustainable shelter: Sri Lanka’s experience” By - LT Kiringoda, BSc (Built Env), MSc (Arch), MSc (Urban GIS), FIA (SL), ARIBA, MITPSL, MIEPSL -

Abstract

From the stage of finding shelter under naturally built forms the homo-sapiens have come a

long way to make personal choices on shelter. The demand for personal preferences and the failure of mankind to meet the demand have created a problem in finding shelter suitable for them. The problem, though appears easy to be solved, has become a problem with complex political ramifications due to policy makers insisting on feasibility and sustainability of solutions. As a country with a settlement history of over 2500 years, Sri Lanka has been in the forefront of nations providing innovative and practical concepts to solve the housing problem, in spite of international donor agencies beginning to treat housing as market driven and changing the policy on providing donor funds for the housing sector accordingly. Continued state patronage in Sri Lanka on both social and market housing, even after the global policy change, has been pushing housing providers in both state and private sectors to search for more and more feasible and sustainable solutions to the problem of shelter leaving a legacy of policies, programs, strategies and projects.

Key words: shelter, feasibility, sustainability, human settlements, social housing, market housing and housing policies

1.0 Why is shelter so important?

Primarily it is because shelter from elements is a basic human need. Without air, water, food, sleep or shelter, no man would see it past his first few days on Earth. Secondly the right to housing is codified as a human right in the Universal Declaration of Human Rights.

All countries, which have ratified this declaration, have taken follow up action to include provision of shelter as a priority state policy in governance and have created policy instruments such as Ministries, State Departments/Agencies/Authorities, State Banks and Financial and Research Institutes and also regulatory standards for housing. In countries where liberalized economic policies are in practice, the private sector has also stepped in with forming institutions as building societies and offering credit for both individuals and corporates to put up shelter. In some countries, universities offer graduate and post-graduate courses with housing or sustainable housing as core subjects.

2.0 Why do shelter solutions need to be feasible?

Feasibility in building shelter was not a problem for the homo-sapiens until about 100-years from BP (Before present). It was mainly due to shelter being built with material procured from the locality and shelter being built with community participation. Since the governments started treating the search for solutions for housing problem of people as a state responsibility and started intervening in providing financial and land resources, technology and expertise for finding solutions, the question whether present day shelter solutions for homo-sapiens are feasible, has been confronting the policy makers. Now the policy planners cannot overlook the need for addressing the issue of feasibility and the professionals involved in finding solutions for

shelter problem cannot ignore the following aspects when they make recommendations to policy makers.

a) "Technical Feasibility":

Does the technology exist to implement the proposal? Is it a practical proposition? (Access to technology and skills for using it by the designers and builders)

b) "Economic Feasibility":

Is the system cost-effective? Do benefits outweigh costs? (Recommendations by policy planners for decision making by policy makers)

c) "Financial Feasibility" :

Is it affordable? Is there a profit? (For buyers to buy and for sellers to sell)

d) "Legal Feasibility" :

Is there any conflict between the proposed and the legal requirements? [Shelter from elements vs. regulatory standards of shelter for dwelling (dwelling house), eviction vs. non-voluntary relocation]

e) "Operational Feasibility" :

Are the current work practices and procedures adequate to support the new system/solution? (Knowledge, standards, awareness and skills)

f) "Schedule Feasibility" :

Can the system be developed in time? (Time targets set by users vs. actual time for delivery)

3.0 Why do shelter solutions need to be sustainable?

The term sustainability came into the vocabulary of development planners since publication of the Report of the World Commission on Environment and Development: titled "Our Common Future" (WCED/UN, 1987). The Environment Protection Agency of the USA, has included materials management and safe products among policy goals towards sustainability and has developed strategies labeled 'green engineering' and 'green chemistry' based on a simple principle that everything that people need for their survival and well-being depends, either directly or indirectly, on our natural environment. Phrases with the prefix 'green' are increasingly developing and 'green architecture', and 'green buildings' are now key words in documented information pertaining to designing environment-friendly shelter.

Sustainable shelter is dwelling within forces of nature comfortably and safely and is supposed to be capable of sustaining the life style determined by the choices made in a shelter (way of making food, way of sleeping, expression of social status, social interaction). Many locations may be suitable for putting up shelter but all such locations are not capable for sustaining life in shelter. For sustainability the location should be able to ensure comfort and safety, proximity to productive economic activity, and access to services (economic, social and environment infrastructure services).

Shelter that is environmentally, socially and economically sustainable also needs to be affordable in respect of its acquisition, retention and maintenance, and should not overburden the community with unaffordable costs and it's located in areas that do not constitute a threat to people or the environment. (UNHabitat, 2005)

The ultimate goal of sustainability in shelter is reaching the state of "autonomous house", which is a building designed to be operated independently from infrastructural support services such

as electricity power grid, gas grid, municipal water supply, waste water, storm water and solid waste disposal systems and communication services (Brenda and Robert Vale, 1975) and to survive or decay without negative impacts on nature.

4.0 Shelter, House and Home

All three words sound synonymous. Yet in reality they have different meanings. The shelter is the goal of the process of building a house because it is the function of the house. The word ‘home’ carries a very strong emotional connotation, a sense of a personal connection with a place but the word ‘house’ is mostly emotionally neutral. (Anagnostopoulos, 2009) Since civilization, the concept of home had been receiving attention of both individuals and communities. Where dwelling in one’s own house mattered home was meant to be a place which could restore comfort ‘bodily’ and ‘spiritually’ (Fry and Drew, 1964).

Whether ‘houseless’ and ‘homeless’ means the same thing is a hotly debated issue. Tipple and Speak (2005) conclude in a study that there is little doubt that people living on the streets, under bridges, and in structures not designed for residence are homeless but lifestyle, location, permanence of occupation (or security of tenure), welfare entitlement and housing quality form valid criteria to generate different perspectives on homelessness. Shelter, House and Home started receiving the attention of the international community, when the UN declared 1987 as the “International Year of Shelter for the Homeless”. The agenda and the programs connected with the declaration define a scope, which is wider than achieving numbers specific targets.

5.0 Social Housing, Market Housing and Affordable Housing

Social housing is differentiated from market housing as the segment of the housing supply market which is not currently met by market forces. This segment of housing supply does not attract market forces due to investments not being financially viable. People who are in low income groups demand social housing and their voice on this demand is always considered as politically sensitive. Emphasis on this by policy makers has driven the designers to find low cost construction solutions to bridge shortage.

Market housing always targets middle and upper income housing segments. It is developed mainly by the private developer industry in most cases without any government intervention, subsidies or support. In the latter part of the 20th century, the phrase ‘low cost housing’ was used synonymously with social housing for a considerable length of time. Research on relationship between cost and affordability has lead to coining the new phrase ‘affordable housing’ cutting across both low and lower middle income categories.

6.0 Historians’ perspective of evolution of shelter

Historians view evolution of shelter and settlement together. Earliest man did not settle anywhere as they wandered around in search of food. He found protection from elements and safety from predators on top of trees or inside caves, both located close to sources of water. Since 10,000 BC, man started staying at one place when he learnt domestication of animals

and practicing cultivation. From natural shelter, he moved into a shelter huts and mud houses built with material, which could easily be found in the locality. (Gul, 2011)

Continuously assured food supply from agriculture could support larger populations not dependent on agriculture. Availability of man power for other economic activities increased the wealth of the settlement. The groups who could control the wealth became rulers and resulting fiefdoms marked the origin of distinctively different settlements now known as village and town. Shelters in the village were detached. They were built with material procured from the locality and community participation. The shelters in the towns were more or less attached and were connected to networks of systems such as streets, water supply, sewerage, drainage and transportation.

The form of capitalism evolved with industrial revolution in the 18th century, caused development of slums. The workers and their families started dwelling in squalid settlements developed in the shadows of factories for processing produce from commodity agriculture and minerals and warehouses in harbour towns (Korra, 2013).

7.0 Sri Lanka's housing scenario

7.1 Until European invasions (before 16th century)

Scientific archaeological explorations have proved that 'Balangoda man' and his clan had lived in caves from 35,000-10,000 years BP (before the present). Sri Lankan Archaeologists now say that human settlements existed before the commencement of the period of recorded history (Deraniyagala, 2014)

In spite of Sri Lanka having a well recorded history of over 2500 years, there is no reference to a housing scenario except to capital cities during the reigns of different kings. Archaeological remains in those cities and settlements are evident of palaces, castles, houses of chieftains and temples being given prominence and being made of long lasting building material as was in the global scenario during this period. Dwellings of common man or peasants can safely be assumed to have been not permanent due to nothing remaining of them and no ruins of houses could mean that they were subject to natural decay due to being built with environment friendly material.

7.2 After European colonial invasions (after 1505-1798)

Fortified towns similar to fortified towns of medieval Europe, were constructed during Portuguese and Dutch periods for governance of conquered maritime region. There are no ruins of houses among the ruins of fortified towns and churches of Portuguese period. A good number of houses of chieftains and commoners still remain in fairly good condition in Galle, Trincomalee and Negombo Forts built during the Dutch period. All dwelling houses are permanent and built from limestone. (Kiringoda, 1992)

There are no tangible and intangible records to indicate that there was a housing problem in the maritime areas occupied by the Portuguese and the Dutch. It may be that both the Portuguese and the Dutch were not concerned about the housing needs of the natives.

7.3 During British occupation (1802-1948)

The British introduced legislation for acquisition of forest, waste and unoccupied or uncultivated lands for throwing additional land for land markets. The abolition of Rajakariya System (Sinhala Kings decreed and enforced this system through regional chieftains to get the subjects to work in projects implemented for public good) in 1833 with the expectation of pushing the natives who lost livelihoods due to eviction from lands acquired for new plantations. When they refused labourers from Southern India were brought to work in the plantations. The sky rocketed demand for rubber during the World War II, increased opportunities for labourers in Colombo. It marked the appearance in slums and shanties on the marginal land in the neighbourhoods of industrial and commercial activities. This is similar to circumstances prevailed in Britain after the industrial revolution.

The British had no state policy on housing provision but introduced legislation for maintaining standards for sanitation, houses and housing and town improvement. They also enacted legislation for establishing Municipal, Urban, Town and Village Councils, which were vested with powers providing and maintaining public amenities for local residents. Housing provision was in the hands of the private sector. Land owning families in urban areas invested heavily on building houses for rent. Plantation owners built 'line rooms' for accommodating labourers and their families. Large companies engaged in commodity brokering, mining and plantation management built bungalows and residential quarters for executives while state departments constructed quarters in many a major town for public servants in their service. The British introduced reinforced concrete, steel, aluminium, asbestos, glass and Calicut tiles to house building.

Housing supply for people in low and lower middle income categories and for plantation labourers (social housing), was visibly a problem during the British period but they may not considered it as important in formulation of state policies beyond enacting legislation for sanitation and housing and town improvements.

7.4 Post Independence period (1948-2014)

The elected governments of independent Ceylon (Sri Lanka) focused more on multi-purpose irrigation schemes, which facilitated agriculture, power generation and industrial development and also on development of infrastructure for road, sea and air transport. At the dawn of 21st century the country's economy was dependent mainly on the services and industrial sectors pushing contributions from traditional agriculture and introduced commodity agriculture to low levels. Housing in post-independent Sri Lanka was treated as a state policy and successive governments had deferent policy goals and connected policy instruments were introduced accordingly.

7.4.1 Housing sector during 1948-1969

Housing loans had been provided by the state under statutory powers to promote private sector involvement in housing. This is evident in state granting loans through building societies (housing cooperative societies) and individuals and to urban local authorities to build housing schemes for middle and lower income groups of the urban areas. The state appears to have played the role of a facilitator during this period.

Land mark events during this period are establishment of Housing Loans Board (1952) National

Housing Department (1953) and National Housing Fund (1954) to raise and grant loans to cooperative societies, building societies, companies and individuals to build houses. Land owners in major towns continued to invest in building rentable houses. State Engineering Corporation began manufacturing pre-cast concrete components for houses and buildings (the houses were popularly known 'poottu geval' or fabricated houses). Commercial production of cement in the country facilitated construction of permanent houses in conformity with regulatory standards.

The state facilitated 'market housing' because of assured loan recovery, but 'social housing' still remained nobody's problem.

7.4.2 Housing Sector during 1970-1977

During this period housing was given state recognition at highest level by creating a Cabinet Ministerial portfolio for Housing. The approach to solving the housing problem by the Housing Minister was pro-socialist and state was in almost full control in regulating the housing sector instead of facilitating. Legislation was enacted for the state to promote building condominiums and to manage common amenities of condominiums. Legislation on ceiling on housing property owned by individuals was meant to ensure the rights of tenants but resulted in land owning individuals and families not investing in rental housing. The private sector was left without recourse to capital markets and no new building societies were formed. The other noteworthy event during this period was the state sector's entry into manufacturing and marketing of building materials.

7.4.3 Housing sector during 1977-1983

Cabinet portfolio for housing was continued with and social housing started receiving attention of the state. A countrywide program, covering all electorates and targeting the poorest of poor, was planned and implemented. This program was not tied up with any economic development program and therefore rentals were not based on capital recovery.

The pros and cons of the program implemented at electorate level, paved way for a new program to build 100,000 houses covering rural, and urban areas and slums and shanties targeting the poor and with aided self-help approach for rural areas, direct construction method for urban areas and improvements to sites and services for slum and shanty areas. Housing schemes for lower-middle income earners were also built outside the Colombo urban area and also in Kandy, Nuwara Eliya, Jaffna and Trincomalee. The UN declaring 1987 as the 'International Year of Shelter for the Homeless' can be considered as a milestone in this journey.

Both the 100,000 houses program and the housing schemes for lower-middle income earners, were formulated and implemented by the National Housing Development Authority (NHDA), which was established in 1979, with powers wider than those of the National Housing Department and with capital drawn from funds remaining in the National Housing Fund and Municipal Housing Funds and additional capital from the state.

7.4.4 Housing sector during 1984-1993

The success of the 100,000 houses program led to formulation of a program under the theme

'Housing for All' to build one million houses for implementation under 7-sub programs covering Urban, Rural, Plantation and Fisheries sectors, new settlements in Mahaweli Development Program, Private Housing Developers and 'Sevana Sarana' Grant Housing for the poorest of poor. Gunaratne et. al. (1991) describes the goal of it as to reach far greater numbers- a million or more mainly poor families-at a lesser cost to the nation but more satisfaction to the actual builders.

After review of the million houses program, the NHDA and the Ministry of Housing initiated a program to build 1.5 million houses for implementation under 10 sub-programs. A change of government in 1994 resulted in the program not receiving priority status of the development program of the new government.

The other state institution, which was active in house building during this period was, the Urban Development Authority (UDA). Established in 1979 on the recommendations of the UNDP, it embarked on a program to relocate industries and ware houses in Colombo at locations outside the city and also a program to regenerate the city. It has the statutory mandate for both. Housing for relocation of displaced families, was constructed by the UDA through cross-subsidization approach. The UDA program of 1990 (Kiringoda, 2012) for regeneration of ten locations in the city of Colombo with 100% capital infusion by private sector, failed due to private sector not wanting to invest money to relocate displaced families.

7.4.5 Housing sector during 1994-2005

Owing to international donors changing their policy on pro-poor housing programs, and treating housing as market driven, revision of national housing policy was inevitable. An innovative concept, which recognized the occupier of a slum or a shanty as having a right to a permanent house and offered the occupier the opportunity to exchange the right of occupation for a permanent house, was put into practice in a pilot project named 'Sahas Pura'. The builder of relocation houses was to get the right to develop the vacated land to recover the cost. A corporate mechanism named Real Estate Exchange Ltd., (REEL) was established for implementation of this program. However, due to reasons beyond control of state institutions participating in REEL as stakeholders, the program did not progress beyond the first project.

Change of national policy on housing from pro-poor to pro-market driven and the availability of finance from international capital markets and foreign investors, resulted in the Board of Investment (BOI) and the UDA promoting apartment housing for people in upper middle income category. Real estate market was vibrant during this period mainly due to aggressive marketing by the developers in the internet. The decision of the government to exit from maintaining condominiums and to vest the responsibility with the developers and the owners was reflected in the amendments to legislation on apartment ownership and condominium properties.

Plantation Human Development Trust (PHDT), which is a tripartite organization with government, plantation companies and plantation trade unions, launched a program to upgrade the attached 'line rooms' in plantations to detached, spacious and dignified single unit houses with improved infrastructure facilities and it is continuing with success. Houses for fisheries sector were built for the fisheries sector under "Diyawara Gammana" program of the Ministry of Fisheries. Another significant feature during this period was the high demand for houses built in

Dutch Period in the World Heritage City of Galle.

The first opportunity to develop disaster resilient housing schemes for relocation of relocation of families displaced by landslides in Kalutara, Ratnapura, Galle, Matara and Hambantota Districts in 2003 was missed by the state due to policy makers insisting speedy relocation than developing resilient settlements on the lines suggested by policy planners.

7.4.6 Housing sector during 2005-2009

In 2005 the full attention of the government had to be focused on and all state technical, land and capital resources had to be mobilized for Tsunami Housing Relocation Program in 13 districts affected by Tsunami (nearly 135,000 houses damaged partially or fully). This offered another golden opportunity to develop inclusive settlements integrating the rural settlements, which were close to relocation sites. Again it was a numbers game with a few exceptions due to policy makers insisting on fast tracking construction for speedy relocation of the displaced.

Urban Settlements Development Authority (UNSD) was created for planning and implementation of urban housing programs to succeed REEL. BOI approved housing projects started mushrooming in urban areas in the periphery of Colombo but most of them had to be stalled due to the burst of "Housing Bubble" in USA in 2008. Housing continued to be developed under "Mixed Development" projects of private sector.

7.4.7 Housing sector after 2010

The UDA, which was put under the purview of Ministry of Defense & Urban Development began to play a lead role in the housing market during this period by launching a program for relocation of 70,000 families living in underserved settlements in the city of Colombo. It followed the same approach of REEL to involve private sector: exchange of liberated land to offset cost of construction of houses for relocation. The difference in previous and new approach was raising capital from private capital market to guarantee payments to contractors/developers in the event of them preferring to be paid in cash. The land mark event during this period was adoption of a National Housing Policy by the government.

Some new trends have also been observed. BOI approved housing projects, which were stalled after 2008 economic slowdown in USA and Europe, are being converted to 'city hotels' and 'serviced apartments' and the private sector has entered into the segment of housing for students but all of them are centered on the urban area of Colombo. The government also started building hostels for undergraduates in national universities.

Except the 100,000, million houses programs and Tsunami housing, all other housing programs in the country since 1948 have been Colombo centered. Although the housing problem of the fisheries sector was solved to a certain extent under Tsunami Housing Reconstruction, state attention paid to housing problems in rural, fisheries and plantation sectors is still grossly inadequate.

8.0 Survey of housing stock

It is interesting to note that the Department of Census and Statistics has also broadened the scope of its criteria for assessing the housing stock (Census 2012). In addition to the generally

accepted indicators of number of units, sizes, types, materials, they have begun to include indicators for access to infrastructure, quality of environment and communication facilities. The information content of housing stock can be improved further by introducing indicators to determine the adequacy of built and open space and also accessibility to public transport.

8.0 New opportunities and trends

Office workers have started travelling from Matara and Galle to Colombo on Southern Expressway daily by using public transport with a monthly season ticket. This trend is on the increase according to a survey. And the demand for accommodation in Colombo and suburbs is likely to come down with completion of Northern Expressway. Private sector has started investing in high end high rise residential apartments in Kandy and Galle to capitalize on the reduced travel time on Expressways. This is proof of affordable public transport and reduced travel time between cities easing pressure on Colombo for housing.

10.0 Impact of current state policy interventions

'Mahinda Chinthana Idiridekma', 'National Housing Policy of 2014' and 'National R&D Investment Plan of Sri Lanka 2020: Shelter thrust area', 'National Physical Plan 2030' and 'Disaster Risk Reduction Guidelines' are the current state policy interventions in the housing sector. Yet the statistics on housing indicates a widening gap between the housing stocks in respect of Low and Lower middle income categories and Upper Middle income category.

11.0 Concluding remarks

In spite of having a globally unprecedented legacy of policies, programs, strategies and projects and also an invaluable institutional knowledge in the country, the practice still intends to achieve targets in terms of numbers with no attention to livability, safety, feasibility and sustainability. Population increases in plantations and towns in plantation areas are creating more housing problems due to scarcity of land and water. Housing stock in rural, coastal fisheries and plantation areas is need of immediate improvements, particularly in respect of access to drinking water and sanitation. Addressing the increasing vulnerability of existing human settlements to disasters such as landslides, floods and cyclones is still happening in isolation with responsible state agencies formulating own guidelines.

In a recent report the World Bank (2010) highlights that most Sri Lankan families cannot buy even a basic house. And the attempts by various governments in South Asia to make metropolitans 'World Class' is criticized due to completion of projects taking precedence over planning and poverty being pushed to the periphery of the city.

In the face of the impending dangers of climate change and the need for reducing the ecological foot print of human settlements to make them sustainable, time has come for all stakeholders to discuss and agree on an integrated approach to address the following issues.

a) Whether human settlements are located in livable and safe areas;

b) Whether planning and plan implementation in housing sector happen within a nationally integrated economic development framework;

c) Whether the current National Housing Policy helps achieving sustainable development.

"The journey does not end here. To enrich society we scientists in the housing sector are

expected to be Sensitive and Proactive".

References:

1. "Article 25(1) of Universal Declaration of Human Rights" - http://www.un.org/en/documents/udhr/
2. "Report of the World Commission on Environment and Development: Our Common Future" - http://www.un-documents.net/our-common-future.pdf
3. Environment Protection Agency of USA - http://www.epa.gov/
4. "The New Autonomous House: Design and Planning for Sustainability" – Vale, Brenda and Robert – Thames and Hudson, UK, 2002
5. "Types of Feasibility Studies" – Bowen, R - http://www.brighthubpm.com/project-planning/56372-types-of-feasibility-studies/
6. "A Companion to Aristotle" - ed. Anagnostopoulos, Georgios-http://as.wiley.com/, 2009
7. "Fine Building" – Fry, Maxwell, Drew, Jan - Faber & Faber, London, 1944
8. "Definitions of homelessness in developing countries" – Tipple, G and Speak, S - https://habnet.unhabitat.org/files/1774_homeless.pdf, 2003
9. "Report on the Feasibility Study on Developing a Social Housing Programme at Shelter Afrique" - http://www.shelterafrique.org/wp-content/uploads/2012/12/SOCIAL_HOUSING.pdf
10. "Origin and Evolution of Human settlements" – Gul, Yusra – http://www.slideshare.net, 2011
11. "Industrial revolution and Impacts on Human Settlements" - Korra, Chaitanya http://www.slideshare.net/ 2013
12. "Early Man and the Rise of Civilization of Sri Lanka: The Archaeological Evidence" - Deraniyagala, SU- Living Heritage Trust, Colombo, 2014
13. "An Analytical Study of the Design Aspect of Fortified Town of Galle" – Kiringoda, LT- Unpublished Master's Degree Thesis, University of Moratuwa, Sri Lanka 1992
14. "The British in Sri Lanka" - http://www.lankalibrary.com/
15. "Towards Research and Development Interventions for Economic Development: an insight into technological thrust area of shelter " – Kiringoda LT - Kedella Magazine, Colombo 2014
16. "Development of urban areas in Sri Lanka: the role of the UDA" – Kiringoda, LT- OPA Journal Vol 27, Colombo, September 2012
17. "Role of Tsunami Housing Reconstruction Unit in post-Tsunami Recovery operations" –Kiringoda, LT- A paper presented at the Seminar on adoption of Cairo Principles for post Tsunami recovery, Wadduwa, Sri Lanka - 13th September 2005
18. "Step by Step: Supporting Incremental Building Through Housing Microfinance" - UN Habitat Shelter Report 2014
19. "Shelter in Sri Lanka: 1978-1991" – Gunaratne, L et el – Ministry of Housing & Construction, Colombo 1991
20. "Reflections on over 100 years of urban housing policies in Sri Lanka" – Samaratunga, T, O' Hare, D - http://www.sciencepublishinggroup.com/, 2013
21. National Housing Policy of Sri Lanka -http://www.housingpolicy.lk/
22. "Population and Housing" – Department of census and Statistics, Sri Lanka, http://www.statistics.gov.lk/
23. "Housing Finance Needs to Reach South Asia's Poor: World Bank Report" – World Bank http://www.worldbank.org/en/news/press-release/2010/10/07/

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