

A REGULATORY FRAMEWORK FOR SUSTAINABLE MIDDLE-INCOME HOUSING IN SRI LANKA

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ABSTRACT

Housing is a basic human need and an essential social condition that determines a country's citizens' living standards. Housing developments worldwide have created many economic, social, and environmental problems on a major scale in the present day. It is a crucial priority for government institutions, industry professionals, and research organizations to make housing developments more sustainable in rapidly urbanizing areas. Sustainable housing refers to managing economic, environmental, and social sustainability considerations. The housing construction process involves natural resources on a major scale, such as energy sources, water sources, soil, and building materials, while producing waste and pollutants. Compared to expected living standards and monthly income-generating levels, educated middle-income populations to become the most vulnerable part of the community's struggle for reasonable housing.

The objectives are to describe the development and validity of the framework for the assessment of the regulations in order to achieve sustainability in middle-income housing. The research is initiated by studying existing local assessment frameworks and regulations that will be analyzed to provide the necessary context to build an interim framework to examine affordable and sustainable middle-income housing. The secondary study will be based on a semi-structured questionnaire survey conducted with industry experts and other stakeholders to examine the interim assessment framework. Discussion and comments will deliver necessary improvement and industry input to this interim assessment framework. The interim framework is to be developed into a strong and incremental regulatory framework that allows future success in SH for the middle-income population in the country. Finally, findings will be tested against the developed regulatory framework for sustainable middle-income housing in Sri Lanka.

Keywords: Sustainable housing, Middle-income, Regulatory framework

INTRODUCTION

In the present day, the rapid and largest building markets are found within the developing countries. The amalgamation of increased demand and limited supply leads to increasing housing prices which harm the foremost susceptible middle-income category population group. Compared to expected living standards and monthly income-generating levels, educated middle-income communities struggle to fulfill their basic needs within limited income. Middle-income populations become the most vulnerable part of the community worldwide, those who expect reasonable living standards in terms of housing, education, job/career expectations, vehicle ownership, good food, health facilities, and recreation facilities within limited income sources.

Housing is usually the largest budget item for households. Housing affordability is related to housing costs and income of households. The affordability of housing can be measured for owned houses as well as rented houses. Middle-income housing affordability plays an important role in the economy. The second largest expenditure item identified as electricity followed by L.P. gas for the global middle class housing. The global middle-class household spent a higher amount on water bills Compared to the other two classes according to surveys. Surveys reveals that global middle class shows increase demand for utilities and natural resources. It seeks attention to develop sustainability in housing developments in terms of affordability and energy efficiency in middle-income housing.

Developing countries have propelled a substantial number of housing programs initiated by private sector developers or by the Government under local authorities as a response to the present day housing crisis. Limitations related to land use, time and funds faced by housing developers can cause buildings to construct with hardly any attention with regard to durability, energy efficiency sustainability or environmental health. These variables may also result in low-cost housing that is of poor quality and has a high prevalence of faults, high maintenance costs, and short lifespans. Housing units might also be built in suburban locations, where residents will have limited access to the city's social and economic prospects as well as to essential amenities and infrastructure.

Finding and promoting solutions is crucial because doing so will enable verification of the sustainability that is frequently attained in inexpensive housing just as effectively as in high-standard structures, instead of private-

sector developers encroaching on land and building non-affordable, low-standard housing units that lead to the environment and social problems on a massive scale. Significant environmental, social, and economic benefits can be entirely provided to the middle-income population and to society using the successful regulatory framework for sustainable housing.

The regulatory framework is the backbone of the public sector services delivery. Getting regulation right is important to balance multiple public interests such as consumer protection, productivity, efficiency, innovation, and sustainability.

RESEARCH GAP

Rasel Ahmed explained that the limitation of existing work, empirical works to describe a theory or phenomenon or a Knowledge gap can be defined as research gap. (Rasel Ahmed.) University Technology Petronas.

The number of Sri Lankans who identify as the middle class is expanding, due to the present financial crisis in the country. It is obvious that documented literature in relation to what constitutes development of sustainable housing for the middle-income population is lacking. Although public housing aimed at the low-income category has been addressed with many housing developments, middle-income housing sustainability has not attracted attention in urban areas.

Housing sustainability can be significantly impacted by policy decisions. It is evident that absence of simple, effective, and well-structured regulations for sustainable housing development in the country.

PROBLEM STATEMENT

The biggest issue in meeting housing demand in growing countries is a development that supports the present generation's needs without sacrificing future generations' capacity to meet their own wants.

It is evident that there are multiple national policies, acts, and council regulations applicable to the existing national development process. Nevertheless, the housing developments, however, lead to creating social, economic, and major environmental issues, due to the lack of involvement associated with effective regulatory applications.

Developers face difficulty to implement sustainable housing due to constantly changing in government policies and generally take a long period

to obtain the approval of local councils. A simple, effective, flexible, and well-structured regulatory framework shall be introduced to overcome stakeholder interest in sustainable middle-income housing developments.

THE OBJECTIVES OF THE STUDY:

The primary objective of this research focus to introduce a regulatory framework for sustainable middle-income housing in Sri Lanka.

The novel thinking approach considers the future of sustainability regulations. Sustainability can be understood best in the context of other components and aspects, rather than in isolation. Thus, in terms of sustainability, a regulatory framework for economic, social, and environmental sustainability considerations should be interconnected. It is essential to study and assess previous regulatory practices and knowledge in order to create an interconnected and thus flexible regulatory framework.

1. To study the existing regulatory framework in Sri Lanka (a reference to regulations for SH in SL).
2. To study local and international sustainable regulatory frameworks.
3. To study factors affecting sustainable measures/dimensions in terms of economic, social, and environmental sustainability in middle-income housing developments.
4. To develop the regulatory framework for sustainable middle-income housing in Sri Lanka.
5. To substantiate the regulatory framework implications of middle-income SH.

These facts are to be taken into consideration while developing housing, which indicates the importance of a proper regulatory framework for future sustainable housing developments.

A LITERATURE REVIEW

Sustainable Development (SD)

The “official” definition of sustainable development, is “Development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland, United Nations General Assembly, 1987, p. 43). The overall goal of sustainable development (SD) is the long-term stability of the economy and environment; this is only achievable through the integration and acknowledgment of economic,

environmental, and social concerns throughout the decision-making process. Bhatti (2000) has expressed that in relating sustainable development and sustainability to housing, a framework is more useful than a specific definition.

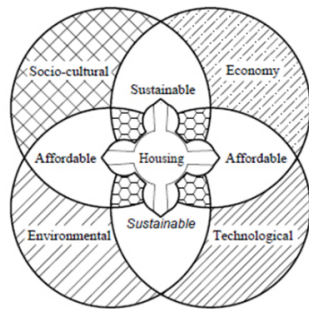
Albeit somewhat vague, this concept of sustainable development aims to maintain economic advancement and progress while protecting the long-term value of the environment; it “provides a framework for the integration of environmental policies and development strategies” (United Nations General Assembly, 1987). Long before the late twentieth century, however, scholars argued that there did not have to be a trade-off between environmental sustainability and economic development.

Sustainable Housing Development (SH)

The principle of sustainable housing is to give comfort and safety to human lives. Sustainable housing has been defined as, housing that must be economically viable, socially acceptable, technically feasible, and environmentally compatible (Choguill, 2007).

The UN-HABITAT (2012) noted that sustainable housing consists of socially enhancing and environmentally-friendly residential practices integrated into the wider settlement systems. The principles applied in sustainable housing, include concern for people by ensuring that they live in a healthy, productive, and in harmony with nature (Nazirah, Z. A. dan P, 2005).

Sustainable housing is important for human health, sustainability, and safety, and sustainable housing practices must integrate three aspects: environmental, social, and economic. There are numerous ways for humans to begin living in a sustainable housing on their own, even with the smallest implementation at an affordable cost. These practices also rely on the government, architects, developers, community residents, and construction leaders to create sustainable housing that incorporates the previously mentioned criteria and implementation, as well as land use, social, economic, and environmental considerations. In order for sustainable housing programs to continue, they must always evaluate economic viability, socio-cultural acceptability, technical feasibility, and environmental compatibility.



Sustainability has four main dimensions

(According to Choguill, 2007)

1. Economically viable
2. Socially acceptable
3. Technically feasible
4. Environmentally compatible

Figure 1: Dimensions of housing sustainability.

Therefore housing to be described as sustainable, if given adequate consideration in all four objectives of sustainability.

Economic Viability

Early theorists proposed that policies to protect the environment could also promote innovation and profit by utilizing economic tools. Arthur Pigou, In 1920, emphasized that the presence of incidental, uncharged services act as a barrier to achieving equilibrium in the market. Thus Pigou noted that the divergence between marginal private costs and benefits and marginal social costs and benefits create what we now call “externalities” (Pigou, 1920).

Michael Porter and Claas van der Linde theorized that pollution is a sign of inefficient resource use. As a result, improvements that reduce pollution in manufacturing processes can create win-win situations for the environment and the economy. (Porter & van der Linde, 1999). These authors argue that competitive advantages rely on the capacity for innovation; thus, “by stimulating innovation, strict environmental regulations can actually enhance competitiveness” (Porter & van der Linde, 1995, p. 98). As the Porter Hypothesis states, properly designed environmental policies that make use of market incentives can encourage the introduction of new technologies and reduce production waste. Market-based environmental tools are generally perceived as more “business friendly” than traditional command and control policies (Cooper & Vargas, 2004).

Housing economic sustainability or affordability should be integrated into an economic development strategy that increases household members' economic self-reliance.

Social Acceptability

According to UN-HABITAT (2012), social sustainability in housing entails developing affordable, high-quality, inclusive and diverse (mixed-tenure and mixed-income) dwellings, residential areas, and communities that are well-integrated into larger socio-spatial systems of human settlements. This means that housing is said to be socially sustainable when it is decent, safe/secure, healthy, inclusive, mixed tenure, and properly integrated with other human settlements fabrics.

Jepson, 2007, contends that Sustainable development has become firmly established in the literature on community development and planning. Choguill competes that authorities have taken less concern about sustainable cities, sustainable housing, and a variety of other sustainable activities. Choguill 2007, demands that sustainable development has become confidently established in the community development and planning literature.

Houses' location and style frequently reflect social inequalities. This affects their social relationships, daily lives, and, ultimately, future generations' prospects.

Technical Feasibility

Popular building materials are out of reach for the majority of the world's population due to their high cost. Journal of Sustainable Development emphasizes that rising construction material costs and environmental devastation due to the mistreatment of natural resources associated with building construction and housing development goings-on urge the exploration for alternative technological solutions. (Journal of Sustainable Development; Vol. 9, No. 2; 2016).

The basic requirements for technological sustainability are durability, reliability, functionality, strength, and feasibility. New technologies should be made available and feasible to the users equally. The construction techniques and raw materials should be strong enough to meet the basic strength parameters suitable to the local conditions in terms of safety and durability of its use. The environmental friendliness of technological options in sustainable constructions refers to the reduced use of renewable and

nonrenewable resources, the extensive use of waste materials, and the reduction of waste product and pollution impact.

Environmentally Compatible

House constructions can be accomplished by addressing limited resources through efficient use of nonrenewable resources, reducing the impact of waste materials and pollution through the use of appropriate technologies, and utilizing local workforces.

According to the World Watch Institute , building constructions consume 40% of the raw stone, gravel, and sand, 25% of the virgin wood, 40% of energy, and 16% of the water also used annually worldwide. The construction industry is involved in actions that harmfully affect the environment through the over-exploitation of nonrenewable resources. It may result in topsoil stripping and the destruction of natural topography, causing problems such as erosion, landslides, and negative effects on local hydrology. Although, diminish of fertile soil and the devastation of agricultural land, as well as the depletion of natural resources and pollution of the environment as a result of the building process's emissions of dust, debris, and toxic gases. Statistics of total energy consumption show that the proportion of energy consumption for building activities in the developing world is 35% of the total annual energy consumption. It utilizes energy for the development or production and transportation of materials and machinery, building, and also for maintenance activities. At a global level, the building sector including housing has the largest potential for significantly reducing greenhouse gas emissions compared to other major emitting sectors – UNEP, 2009. This emissions savings potential is said to be as much as 84 gigatonnes of CO₂ (GtCO₂) by 2050, through direct measures in buildings such as energy efficiency, fuel switching, and the use of renewable energy – UNEP, 2016. The building sector has the potential to make energy savings of 50% or more in 2050, in support of limiting global temperature rise to 2°C (above pre-industrial levels) – UNEP, 2016.

Effective usage of renewable and nonrenewable resources, appropriate land management systems, healthy neighborhood, basic utilities, infrastructure services, and waste managing have been identified as needs to fulfill in sustainable housing. To achieve solutions to growing waste disposal problem in urban areas in Sri Lanka, should develop a proper solid waste management systems within urban areas.

Government organizations are typically divided into sectorial ministries and departments. In practice, sustainable development requires the integration of economic, environmental, and social objectives across sectors, territories, and generations. Therefore, sustainable development requires the elimination of fragmentation; that is, environmental, social, and economic concerns must be integrated throughout decision-making processes in order to move towards development that is truly sustainable. (Emas R., 2015).

Therefore, rather than the clients themselves, architects, project managers, consultants, contractors, and relevant public administration professionals should act responsibly in implementing sustainable housing.

The Middle Income People / Middle Class

According to Asian Development Bank report in 2010, the middle class is defined as a social class consists with technicians, government officers and professionals. This category of population are from well-educated employees, service providers and also small-scale entrepreneurs. Middle class demanding reasonable housing, improved quality services, and demanding comfortable lifestyles including luxury goods such as mobile phones, computers, and cars. Asian Development Bank (2010). Arunathilake and Omar, 2013 highlighted that the lifestyle has changed in the middle class although, they are highly spend on housing, education, health, transport and durable goods etc.

It is further explained that middle class is important for economic growth and development and poverty reduction. The local middle class is classified under spending less than 2\$-10\$ per day while, Global Middle Class - Spending Less than 10\$-100\$ per day (www.adb.org)

Economically the middle class has defined by relative approach and absolute approach. By the relative approach, middle class is defined relative to median per capita income. Another definition is that middle class is relative to standards of the developing countries. The Absolute approach defines the middle class based on earnings or income ranges and global demand for branded goods such as designer clothes, cutting-edge technology, and education and health services. The decision to buy a house is linked to the pricing and political framework of the housing market.

Middle-Income Housing Affordability

According to Wendell Cox (2018), Housing affordability is the relationship between housing costs and income. Affordability can only be evaluated if there is a comparison to income.

Middle-income housing affordability is critical because affordable access to quality housing has been critical to the democratization of prosperity that has occurred in most high-income countries over the last century. Normally, the competitive market has provided housing for middle-income people without the need for subsidies. Middle-income is different from low – income housing (also called "affordable housing" or "social housing"), which relies on public subsidies to serve the needs of households unable to afford the house prices or rents prevailing on the open market.

Middle-income housing affordability is also important to the economy. According to Paul Cheshire of the London School of Economics and Wouter Vermeulen of VU University, "housing being the dominant asset in most households' portfolios, there are also repercussions on saving, investment and consumption choices." Where housing is more affordable, households will have more discretionary income to purchase additional goods and services and to save (which generates investment). All of this can contribute to job creation and a stronger economy.

Government policies should address this developments in sustainable principals and economical means. Affordability in purchasing and maintaining property while benefit receive for life upgrading by healthier living and less utility expenses.

The upfront initial cost to the homebuyer has traditionally been used to determine whether a house is considered affordable. Housing costs that do not exceed 30% of a household's gross income are a commonly accepted standard for housing affordability. This guideline considers housing costs to include taxes and insurance for owners, as well as utility costs on occasion. When these combined monthly costs exceed 30% to 35% of household income, housing is considered unaffordable for that household.

To properly assess housing affordability, the life-cycle cost must be considered. Life-cycle costing considers the long-term costs of building maintenance to provide a more accurate picture of a structure's total costs. The total cost of a structure, including initial construction costs and long-

term operating and maintenance costs, is taken into account. In terms of life-cycle costs, the operating savings of a reasonable, sustainable-built home far outweigh the incremental capital costs. The economic benefits of sustainable building are simply not regarded in traditional costing methods.

Government fund support and loan schemes should be introduced to these developers who build sustainable affordable housing schemes for low- and middle-income communities.

According to the government regulations for the purpose of carrying out the principles and provisions of this Sri Lanka Sustainable Development Act, No. 19 of 2017 elaborates, that the issuance of guidelines to the Project Approving Agencies, the monitoring mechanisms and progress review processes on Sustainable Development Strategy implementation, and the sustainability standards and ecological footprint indicators.

“project approving agencies” includes ministries, departments, provincial councils, provincial ministries and departments, and local authorities and all other Government and Provincial Council Agencies; “sustainability” means the capacity of a thing, action, activity, or process to be maintained indefinitely; and “sustainable development” means development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

METHODS

This study aims to research the criterion necessary for sustainable housing for the middle-income populations in urban areas. Further, this paper aims to develop an introductory regulatory framework to manage sustainable affordable housing and redirect existing housing into sustainable housing based on relevant criteria.

Existing housing programs in the suburbs must be incorporated into a wider framework directed at creating a more sustainable and affordable housing development. The national, sustainable housing strategy should lay out the country's long-term housing vision, with key strategic objectives based on solid evidence.

This should include aspects related to a methodology for establishing policies and applicable regulations to implement the objectives, as well as the indicators that will be used to track progress toward them, in order to encourage developers and middle-income populations to take action.

Data Collection

Primary data on sustainable housing regulations and problem-solving approaches will be gathered from the literature as well as from a variety of local and international sources.

Secondary data will be collected through questionnaires, field observation, and interviews with relevant professionals such as architects, project managers, consultants, contractors, and users of middle-income housing, regarding sustainable housing characteristics and qualities.

A questionnaire was distributed among middle-income housing users, using an online Google form to obtain their perspectives and suggestions. This quantitative research was conducted to collect data to compare views on the present regulations, and the magnitude of their applicability to housing and to collect suggested improvements.

The mixed method is to be implemented in order to evaluate data gathered by literature survey and questionnaire for regulations assessment.

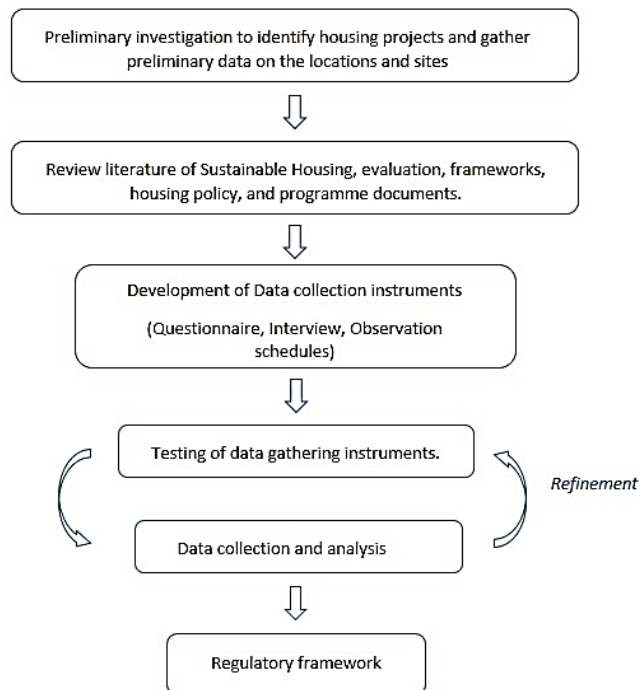


Figure 2: Methodological approach to the regulatory framework

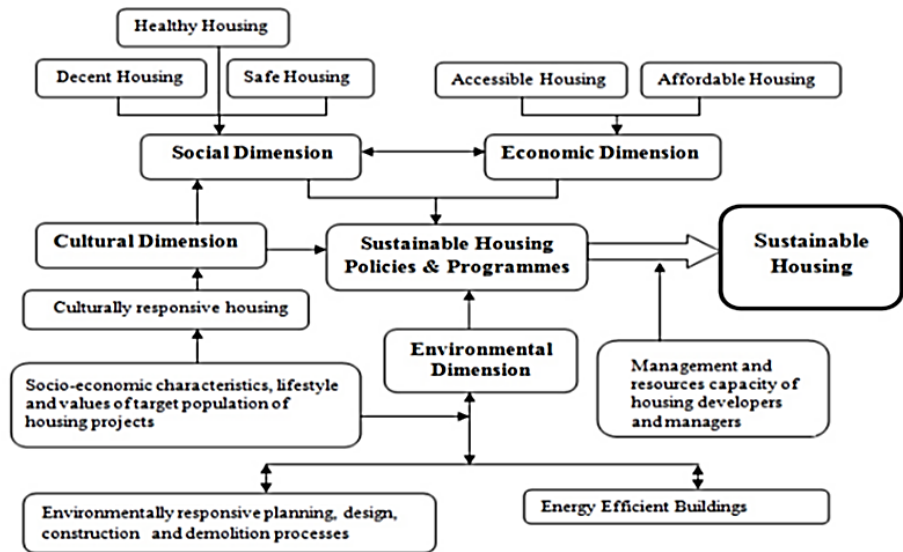


Figure 3: Conceptual framework approach to sustainable housing

RESULTS AND DISCUSSION

Regulations are exceptionally important in the built-environment development sector. Communities haphazardly encroach on the natural environment in order to fulfill their demands devoid of regard for the limited resources available. There are multi-asserted factors namely, the planning, introducing policies, and strategies among the relevant current processes affecting existing housing developments and new affordable housing developments related to sustainable development. Examining existing literature and housing projects in the country, it was evident that most of the housing developments are not affordable or do not address economic benefits, social well-being, or environmental concerns to achieve sustainable aspects. Therefore, it is important to deal with this issue with technically knowledgeable skillful professional hands.

This research is emphasizing the importance of initiating a sustainable approach which is applicable to Sri Lankan middle-income housing developments in urban areas. Thus, in order to succeed the Sustainable Development Goals, it is essential that we emphasize on the regulatory framework that can be adopted for sustainable middle-income housing developments in urban areas.

CONCLUSION

The work presented in this paper has pursued to development and examination of a regulatory framework for the assessment of sustainability in middle income housing developments. Studies revealed dimensions of sustainable housing and characteristics of middle income population in urban areas. Considering other research conducted related to this subject area and findings from data analysis determined the importance of the regulatory framework to develop sustainable middle income houses in an identified urban context.

The significance of this regulatory framework has been tested by industry experts as well as users of the actual context. It has been found that the regulatory framework is context associated with and responds to the changing requirements, although it could be a flexible, incremental framework. Furthermore, there are qualitative and quantitative methods to measure and test sustainable indicators in the framework.

At this stage, the assessment regulatory framework can be applied to new or existing housing developments to test and refine its applicability. Finally, it will be a base for future research which needs to adopt a more integrated systems-based regulatory approach for sustainable housing developments in different contexts and areas in the country.

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