



THE TOWN PLANNER

Journal of the Institute of Town Planners Sri Lanka

JOURNAL COMMITTEE

Plnr. Devsriyani Jayasundara

Plnr. Nirmala Kulathunga

Ms. P.B.K.C.Kavindya

PUBLISHED BY

Institute of Town Planners Sri Lanka

March 2020

ISSN 2613-8425





CONTENT

1	Challenges Faced on Geotechnical Assessment Process on Adjacent Structures	3
	T.D. Weerasekara, T.R.S.T. Wijewardena, D. Jayathilaka	3
2	Low Impact Development (LID) Solutions for Flood-Resilient Urbanization	15
	M.M.M.Piyumi, C.Chethika Abenayake, Naduni Wijayawardena	15
3	Impediments of Introducing Mixed-Use Developments in High-Rise Buildings in Sri Lanka	30
	N.C.Wickramaarachchi and H.T. Wickremasinghe	30
4	Drains and Streams: Recreating Urban Water Ways as Living Space	50
	E. Dineth J. Perera	50
5	Reforming The Town Planning Profession to Cope with Socio-Technical Changes.....	55
	D.B.C.Jayasinghe, G.P.T.S.Hemakumara, Wasantha Helkumbura	55
6	Challenges during Implementation of Construction Contracts - In Rural Water Sector in Sri Lanka: Water Supply and Sanitation Improvement Project (WaSSIP) as a Case Study	66
	J.M.Vindya Prasadini	66
7	A Floor Area Density-based approach to regulate urban development with Zone Factor and Fair Share	72
	Jagath Munasinghe, Chulesha Geegane, Yasantha Perera, Shaveen Silva ..	72





3 Impediments of Introducing Mixed-Use Developments in High-Rise Buildings in Sri Lanka

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Abstract

It is the view of the scholars that mixed-use developments bring many positive effects to urban areas such as creating smart and sustainable environment, facilitating the population to minimize the distance to travel, etc. Although mixed-use developments bring positive effects, such developments are rarely found in Sri Lanka. This paper attempts to identify the impediments of introducing the mixed-use development within the Sri Lankan context. Seven property developers were deeply interviewed and it was identified that the physical and infrastructure factor act as the most significant impediment that hinder introducing mixed-use developments in Sri Lanka.

Keywords: Mix-use developments, High-rise buildings, Urban Area, Limitations of mix-use developments

1. Introduction

The statistics reveal that, Asia despite its relatively lower level of urbanization is home to 54% of the world's urban population followed by Europe and Africa with 13% each in the present dynamic world (World Urbanization Prospects, 2018). Further, it is projected that 68% of worlds' population will be living in urban areas in 2050. The coming decades will bring further profound changes to the scope and spatial scattering of the worldwide population altering the physical

growth of urban regions horizontally as well as vertically. Hence, managing land to obtain the highest and best use is very crucial. Many scholars are of the view that mix-use developments in high rise buildings are an acceptable solution for this critical issue concerning usage of land.

Land is comparatively limited in supply and utilized by individuals in various means. Although high density and high-rise buildings were not developed in the past, there were human settlements that





had been established in mixed-use designs (Bell, 2004). In various urban settings such as mega to small cities, mixed-use development concept is becoming progressively significant in order to create smart and sustainable environment that would encourage economic strength, ecological features and social equity. As stated by Rabiński (2007), mixed-use development is, in a broad sense, any urban, peripheral or village development, or even a single building, which amalgams a combination of land uses such as residential, institutional, commercial, or industrial and other uses, where those functions are combined in physical and functional ways. The concept of mixed-use development may also be used to denote a mixed-use real estate development of a building, complex of buildings, or town/city. The key advantages of this concept is that it provides better housing variety and density, convenient distances between housing, workplaces, retail businesses, and other destinations, more compressed development, sturdy neighborhood character, and it also

promotes a pedestrian and bicycle-friendly environment.

In the recent past after 2009, a salient feature that has been observed in Sri Lanka is the introduction of mass scale projects related to infrastructure like road expansion and development of highways. Parallel to this development, property developers have been automatically encouraged to get the maximum benefits out of the urban land and hence, several multistoried buildings emerged in the country within the past few years. However, a noted feature in the current construction industry is that the developers' propensity is towards single use developments. Although mixing uses helps to produce more vibrant, adaptable and pleasant environments and achieve sustainable places which reduce traveling time and create a local demand for goods and services in a workable catchment, the Sri Lankan developers are reluctant to adopt mixed use developments. Therefore, the country misses the opportunity to obtain the highest and best use of land. When going through the related research studies, which factors hinder such





mixed developments within the Sri Lankan context is inadequately researched.

With a view to addressing this research gap, this paper seeks to analyze the limitations or obstacles of incorporating mixed-use developments in the high-rise buildings in Sri Lanka. The following sections of the paper is organized as follows: section two is devoted to literature review, section three explains the methods of data collection and analysis, section four is allocated for data analysis and finally, the concluding observations and relevant policy implications are discussed in section five.

2. Literature review

Defining Mixed-Use

Development as a

Combination of Land Uses

According to Delisle & Grissom (2011), “A *mixed-use development is a real estate project with planned integration of some combination of retail, office, residential, hotel, recreation or other functions. It is pedestrian-oriented and contains elements of a live-work-play environment. It maximizes space usage, has*

amenities and architectural expression and tends to mitigate traffic and sprawl.”

The definition provided by the Urban Land Institute (ULI) is probably the most prevalent definition of the term, mixed-use development (Herndon, 2011). In 1976, ULI was the first organization to address the concept in-depth with the publication of their first book on the topic titled *Mixed-Use Developments: New Ways of Land Use*. While this concept has evolved over the years, their original definition has essentially remained intact. The second edition of the *Mixed-Use Development Handbook* characterizes mixed-use development as consisting (Schwanke, 2003):

- i. Three or more significant revenue-producing uses that in well planned projects are mutually supporting.
- ii. Significant physical and functional integration of project components including uninterrupted pedestrian connections.
- iii. Development in conformance with a coherent plan.





Furthermore, mixed use as defined in the mixed-use handbook by Schwanke (1987) is any combination of commercial (e.g. retail, office, and entertainment) and non-commercial uses, such as residential uses, mixed vertically or horizontally. Thus, it is clear that in many research studies, mixed-use development is explained as a combination of different land uses with many components. For instance, shorter distance between work, residence and recreation goes a long way to enhance the livelihood of the inhabitants.

The Emergence of Mixed-use Development as an Urban Design Concept

There was a rapid increase in population and urbanization patterns in most towns and cities during the 20th century (Sackey, 2009). As Sackey states, that the growth rate of population and urbanization was higher than the rate of infrastructural development. This condition led to many severe urban problems such as urban sprawl, vehicular and human congestion, slums and shanties, as well as a significant number of hours was spent in traveling to and from work. According to Sackey

(2009), there were many environmental and public health issues due to the reason that towns and cities were not developed according to a proper layout with the necessary infrastructure amenities and services. The health and well-being of people were also affected due to the stress involved in traveling to and from work. Carbon emissions from vehicles also contaminated air and polluted the environment.

Sackey (2009) further states that with the intention of resolving these urban issues and associated problems, individuals started seeking for working opportunities not far off from where they lived. Large residential neighborhoods served as a main source of market for commercial activities. Hence, the residential activities gravitated towards commercial activities and vice versa. Moreover, with the emergence of information and telecommunication technology, it became possible and easy for people to live and work from the same location.

Factors Making the Mixed-Use Development Popular

The emerging consensus is that development is more sustainable if



it provides a mixture of uses. Segregation of land uses, encouraged in the past, is not relevant now. The trend back to mixed usage brings a number of

potential benefits. Nabil & Eldayem (2015) discuss several main general benefits of mixed use development as follows:

Table 01: Pros of Mixed-land Use

	Benefits
Environmental	<ul style="list-style-type: none"> • Reducing the dependency on cars, reducing air pollution accordingly
Urban	<ul style="list-style-type: none"> • Activating the deteriorated zones through mixing residential uses, public institutions and commercial activities • Increasing the area available for development and secure more options • The project is multi-use and can increase the density of land use
Social	<ul style="list-style-type: none"> • Prompting the pedestrian movement and bicycles considered by many people to be a growing social phenomenon comes under the urban planning policies and considerations. Consequently, creating the social links & relationships and achieving the security due to permanent movement were identified as important.
Economic	<ul style="list-style-type: none"> • The plan encourages the mixed land use for creating job opportunities near homes reducing the energy wasted in daily moving between home and work and for increasing the social interaction among population. • Raising the value of residence located at the center of mixed use due to its proximity to different activities (commercial, entertaining etc).

Source: Nabil & Eldayem (2015)



Rowley (1996) also describes in his study how mixed-use development promotes urban quality. He states that places containing a mix of uses tend to have varied buildings and varied architecture and the legibility of districts and of smaller scale environments is promoted. Moreover, as Gehl (1987) says, appropriately handled and expressed mixed uses should help promote 'life between buildings', but other conditions, such as adequate density, are necessary.

Comparison between Single-Use and Mixed-Use Developments

As stated by Cheah and Tan (2014), some of the key differences between mixed-use and single-use development processes can be identified and summarized as mentioned in Table 2. Identification of these differences would be helpful as they affect the activities and functioning of many parties, including design and engineering professionals.

Table 02: Comparison of Main Features between Mixed-use and Single-use Projects

Phases of Development Process	Mixed-Use Development	Single-Use Development
Project Initiation	<ul style="list-style-type: none"> • Experienced and diverse project team • Involvement of public sector agencies • Analyzing multiple markets / development potential and evaluating the overall market synergy 	<ul style="list-style-type: none"> • Single experienced team. • Relatively minor involvement of public sector agencies • Analyzing only a specific market potential
Feasibility Studies and Financing	<ul style="list-style-type: none"> • Complex feasibility analysis to define and optimize the development programs • Necessity to secure large, multi-layer financial commitment and structuring financial arrangements 	<ul style="list-style-type: none"> • Simple pro-forma analysis and economic modeling • Single source of financing is possible and financial arrangement is straightforward between project owner and bank



Planning and Design	<ul style="list-style-type: none"> • Complex planning and design issues involving urban considerations • Creation of interrelationships among design elements, between project and the surrounding environment • Significant involvement of specialists 	<ul style="list-style-type: none"> • Conventional architectural and structural design process • Urban considerations play a more limited role in overall project planning and design • Involvement of specialists is less due to simplicity of design
Construction	<ul style="list-style-type: none"> • Multiple contractors working in different parcels/phases; interfacing is critical • Interaction with more specialists/designers 	<ul style="list-style-type: none"> • Usually a single contractor has sole control of planning and coordination of site work • Fewer number of architects/design engineers
Marketing and Operational Management	<ul style="list-style-type: none"> • More varied and innovative approaches to marketing strategies for numerous uses • Long term promotion is necessary to continue building interest among general public • Centralized control management systems for multiple uses 	<ul style="list-style-type: none"> • Marketing approaches targeting specific use only • More effort on promotion before project completion and relatively less thereafter • Single responsibility for property management agency

Source: Cheah & Tan (2014)

Challenges, Obstacles or Barriers to Mixed-use Development

Various challenges, obstacles or barriers affecting mixed-use development have been identified and listed by Rabinski (2007). In

addition, various issues in mixed-use development were highlighted by Hightower (2002) in their study, such as complex economic and market cycles, creation or increasing congestion and traffic, locational issues, management and





challenges in healthy balance of uses. Based on literature, seven main bases have been identified where the leading limitations to introduce mixed-use developments in high rise building arise. They are namely ownership tangles,

government regulations, land assembly, planning application and procedures, funding and institutional investors' criteria, health and environmental issues and management.

Table 03: Summary of the Identified Impediments

Impediment Generating Areas	Impediments
1. Ownership twists	<ul style="list-style-type: none"> • Working with multiple owners • Issues with shared boundaries and facilities
2. Land assembly, government intervention in regulations and infrastructure	<ul style="list-style-type: none"> • Maneuvering through zoning regulations • Assembling land parcels • Street capacity and transportation issues • Water usage
3. Planning application and procedures	<ul style="list-style-type: none"> • Working with multiple development teams • Difficulty to work with planning agencies • Managing the financial challenges of a sequenced roll-out of project parts • Political influence, use of capital resources and risk
4. Funding and institutional investors' criteria	<ul style="list-style-type: none"> • Securing project finance/capital • Mixed use development accompanied with inherent funding difficulties.
5. Health, hygiene and environmental issues	<ul style="list-style-type: none"> • Sewer capacity • Air emissions, Congestion and traffic issues



	<ul style="list-style-type: none"> • Addressing environmental issues • Difficulty of combining various environmental health and other protective standards like a pedestrian-friendly environment
6. Management	<ul style="list-style-type: none"> • Management of different types of uses • Space management. Facility management • Maintenance and staff management

Source: Compiled by the Author based on literature (2018)

3. Methods

Study Population and Sample

Study Population

Colombo being the capital city of Sri Lanka is where most of the demand for luxury property lies. While a number of large-scale projects is going on many number of high-rise buildings including several condominiums are being constructed in the city. Therefore, the present study selected the developers who develop such properties in the city of Colombo. Seven property developers selected according to judgmental sampling technique were used as the sample of this study.

Data and Data Collection

Both primary and secondary data was used for this study and primary data was collected from the

selected seven property developers from the city of Colombo. A structured questionnaire was distributed among the property developers and the questionnaire was divided into 5 sections. Demographic information of the respondents, the company details, details about the completed developments, developers' perceptions regarding the limitations identified in the literature review and a few open ended questions were used to collect information regarding any other limitations, and suggestions.

Following is the brief description of the selected property development companies:

a) Prime Residencies (Pvt) Ltd

The initial company was the Prime Lands (Pvt.) Ltd which was established 20 years ago. Due to





the identification of the growth in the housing market in Sri Lanka, prime lands group introduced a new product to their group as “Prime Residencies” which caters to the housing industry of the local market. So far, Prime residencies have been able to launch many housing projects in order to meet the need of the citizens of Sri Lanka. Some of their mega projects are Athurugiriya Residencies, Battaramulla Residencies, Nawala Residencies.

b) John Keells Group

John Keells Holdings PLC (JKH) is Sri Lanka’s largest listed company in the Colombo Stock Exchange. From managing the largest number of hotel rooms in Sri Lanka to owning the largest private-sector-owned transportation business in the country, providing port and marine fuel services to IT solutions, manufacturing of food and beverages to running a chain of supermarkets, tea broking to stock broking, banking to real estate, JKH has made its presence felt in virtually every major sphere of the economy. Their major projects are 7th SENSE Gregory’s Road, OnThree20, and the 'Emperor' at Crescat city

c) Coral Property

Developers (Pvt) Ltd.

Coral Property Developers is a privately-held building construction firm based in Colombo, Sri Lanka. Coral Property Developers manages, develops and acquires Commercial and Residential Real Estate for its own account, as well as for its other various Limited Liability Partnerships. This includes Shopping Centers, Office, Development Sites and other investment-grade properties. Their ongoing projects are Coral City, Coral Saffron, and Coral Mansion. Each project has required a minimum investment of approximately Rs. 250 million.

d) Suncity Property

Developers

Suncity Property Developers has been in the Construction field for over 2 Decades. The Company has successfully completed many Luxury Apartment complexes such as the Rosmede Towers, Mc Cathy Towers, Horton Towers and Horton Regency, Suncity Towers Phase 1 and Suncity Towers Phase 2.





**e) Millennium Housing
Developers PLC.**

As the pioneer in private sector township developers in Sri Lanka, Millennium Housing Developers introduced the groundbreaking concept of complete modern mega township – Millennium City in 1999. To date, Millennium Housing Developers prestigiously leads the industry due its unstinted commitment to exemplary standards of professionalism and reliability. They pioneered the introduction of branded houses – Heartland, Olympus, Paradis, Gardenia, Shop Houses, Horizon and Tulip – a unique opportunity for Sri Lankans to experience a new lifestyle that has ensured all modern facilities together with the added benefits of a secured, environmentally friendly, planned neighborhood at affordable prices.

**f) Sky city property
developers (Pvt) Ltd.**

Sky City Property Developers is a bespoke property development company operating in Sri Lanka. They provide luxuries and comfort homes where people want to live. Those homes are all built to the highest luxury standards and incorporate the latest in

contemporary design, enhanced by traditional skills and experience.

**g) L H P Property
Development Co (Pvt)
Ltd.**

L.H.P Property Development Company (Pvt) Ltd is a specialized company in real estate services in Sri Lanka. It was initiated as a subsidiary company of L.H.Piyasena and Company (Pvt) Limited in 2004 honoring the Sri Lankan Government's invitation and incentives provided to organizations to design, develop and manage urban housing solutions consisting multi storied apartment complexes. L.H.P Property Development Co. (Pvt) Ltd. inaugurated the maiden project approved by the Board of Investments in Sri Lanka (BOI): the Mount Court Apartment Complex at Mt. Lavinia. It has also successfully completed the construction of the luxurious apartment complex of "Marine City Residence" in Dehiwala.



4. Analysis

Descriptive Statistics

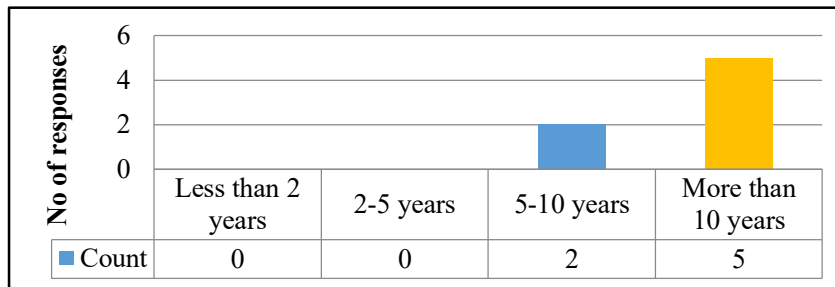


Figure 01: Experience of the company

Source: Survey data 2018

As shown in Figure 01, most of the development companies have more than 10 year experience. The count is five out of seven companies and this percentage is around 70%. The other two companies have between 5-10 year experience. That shows that the majority are well-established in the industry with more experience.

No of developments in individual selected cases in total (the sample)

The majority of the developers are engaged in residential single use developments. The following table shows the percentages of their projects separately.

Table 04: No of development projects in individual selected cases

Case	Residential		Commercial		Mixed-use		Total	
	No of Projects	%	No of Projects	%	No of Projects	%	No of Projects	%
1	7	77.78	2	22.22	0	0	9	100
2	34	100	0	0	0	0	34	100
3	4	44.44	3	33.36	0	0	7	100
4	9	100	0	0	0	0	9	100
5	8	100	0	0	0	0	8	100
6	1	100	0	0	0	0	1	100
7	4	100	0	0	0	0	4	100
Total	67		05				72	

Source: Survey data 2018





According to Table 04, it is revealed that all the selected developers are engaged only in single use development projects, mostly residential. Only case no 1 and 3 are doing a few commercial projects whereas not a single developer has chosen to do mixed use developments.

In the case 01, around 78% developments are residential

projects while 22% represents commercial projects. 57% or the majority of the case 3 development projects are residential. The rest is commercial projects. In the cases 2, 4, 5, 6 and 7, it was found that all of their projects are residential developments where the count of commercial or mixed use developments is zero.

Table 05: No of Units in individual selected cases

Case	Residential Units			Commercial			Mixed-use		
	Total	Sold	%	Total	Sold	%	Total	Sold	%
1	420	190	45.24	105	30	28.57	0	0	0
2	1050	895	85.24	0	0	0	0	0	0
3	915	65	7.1	65	0	0	0	0	0
4	3200	3000	93.75	0	0	0	0	0	0
5	180	110	61.11	0	0	0	0	0	0
6	20	5	25	0	0	0	0	0	0
7	55	49	89.1	0	0	0	0	0	0

Source: Survey data 2018

As Table 05 indicates, the main contributor is case 4 who is providing 3200 units and a considerable number of units has already been sold. The second place is secured by case 2. Case 6 and 7 show a lower number of units. Only two developers from the sample have engaged in commercial developments.

Identification of the significant limitations using mean comparison in each major factor

The identified limitations through the thorough literature review been categorized into six major groups. Those are planning and decision making process, financing, market (demand and supply), physical/infrastructure,



environmental and zoning & regulations. Mean of these factors is analyzed as follows using the statistics generated using the SPSS software.

Mean Value of the limitations in each factor

Table 06: Overall mean value comparison and ranking of the factors

	Factor	Mean Value
1	Planning and decision making process	4.12
2	Finance	4.24
3	Market	4.31
4	Physical and infrastructure	4.49
5	Environmental	4.19
6	Zoning and regulation factor	4.38

Source: Survey data 2018

Planning and decision-making process factor

This factor consists 9 limitations. As shown in Table 06, the average mean value is higher than the average scale value which is 3. It means that according to the developers' perceptions, all these 9 elements act as limitations in mixed-use developments. The highest mean value is recorded in relation to the limitation of complexity in dialogues and negotiations (4.57). Hence, it can be identified as the most significant limitation that affects the development decision. The overall

mean value of this factor is calculated as 4.12. As stated by Cheah & Tan (2014) in their study when comparing mixed-use and single-use developments, they too have identified many issues related to complexity in decision making process, inter-relationships, involvement of more parties, etc. under Planning and Design Phase of the development process. In addition to that, Rabianski (2007) and Hightower (2002) have identified planning as another limitation arising factor.



Finance factor

This factor has 6 elements. As revealed by their mean values, the limitations of difficulty in fund raising and impact of investors' perceptions have recorded the highest mean value which is 4.57. Both these factors can be considered as significant limitations in mixed-use development under this factor. The overall mean value of financing factor is 4.24.

Market (Supply/ Demand)

Factor

This factor has 5 elements as found through available literature. According to the developers' perceptions, achieving the highest mean value (4.57), it was revealed that mixed-use developments are less attractive to buyers. Other values are also higher than 3. Hence, those also act as limitations as per the survey data. The overall mean value of this factor is 4.31. This factor is significant as one of the main goals of the developers is to maximize the profit. Therefore, the barriers in the market directly affect their profit. Cheah & Tan (2014) mentions some issues exist when implementing marketing strategies and promotions of

mixed-developments as they require long-term costly processes.

Physical and infrastructure factor

This factor is also important as there are huge amounts of physical activities involved in any development. Under this factor, there are two limitations which record the extreme values (5.00). They are the complexity in physical structure and managing different multiple uses in one structure is challenging. All other elements also have more than 3 mean values. The overall mean value of this factor is 4.49. The limitations generate due to the requirement of a proper management of physical construction and infrastructure developments were discussed in the article of Rabiński (2007). He stated that the property standards that should be included in mixed-use developments are advanced and complex as the structure itself can be complex.

Environmental factor

Environment is a vital factor that should be taken into account when doing any development. As per the survey data, it was identified that it is very difficult to bring together



the different environmental health requirements (4.86). Other elements also have more than 4 mean values. The overall mean value is 4.19.

Zoning and regulation factor

There are many regulations enforced by the government. According to the developers' perception, the limitation related to high EIA requirements (5.00) is the most significant element. Moreover, other elements are also identified as limitations which

affect the development decision. The overall mean value of this factor is 4.38. Rabianski (2007) states in his article that government maneuvers land use and infrastructure through zoning regulations.

Ranking the factors using mean values and finding the predominant factor

The overall mean values of factors are recorded and ranked in the table given below.

Table 07: Overall mean value comparison and ranking of the factors

	Factor	Mean Value	Ranking
1	Planning and decision making process	4.12	6
2	Finance	4.24	4
3	Market	4.31	3
4	Physical and infrastructure	4.49	1
5	Environmental	4.19	5
6	Zoning and regulation factor	4.38	2

Source: Survey data (2018)

As shown in Table 07, the highest mean value is recorded by the physical and infrastructure factor (4.49) whereas the lowest is recorded by planning and decision making factor (4.12). The physical and infrastructure factor includes the limitations of “mixed use developments requiring more off site infrastructure (4.14), mixed use

developments often requiring large areas of land from different sources (3.86), commercial uses requiring to be able to be remodeled on shorter timescales than residential uses (4.57), the physical structures being comparatively complex (5.00), managing different multiple uses in one structure being challenging (5.00), the provision



and funding of infrastructure by the government being insufficient (4.43), and sewerage management and garbage disposal techniques being complex (4.00). Therefore, it can be seen that most of the limitations are more than 4.00 and there are two limitations which have extreme mean values. They are the physical structures being comparatively complex (5.00) and managing different multiple uses in one structure being challenging (5.00).

The second highest mean value has been calculated for the limitations in zoning and regulation factor (4.38). However, all the factors have values above the average (3.00) which means according to the selected developers' perceptions, all these factors are being considered as limitation generating areas, supporting the first hypothesis which tested whether the limitations arising from identified factors are significant or not as per selected developers' perceptions.

5. Conclusion

This study has identified the major areas where impediments arise

when introducing mixed-use developments in high-rise buildings. Descriptive statistics shows that none of the developers has processed with mixed-use developments. Among the limitations, it was found that the highest mean value was recorded by the physical and infrastructure factor (4.49) whereas the lowest was recorded by planning and decision-making factor (4.12). However, all the factors have values above the average (3.00) which means according to the selected developers' perceptions, all these factors are being considered as limitation generating areas in mixed-use developments.

According to the results of this study, the government policies should focus on developing and providing adequate infrastructure to promote the mix-use developments in high-rise buildings in Sri Lanka.

Acknowledgement: Center for Real Estate Studies (CRES), Department of Estate Management and Valuation, University of Sri Jayewardenepura, Sri Lanka





6. References

- [1] Bell, J. (2004). A mixed-use renaissance, *Mortgage Banking*, 66-74.
- [2] Cheah, C. Y. J. & Tan, K. S. (2014). Mixed-use project development process: Features, pitfalls and comparisons with single-use projects.
- [3] Delisle, J. R. & Grissom, T. V. (2011). An Empirical Study of the Efficacy of Mixed-Use Development: The Seattle Experience. *NAIOP Research Foundation*. 3-27.
- [4] Grant, J. L. (2007). Encouraging mixed use in practice. International Planning Symposium on Incentives, Regulations, and Plans. *University of Maryland Habiforum Foundation, Netherlands*.
- [5] Gehl, J. (1987). Life between Buildings: Using Public Spaces. *Washington Island Press*.
- [6] Herndon, J. D. (2011). Mixed-Use Development in Theory and Practice: Learning from Atlanta's Mixed Experiences.
- [7] Hightower, D. (2002). Healthy Mixed-Use Environments: The Macro, the Micro and the Nano. *Development*. 41-43.
- [8] Nabil, N. A. & Eldayem, G. E. (2015). Influence of mixed land-use on realizing. *Housing and Building National Research Center*.
- [9] Rabianski, S. J. (2007). Mixed-Use Development: A Review of Professional Literature. *The National Association of Industrial and Office Properties Research Foundation*.
- [10] Rowley, A. (1996). Mixed-use Development: Ambiguous concept, simplistic analysis and wishful thinking? *Planning Practice & Research*.
- [11] Sackey, C. (2009). An urban design approach to cities in developing countries. *Journal of Architecture*. 9(3), 5-67.
- [12] Schwanke, D. (1987). Mixed-Use Development Handbook. *Urban Land Institute*.
- [13] Schwanke, D. (2003). Mixed-Use Development Handbook. *Urban Land Institute. Second Edition*.
- [14] World Urbanization Prospects (2018). Available at: <https://esa.un.org/unpd/wup/publications/files/wup2014-highlights.Pdf> (accessed 14 July 2016).

