



SMART Real Estate: Towards Unmet Socio-Economic Needs

Proceedings

**02nd International Conference on Real Estate Management and
Valuation
(ICREMV- 2018)**

September 21st 2018

Research and Professional Development Center (EMV- RPDC)
Department of Estate Management and Valuation
Faculty of Management Studies and Commerce
University of Sri Jayewardenepura
Sri Lanka

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Proceedings of the 02nd International Conference on Real Estate Management and Valuation
(ICREMV 2018)

EMV-Research and Professional Development Center (EMV- RPDC)
Department of Estate Management and Valuation
Faculty of Management Studies and Commerce
University of Sri Jaywardenepura
Sri Lanka

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Introductory Remarks and Acknowledgements

The Department of Estate Management and Valuation, Faculty of Management Studies and Commerce (FMSC) of the University of Sri Jayewardenepura is proud to present the 2nd International Conference on Real Estate Management and Valuation – ICREMV 2018. The event is an annual event of the department, which exemplifies the stature it gives for research in the real estate sector. This is the 2nd International conference and six institutions, namely; Government Valuation Department, Urban Development Authority, Colombo Municipal Council, Land Use Planning Department, RICS Sri Lanka Members Association and Institute of Valuers' Sri Lanka, have partnered with us.

The theme of this conference is “SMART Real Estate; Towards Unmet Socio-Economic Needs”. SMART is defined as, **S**ustainable and **M**arketable real estate; **A**spirations of society, **R**einforce wealth and **T**ransform the economy.

Going in line with the theme, ICREMV 2018 aims at promoting and publishing current and relevant ideas on SMART Real Estate that are vital, especially for the corporate and public-sector organizations. It plays an important role in achieving unmet socio-economic needs of society. This conference will undoubtedly serve as a platform for scholars, professionals, and practitioners to share their research findings, experiences and ideas, which in turn will be a stimulating experience for all.

ICREMV 2018 has received high quality, empirical, methodological and conceptual papers from academics, practitioners and policy makers, which are organized under 6 tracks. A transparent reviewing process was conducted, where the papers underwent a double-blinded review procedure conducted by an equally eminent panel of reviewers. It should be noted that neither the ICREMV 2018 committee nor the Department of Estate Management and Valuation of the University of Sri Jayewardenepura will assume responsibility for any errors or omissions in the research papers, which rest solely with the authors.

This conference would not have been possible if not for the invaluable contribution made by various persons and organizations and we express our heartfelt thanks to them all. We would like to extend our sincere gratitude to the Chief Guest of ICREMV 2018 Honorable Minister, Patali Champika Ranawaka, Minister of the Western Megapolis Secretary, Ministry of Lands and Parliamentary Reforms, for kindly accepting our invitation. We are extremely grateful to Associate Professor Wen Chi Luo Department of Real Estate, National University

of Singapore, who graciously accepted our invitation to deliver the keynote address. Our sincere thanks go to Senior Professor Sampath Amaratunge, Vice Chancellor of the University of Sri Jayewardenepura for his unstinted support and encouragement. Our special thanks also go out to Dr. U. Anura Kumara, Dean of the Faculty of Management Studies and Commerce for his continuous and abundant support and cooperation in organizing the conference.

We would also like to acknowledge with gratitude the industry forum panelists who sacrificed their valuable time to share their experiences and invaluable input with us. Our special thanks goes out to Ms. Pushpa Muthukumarana, Government Chief Valuer, Government Valuation Department-Sri Lanka, Dr. Jagath Munasingha, Chairman, Urban Development Authority; Mr. Sunil Fernando, President, RICS Sri Lanka Members Association, Ms. Wasanthi Adhikari, Municipal Assessor, Colombo Municipal Council, Mr. A. A. M. Fathihu, President, Institute of Valuers Sri Lanka, Mrs A. S. Ilangamge, Director General Land Use Planning Department for joining with us as collaborative partners of the ICREMV 2018. Our sincere thanks go out to our eminent panel of reviewers for the priceless service they rendered. We would like to gratefully acknowledge the support extended to us and contributions made by the students, academics, and non-academics of the Department of Estate Management and Valuation to make this conference a success. Our grateful thanks go out to sponsors, and media partner Ceylon Newspapers Ltd for their generous contributions, without which this conference would not have been a reality. Last, but not least, a big ‘Thank You’ to all authors and presenters for their invaluable contributions making ICREMV 2018 a success.

Organizing Committee ICREMV 2018
21.09.2018

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Message from the Vice Chancellor



It gives me great pleasure to write this congratulatory message for the 2nd International Conference on Real Estate Management and Valuation (ICREMV 2018) organized by the Department of Estate Management and Valuation (DEMV), Faculty of Management Studies and Commerce, University of Sri Jayewardenepura in collaboration with the Government Valuation Department, Institute of Valuers' Sri Lanka, RICS Sri Lanka- Members Association, Urban Development Authority, Sri Lanka, Land Use Policy Planning Department and Colombo Municipal Council. The conference is held with the intention of creating a single forum that will bring together academics and industry experts of the field under one roof.

The conference which is to be held on the 21st of September at the Galle Face Hotel Colombo will provide an interdisciplinary platform with a multitude of opportunities to share new knowledge, discuss latest innovations in the field and create relationships that will no doubt aid the future development in the field and the country.

With the current developments of the country including the development of the Port city, Real estate is a hot topic today. It affects the country's economic, social and environmental forces. Thus as a key factor that determines the progress of sustainable development in the country, Real Estate should be SMART. Thereby I applaud the DEMV for taking initiative to continue to hold this conference highlighting such a timely topic.

I am extremely grateful for DEMV for taking such a worthy initiative. I am sure that the knowledge base created through this conference will be influential in creating a better future for Sri Lanka and the world.

I wish this event every success and hope to see more of its kind in the years that follow.

Senior Prof. Sampath Amaratunge
Vice Chancellor,
University of Sri Jayewardenepura

Message from the Dean



The Department of Estate Management and Valuation (DEMV) is an exclusive department within the Faculty of Management Studies and Commerce of the University of Sri Jaywardenepura since it facilitates for the sole degree programme of its kind in Sri Lanka. As a result, this department is an established - strong arm of support to the Real Estate sector of the country, contributing towards its advancement for a period of over four decades by way of generating and disseminating knowledge through research and publications.

The International Conference on Real Estate Management and Valuation (ICREMV) organized by the Estate Management and Valuation Research and Professional Development Centre (EMV- RPDC) is a significant event on the department's calendar. This event which is organized in collaboration with the Government Valuation Department, Institute of Valuers Sri Lanka, RICS Sri Lanka Members Association, Urban Development Authority Sri Lanka and Colombo Municipal Council provides an excellent platform for academics and practitioners to publish relevant and contemporary research papers on multiple avenues related to this niche field of study. This year's conference theme is to shed light on "SMART Real Estate" which I'm certain is yet a novel concept within the local arena. Therefore, I believe that ICREMV 2018 will initiate an excellent dialogue that would stimulate interaction among the academia and the industry conclusively aiding national development.

Therefore, I take this opportunity to congratulate the organizers and participants for their invaluable contribution towards both the success of this event and the future of the Real Estate Sector in Sri Lanka. As the Dean of FMSC, I am confident that ICREMV 2018 will be a truly inspiring academic experience.

Dr U. Anura Kumara

Dean

Faculty of Management Studies and Commerce

University of Sri Jaywardenepura

Message from the Head of the Department



It is with great pleasure I am writing these few thoughts on this historic occasion of the International Conference on Real Estate Management and Valuation (ICREMV 2018), organized by the Department of Estate Management and Valuation, Faculty of Management Studies and Commerce, University of Sri Jayewardenepura. B.Sc Estate Management and Valuation (Special) Degree Programme is the first land base higher education program producing graduates to the field of Real Estate Management and Valuation in Sri Lanka. The programme was accredited by the Royal Institute of Chartered Surveyors (RICS)-UK in 2015 and it is a crystal-clear evidence of its high quality and capability of producing skilled graduates in the relevant field.

Real estate development deals a lot with the government. It is always addressing the community issues. However, handling real estate for the benefit of the people in the country requires perfect training and sharing knowledge in between the academics and the industry. There is no opportunity to have a face to face discussion other than this forum organized once in a year. Hence, I have no hesitation that this conference themed as 'SMART Real Estate towards Unmet Socio-Economic Needs' provides a wonderful opportunity to disseminate the new knowledge, on current issues delivered by a rich diversity of authors and speakers in the field.

The immense response I received since with the initiation of the conference is impressive from the collaborative partners and many other interested parties in the field. I take this opportunity to congratulate all the collaborative partners of the conference. It is my pleasure to appreciate the cooperation of the Vice Chancellor and the Dean (FMSC) in administrative work, while thanking the conference team, led by the Chair, Professor K G P K Weerakoon. I sincerely thanks to all who enriched the conference including the Keynote Speaker/s and sponsors, though individually not mentioned.

I wish you all a successful day.

Dr (Mrs) N C Wickramaarachchi
Head/Department of Estate Management and Valuation
Director/ Research and Professional Development Centre (RPDC)
Department of Estate Management and Valuation

Message from the Conference Chair



I cordially welcome you to the International Conference on Real Estate Management and Valuation (ICREMV) 2018. This conference is organised by the Research and Professional Development Centre (RPDC) of the Department of Estate Management and Valuation in collaboration with the Government Valuation Department Sri Lanka, Institute of Valuers Sri Lanka, Royal Institution of Chartered Surveyors-Sri Lanka, RICS Sri Lanka Members Association, Urban Development Authority of Sri Lanka, Land Use Planning Department and Colombo Municipal Council.

As the Chair of the Organizing Committee of ICREMV 2018, I express my sincere gratitude for your participation in this annual meeting of academia and practitioners. The theme of the conference, “SMART Real Estate: Towards Unmet Socio-Economic Needs” is of contemporary significance to the nation’s journey towards prosperity and wellbeing of its people. The objective of this conference is to offer a forum for academia, practitioners, and policy makers to discuss research findings, share experiences, and deliberate on the way forward. As such, the ICREMV 2018 creates a platform to deliberate on the theme “SMART Real Estate: Towards Unmet Socio-Economic Needs” from diverse perspectives with the intention of developing appropriate strategies for organizations and the nation.

The organizing committee has worked towards making this conference a fruitful event. I am confident that the participants will find the sessions interesting and useful. Finally, I wish to extend my heartfelt gratitude to all our participants, contributors, reviewers, and sponsors. I hope that you will derive the maximum benefit from the conference.

Thank you

Prof. K.G.P.K. Weerakoon
Chair – ICREMV 2018
Department of Estate Management and Valuation

Message from the Chief Valuer: Government Valuation Department Sri Lanka



As the Government Chief Valuer of Department of Valuation, it is a great privilege for me to convey this message to the International Conference on Real Estate Management and Valuation 2018 which exposes a global knowledge and experience on Real Estate Sector.

Real Estate is the most popular and reliable asset class for capital preservation. Many Real Estate Segments are in high demand during recent years in forms of promoting high- rise apartments, Luxury residential units, commercial complexes as well as hotels. According to the budget proposal 2017, the government introduced the Public Private Partnership mechanism to increase efficient and realistic real estate development projects. Public Private Partnership development in 2018 comprise elevated highway from New Kelani Bridge to Athurugiriya, Marine Drive extension to the Port City Colombo, the development of Port City, Logistic Park in Welisara, Inland Water Transport System and a Port Tunnel linking Port City and Galle Face Green Esplanade. This is a rapid increase of potential investment and development opportunities in Real Estate segment.

Initiating of this kind of event is a great acceleration and it will help all real estate professionals to enhance their skill and knowledge towards Smart Real Estate. I take this opportunity to congratulate the Department of Estate Management and Valuation of University of Sri Jayawardenapura on behalf of the Government Valuation Department and wish to success this event.

Ms. P.D.D.S. Muthukumarana
Government Chief Valuer
Department of Valuation, Sri Lanka

Message from Municipale Commissioner : Colombo Municipla Council



I am very happy to send this message on the occasion of the International Conference on Real Estate Management and Valuation (ICREMV) 2018 organized by the Department of Estate Management and Valuation in University of Sri Jayewardenepura. This is a new trend in Socio - Economic needs of Smart Real Estate. I wish all success and convey my best wishes to the organizers for their sincere efforts and endeavor in hosting this significant event. I would also like to send my best wishes to all participants and wish their deliberations all success.

V.K.A.Anura
Municipal Commissioner
Colombo Municipal Council

Message from the Chairman of RICS Sri Lanka



It is a privilege to congratulate the organizers of the International Conference on Real Estate Management & Valuation for providing a platform to bring about an interaction of professionals & academia in the field of property investment advisory to further the concept of smart structures. The investment in smart building concept invariably call for the professional involvement from the design stage through the viability of the design concept to completion, then going on to the use of the building.

Smart design invariably entail increased costs leading to the need for a longer recapture period, so for a new investment strategy. It behave on the professionals to impress upon the investor/ developer the need to adopt the concept of sustainability of the project. The forum provides for the continuation of the process for the professionals & the academia to revisit concept.

Once again I wish to congratulate organizers for their dedication & commitment in bringing about this timely conference recognizing the need of the day.

S A S Fernando
FRICS (UK), FIV (SL)

Message from the President Institute of Valuers of Sri Lanka



I am delighted to extend my warmest greeting to everyone taking part in the International conference on Real Estate Management and Valuation (ICREMV 2018), organized by the Department of Estate Management and Valuation of University of Sri Jayewardenepura in collaboration with Government Valuation Department, Institute of Valuers of Sri Lanka, RICS Sri Lanka Member Association, Urban Development Authority and Colombo Municipal Council.

The theme of the conference is “Smart Real Estate: Towards Unmet Socio-Economic Needs” which encourages participants to think about this need in our increasingly complex everyday world.

I sincerely hope that, for the sake of a better future, this conference will produce invaluable ideas and break new ground towards innovation for the prosperity of the people in need. I heartily welcome academicians, researchers, social scientists, business professionals, government officials and students to participate in the event and contribute to the important aspect of nation-building.

As a leading valuation professional agency one of the main objectives of the Institute of Valuers of Sri Lanka is to promote the acquisition, dissemination and interchange of knowledge relating to or connected with the science of valuation by providing a forum for the presentation of papers and for holding discussion thereon. I sternly believe that the conference will fulfill the objective with great extent.

I recognize and appreciate the profile that you have given to our main objective in the conference and would like to express our sincere appreciation to the conference planning committee.

I wish you all a very fruitful and rewarding conference.

A.A.M. FATHIHU

President

Institute of Valuers of Sri Lanka.

SMART Real Estate: A Dream, a Goal, a Strategy towards the Social Wellbeing

Countries expect to step towards social wellbeing. Reaching to this goal, contribution of real estate industry is decisive. Hence, real estate sector needs to recognize the global changing socio-economic context in order to play its role efficiently and effectively. Challenging global economy, varying demographic trends, innovative financial markets and debt capital, political environment, technology, rapid urbanization (<https://www.cre.org/external-affairs/cre-2016-2017-top-ten-issues-affecting-real-estate/>, 18.09.2018), middle income trap, protecting the natural environment etc are general debatable areas in the world. More sensitive, emotional, as well as rational world communities highly expect some social development in line with equal rights, women rights, child rights, human rights, green environment, social harmony, and so on. These are more on some qualitative aspects of products and services than quantity. Under this circumstance, “how should the real estate sector act accordingly?” is an important matter to be discussed. Safe Cities, Livable Cities, Smart Cities, Green Buildings etc are some strategic approaches towards this end adopted by world city planners.

“SMART Real Estate” can be proposed as a better approach towards the common global interest of social wellbeing. The term “SMART” stands for Sustainable, Marketable, Aspiration of society, Reinforce of wealth, and Transform the economy. Accordingly, it can be argued that Real Estate which is Sustainable and Marketable and if it is in form of the Aspiration of society will Reinforce the wealth through Transforming the economy. The term SMART has several meanings as per the context when it is used as an adjective. When it is used with a place (i.e. smart place), it means a fashionable and upmarket place. For instance, a fashionable and upmarket restaurant means a smart restaurant (Oxford dictionary as in <https://en.oxforddictionaries.com/definition/smart>). The Oxford dictionary further provides some more synonyms for the term “smart” such as stylish, high-class, exclusive, chic, and fancy... Taking all together, it can be argued that these wider meanings imply some collective sense related with a dream, a goal or a strategy of individuals and groups attached with a place. For instance, a dream of one or few (individuals or families) may be a stylist house, a goals of many (a firm/organization) may be an exclusive office complex, and a strategy of many more (residence of a city or a province or a country) may be a vibrant harbour. In fact, all these i.e. stylist house, exclusive office complex, and vibrant harbour would be dreams, goals, and strategies of every one **if they** (Real Estates) act as **Sustainable & Marketable**, while fulfilling the **Aspirations** of uses (society), will **Reinforce** the wealth through **Transforming** the economy of such nations. They are considered to be the **SMART** Real Estate.

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Conference Tracks

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Track 6: Planning and Development for SMART Real Estate

Proceedings

Land Acquisition Regulation 2013, Fundamental Rights and Equality of Law

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Private properties are acquired for public purposes under the provisions of Land Acquisition Act No: 9 of 1950. This is “an act to make provision for the acquisition of lands and servitudes for public purposes and to provide for matters connected with or incidental to such provision.” Since introduction of the act on 9th march 1950, this Act amended by amendment Act No. 39 of 1954, 22 of 1955, 28 of 1964, 20 of 1969, 48 of 1971 and 8 of 1979, in order to incorporate provisions for regularize and update, mainly of acquisition procedures. None of the amendments attempted to change or amend the “Part V1 – Assessment of Compensation” provisions, even up to today although there were a considerable number of criticisms by affected parties, implementers, scholars, professionals and donor agencies, mainly aimed at inadequacy of amount of compensation paid for acquired lands.

If categorizes, the main drawbacks can be summarized as below.

Application of “Separate Entity Principle” in Market Value definition in Se. 45(1). When strips of lands are acquired for road widening projects, the compensation paid was totally inadequate, as strips of lands acquired considered as unbuildable in most of the cases.

Limitation of Injurious Affection and Severance to 20% of the Market Value, thus when a part of a building is acquired, although the damage to main building is very much higher, compensation paid was limited to 20% of the Market Value, which may be a small amount based on Separate Entity Principle.

Other disturbances, such as personal involvement by the affected parties in getting compensation other than loss of earnings and change of residence, mentioned in the Act.

“Doctrine of Eminent Domain” in United States, reflects supremacy of the state over the people and their private property, but individual right is safeguarded by not taking private property for public use without just compensation. In England, in Livingstone V Rawyards Coal Company (1880) case, Lord Blackburn stated that “in setting a sum of money to be given for reparation of damages, you should as nearly

as possible get at that sum of money which will put the party who has been injured, in the same position as he would have been in if he had not sustained the wrong for which he is now gaining his compensation or reparation. Further Lord Justice Scott in *Horn v Sunderland Corporation* (1941) case stated that “the principle of equivalence..... is at the root of statutory compensation, which lays it down that the owner shall be paid neither less nor more than his loss”.

Mainly based on case laws, compensation is defined as “compensation is the amount of money required to make the owner no better or worse off (i.e. to keep in the same position) than if no land had been acquired from him”. Thus the compensation is calculated comprising,

Market Value of land taken + Injurious affection and severance + Disturbances
To pay fair compensation to an affected party, there should be sufficient provisions in the prevailing law, i.e. in Land Acquisition Act devoid of deficiencies as mentioned above. This can be done only by making amendments to the existing law.

Supreme legislature, the Parliament enact laws, the Executive implements and the Judicial interprets. Legal Rules regulate individuals' behaviors to each other and society, for protecting rights and freedom of everybody, and for providing security and equality for all. Legal Order provides; Equality, where everybody is equal in front of law. “Eyes of justice are blind ” and thus everyone is equal before the law. The famous adage “justice must not only be done, but must also be seen to be done,” appears to be as applicable in legal systems around the world today as it was closer to ninety years ago when Lord Chief Justice Hewart first introduced it in the landmark English case *R v. Sussex Justices, ex parte McCarthy* (1929).

The fact that the principle of the rule of law has been firmly established in the United Nations Charter suggests a universality of the principle. That is, the concept of the rule of law is not Western, European, or American, but rather is available to all societies. The United Nations asserts that promoting the rule of law nationally and internationally is at the heart of its mission and that establishing respect for the rule of law is fundamental to the effective protection of human rights, and to sustained economic progress and development. Order in society is an essential element, stating that citizens are to comply with the law and that they are to be granted equality under the law.

The Universal Declaration of Human Rights adopted by the United Nations General Assembly in 1948 states that “it is essential, if man is not to be compelled to hav

e recourse, as a last resort, to rebellion against tyranny and oppression, that human rights should be protected by the rule of law.”

The Constitution of Democratic Socialist Republic of Sri Lanka safeguards Fundamental Rights of every citizen under Chapter III – Fundamental Rights. According to Article 12(1) of the Constitution, “all persons are equal before the law and are entitled to the equal protection of the law”. The writer wishes to see whether the Rule of Law and the Human Rights are safeguarded by the Land Acquisition Regulation 2013.

By the end of 20th century and at the beginning of 21st century, mainly to fulfill the requirements of donor agencies, the government introduced National Involuntary Resettlement Policy (NIRP) and accordingly immediate action was taken to find solutions for the deficiencies in the Land Acquisition Act as mentioned above. As observed by the Asian Development Bank, as a remedial measure to overcome deficiencies in the Land Acquisition Act, in 2000, the Road Development Authority (RDA) attempted to have the Land Acquisition Act (LAA) amended, arguing that it was difficult to pay compensation to affected persons under the present Act. However, this attempt failed. Instead the RDA established a Land Acquisition and Resettlement Committee (LARC) in 2001.

The LARC established a mechanism where the acquiring officer and representatives from the Survey Department, the Chief Valuer’s office, the RDA and the affected person could work together to discuss and negotiate compensation for issues such as loss of earnings, loss of residence, and disturbances. The establishment of the LARC brought several changes to the way in which compensation was to be calculated and paid.

Previously, valuations of buildings were based on depreciated value. Compensation for severance and injurious affection was limited to 20% of market value which resulted in a low compensation payment for those aspects. Previously there was no mechanism for the affected person to participate and negotiate on compensation matters. The LARC enabled the acquiring officer to interact directly with the affected person and obtain information on the immovable assets that were to be acquired. The information was then provided to the Valuation Department in computing the compensation payment.

The LARC then provided a forum for a group of officials and the affected person to discuss and negotiate the compensation to be paid. Thus the LARC, for the first time, provided the affected person with an opportunity to participate in a decision

about compensation calculation and payment. Within the system, appellate body named “SUPPER LARC” too was established. Thus a property owner whose property is acquired had two opportunities to make appeals against decision by the Acquiring Office. One is under Sec 22 of Land Acquisition Act to the Land Acquisition Board of Review and the other one is to the SUPPER LARC. Thus, one party was getting two opportunities for appeal against compensation received. This is not a common situation to all acquisition under Land Acquisition Act and therefore application of “Equity of Law” becomes questionable? Also the question aroused whether the Executive can change provisions in a Parliamentary Act, i.e. provisions in Land Acquisition Act by introducing new system for assessment of compensation with the approval by way of a Cabinet Memorandum.

After this initiative from the RDA, other government agencies also pushed for the establishment of LARC systems for their projects. LARCs were established by cabinet approval on a case-by-case basis. To stop this never ending process, in 2008, the National Policy for Payment of Compensation was formulated by the Treasury. This policy stood side by side with LARC. However, both mechanisms were established by cabinet approval and not through the legislature. Therefore, there were no amendments to the LAA. To overcome this difficulty and also to safeguard the Equity of Law, “Regulation 2008” was introduced under Sec. 63 of LAA, which reads as below.

The Minister may make regulations for the purpose of carrying out or giving effect to the principles and provisions of this Act.

In particular and without prejudice to the generality of the powers conferred by subsection (1), the Minister may make regulations for or in respect of all or any of the following matters :

- (a) all matters stated or required by this Act to be prescribed ;
- (b) the making of such amendments in any other written law as are consequential to the provisions of this Act;
- (c) the form of any order, notice, certificate, declaration or agreement issued or made under this Act;
- (d) the procedure to be followed at meetings of the board ;
- (e) the evidence which may be required or admitted in any proceedings before the board;
- (f) the basis of assessing the market value of any land or the compensation for any injurious affection caused by the acquisition of any land under this Act, in so far as such basis is not specified in this Act;
- (g) the registration of valuers.

(3) No regulation made by the Minister under this section shall have effect until it is approved by Parliament. Notice of the approval of any regulation by Parliament shall be published in the Gazette.

(4) Where a regulation made by the Minister under this section is approved by Parliament and notice of the approval is published in the Gazette, that regulation shall be valid and effectual as if it were herein enacted.

Regulation 2008 was put before the Parliament, with the approval, they were published in Gazette and made effectual from March 17, 2009. Thus Equity of Law and supremacy of the legislature were reestablished as Regulation 2008 is effective for all acquisitions under the Land Acquisition Act. Under Sec. 63(1) it is clear that "The Minister may make regulations for the purpose of carrying out or giving effect to the principles and provisions of this Act". Thus the regulation make should be equally applied to all acquisitions coming under the Land Acquisition Act.

This situation prevailed till 2013 and again by the Extraordinary Gazette No: 1837/47 dated 22.11.2013, the Ministry of Land and Land Development introduced "Land Acquisition (Payment of Compensation) Regulations 2013". According to sec. 2. (1) of the same, The basis of assessing the market value or the compensation for any injurious affection caused by the acquisition of any land for any of the projects specified in paragraph (2) (hereinafter referred to as the "Specified Projects") in respect of which a notice under Section 7 of the Act has been published, shall be in accordance with the provisions specified in regulations 3, 4, 5 and 6 of these regulations.

(2) The Specified Projects, for the purposes of these regulations shall be,

(a) Colombo - Katunayake Expressway Project ; (b) Colombo Outer Circular Highway Project ; (c) Southern Transport Development Project ; (d) Colombo - Kandy Road Project ; (e) Orugodawatta - Ambatale Road Project ; (f) New Kelani Bridge Approach (Kelanimulla to Angoda, Koswatta Road) Project ; (g) Mattakkuliya Bridge Approach (Central Road and Aluth Mawatha) Project ; (h) Matara - Kataragama Railway (Constuction Project) ; (i) Daduru Oya Reservoir Project ; (j) Rathnapura - Balangoda road Project ; (k) Balangoda - Bandarawela Road Project ; (l) Padeniya - Anuradhapura Road Project ; (m) Thambalagamuwa - Kinniya Road Project ; (n) 5/2 Bridge Katugasthota - Kandy - Jaffna Road ; (o) Matara - Godagama Road ; (p) Horana - Pamankada Road ; (q) Southern Expressway - Madurugoda Road ; and (r) Kirulapana - Godagama Road.

So, the application of Regulation 13 is limited only to 18 projects as mentioned above. Also, it is observed that there are some provisions which clash with existing laws. Such places are given below.

4 (2) (b) ii) If a remaining portion of a land after acquisition (other than agricultural land) is incapable of being utilized as a separate entity, LARC may give an allowance to the owner if he wishes to retain the extra portion ; - Double payment situation when taken with compensation for injurious affection.

4 (2) (f) Rent controlled premises under the Rent Act : Residential premises and Business premises : Ex-gratia Payment for the Buildings shall be the deference between the statutory compensation and the replacement cost and shall be paid according to the following manner : Contravene the provisions in Rent(Amendment) Act No: 26 of 2002.

"Paddy Land" means, the lands which are being cultivated with paddy or lands that have been prepared for cultivation of paddy or lands that have been for cultivation of paddy at least five years prior to the date of the notice published under Section 7 of the Act : - Contravene the interpretation of paddy land in Agrarian Development Act No: 46 of 2000.

Also, another question arises whether it is desirable to determine fixed amounts under certain headings, when taking inflation and time factor into account. Such places are Business Category Entitlement – Informal under Sub-Sec. g(1), Temporary Accommodation – g(11), Shifting Allowance – g(111).

Further, appeal rights too is reestablished as below.

Sec. 5. (1) The owner of a land referred to in regulation 3(1), aggrieved by the assessment made by LARC on the market value and the compensation to be paid for such acquisition, may appeal in writing, to the Land Acquisition and Re-settlement Special Committee (hereinafter referred to as the "Super LARC"). Only appellate body available for other acquisition of land under LAA is the Land Acquisition Board of Review.

As a concluding note, any change or Regulation make under the provisions of the Land Acquisition Act through the Parliament should not contravene provisions in the main Act and also safeguard the supreme principles of Rule of Law, Equity of Law and at last Fundamental Rights of every citizen of the country.

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Real-Time Evaluation of ADB's Safeguard Implementation Experience Based on
Selected Case Studies, Linked Document 6.

Effects of Property Rights on Land Tenure Security: Farmers' Perceptions

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Abstract

Property rights to land are imperative and have been identified as a main contributor to economic development of a country. It is debated that guaranteed property rights to land increase the security in tenure. This study focuses on the identification of the property rights enjoyed by the farmers in low land plots of Sri Lanka. The perceptions of the farmers were gathered through a self-administered structured questionnaire survey from 936 farmers cultivating 1230 low land plots. The results revealed that the perceptions between the document holders and non-holders are different suggesting document holders are positively perceived on full property rights. It is suggested to improve property rights in irrigated settlements to improve the positive attitudes of farmers through encouraging land investment.

Key words: Property rights, Land tenure security, Low Lands, Irrigated settlements, Sri Lanka

Introduction

Land is a key asset in agrarian societies and empowered the people with social and economic power. Economic advisors emphasize the existence of property rights as a solution to confer ownership over a resource thereby promotes the development. Therefore, property rights to land act as a crucial factor in promoting productivity in agrarian societies. Property rights to be effective must be exclusive and well defined. Individuals will not compel to use their land efficiently, if property rights are poorly defined, or cannot be enforced at low cost. There should be no uncertainty to the owners about what can be done and by whom.

The rights need to be secured; hence the risk of any loss that might arise through legal context or the possible expropriation is minimized. Rights need to be valid over a long period encouraging beneficiaries to exploit over the resources. Perkins (2001) pointed that longevity converts the resource into an asset for the producer. Rights to land shape the security of tenure. The non-secured land rights due to non-availability of valid legal title to land holdings are a rising phenomenon in the irrigated settlements in Sri Lanka. Irrigated settlement in the Dry Zone of Sri Lanka

is a land alienation strategy introduced by the government during the period of 1930's to 1970's. The main purpose of the programme is to protect the landless peasantry sector in the country. At the inception of land redistribution schemes, landless farmers were granted with equal sized low lands. The security in tenure to those lands was provided with unitary land rights prescribed over the use and succession through the Land Development Ordinance (LDO) No 19 of 1935, the law that governs the lands in settlements. Subsequently, the initial land allocation was sub-divided and distributed among the second and third generation farmers beyond the regulations (Wanigaratne, 1995; Chandrasiri, 2010). Therefore, the principle of equal sizes is overlaid with varied size distributions followed by varied tenure arrangements. There is inadequate evidence the farmers' perceptions of property rights whether they are enjoying full rights or partial rights. This paper focuses to identify the types of rights enjoyed by the farmers in low lands in the irrigated settlements in Sri Lanka.

Literature Review

Security of tenure is the certainty that a person's rights to land will be recognized by others and protected in challenges. The existing literature debates on three channels through which land tenure security can in principle, induce agricultural productivity, namely: (i) enjoy the long term benefits (ii) smooth the functioning of the land market (iii) facilitate access to credit or collateral arrangement (Feder & Noronha, 1987; Bromely, 1991; Besly, 1995; Ali, 2011). The sense of securing tenure may therefore, boost incentives to invest such as land improvements, conservation of soil, adoption of new technologies which ultimately may increase the farm productivity (Deininger and Jin, 2006; Fenske, 2011).

The following findings indicate the demand for guaranteed property rights in order to secure the tenure to the land owned by people in different societies. The right to use the land for long periods of time encourages the use of land saving investments. Therefore, the land tenure and the associated protected property rights in China affect the production behavior of the farmer (Li et.al., 1998). This implies that a property right is an individual instrument that influence on productivity. Similar results discusses Fabusoro et.al., (2007), that the households in Fulnai in Nigeria require secured access to land to guarantee the sustainable livelihoods which can only be achieved through security of rights in land resources. Another similar conclusion is discussed in Philippines, that the farmers' incentives to invest in sustainability-enhancing measures, in terms of infrastructure, are indeed affected by the strength of expectations of property rights (Omura, 2008). Hogas, (2012) presents the same view in Mozambique, that the household's perception of tenure security according to the rights they held contributed to enhance long-term related

investment in soil conservation and parcel boundary demarcations. The study also highlights that the presence of a significant demand for certificates of land ownership implies the need of the householders' to formalize the land rights.

Methods

As identified in the literature review (Bromley,1991; Besly ,1995; Brasselle et.al., 2002; Markussen et.al., 2010) the farmers perceptions on two main types of rights i.e. 'use rights' and 'transfer rights' with six types of sub property rights were collected. The data gathered from 935 farmers operating on 1230 plots in three selected irrigated settlements in Anuradhapura district namely Kagama-Katiyawa, Mahakanadarawa, and Rajanganaya in Sri Lanka. Descriptive analysis of data was carried out to identify the types and the extent of the rights enjoyed by a farmer.

Results and Discussion

The Table number 1 shows the socio-economic background of the farmers in the settlements

Table 1: Socio- economic characteristics of the farmers' in the three selected settlements.

Variable	Measure	Mean	Minimum	Maximum	Std.Deviation
Age	Years	49	23	77	11.564
Education	Years	4	1	12	2.92

The Table number 1 presents that the farmers are on average of 49 years with an average number of years of schooling is four years. This indicates that majority of farmers are less educated and they are almost closer to the next generation

The table number 2 presents the main two types of tenure and the number of plots the farmers hold.

Table 2: Type of tenure arrangements and the distribution of number of plots

Tenure arrangement	Number of Plots
Operate with legal document	430
Operate with no legal document and live with uncertainty	800
Total	1230

Source: Compiled by the author

The Table 2 presents that the majority of the farmers are operates the lands with no legal document to prove the ownership to the land plots.

Table number 3 indicates the types of rights enjoyed by the farmers according to the land acquired modes in the settlements.

Table 3: Distribution of perceptions on six types of rights according to Mode of Acquisition

	Categories of Mode of Acquisition	No. of plots	Perceived Property Rights					
			Use Rights		Transfer Rights			
			Income	Capital	Sell	Mortgage	Rent	Bequeath
i	Government –Original Deed	58	58	58	58	58	58	58
ii	Inheritance -Deed	304	304	304	304	248	304	304
iii	Inheritance-Permit	68	68	68	40	39	68	68
iv	Inheritance –No document	559	366	345	75	0	455	300
v	Informal sale	91	91	91	35	0	91	91
vi	Rent In	126	0	0	0	0	0	0
vii	Mortgage interest	24	24	24	0	0	24	0
	Total	1230	911	890	512	345	1000	821

Source: Compiled by the author

There are seven types of land acquisition types were identified during the survey and the types of property rights enjoyed by each category of land acquired mode were organized. According to Table number 3, it reveals that the categories of (i), (ii) and (iii) are perceived that they are enjoying the full property rights and on the other hand the land acquisition mode indicates they are having a valid document either as the original settlers or as the permit holders having a legally identified lot. All other categories from the number (iv) onwards perceived that they are partially enjoying the property rights showing in turn that they do not have a valid legal document to prove the ownership.

Conclusion

It can be concluded that the majority of the farmers in the irrigates settlements are enjoying only the basic rights or use right which are categorized as weak rights in the scholarly definitions and a few are enjoying the transfer rights which are categorized as strong rights. The positive thinking on property rights provide a safety net in the environment of investing in land It is recommended to improve the

property rights in order to enrich the perceptions of the farmer in order to encourage them on land investments.

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Empirical Study on Income Aspects of Cinnamon Cultivation in Karadeniya area

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Cinnamon is the dried bark of the perennial tree of *Cinamomum Zylanicum* of the Lauraceae family. History of Cinnamon use is proved by the Bible, Ancient Egypt era and Chinese Literature at 2800 B.C. Currently, Cinnamon is mostly used in food and beverages industry, in perfumery industry and in pharmaceutical industry worldwide. Additionally several recent studies found that anti-inflammatory, antimicrobial, antioxidant, antitumor, cardiovascular and cholesterol-lowering, effects of Cinnamon is help to control Alzheimer's disease, type 2 diabetes, Cancer, Dyspepsia, Gastritis, and Inflammatory diseases.

Cinnamon is a perennial crop which is one of key export product in Sri Lanka under the category of spices. According to the Department of Export Agriculture, In Sri Lanka, Cinnamon seems to have originated in the central hills where seven wild species of cinnamon occur in Kandy, Matale, Belihull oya, Haputale, Horton planes and the Sinharaja forest range. Later as an effort of Dutch the cultivation concentrated along the coastal belt from Negambo to Matara, it has also made inroads to Kalutara and Ratnapura. Currently there are about 25,400 hectares under cinnamon in Sri Lanka of which over 75% is concentrated in South. Galle (9,950 hectares) and Mathara (7,868 hectares) are the major cinnamon growing districts in the country (Premathilaka, 2013).

Premathilaka (2015) suggested investment method of valuation and Comparison method of valuation as a methods of valuation for valuation of agricultural properties. Accordingly valuation model under investment method is as follows.



Above simplified valuation method is investment method which comes under income approach. It assesses market value by capitalizing the future income (cash flows) obtainable from the property (Eric Shapiro, David Mackmin and Gary Sams, 2013). The principle of the income approach is: Net Annual Income \times Years'

Purchase (YP) = Capital Value. Thus investment method of income approach can be employed to value an income producing property. Since cinnamon cultivation is an income producing property investment method can be used to value cinnamon lands. Valuer should know what the gross annual income, main outgoings and percentages those figures in an average cinnamon land to value a cinnamon land through the investment method of valuation. Objective of this paper is study on Gross income and Outgoings of average cinnamon land in Karadeniya Pradeshiya Sabha area.

Karadeniya Pradeshiya Sabha is located between Ambanangoda and Elpitiya in Galle District of Southern Province. It represents 5% of Galle District with 126 villages and 66,979 of total population (Sampath Pathikada, Karadeniya Pradeshiya Sabha, 2013). Furthermore the Sampath pathikada of the pradeshiya sabha showed 8,423 Hectares as total land area of Pradeshiya Sabha and out of that 3,673 Hactares are cinnamon cultivated. Proportion for cinnamon cultivation from total land area is 43.60%. Agrarian Development officer's Reports, 2013, stated that livelihood of 80% of total population of the area is related to Cinnamon cultivation. These factors prove relative importance of the cinnamon cultivation for the income of the Pradeshiya Sabha as well as favorability of climatic and soil requirement of the area for the cinnamon cultivation.

The area consists several cinnamon land categories according to the characteristics of management. Those are as follows.

Cinnamon lands managed by owners and do fertilizing, weeding and preparations periodically

Cinnamon lands managed by owners and do not fertilizing, weeding and preparations periodically

Cinnamon lands managed by tenants and do fertilizing, weeding and preparations periodically

Cinnamon lands managed by tenants and do not fertilizing, weeding and preparations periodically

102 acres (41.29 Hectares) of Cinnamon lands with 43 land owners were studied for the study. All questioned lands are above 10 years old cultivations which are done fertilized, weeded and done other preparations periodically by the owners.

Findings

Main output of cinnamon cultivation is quills which is the scraped peel of the inner bark of cinnamon tree. Harvesting period of cinnamon cultivation is varying from Six months to Eight Months. Majority of cultivators are harvesting every Eight month. Depending on level of management, availability of skilled labour and climate conditions this time is varying. However accepted time for harvesting is every Eight month according to majority of cultivator's point of view.

Majority of the cultivators of the area are producing C4 quality which consists 0.63 inches of quail diameter. Yield per Acre per Annam is varying from 320 Kilograms to 450 Kilograms. Majority of Cinnamon lands showed the annual yield as 350 Kilograms. According to the cultivator's point of view this yield is depend on climate conditions, Experience of skilled labour and the management.

Questioned cultivators produce raw cinnamon quills to cinnamon exporters or collectors for further processing. The study considered cinnamon income from raw quilling without any further processing. Cinnamon prices of last three years were varing from Rs. 1,900/- to 2,300/- per Kilogram. Current cinnamon price for C4 quality is Rs. 2,100/- per Kilogram. Therefore gross income of average cinnamon land per Acre per Annam from quillings is $(350 \text{ Kg} \times \text{Rs. } 2,100/-)$ Rs. 735,000/-.

Besides the quilling income Rs. 7,500/- per acre per can be earned annually from selling cinnamon leaves and firewood under some circumstances. But this income will depend on the practices of cultivators. Some cultivators do not sell cinnamon leaves and keep remaining them in the land while some of them are selling for cinnamon oil produces. Analyzed market data denoted that cinnamon firewood do not have strong demand at the fuel market all over the year since price of that depend on price of Gas of the market. Because of this varying condition income of selling cinnamon leaves and firewood did not consider for the analysis.

There are four outgoings in cinnamon cultivation. Those are Cost of labour for peeling, Cost of weeding, Cost of bushes preparation and Cost of Fertilizing.

Cinnamon peeling labours are working as a group which is called as "Kalliya". All skilled labours of cinnamon cultivation are working for same charges. They are charging 1/3 of total harvest of the cultivation and Rs. 20/- per every Kilogram as their fees. Accordingly cost of peeling in an average cinnamon land is Rs. 252,000/- $[(735,000/3) + (350 \times 20)]$. Weeding is done three times per Annam in general practice. Average cost of weeding per Acre for a one session is Rs. 24,000/-. Thus cost of weeding per Acre per Annam is $(\text{Rs. } 24,000 \times 3)$ Rs. 72,000/-. Bushes should

be prepared after harvesting to avoid falling down since strong trees of the cinnamon bush were cut for harvesting. Average cost of bushes preparation per acre is Rs. 16,500/-. Majority of cultivators apply 300 Kilograms of special cinnamon fertilizer per acre per Annam. 50 Kilogram packet of special cinnamon fertilizer is cost Rs. 2,250/- currently. Average labour cost for applying fertilizer per acre is Re. 7,500/- Therefore total cost of fertilizing per Acre per Annam is Rs. 21,000/-. Accordingly gross income and outgoing figures of an average cinnamon land acre of the area can be summarized as follows. Based on above explained outgoing figures net income of average cinnamon land acre can be formulated as follows.

Gross Income		
From Quilling (350 Kg x Rs. 2,100/-)		Rs. 735,000.00
Less : <u>Cost of Peeling Labour (CPL)</u>		
1/3 of Total Harvest	(Rs. 735,000 * 1/3)	Rs. 245,000.00
Rs. 20/- per Kilogram (350 * Rs. 20)	<u>Rs. 7,000.00</u>	(Rs. 252,000.00)
<u>Cost of Weeding (CW)</u> (24,000/- *3)		(Rs. 72,000.00)
<u>Cost of Bushes Preparation (CBP)</u>		(Rs. 16,500.00)
<u>Cost of Fertilizer (CF)</u> (2,250 * 6) + (7,500)		<u>(Rs. 21,000.00)</u>
Net Income of Average Cinnamon Cultivation Per Acre		<u>Rs.373,500.00</u>

Table No. 1 : Gross income, Outgoings and Net income of average cinnamon land acre in Karandeniya.

Description	Rs.	Percentage from Gross income
Gross Income	735,000.00	
Cost of Peeling	252,000.00	34.25%
Cost of Weeding	72,000.00	9.79%
Cost of Bushes preparation	16,500.00	2.25%
Cost of Fertilizing	21,000.00	2.85%
Total Cost of Outgoings	361,500.00	49.18%
Net Income	373,500.00	50.82%

Source: Compiled by Authore, 2018

Accordingly Above statistics shows that 49.18% of gross income (GI) are cost of outgoings in an average cinnamon land. Out of that highest portion goes to cost of peeling. Furthermore net income of average cinnamon land in the area is 50.82% of gross income.

Conclusion

Cinnamon is a perennial crop which is one of key export product in Sri Lanka under the category of spices. Cinnamon it is used as raw material for several industries such as food and beverage, perfume and pharmaceutical. Even though Sri Lankan cinnamon is true Ceylon cinnamon which consists unique characteristics in international market we export raw cinnamon to the international market without further processing. Cinnamon cultivation is main livelihood in several regions of Galle District. Karadeniya Pradeshiya Sabha area is one of those where consists suitable climatic and soil requirements. It generates plenty of direct and indirect income sources for the population of area. Because of long term specialization, the area sustained with skilled labour, knowledge and other resources required to cinnamon cultivation. Net income of about Rs. 373,500/- can be earned annually from an average cinnamon land acre in the area and it is 50% of the gross income.

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Restoration of Declined Urban Neighborhoods; Review of Gentrification Process

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Abstract

Gentrification can be identified as a process of restoration of declined urban neighborhoods with the arrival of more wealthy residents. According to the Neil Smith's 'Gentrification occurs in urban areas where prior disinvestment in the urban infrastructure creates neighborhoods that can be profitably redeveloped. In its earliest form gentrification affected decaying working class neighborhoods close to urban centers where middle and upper middle class people colonized or re-colonized the area, leading to the displacement and eviction of existing residents'. Literature of gentrification are vast and this paper attempts to explore the literature related to gentrification process and its significance in the context of urban planning

Keywords: Gentrification, heritage conservation, historic rehabilitation, heritage buildings, historic cities

Introduction

Heritage conservation can be identified as maintaining and managing a heritage asset in a sustainable way and enhances its significance. In the heritage conservation, it mainly concerns on architectural and historical significance of the built environment. It may be individual or group of buildings, localities (streets, blocks, environments or precincts), special gardens or landscapes and other structure. According to the Listokin & Lahr (1998) historic preservation (Heritage conservation) raises rehabilitation, housing production, heritage tourism and downtown revitalization. Historic rehabilitation encourages renovation in the non – historic stock in different ways (Eg: catalyzing impact; 'major historic building to be the catalyst for additional projects'). Moreover, Harvey & Jowsey (2004) introduced a method of preserving a historic building. According to that when a residential property is designated as a heritage property, with the time the property value as a 'residential property' is getting reduced, but after certain period the value of the property as a 'historic house' is getting increased. Further Smith (1998) argued 'Historic preservation can function as a community development tool, but there are numerous deficiencies

inherent in this method that make it a less-than-desirable way to revitalize. Historic preservation generally leads to gentrification that in turn displaces many low-income households'

Gentrification Process

Gentrification can be identified as a process of restoration of declined urban neighborhoods with the arrival of more wealthy residents. According to the Neil Smith's 'Gentrification occurs in urban areas where prior disinvestment in the urban infrastructure creates neighborhoods that can be profitably redeveloped. In its earliest form gentrification affected decaying working class neighborhoods close to urban centers where middle and upper middle class people colonized or re-colonized the area, leading to displacement and eviction of existing residents'. According to Ley (2003) 'Gentrification is a process that involves the transition of inner-city neighborhoods from a status of relative property and limited property investment to a state of commodification and reinvestment. According to that gentrification is occurred in the declined urban neighborhood area where the disinvestment in the urban infrastructure and gentrification is reasoned to colonized or re-colonized the area by middle and upper middle class people.

Further many scholars have identified deferent stages of the gentrification. According to Rose (2001), there are three stages in the gentrification process. "At the stage one significant public or nonprofit redevelopment or investment and/or private newcomers buying and rehabbing vacant units. At the stage two knowledge of what the neighborhood has to offer spreads, including low housing cost and other amenities. At the stage three rehabilitation becomes more apparent, prices, escalate and displacement occurs in force". Moreover, Pattison (1977) identified four stages of gentrification process. At the first stage small group of 'risk – oblivious pioneer individuals' buy and renovate properties for their personal use. At the second stage, a similar class of people renovate their houses and also renovated houses for resale. After these two stages the media diverts attention onto the neighborhood and it becomes a hub of interest. At this stage the physical improvements become increasingly visible. While this changes, house prices in the area is getting increased and gentrified new community invaded to the area. At this stage there is a tension raised between pioneer individuals and the new gentry. At the final stage large number of properties become gentrified and a middle class society invaded the neighborhood.

When consider about the gentrification process of historic cities; According to Hayir-Kanat (2016), the research carried out based on historic Eminonu Peninsula in Istanbul, the gentrification process of the historic city had followed five faces in

gentrification process. At the first stage people deprived of social security in the low income group live in the potential spaces of gentrification. Second phase of the gentrification process is the changes in the characteristics of enterprises and services begin. The third and fourth stages of the gentrification process are the periods which first gentrifiers begin to settle in the gentrified spaces. At the fifth phase poor residents living in the gentrified spaces are forced to migrate due to the rising living standards and many old enterprises are close down.

According to the Mutal (2012) historic cities defined as ‘those active human settlements strongly conditioned by a physical structure originating in the past and recognizable as representing the evolution of its people. It is fundamental that a historic center be inhabited and form a live cultural nucleus’. Heritage conservation can be identified as maintaining and managing a heritage asset in a sustainable way and enhances its significance. In the heritage conservation, it mainly concerns on architectural and historical significance of the built environment. It may be individual or group of buildings, localities (streets, blocks, environments or precincts), special gardens or landscapes and other structure. Further Oers (2010) mention that with the increase of world population living in urban areas the pressures on historic cities will continue to rise.

Gentrification Process in the Urban Planning Context

In Sri Lankan context, authorized agencies designated the heritage buildings based on its historical and architectural value to mitigate the pressures on historic cities and Kandy and Galle cities are the best examples. With this heritage designation, property owner has less possibility to change the physical condition of the building. This situation has led to reduce the present capital value of the heritage designated property. However according to the method of preserving a historic building which introduced by Harvey & Jowes (2004) when a residential property is designated as a heritage property, with the time the property value as a ‘residential property’ is getting reduced, but after certain period the value of the property as a ‘historic house’ is getting increased. When considering the present situation of the heritage cities in Sri Lanka (specially; Kandy & Galle), those cities are getting gentrified with more local economic developments. Moreover, the local economic changes in the gentrified neighborhood has led to change the built environment of the area. To mitigate this economic development pressure on the historical buildings, it is important to understand the stages of gentrification process in historical cities. Through this, authorized agencies have possibility to gain economic development from the historical city and to conserve the heritage built environment as well.

Conclusion

Heritage conservation is a cause of gentrification. When there are conservation projects in the deteriorated historic cities it has led to gentrifying the area. Deteriorated urban neighborhood has potential to get gentrified with the arrival of new class of the society. At the stage of deteriorated situation of the urban neighborhood; properties have potential to increase its value through re-investment. Further historic neighborhood has potential to increase its real property value through the heritage conservation. When the historic cities at the deteriorated situation (reason to its old physical condition of the buildings), heritage conservation projects will help to enhance the capital value of it. As a result of heritage conservation, aesthetic value of the properties will be enhanced. Further this leads to promote heritage tourism, down town revitalization etc. In Sri Lankan context also many historical cities have heritage conservation projects and some historical cities get gentrified as a results of those projects. Galle Heritage City, Kandy, Colombo Fort area are the best examples for historical cities which have the heritage conservation projects.

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Biodiversity Integrated Landscape Level Land Use Planning for the Kala Oya River Basin

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Sri Lanka is a small island with rich biological diversity and high level of endemism. Biodiversity of the country is unique and hence it has universal value. Nevertheless, it is currently under threat from ever increasing human interferences. Due to this extraordinary endemism and also high level of threat the country is considered as one of the global biodiversity hotspots. Hence, use of lands with high biodiversity value for production purposes while enhancing the biodiversity conservation and sustenance of ecosystem services is crucial.

Land use planning by mainstreaming biodiversity conservation is one of the strategies that can be adapted successfully to balance the conservation and development. Therefore, this exercise was carried out as a pilot study in the Kala Oya river basin with the primary objective of "to operationalize Environmentally Sensitive Areas (ESA) as a mechanism for mainstreaming biodiversity management into development, in areas of high conservation significance". The secondary objectives of land use planning are (a) Identify the ESAs in order to conserve the biodiversity of the Kala oya river basin, (b) Formulate land use recommendations to improve land uses of the area to minimize the negative impacts to the ESAs and optimize the productivity of lands and (c) Identify favorable/compatible land use changes to minimize the degradation of land resource and biodiversity status. The planning process was started in 2016 and continued until early 2018.

Several secondary approaches that can be categorized under land use management approach¹ were used to identify the areas with high conservation value, located outside of the presently protected areas (PAs). Some of them are river continuum approach, Protected Area periphery approach, demarcation of human-elephant co-existence zones, use of selected species as proxy to identify areas that require biodiversity mainstreaming and approach to ensure the protection of river mouth. In order to identify and demarcate ESAs existing distribution of flora and fauna, population density, land capability for agriculture, distribution pattern of water bodies etc. were identified and land use maps were updated to map the present land use.

By studying all geographical layers, in addition to river reservations and PA peripheries, ten ESAs were identified within the basin. ESAs are environmentally significant depending on their conservation priorities which were determined by identifying the distribution of endemic, threatened, endangered, landscape, habitat, keystone, migratory and flagship species of flora and fauna². Adaptation of land use regulatory mechanisms into these areas will enhance the biodiversity conservation and sustenance of ecosystem services. Hence, identification of ESAs with appropriate land use options will facilitate the biodiversity conservation within the river basin while using the lands for production activities. Each ESA has a justification for demarcation as an ESA. Threats and issues that are available in the ESAs were also identified and recommendations were made to address these issues. Demarcation of ESAs with land use recommendations will ensure the sustainable existence of flora and fauna in the basin. These recommendations will be implemented at local level by several implementing agencies. This process can be replicated to integrate biodiversity conservation into the mix of diverse land use patterns in Environmentally Sensitive Areas (ESA) across Sri Lanka, especially in areas outside the Protected Areas.

Keywords: Biodiversity conservation, Environmentally Sensitive Areas, ecosystem services

¹ EU Commission 1997. The EU Compendium of Spatial Planning Systems and Policies. Brussels: European Union, Office for Official Publications of the European Communities. http://commis.org/upload/Glossaries/European_Glossary/EU_compendium_No_28_of_1997.pdf.

² Anon, 2017. Training Manual for Integrating Biodiversity Conservation and Sustainable use into land use planning in Environmentally Sensitive Areas. Biodiversity Secretariat, Ministry of Mahaweli Development and Environment

Enforcement and Compliance with Building Regulations in Heritage Areas: A case study in Galle Fort, Sri Lanka

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Abstract

Heritage areas in the world have been recognized by the United Nations Educational, Scientific and Cultural Organization (UNESCO) based on the special cultural and physical characteristics of each site. Galle fort in Sri Lanka is a site scheduled by UNESCO and in terms of preserving the heritage value of the site; several special regulations have been introduced by the Urban Development Authority (UDA) of Sri Lanka through the gazette No. 1604/29 on 2009.06.05. There are limited documented evidences on the level of compliance with regulations in heritage areas Sri Lanka. The research intends to identify the extent of compliance to regulations introduced by the Urban Development Authority. Data was collected through observation from 83 buildings from a systematic random sample and interviews from a random sample of 44 property owners. Thirdly a focus group discussion was conducted with invited seven members. Descriptive analysis shows that 11 numbers of regulations have been violated ranging from 4% to 30% and majority violated the regulation on mar characters on roof mostly due to unawareness and the misbeliefs. The research concludes that each regulation has been violated by at least one occupier mainly due to the lack of awareness. Immediate attention is needed to enrich the awareness of the importance of regulations to all land owners in the area.

Keywords: Heritage Areas, Building Regulations, Non-compliance, Perceptions

Introduction

Heritage sites can be seen in many countries around the world. Heritage sites or the buildings are identified and designated by the United Nations Educational, Scientific and Cultural Organization. (UNESCO). The sites should have outstanding universal value to designate as a Heritage Site. Three types of heritage sites can be identified as cultural, natural and both. Introducing building regulations is the key to preserve the natural setting of such sites.. Therefore many countries impose building

regulations or some rules for the protection of the heritage value within the country and those regulations must need to detention the heritage site in the list continuously. Countries such as Egypt, Greece, China, India, Mexico, Japan, which have historically valuable areas have been taking some actions and imposed regulations to protect them. Sri Lanka also has several heritage sites within the country. Galle Fort is one of such identified sites as the World Heritage site which is located in the Southern province of Sri Lanka. Galle Fort is a very valuable place due to its heritage, historical and architectural values. Currently, that place has become one of the famous tourists' designations due to its native heritage value. However, in Galle Fort, there are many types of buildings using for the purpose of shops, cafes, residences, hotels, schools, banks, courts, religion places, grounds, lighthouse etc. In 1997, Galle Fort declared as a Special area by Urban Development Authority UDA. With the objective of mere preservation of this area the (UDA) of Sri Lanka introduced certain regulations through the gazette No. 1604/29 on 2009.06.05 mainly focusing on the buildings. The paramount purpose of these regulations is to protect historic buildings and the site and ultimately save that heritage value in the Galle Fort. The authorities are unhappy to see that some of the regulations have been violated by the occupiers and there is no documented evidence on the level of violation or the exact reasons to non-compliance. The objective of the research is twofold as (i) to identify the extension of adherence to building regulations and (ii) to identify the reasons to the non-compliance of building regulations.

Literature Review

The regulation can be used in many different aspects such as building regulations, business regulations and so on. Hertog, (2003) as cited by Visscher, et al (2007) defined the word regulation as the 'deployment of legal instruments by public players for the benefit of public and private interests' (Visscher, et al., 2007). According to the above definition, it said that regulations are connecting with the benefits of public and private interests via legal instruments such as constitutions, statutes, legislation, standards, rules etc. For many years, building codes were considered to be something of an enemy of historic preservation. And the converse was also true: the general public and some code officials regarded old buildings as hazardous. Stories of disasters in dangerous old firetraps vied with accounts of landmarks lost to overzealous code enforcement. Two worthy objectives- public safety and heritage conservation were on a perpetual collision course (Green, 2012).

When considering Empirical Researches regarding the building regulations, measures in curbing poor compliance to building control regulation among renovated terrace houses research was conducted on the poor compliances of renovation of terrace houses in authorities' point of view. This article stated that

there are many problems regarding to the renovation of terrace houses and those renovations are not complying with the existing building codes. Consequence, lots of problems has raised regarding theses renovations. This research used the qualitative analysis and face to face interviews are used for identifying to problems facing by authorities. Semi-structured format were used for interviews. And also focus group discussions has held with officers in those authorities. The research has found that the local authorities are getting priority for the increasing their funds and it is directly affecting in good as well as badly to enforcement of the building regulations. (Mohomad, Ujang, Muhammad, & Aripin, 2017).

Another research conducted to identify various development control rules which are being violated. It was highlighted that due to lack of law enforcement and monitoring, people also violated the plans during the construction stage of their building and structure. The success of any law depends on its proper implementation. Lack of statutory authority to initiate action against officers erring in sanctioning plans seems to be one of the detriments in checking building bylaw violations. According to him the blame for such violation cannot be put on a single person. This research has conducted to identify various development control rules which are being violated. It was conducted in eight municipal towns of Yavatmal district of Maharashtra State (India). They used Personal interviews with house owner, Chief Officers, councilors, municipal engineers and eminent personalities were also conducted and following major violations are observed. (Boob & Rao, 2012)

Violation of Land subdivision and layouts

Violation in plan permission and in execution stage

Violation of Setbacks

According to above research it has found that, the most violated regulations. The violation of building regulations can be identified in violations of setbacks. The violations of planning permission stage can be controlled. And also it was found that owners/developers have sanctioned their plans from respective municipal councils, but those approved plans do not match with actual construction, with reference to planning provisions like location of rooms, door and window positions and their physical appearance (elevation). (Boob & Rao, 2012)

An Over view of Special Building Regulations Introduced in Galle Fort Area

Special regulations prepared for Galle Fort should be applicable in addition to the building regulations of Galle Municipal Council area. 05th of June 2009 UDA gazetted Special Regulations for Galle Fort and it consists building regulations under

some categories. Following section provides a brief description on the building regulations.

Regulation on permitted uses

Under this title all land owners of the Galle Fort shall develop their lands as per the zoning plan of Galle Municipal Council area and some uses such as Government Institutions, production Industries, Stores, Offices shall not be allowed within the Galle Fort area. Buildings should be demolished only under the recommendations of the Authorized Officers.

And under this title, it is mentioned that permitted uses within the Galle Fort. Those are,

Tourism industry related handicrafts show rooms, Museums, Small Scale Hotels without swimming pool or pond, Tourist gift centers, Ticket issuing centers, Guest houses ,Small scale restaurants, Appropriate recreational activities, Bookshops, Small professional offices, Art galleries, Small shops, Gems & jewelry shops, and related cottage industry. Change of use of residential buildings for the above purposes shall maintain 35% of the building areas for residential purposes.

Following activities are prohibited within the Galle Fort

Garage Buildings (for parking), Motor Vehicle Repairing Garages, Motor/Auto Service, Stations, Fuel Filling Stations, Stores not exceeding 200.0 sq.m, Industrial Buildings & Industries, Government Institutions & Armed Forces buildings (Army, Navy, Air force & Police) , Quarters for a high security persons, Hotels exceeding 20 rooms, New schools or extensions to the existing buildings, Super Markets, Warehouses or other similar buildings

Regulation on Building roof and height

The height of any building within Galle Fort shall not exceeds 10 meters and only two floors are allowed with only Calicut tiles, half round tiles or clay tiles for roofs. Radio television antennas and water tanks should not be a mar the characters of the roof of the buildings

Regulation on Building Colour

The colours of the buildings should be in accordance with the stipulated colours for the Galle Fort. There are some accepted colours which are white, grey and yellow and no any other colours are allowed. Two storied buildings should be painted with a single colour. Light tonal differences are permitted. And the facades of the building should be painted with a single colour. Colour of the two visible street facades of a building should be in harmony with each other.

Regulation on Finishes of the Building

All internal and external appearance of the buildings should be in harmony with the existing historical building within the Galle Fort area. The reflecting or mirrored glass should not be allowed for the front elevation of the buildings. And to cover the front arcade with ceramic tiles, mosaic tiles, and any tiles with colour patches or tiles of any type and inappropriate plaster textures are not allowed. Facade finishes of the buildings should be compatible with the environmental characteristics. The facades and the roof materials of the buildings of any street should be in uniformity with other buildings. The floor finishes should be in harmony with the archeological features of the existing buildings. Permission may be granted for rendering of cement, terra cotta tiles, rough and polished granite and pressed cement tiles for floors. Painting of the floors are not permitted.

Regulation on Boundary walls

The Front boundary walls are not permitted in front of the buildings facing the roads; only boundary walls, fence or live fence are permitted (on either sides of the buildings) and they should not exceeding one meter in height. Boundary walls which are allowed should be plastered and painted using approved colour scheme (White, Ash, Grey). The mosaic tiles, ceramic tiles and color bricks are not allowed for the boundary walls.

Regulation on Swimming pools and ponds

Swimming pools or ponds are not permitted within the Galle Fort.

Regulation on Hoarding structures and Advertisements

All types of advertisements with dynamic and continuously changeable devisers, using neon lights or more dominantly and contrasting characters are prohibited within the Galle Fort. Each building is permitted to install one name board.

Horizontal name boards shall be installed at the space available between the top edge of the ground floor windows and the first floor level or the upper floor window sill level. Advertisements shall not be permitted to install at the railings of the building of the upper floor. Vertical name boards may be installed at the front side within the permitted height and the space given by the Planning Sub Committee.

The total area covered with advertisement should not exceed 1/3 of the allowed facades area of the building. Preliminary approval should be obtained from the Galle Municipal Council prior to the installation of any hoarding. Galle Municipal Council shall provide appropriate places to install hoarding structures within Galle Fort.

Any, hoarding structure/name board/notice shall not be installed / stucked on to the electricity posts, telecom posts, fortress, boundary walls, open areas, on trees, roads or on roofs and cover any historical monument or any carvings of such monuments. Size and type of the letters of the name boards and other hoardings should be determined by the Galle Heritage Planning Sub-Committee. All Installation of hoarding structures/notice boards within any private or public property are prohibited other than the area marked by the Galle Municipal Council. And the notice boards shall not be kept covering windows and doors

Methods

The Research conducted in three stages whereas in the first stage the compliance level of the regulations were analyzed based on the primary data collected using the observation method from a systematic random sampling of 83 buildings. In the second stage, main reasons contributing to negligence of building regulations were identified through interviews from a random sample of 44 property owner's. Descriptive analyze was used to identify the violation percentages and the reasons. The third stage, a Focus Group Discussion was conducted with the participation of representatives from the relevant authorities related to the Galle Fort. Those authorities are the Galle Heritage Foundation, UDA Galle office, Galle Municipal Council, Archeological Department and the Grama Niladhari in Galle Fort Division. It was aimed to identify the depth of the issue having such focus group discussion with the respective professionals.

Results and Discussion

Following Table number 1 comprises with the types of property uses in the selected sample located within the Galle Fort. Property uses such as villas and hotels were considered as Tourism use and mixed residential consists with residential use plus any other use.

Table 1- Type of Properties

Type of Property	Frequency	Percentage
Residential	26	31.3
Commercial	16	19.3
Institution	3	3.6
Mixed Residential	20	24.1
Tourism	16	19.3
Professional Office	2	2.4
Total	83	100.0

Source: Survey data 2018

Table number 1 presents that the majority of the property uses are the residential and it is about 31% and secondly, the mixed residential category shows the second highest property use and it is about 24% out of total sample properties.

The Table number 2 consists with the types of regulations and the violated percentages by the occupiers.

Table 2 – Type of Regulation and the Percentage of Violations

Regulation No.	Regulation	Violation percentage (%)
I	Type of permitted property use	0
II	Buildings are allowed for single or double story OR The height of the building shall not exceed 10m	7.23
III	Calicut tiles, half round tiles or clay tiles should use for roofs	28.9
IV	Antennas and water tanks should not be a mar the characters of the roof of the buildings.	30.1
V	colours of the buildings should be in accordance with accepted colours which are white, grey and samara	12
VI	reflecting or mirrored glass should not be allowed for the front elevation of the buildings	10.8
VII	Front arcade cover with any ceramic titles, mosaic titles, any tiles with colour patches or titles of any type or inappropriate plaster texture	8.4
VIII	Permission may be granted for rendering of cement, terra cotta tiles, rough and polished granite and pressed cement tiles for floors	4.8
IX	Front boundary walls are not permitted in front of the buildings facing the roads	16.9
X	Swimming pools or ponds are not permitted	3.6
XI.I	All types of advertisements with dynamic and continuously changeable devisers, using neon lights or more dominantly and contrasting characters are prohibited	0
XI.II	Each building is permitted to install one name board	25
XI.III	Correct placement	15

Source: Survey data 2018

The Table number 2 reveals that 11 numbers of regulations have been violated by at least one occupier ranging from 4% to 30%, while the majority seriously violated the regulation on *Antennas and water tanks should not be a mar the characters of the roof of the buildings* (Characters which disturbing to the appearance on the roof). Only 3% was identified as violated the regulation of constructing ponds and swimming pools.

Following reasons were identified as the main reasons which contributing to negligence of building regulations from the point of land owners.

Inadequate financial facilities to renovate according to building regulations

Unawareness of the exact guidelines

Consideration of regulations as a barrier to the tourism promotions

Large number of regulations and the difficulty to adhere to all

Relevant authorities are not keen in taking actions against some violations

Results obtained from the focus group discussions are compatible with the views expressed by the land owners as indicated above. The professional agreed that people are little unaware about the guidelines, slow progress in taking actions against violations, difficulties to control illegal construction in terms of humanitarian considerations and political influence are contributing to certain violations of regulations.

Conclusion

It can be concluded that majority of the regulations have been violated by the occupiers most obviously the mar character. Unawareness of the guidelines and the attitudes of the occupiers are the most influential factors on the shortcoming of adherence to the regulations. It is recommended to hold several awareness programmes to change the individual's minds to understand the value of the regulations all the relevant authorities should establish within the Galle Fort.

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An Investigation on the Significance of Alternative Tourism in the Rural Farm Areas with Special Reference to the Nilaveli Resort Region, East Coast of Sri Lanka

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Abstract

The tourism industry makes a significant contribution to the growth and diversification of Sri Lanka's economy. Nowadays, numbers of hotels and other tourist establishments have been dramatically increased in order to attract increasing number of tourist arrivals. Most of these tourist destinations are located along with coastal belt and some also adjoining to old agricultural villages. On the other hand, Sri Lanka has a long history of agriculture which has been developed over a course of 2500 years. Although policies play an important role to promote sustainable tourism by preserving these villages as well as engaging local community into the tourism, it is actually minimal level in the practices. As per the first objective of the study, it has been proved that not only agricultural industry but also hotel industry in Nilaveli loses its strength fast as ever before. Focus group discussions reveal that native communities also desire on hotel investment and therefore losing their hopes on their farming practices. During the field study from 2013 to 2018 for 82 hotels and other accommodations in this Nilaveli resort region, it has been identified that hotel industry of this area promote only mass tourism and therefore facing lower occupancy rate of nearly 35% and lengthily off season period of 9 months. And also, hotel industry of this region is in the direction of oversupply of hotels and rooms. Nowadays, leisure real estate developers also enter into the market to develop condo hotels, villas and vacation houses on the beach front. Particularly hotel or real estate development in the rural sensitive area, it should depend on all resources available around them such as "eco", "agro", "farm", "culture", "community" and "rural" rather than only rely on "sun", "sea" and "sand". Therefore, second objective of the study finds the ideal development for local communities in this rural village as organic farm villas or houses. It is most ideal mix concept in the Nilaveli resort region to promote local resources as well as alternative tourism in addition to mass tourism.

Keywords: Agritourism, Organic Farm, Sustainable Tourism, Leisure Real Estate , Nilaveli

Introduction

In Sri Lanka, tourism is the third largest export earner in the economy, after remittances and textiles and garments. In the past five years, growth in visitor numbers has been unprecedented, averaging more than 22% year on year, of which 80% to 90% was visitors coming to Sri Lanka on holiday. In 2015, 1.8 million international visitors came to Sri Lanka, stayed an average of 10.1 days, and generated

an estimated US \$2.98 billion. In 2016, international visitor arrivals reached over 2 million and revenue generated was approximately US \$3.5 billion (SLTDA ,2017)

According to Sri Lanka Tourism Strategic Plan (TSP) 2017 – 2020 (SLTDA ,2017), Tourism in Sri Lanka has been a story of untapped potential. The country is missing opportunities to increase investment and jobs and to use tourism revenues to conserve the environment and sustainably support communities in all parts of the island. Fundamentally, the ambitions of this Strategic Plan are to increase revenue for the country, support local communities, and increase tourism on a sustainable platform.

Therefore, it is clear that tourism sector has major impact on the country's economy. To continue up the growth curve, the Sri Lankan tourism sector must reframe its value proposition to conserve assets, develop and better define new markets and products, and include and involve citizens and local communities as participants in the tourism economy.

While national policies and mission encourage on sustainable and community based tourism, it is important to investigate what actually exist in the local areas. Conventional mass tourism within the rural sensitive areas is always very close or adjoining to the local communities and their livelihood. While the advantage of mass tourism revenues is interesting in terms of jobs and economic growth, there are also problems in local context. Host community may be marginalized in several ways due to the rabid changes on tourism development. This is the context in which reflections on alternative tourism approaches has developed. According to Triarchi and Karamanis (2017) It is about developing new forms of sustainable tourism that integrate local populations and both natural and human environments of host countries. In a more simple and different way, alternative tourism as a generic term encompasses a range of tourism forms such as “eco”, “agro”, “farm”, “culture”, “community” and “rural tourism”

As rural areas are the major concerns of the social, political and economic will of Sri Lanka, Aslam (2011) stated that sustainable improvement of the socio-economic well-being of the rural community is the biggest challenge for Sri Lanka. He further stated that diversification of alternative tourism in rural Sri Lanka would help to overcome the development challenges while preserving the socio-culture and environment. In the form of alternative agritourism, Study of Malkanthi and Routray (2011) shows several potential for agritourism in Sri Lanka. Another Study of Malkanthi and Routray (2012) also shows that overall satisfaction levels about

agritourism destinations were at moderate levels and comparatively a higher level of satisfaction of local visitors could be observed over foreign visitors

Although there is huge potential for agritourism in Sri Lanka and it is in line with sustainable tourism, mass tourism easily attracts numbers of investors as well as visitors. However, promotion of mass tourism in some part of the country is still struggling with lower occupancy rate and lengthily off season period due to seasonal climate. Especially, it is huge problem for hotel industry in the east coast of Sri Lanka and therefore it is important for investigating the real situation of this industry to provide new and complementary strategies to create real value, identifying routes to investment in order to attract more tourists. Accordingly, aim of the study is to examine the importance and necessity of the alternative form of agritourism in the rural farm area in order to engaging local communities as well as hospitality sector. First objective of the study is to identifying the declining trend of agricultural and hotel industry in the Nilaveli resort region and another objective is to identifying possible routes to promote alternative form of agritourism in the Nilaveli resort region

Methodology

This study selects case study area of Nilaveli rural farm region in Trincomalee district, Eastern province of Sri Lanka. The village is nowadays well-known for mass tourism. In Sri Lanka, 7 numbers of tourist regions consists of 46 numbers of tourism development zones. Nilaveli tourism zones fall under the east coast resort region in Trincomalee. Although the region is world famous recognition for mass coastal tourism, Nilaveli has been predominantly agriculture village over the generation. Agriculture, fishing and livestock are the most important income generating source for native community of Nilaveli.

The study initially inspected all the hotels and other accommodations include star graded hotels, boutique hotel, guest house, villas, bungalow and etc in the tourism region during the period of 2013, 2015 and 2018. Especially, occupancy rate for the last 12 months of the each hotels have been identified during the official inspection for the purpose of rating assessment work. Number of rooms and occupancy rate are the main indicators of this study to deal with the performance of hotel industries in the rural sensitive area. Occupancy rate is the main primary data of the study and these data also have been cross checked with energy consumption of the hotel to verify the reliability. Further, secondary data of the regional and national performance of the hotel industry has been reviewed from the publications and research of the SLTDA. Analysis has been done within the case study area by using occupancy rate and number of rooms to find the gap between the actual

performance and the potential capacity. In addition, comparative analysis has been carried between the performance of case study area and the performance of national and regional outcome. In order to fulfill the first objective, discussion has been carried with owners and managers of the all hotels other accommodations to identify their difficulties to improve the occupancy rate. In addition, their innovation and initiative to improve the occupancy were also discussed.

In order to identify the trend of agricultural industry, Data has been collected from several government agricultural departments. In addition, the case study area of Nilaveli rural regions have been initially identified that it is potential for the alterative tourism in the form of agritourism. Statistics from secondary data collection is also evidence that Nilaveli village is prominent and habitual agriculture village. Focus group interview was conducted with farmers to understand their farming pattern, marketability and other issues. It has been categorized as two groups. First group is small scale family based farmers up to one acre of farm land. Second group is large scale farm land owners who are operating the farming activities through labours. Storytelling also was another method with small scale family based farmers to get reflection about their connectivity with their native space. Especially, their life changes and their view after rabid tourism development on their places were deeply discussed.

Analysis and Results

Agriculture is pioneer of this rural village. The whole area was mixed with agriculture and residential land use until 2009. After completion of 3 decades of civil war, the area had been heavily attracted by tourist sector. Before 2009, nearly 1000 acre of agricultural land was cultivated by the native farmers. Nearly 600 to 700 acre of land were covered by horticulture farming such as verity of crops include okra, snake guard, bitter gourd, cucumber , pumpkin, tomato, chili , brinjal , luffa, winged bean ,leafy vegetables, ash plantain, drumstick , red onion and etc . Fruits are such as papaya, banana and etc. In addition, nearly 200 acre of coconut cultivation belongs to coconut board and private party. Total paddy field of this area covered nearly 250 acre. Nowadays, horticulture farming activities had been dropped down by nearly 40 to 50 percentage. Most of the paddy cultivation also had been abandoned. However, small scale family based farmers are utilizing their land for all seasonal period to cultivate vegetables and fruits. Theirs farmland area is covered only 20 to 30 percentage of total horticulture farm land. As per the discussion with them, most of them are having nearly 20 to 40 perches of land for the purpose of their accommodation and farming activities. On the other hand, nearly half of large scale farm landowners are keeping their land as bare and rest of them are employing labors for farming activities. Nearly 300 to 400 acre of horticulture farm land belongs to

them, and they are waiting for good alternative investment. Some of them have already converted their land into 10 to 20 rooms of guest houses. Large scale farmland owners are basically inhabitant of this area and nowadays most of them are residing out of their native places include foreign. They are financially strength and ready to invest any small and medium scale profitable investment in this area. As per the discussion with them, this study also identify that they are the target group to develop agritourism.

Another main results has been identified that hotel industries includes star graded hotels, boutique hotels, guest house, villas and bungalow of this region is in the direction of oversupply of rooms. Only three hotels were there before 2004. It has been further reduced as one after the Tsunami in 2004. However, Most of the hotels and other accommodation has step forwarded after completion of civil war in 2009. Accordingly, 12 numbers of hotels and other accommodation with a capacity of 220 rooms has been appeared in 2013, and then it has been increased as 25 hotels and other accommodations in 2015 with capacity of 376 rooms. Nowadays, it has been identified as 82 numbers of hotels and other accommodations in this area include 7 tourist approved hotels and other accommodations with a capacity of 178 rooms and 75 non tourist approved hotels and other accommodations with a capacity of 800 rooms. In addition, there has been allocated huge amount of land space for future tourist development and leisure real estate development. It is nearly 300 acre in Nilaveli own by private party and large scale leisure real estate developers. As per the collection of data during hotel inspection in 2013, 2015 and 2018, Overall occupancy is calculated as less than 35 % for most of the hotels. Some of the hotels and other accommodations with fewer rooms reach up to 45% to 50 % of overall occupancy rate. However, peak seasonal occupancy is high for the period of July to September as nearly 80 % to 90%. Rest of months, hotel industry in this region struggles with 10 % to 30 % of occupancy rate. Nearly 600 numbers of rooms are vacant position in this region over 6 month period of each year.

Appearance of leisure real estate development is a recent trend and profitable investment in this region. Recently 82 units of condo hotel have been established with a capacity of two to three bedrooms for each unit with beach view. First stage of 54 units has been immediately sold for 23 to 50 million Sri Lankan rupees. Next stage of 28 units also has been already booked and ready to sale little bit higher than previous value. Although developers sold out all these units, they are managing the apartment on behalf of owners to let for tourist. However, there is no any improvement in the occupancy rate. Therefore, this developer is in the position to make decision strategically to attract off session period. Another big leisure real estate investment is also in progress to this main land, one of the Canadian real estate

developers has purchased 26 acre of land to build 50 luxury resort chalets and 62 luxury island homes for completion by April 2020 on the pristine beaches of Nilaveli. They are expecting to sell these villas commencing the value of \$680,000 and reach up to \$1.1 million.

Discussion

Livestock and fishing activities of this area have been already washed out due to the appearance of hotel industry in this region. Secondly, most of the farmers have lost their hopes in the agriculture cultivation and ready to convert their farm land into guesthouse and small scale hotels. However, they are slightly realizing the situation that beach based mass tourism never helps them in long run. On the other hand, Hotel industry of the regions is almost struggling point due to lower occupancy and lengthily off season period. Most of the hotels and other accommodations struggle to cover operational cost from their limited revenue.

In particular hotel industry, it is actually international competition market among huge amount of tourist destinations in the in the planet. On the other hand, Tourist's taste is also changing dramatically. Aesthetic point of view, architecture design for resorts and hotels are falling out as fast then other construction. Therefore, it is essential for hotel industry to modify their design and structures as soon as possible as per the expectations of tourist, otherwise it is very difficult for part of the hotel industry to survive in long run. Nowadays, most of the hotels in Sri Lanka attract with cheap rate to beat international competition. But, it is doubt how these hotels maintain same cheap rate in the long run while there will be pressing requirement for change the design and structures in long run. In particular in the hotel industry in the rural sensitive area along the coastal regions, hotels completely promote 3 "S" such as sun , sea and sand. Even though seasonal period for coastal tourism limit for few month of the years, most of the investors target economic profit in sort run. If they fail to attract reasonable number of tourists in the rest of the years, they will be easily exited from the industry in long run. In particular, Nilaveli resort region, nearly 600 numbers of rooms are vacant position over the 6 month period. In this situation, it is actually useless for hotel industry to welcome another hotel with same product and service. Therefore, by considering the underperformance of hotel industry in the Nilaveli resort region, alternative tourism is essential to attract further tourist during the off season to keep hotel industry alive in long run.

Kuchchaveli Tourism zone which is adjoining to the Nilaveli tourism zone is one of the evidence in east coast resort region that lacks of investor attraction due to several reasons. One of the reasons is that lower occupancy rate and lengthily off season period in the region. 576 acre of this beach starch has been declared as Tourism

Development Zone in 2010 to built 3,000 rooms. However, only single hotel runs the business within the 10 acre of land by providing 48 rooms. This statistical evidence is also pressing the requirement of alternative tourism in this region.

Although policies play important role to promote sustainable tourism and engage local community in tourism, it is actually minimal level in the practices. In addition, sustainable tourism and community engagements are under the control of mass tourism in the practices. In particular case study area, local communities get advantage from this development in several ways such as employment, improved local services, and rural development. However, their routine livelihood of agriculture cultivation comes to end due to lack of younger famers. Most of the younger generations of Nilaveli rural region are attracted by hospitality sectors for the salary scale of Rs. 30,000 to Rs.40,000 per month for housekeeping and other minor level positions. By considering this adverse impact of the native communities, Hotel industries of Nilaveli region should promote agritourism during the off sessions period by encouraging their own neighboring staff. Farmers and inhabitant of this area have been gradually losing their farm land for resort development activities. They never get real value for their land. They are selling their land only for Rs. 40,000 to Rs. 60,000 per perch. In future it will be biggest threat for this community. Due to the scarcity of beachfront land, resort development is nowadays moving towards farm land. Already huge amount of vacant land has been purchased and allocated for future tourist and real estate development activities. This study already identified that hotel industry of this region is moving with over capacity. On the other hand, the ambitions of the Sri Lanka TSP 2017 – 2020 are to increase revenue for the country, support local communities, and increase tourism on a sustainable platform. Therefore, it is best idea for hotel industry and the investors to move with long-term strategy in line with TSP to helping hand to local communities in the sustainable platform.

Conclusion and Recommendation

All these dramatic changes happened during last 10 years period. It is still possible to bring back agricultural industry in this region as profitable investment. Hotel industry is also not completely in the wrong track. However, it is important for these two sectors to make collaborative journey in order to promote sustainable path of alternative tourism. In addition, appearance of leisure real estate development is a recent trend and profitable investment in this region. Therefore, agricultural and hotel industry should adopt the strategies of leisure real estate developers. Leisure real estate sectors try to bring up the concept of Shared-holiday ownership. Shared-holiday ownership is a category of leisure-orientated real estate products, generally known as timeshare and fractional ownership. It is nowadays initially practiced as

short-term and long-term lease during off season period. This Shared-holiday concept is most suitable for condo hotels, villas and vacation houses rather than hotels. It is no longer enough for hotels to have a great location and smart rooms; today's guest is looking for lifestyle options, flexibility, choice and more facilities than ever before. Guest likes wealthy villages and self-sufficient life during their stay.

On the other hand, Nilaveli resort region basically rural agriculture village. There is great flexibility to bring modern farming techniques. In addition, cultivation is possible throughout the year. Most of the farmland belongs to wealthy society of this area and they have a capacity to invest for reasonable return. However, they nowadays desire for short-term profit in a hotel and other accommodations. However, this study never advises them to give up the idea of hospitality sector. But, it is important for them to run the hospitality sector with a help of their agricultural practices rather than rely only beach. They should know that agritourism is increasingly recognized as an important strategy that can contribute to agricultural development through diversification of farming activities and providing opportunities to rest, relax, enjoy and study about farming for the visitors. They should prepare themselves to give mix product. Organic farm is also advance setup of the Agritourism. One of the pioneer hotels of the Nilavalei resort regions has already initiated the organic farming activities in a minor level.

In conclusion, this study adopts two main concepts such as single family houses/villas and organic farm. The concept of single family villas is most popular around the world and plenty of vacation rental booking websites like Airbnb and Homeaway are available to advertise it. In the Nilaveli resort region, the concept become essential due to lower occupancy rate and lengthily off season period. Concept also had been already brought by Leisure real estate sectors. This study identify that Nilaveli resort region basically agriculture village and having rich soil for verity of farming activities. Native community of this area is also expert in farming practice. However, these two resources had not been met the requirements of visitors and hospitality sector in this area. Therefore, this study brings the concept of organic farm to merge with single family houses/villas. Therefore, this study conclude with single family organic farm villas is most ideal mix concept in the Nilaveli resort region to promote local resources as well as alternative tourism in addition to mass tourism.

This concept of single family organic farm villas has been proposed to reduce lengthily off season period of 9 months of this region. Therefore, future of study should concentrate on International traveler's pattern during this off season period to attract them. Another biggest area of future study is about site planning and design

of organic zone and the model of single family organic farm villas. In addition, future studies also should find the way to convince the local investors to invest into proposed model.

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Comparison of Living Standards between Resettled and Non-Resettled Households under the Accelerated Mahaweli Development Program

Special reference to: Kotmale Reservoir Project

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Abstract

Kotmale Reservoir project which was implemented under the Accelerated Mahaweli Development program was a landmark in Sri Lankan History. As other developments throughout the world, this project also carried out resettlement programs as a part of the main project. This is a comparative study, focus to identify the similarities and dissimilarities of living standards of the households in two settlements (re-settled village – “Nawathispene” and non-resettled village - “Harangala”) adjacent to the Kotmale Reservoir due to the reservoir development. Economic and social aspects considered to measure the living standards. As per this study, it is identified that the economic capacity and the social wellbeing of the resettled village has been improved compared to the non- resettled village through the resettlement process. In terms physical infrastructure, income received... etc have been increased to a certain extent after re-settlement, the perception of people on the economic advancement shows a negative picture as resettled people bear a strong feeling that their expenditure has gone up and the sense of self – sufficiency is no more with them after resettlement. In terms of social aspects, strengthening of relationships and institutional and structural enhancements can be observed through the resettlement. However this study depicts that there is not much disparity between two villages in terms of socio-economic aspects, since the careful attention that has been paid in providing the basic amenities, infrastructure and socio economic and cultural link of the society in the resettled colony.

Keywords: Resettlement, Living Standards, Economic, Social

Background of the Study

There are many objectives to be fulfilled through a development project: such as production expansion, economic growth, enhancement of employability...etc. Even those projects aim to obtain positive objectives, there would be some adverse impact

also. As per the sustainable goals in the Agenda for 21st century of The Earth Summit emphasize that the importance of the balanced growth of the economic, social and environment aspects (Sustainabledevelopment.un.org, 2017).

The World Bank environment report in 1996, indicates that there were 146 projects caused to resettle 1,963,000 people in the countries of Africa, South Asia, East Asia, Europe/Central Asia, Middle East/North Africa, Latin America...etc. (Stanley, 2004).

Further, it is estimated that each year around the world approximately 10 million people are displaced by development projects. Over the last decade some 90 to 100 million people have been forced to move from their homes, 40 to 80 million of whom have been displaced by large dams (Cernea, 2000; WCD 2000 as cited in Mcdonald *et al* 2008).

In concerning the Sri Lankan context, Agrarian Colonization Project, High Land Development Projects, Mahaweli Development Projects, Southern Expressway Construction Projects provide ample experience on resettlements from the very past. Further, the three decade civil conflicts prevailed in the country and the natural disasters such as Tsunami, landslides, floods, droughts are giving instances for the resettlement scenario in the Sri Lankan context.

The Accelerated Mahaweli Development Program is one of a silver node of the Sri Lankan history which was implemented to serve the national electricity power supply and to serve the irrigation and agricultural needs of the people. Through the five reservoirs built up under this program which are Victoria, Randenigala, Maduru Oya, Kotmale and Rantambe projects used 39% of land in extent from the total land coverage and 55% of land from the Dry Zone in Sri Lanka. Accordingly, these projects used 10,830 square miles or 900,000 acres of land in extent for the developments (Mahaweli Development Authority, 1986).

As a result of the Kotmale Reservoir Project, 3891 acres of lands were acquired from the inhabitants for the construction of new roads, new sites, quarries and filling of the dam. 2987 families lost their lands and they were moved to several resettlement sites like Mahaweli Systems B, C, H and hilly areas which are closed to the original villages. Up to year 1990, 2758 families were resettled under this project. At present more than 25 years have been passed after the construction of dam (Samarakoon and Ariyawansa, 2015).

In this study, it is expected to identify whether there is a distinction between the living standards of the re-settled and non-resettled households due the reservoir project at Kotmale. Therefore, two adjacent colonies in the banks of reservoir have been considered namely, “Harangala” which is an ancestral village and “Nawathispane” which is a colony of resettled people who were displaced due to the implementation of Kotmale Reservoir Project.

Problem Statement

Many of the previous studies confirm that the social and economically adverse impacts were there particularly severe for more vulnerable groups such as the poor, women, children and ethnic minorities (Morvaridi, 2004: Tan *et al* 2005 cited in Bui *et al*, 2012) due to resettlement processes. Moreover, Resettlement project on Temuan Community in Malaysia (Karim and Hashim, 2010), Resettlement project in China three Gorges Dam Project (Yuefang and Steil, 2003) provide examples for the failures of resettlements. Thus, resettlement tasks have become a most challenging in all over the world due to the failure of keeping the living standards in a better position (Samarakoon and Ariyawansa, 2015).

Having considered the difficulties, failures, positive and negative externalities mentioned in the literatures of implementing resettlement plans and its effect to the living standards of the affected people, this study is expected to comparatively identify whether there is a significant difference between the living standards of the people who have resettled and non-resettled

Objectives

General Objective

To Make a comparative analysis of the living standards of resettled and non-resettled households in the selected case study area

Specific Objectives

To study the current living standards of the households in “Harangala” which is a non-resettled village due to the reservoir project

To study the current living standards of the households in “Nawathispane” which is a resettled village near by the reservoir

To compare the living standards of resettled and non-resettled households in the selected case study area

Methodology

In this study, the research problem was identified through field observations, discussions with the resource persons of the project and having discussions with the villagers in the subject area.

A sample size of 33 households in “Harangala”, non-resettled village and 19 households in “Nawathispane”, resettled village amounting 52 households were selected to collect relevant data through questionnaires. Further, interviews, discussions, researches personal observations used to obtain the data from the fields.

Findings

This study mainly focused to comparatively identify few specific Economic and social factors which affect to the living standards of a household. The below table has been extracted to compare and contrast the highlighted points from the collected data.

Table 1: Comparative Summary of the living standards resettled and non-resettled households

Description		Resettled- Nawathispane	Non- Resettled - Harangala
Educational Attainment		Majority have obtained school education in both colonies Approximately, 50% of the population have been achieved up to ordinary level	
		5% have been achieved beyond Advanced level	6% have been achieved beyond Advanced level
Employability		Averagely, 1-4 persons are employed in a household	
		High employability percentage (67%) Majority employed in plantation and livestock works	Comparatively less employability percentage (58%) Majority employed category in private sector
Income Distribution		Highest (mode) monthly income earning distribution range - Rs. 25,000-50,000	
Monthly Expenditure		Averagely spends for health, transportation and other up to Rs.10000 Rs.10,000 for education and its about 69%	
		Majority spends for food Rs.10,000 - 20,000 (68%)	Majority spends for food Rs.10,000 - 20,000 (67%)
Assets	Vehicle	Majority owned motor cycle	
		68% owned any type of vehicle	52% owned any type of vehicle
	Land	Majority owned 2 Acre plots of land No any other land owned	Majority owned 40-80 perches of land plots are there as homesteads
	Cultivation	Everyone cultivates Tea (100%) Majority harvests 400-500kgs per month	39% of households cultivates tea Majority harvests less than 200kg per month
Savings		Favorite saving modes are Banks and personal savings/ cheetu Majority save Rs.5,000-10,000 per month	
		84% do monthly saving	67% do monthly saving

Loans	Favorite borrowing modes are Bank and private lenders Majority have taken loans for cultivation purposes	Favorite borrowing modes are Bank and private lenders Majority have taken loans for construction purposes
Housing unit details	Major Roof type is asbestos and Floor type is cement Total sq ft of majority- 500-1,000ft	
	Major age range 25-30 years Major Wall type- cement blocks	Majority are more than 35years. Major Wall type- bricks
Access to basic services and sanitation	Majority have access from private roads All have electricity Majority use pit detach toilets	
	All have water from pipeline Majority of the households somewhat dissatisfied about	Majority gets water from well Majority of the households somewhat dissatisfied about
Access to other services	Daily shopping needs and other needs, banking, school, transportation, postal services, hospital services, religious coexistence are in satisfied level. All other services are available within 14/15km distance away from the colony	Daily shopping needs and other needs, banking, school, transportation, postal services, hospital services, religious coexistence satisfied level. All are available within 20/22km distance away from the colony.
Technical facility usage	42% use computer, 32% use internet and 95 % have mobile phones	46% use computer, 27% are use internet and 100 % have mobile phones
Community participation	Community participation is at satisfactory level	Lesser community participation

Source: Survey data, 2017

Through this study, it is revealed that the economic capacity of the resettled village has been slightly expanded with the resettlement process. The above table elaborates that the employability, income, savings, borrowings are comparatively high in the resettled colony- “Nawathispane”. In the forms of asset base, even there are some disparities, the resettled village is in a better position. Accordingly, it was found that through the resettlement process, living standards were enhanced or at least were able to maintain the existing level.

As per the collected data, overall satisfaction of the physical, economic, social, structural, institutional bases of the two colonies are falls within the mean value range of 2.5-3.5 which represents a neutral perception level in overall.

But the perception on the living standards on both “Harangala” and “Nawathispane”, relates with the economic factors, most responses indicated a negative response on that. That’s because even the living standards enhanced by physically, there is no proper maintenance and those are not up to the adequate and satisfied level.

In considering the social aspects, which are affecting the living standards, are in a satisfied level than the economic factors; since the majority of both colonies are fall in above moderate satisfied level. The observations proved that, the perception of resettled families on social aspects also shows a positive picture as they have been living in the re- settled village for a long period (approximately more than 25 years) too adopted to the new situation.

Most of the respondents in the resettled village indicate that, they were negatively affected immediately after the resettlement in terms of their employability, income, assets and so on. But, gradually the improvements of physical and social facilities have enhanced their life styles to a certain extent. Though the people are resettled with many economic and social facilities, still their perception on being their origin lands are in a very much higher position.

Conclusion

Most of the resettlements in the world over and Sri Lanka contribute to the emergence of many socio economic conflicts. However, the findings of this revealed that such conflicts are not so challenging as the community of this selected site was resettled as a unitary community without having collections of other religions, nationalities, races...etc. Accordingly, it is clear that, resettling a group of people as a unitary community will reduce the problems on the resettlement especially in the context of social aspects.

Resettlement programs should be carried out with having a thorough knowledge and understanding on every aspect that would be affected the human behavior, welfare, living standards, employability and so on. It is important to a pay attention to keep the economic and social bases in a better position through the resettlement. Then it will reduce the marginal costs, unnecessary conflicts for the project and to the society as well.

Recommendations

Avoid as much as possible detaching economic and social relationships

Resettle people as a unitary community

Make necessary conditions to minimize the negative effects of losing livelihood and income

Provision of financial, material aids and advices, training facilities to strengthen the income

Establish new industries and employment opportunities within the area

Provision of infrastructure and services prior to the resettlement and ensure the regular maintenance

Enhance the education opportunities, access to latest and technological knowledge

Provision of social infrastructures such as playgrounds, library, entertainment facilities

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A Review of Literature on Hedonic Pricing Model Application in Housing Market

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Abstract

The hedonic pricing model (HPM), resulting from Lancaster's (1966) consumer theory and Rosen's theoretical (1974) model, has been used broadly in the scientific investigation of estimating the different types of aspects of housing market. It has been practiced in different property markets as a method of property price appraisal. The importance and the appropriateness of these attributes applied by the scholars in different property markets have not been adequately studied. This paper focuses on reviewing the appropriateness of the Hedonic Pricing Model for estimating of prices of housing attributes. Locational, neighborhood and structural attributes were identified in the published papers using hedonic pricing model were used as data giving due recognition to authors. Results revealed that hedonic pricing model has used to estimate the contribution of attributes to market value in different scenarios and there are common attributes as well as differentiations in each model. Although the set of prices influencing characteristics is different across different markets, and the variables included in the hedonic pricing model are also constrained by the availability of data, this list should serve as a useful basic checklist for the application of the hedonic price model in different markets.

Keywords Hedonic Price Model, Property Prices, Housing attributes

Introduction

The housing sector is well connected with the economic wealth of the nation. (Chau & Chin, 2003) A increased demand for the housing sector reflects the demand and growth of the other economic sector too. Therefore, the variables which are highly influenced to the property prices are most important as decision of the buying housing is the both investment and consumption decision. Concerning the building of models to estimate the housing prices, there can be seen two types of models that have been used widely.

The first model is homocentric model which was developed by the William Alonso, Edwin Mills and Richard Muth where housing price is assumed to be a function of proximity to a single employment center or workplace. Unlike the other goods, housing market is consisted with unique characteristics such as durability, heterogeneity and permanently fixed to the earth.

The second model is hedonic price model. Therefore, the price of one house relative to another will differ with the additional unit of the different attributes inherent in one house relative to another house. The relative price of a house is then the summation of all its marginal or implicit prices estimated through the regression analysis.

Most of the studies have been applied this model to show the relationship between attributes preference and price of properties (Keskin , 2008) (Rosen, 1974). (Agarwal, Chen, Li, & Tan, 2017). This is because the market price of a housing unit can be determined by the buyers' evaluations of the housing units, bundle of inherent attributes such as locational, structural, or neighborhood attributes (Agarwal, Chen, Li, & Tan, 2017) . There is inadequate evidence on the appropriateness of the attributes used by different scholars. This paper focuses on reviewing the attributes in the available literature using the published data.

The Hedonic Price Model – Application to the Housing Market

Housing is one of the most significant sub markets of the real estate industry. This sector helps as a critical element of real estate portfolio. Various studies together with Coulson and Kim (2000), Rosato et al, (2017) etc. have also recognized the effects of housing investment to the country's economic growth. Therefore, it will help to increase the Country's Gross Domestic Product than the other type of investment. Housing is a one of the complex and a very heterogeneous commodity. A lot of macro-economic variables, spatial differences, characteristics of community structure, the environment and neighborhood amenities affect the housing market (Kim and Park, 2005) Creating the relationships that occurred between residential property values and these physical and locational housing attributes, amenities etc., are very important to valuers, planning authorities and policy makers. For example, when these relationships are established, valuers will be supported accordingly when estimating premium of values to the various housing and locational characteristics. As a consequence of this, a lot of studies have been conducted to examine the relationship that exists between housing prices (values) and housing characteristics.

However, such studies are conducted based on the diffident location and geographical region. Hence prices of the property may be varied according to the different regional and geographical characteristics

Hedonic Model

Theoretically, there are numbers of internal and external characteristics within a building that add value. The market prices of the property can therefore be expressed as a function of locational, structural, and neighborhood variables. The implicit price of each housing attribute, *ceteris paribus*, can be derived from the regression

coefficients. Thus, the hedonic price approach allows us to estimate the individual effects of each housing attribute on housing prices, holding all other factors constant.

Location Characteristics

The importance of location in real estate is well identified. There is a real estate states saying that the three most important factors which determine property values are (i) location, (ii) location and (iii) location. Specially, no two properties are the similar and indeed, there is an agreement among valuers that location is the most important factor in property value determination (Melichar et al., 2005). The importance of location is evident by the fact that location physically fixes a property in space and thereby defines its distance from features such as commercial, transportation and leisure activities. Again, in cases where houses within a particular sub-market or neighborhood are homogeneous, many of the amenities that are common to those properties are best represented by location (Baumont, 2017). Location is an inherent attribute of a house which directly determines the quality and hence the market value of the house.

In traditional view of the location, accessibility is measured in terms of access to the Central Business District. Accessibility has some power to influence the price of the property.) The positive influence of good public transport services on housing prices has also been empirically examined. View is sometimes considered a residential amenity usually associated with the location of a dwelling site (B. Numerous studies have indicated that buyers prefer sites with good views, such as lakes or golf courses, and are willing to pay a premium for such sites.

Neighborhood Characteristics

Neighborhood may be defined as a geographic area within which there is high degree of use homogeneous or similar between adjoining parcels. Neighborhood is defined in an economic sense as an area within which relatively the same prices prevail for properties that permit approximately the same types of uses and socioeconomic status.

Previous research classified neighborhood attributes into the following categories: Socio-economic variables (Herath & Maier, 2010),e.g., social class of the neighborhood (Baumont, 2017)

Local government or municipal services, e.g., schools, hospitals and places of worship (hayrullahoğlu et al, 2018)

Externalities such as crime rate, traffic noise, airport noise and shopping centers. (Agarwal et al, 2017)

Depending on the presence or absence of these amenities, residential properties may reduce or increase in value. Neighborhood amenities are the necessary services and attractions within the neighborhood that makes life easy and comfortable for the inhabitants. If a particular site generally has good and high level of amenities like schools, hospitals, shopping facilities, leisure facilities, road and other transportation networks, etc, then it will be a more pleasant place to live in than other site with less amenity level. It will therefore be expected that higher prices will be paid to stay in such neighborhoods.

In terms of local government services, the quality of public schools was found to have a great impact on real house prices. School quality is more important to local residents than either crime or environmental quality.

The availability of facilities also affects housing prices. Easy and convenient accessibility within a neighborhood will determine the price to pay for properties within a particular neighborhood. Such accessibility measures involve property proximity to market, desirable supporting facilities such as transportation facilities, place of employment, shopping and leisure facilities etc. Normally, locations that afford relatively easy access to various essential or desirable activities have higher property values than locations that do not have such easy access, with all other things being equal. In addition to that recreational and social services will determine the value to pay for a particular location.

Structural Characteristics

Price of the properties are frequently related to their structural attributes (Chau & Chin, 2003) As Hayrulloğlu, 2018 pointed out, if a house had more necessary features than others, so the valuation of these attributes would be reflected in advanced market prices for the house. The single most important structural variable is floor area. Age and Condition property will also influence the price to pay for the property. These age and floor level are more vital factor for multistoried buildings.

Numerous studies have revealed that the number of rooms and bedrooms, the number of bathrooms, and the floor area (Chau & Chin, 2003) are positively related to the sale price of houses. This is because buyers are willing to pay more for more space, especially functional space. Residential properties with bigger floor areas are desired by big families and buyers who can afford a better standard of living.

In examining the factors that are comprised in hedonic models to determine house prices, (Kolbe & Wüstemann, 2015) presents that the age of the property is an attribute that influenced on the value of the property as a negative character. This is not surprising because as the age of the property increases, the economic value of the property decreases and hence the utility to be derived from the property decreases. Furthermore, homebuyers would have to spend additional money on maintenance, when properties are old. They are, therefore, willing to pay a price lower than a new property of similar but new attributes.

Apart from the age, the condition of the structure also affects the value to pay for the property. If a property is old but has seen a lot of refurbishment, it will demand higher price than a similar property that has not been refurbished.

The physical characteristics of a house influence the value to be placed on the house. These physical characteristics can be grouped as; accommodation and size; structural improvement and materials used; and age and condition of the structure.

Commonly, individual buyers have their own needs, taste and preferences concerning the amount of accommodation. Such accommodation needs, tastes and preferences are influenced by the size of the family, prestige and status of the individual etc. If individuals get the amount and size of accommodation they want, they will be willing to pay higher value for it than they would pay for property with more or less the amount of accommodation they require.

Conclusion

Hedonic pricing model is very necessity tool with the sufficient data, it is easy to calculate the individual effect of different attributes on housing prices. This help to understand the behavior of the actors in the housing market and it is important for developers, consultants, investors and policy makers.

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A Review of Trends in Mixed-Use Skyscrapers in Sri Lanka

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Abstract

A rapid urbanization at an accelerating rate is observable around the globe. Many countries will face challenges in meeting the needs of their rising urban population. The property development industry can be identified as a major industry that gets affected by this scenario. Since the end of the civil war, Sri Lankan property developers have planned and implemented various smart developments including mixed-use development projects that create a substantial impact on the industry as well as on the economy. However, a proper study was not carried out in Sri Lanka to identify their trends and literature is not frequently found. This review contributes in deepening the literature on these smart developments in Sri Lanka as well as supporting parties involved in the property development industry. The sample of this study was the first 500 mixed-use skyscrapers in the world as per the data available in the Database of the Skyscraper Centre and the Database of the Emporis. As per the findings of this study, after 2005 property developers around the world adopt land use mixing in their new projects and percentage is expected to reach 30% by 2024. In Sri Lankan context, although the percentage of mixed-use skyscrapers is expected to decrease from 50% to 22% by 2024, it was found that the number of mixed-use skyscrapers has increased including the top three tallest buildings namely Lotus Tower, The Ritz-Carlton Tower and Altair. Further, it was apparent that majority of these developments are strategically located around Colombo 01, 02 and 03.

Keywords: Mixed-use Developments, Skyscrapers, Real Estate Developments, Urban Design

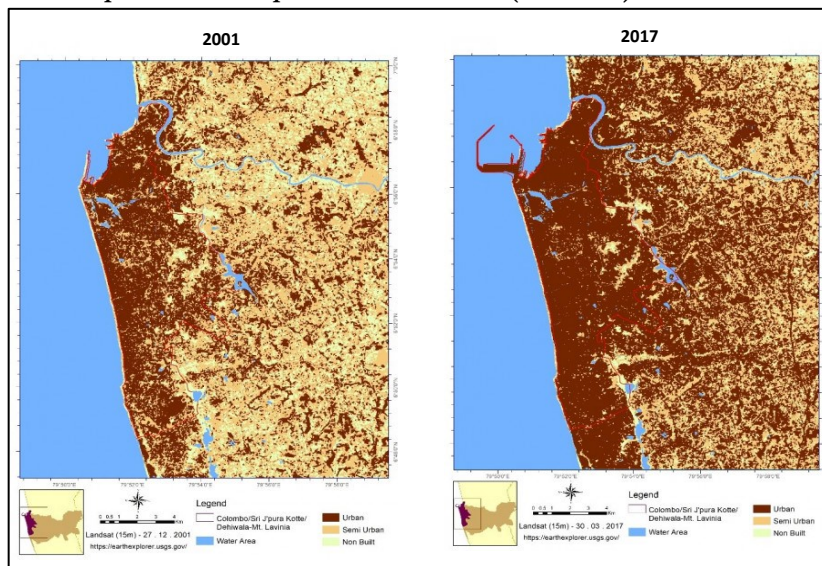
Introduction

Many countries will face challenges in meeting the needs of their growing urban populations, including for housing, transportation, energy systems and other infrastructure, as well as for employment and basic services such as education and health care. The Worldometers (2018) shows that population has increased up to 7.6 billion by August 2018. Further, they have projected that it will reach 8.6 billion by

2030 and 9.7 billion by 2050. UN Department of Economic and Social Affairs-UN DESA (2018) reveals that more than half of the world's population (55%) lives in urban regions by 2018 and is expected to increase up to 68% by 2050. It mainly influences and affects the physical growth of urban regions horizontally or vertically (World Urbanization Prospects, 2014).

Statista (2018) reveals that the urbanisation rate in Sri Lankan in 2017 is 18.48%. However, this low rate of urbanisation is difficult to reconcile with the spatial and economic indicators of rapid urban growth. A key reason for these mixed messages is related to how 'urban' is defined in the Sri Lankan context. However, the forthcoming UN-Habitat State of Sri Lankan Cities Report shows the urban expansion of Colombo as displayed in Map 1.

Map 01: Urban Expansion in Colombo (2001-2017)



Sources: UN-Habitat State of Sri Lankan Cities Report (forthcoming)

According to above map, it can be seen that rapid urbanization is apparent in Colombo, Sri Lanka. As published by Wuthman (2018) in Daily Mirror – September, 2018, the Colombo skyline is changing rapidly and many real estate analysts believe only more of these high-rises will come (Arunagirinathan, 2017). Therefore, the saying “sky is the limit” is also challenged by the property developers around the world.

As stated by Jayalath & Gunawardhana (2017), the development of Sri Lankan construction industry has closely followed the economic changes during the past decade. It has provided many new infrastructure projects that serves the rapid urban development in Sri Lanka in the property development industry. A top businessman Alex Lovell, at the launch of a development project in Fort in March 2018 mentioned that lot of foreigners and Sri Lankans living overseas are eyeing to buy properties in

Sri Lanka (Moorthy, 2018). Therefore, these developments play a huge role in Sri Lankan economy in various ways where generating thousands of employment opportunities can be identified as a major plus point.

In addition, although there are such major development projects completed as well as at the under-construction level in Sri Lanka, proper research studies are not carried out to identify the trends in these developments and literature is not frequently evident. Thus, it has led to lack of availability in reliable data on these projects that affects negatively to the decision making process of property developers as well as parties involved in the real estate sector. This is the identified problem or the gap to be filled using the findings of this study. Accordingly, the purpose of this study is two folded. First is to analyse the available data on mixed-use skyscrapers around the world and Sri Lanka to identify the global and local trends of these developments. Secondly, to identify their main characteristics and key details which can be significant when making decisions.

Methods

To achieve the stated review objectives, a systematic review was conducted by using an archival method. This reviews the secondary data available mainly in two reliable sources. First, the Database of the Skyscraper Centre, maintained and updated by the Council on Tall Buildings and Urban Habitat, Chicago and the second is the Database of the Emporis which is a global provider of building information. The study sample was the first 500 mixed-use skyscrapers in the World completed and to be completed between the years of 1950 to 2024 as recorded in the selected two databases. Further, literature related to single and mixed-use developments are reviewed using both local and international reliable secondary sources.

Mixed-Use Skyscrapers

Land can be improved and developed by adding values for various purposes subject to legal and planning compliances (Prathapasinghe & Ariyawansa, 2016). These comprise of residential, commercial, industrial, agricultural, environmental, recreational etc. As stated by Yager (2015), according to the international standards for measuring and defining tall buildings developed by the Council on Tall Buildings and Urban Habitat –CTBUH, a mixed-use tall building contains two or more functions, where each of the functions occupies a significant proportion of the tower’s total space. Support areas, such as car parks and mechanical plant space, do not constitute mixed-use functions. In addition, according to the definition stated by Delisle & Grissom (2011) and by Schwanke (1987), it’s clear that mixed-use development can be explained as a combination of different land uses with many components which tend to create many benefits.

When defining “skyscrapers”, a building of 40 or more stories or more than 100 meters (328 feet) in height could typically be used as a threshold for a “skyscraper” (Council on Tall Buildings and Urban Habitat-CTBUH, 2014). In addition, according to the standards of Emporis, defines a skyscraper as a multi-story building whose architectural height is at least 100 meters. This definition falls midway

between many common definitions worldwide, and is intended as a metric compromise which can be applied across the board worldwide. The 100-meter cut-off for a skyscraper coincides with the cut-off for the Emporis Skyscraper Award. Thus, the same standard was adopted in this study.

Analysis

Trends in Mixed-Use Skyscrapers in the World

This section expects to contribute in identifying the trends in mixed-use Skyscrapers in the world using the two databases. Accordingly, the functions of the buildings above 100m located across the world which are already completed and are under-construction during the period of 2000-2018 are analysed and the outcomes are shown in Figure 01. Accordingly, it was evident that the single use functions of residential and office were common during 2000-2005. After 2005, the percentage of mixed-use developments increases and it is expected to increase further in future.

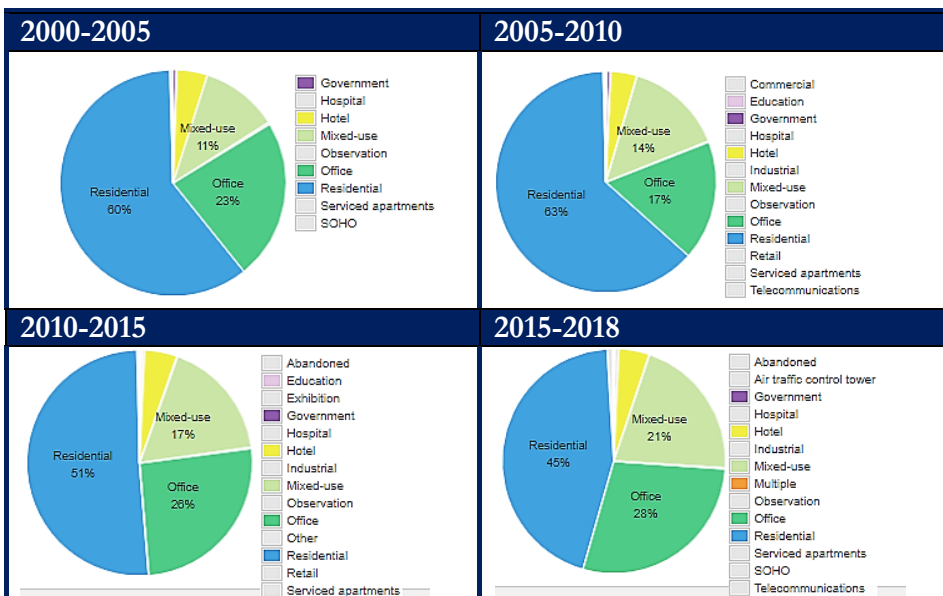


Table 01 shows the details of the world’s tallest completed skyscrapers (by July, 2018). According to those details revealed by the Council on Tall Buildings and Urban Habitat –CTBUH (2018), it was fascinating to identify that the top three buildings are mixed-use developments which include office, hotel, residential, retail and other uses where the height of the building exceeds 600m.

	Building Name	City	Height (m)	Height (ft)	Floors	Completed	Use
01	Burj Khalifa	Dubai	829	2,717	163	2010	Office/Hotel/Residential
02	Shanghai Tower	Shanghai	632	2,073	128	2015	Hotel/ Office
03	Makkah Royal Clock Tower	Mecca (SA)	601	1,972	120	2012	Hotel/ Other

Sources: Council on Tall Buildings and Urban Habitat –CTBUH (2018)

However, as shown in Table 02, two major developments which are under construction can be seen as challenging the rankings of the completed buildings that were discussed in Table 01.

	Building Name	City	Height (m)	Height (ft)	Floors	Completed	Use
01	Dubai Creek Tower	Dubai	1,300	4,265	-	2021	Observation
02	Jeddah Tower	Jeddah	1,000	3,280	170	2021	Residential/ Serviced Apartment/Hotel
03	Wuhan CTF Finance Center	Wuhun	648	2,126	121	2022	Office
04	Merdeka PNB118	Kuala Lumpur	644	2,113	123	2021	Serviced Apartment/ Hotel/ Office

Sources: Council on Tall Buildings and Urban Habitat –CTBUH (2018)

Accordingly, the Dubai Creek Tower becomes the tallest tower in the world by 2021. However, as observation is the only function that has been accommodated in the tower, Jeddah Tower can be identified as the most significant upcoming project in the world which is also a huge mixed-use development and that can make a huge impact on the economy in Saudi Arabia. As per this analysis, the global trend still remains increasing in adoption of mixed-use developments for major projects in skyscrapers.

Table 03: Key Characteristics and Details of Upcoming Mixed-Use Developments in the World

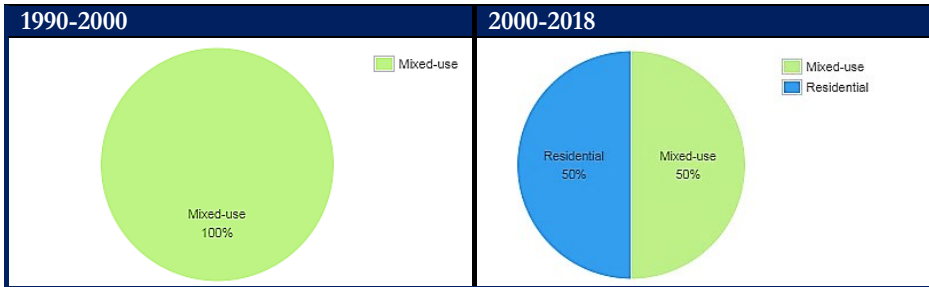
JEDDAH TOWER	
Location	Jeddah, Saudi Arabia
Completion Year	2021
Functions	Residential/ Serviced Apartment/ Hotel/ Retail/ Observatory
Estimated Cost	US\$1.23 Billion
Ground Floor area	243,866 m ² / 2,624,952 ft ²
Height: To Tip	1000m/ 3,281ft
Height: Observatory	652m / 2,139ft
Total Floors	170 - Above Ground 168 Below Ground 02
Designed by	Adrian Smith and Gordon Gill Architecture
Developer	Jeddah Economic Company; Kingdom Real Estate Development
Main Contractor	Saudi Bin Laden Group
MERDEKA PNB118	
Location	Kuala Lumpur, Malaysia
Completion Year	2021
Functions	Serviced Apartment/ Hotel/ Office
Estimated Cost	US \$1.5 Billion
Ground Floor area	292,000m ² / 3,143,062ft ²
Height: To Tip	644m/ 2,113ft
Height: Occupied	500m/ 1,640ft
Total Floors	123 - Above Ground 118 Below Ground 05
Designed by	Leslie E. Robertson Associates; Robert Bird Group
Developer	PNB Merdeka Ventures SDN Berhad
Main Contractor	UEM Sunrise Berhad; Samsung C&T Corporation



Trends in Mixed-Use Skyscrapers in Sri Lanka

As Sri Lanka has not experienced a large number of huge development projects that fall under the category of skyscrapers, the available data was not adequate to compare with five-year intervals. However, the data of completed buildings were analysed dividing into two periods; 1990-2000 and 2000- 2018. Accordingly, the following results shown in Figure 02 were arrived. When considering those outcome, it can be said that the majority of the previous developments were mixed-use projects. The main such developments were World Trade Center I & II and Hilton Tower Apartments which were completed in 1995 and 1997 respectively. During the period of 2000-2018, several developments have been carried out. The Clearpoint

Residencies which is located in Rajagiriya is the first single-function residential skyscraper constructed in Sri Lanka that accommodates 171 apartment units.



In addition, as shown in Table 04, the list of skyscrapers in Sri Lanka is not lengthy. There are only eight major completed developments by 2018 out of which five are mixed-use development projects.

	Building Name	Height (m)	Height (ft)	Floors	Completed	Use
01	Grand Hyatt Colombo	229	751	47	2017	Service Apartment/ Hotel
02	Clearpoint Residencies	186	610	46	2018	Residential
03	World Trade Center 2	152	499	39	1995	Office/ Retail
03	World Trade Center 1	152	499	39	1995	Office/ Retail
05	Shangri-La Hotel Tower	134	440	32	2017	Hotel
06	Hilton Tower Apartments	129	423	34	1997	Hotel / Residential
07	Crescat Office & Condominium	113	370	25	1997	Residential/ Office
08	Bank of Ceylon Headquarters	105	344	32	1985	Office

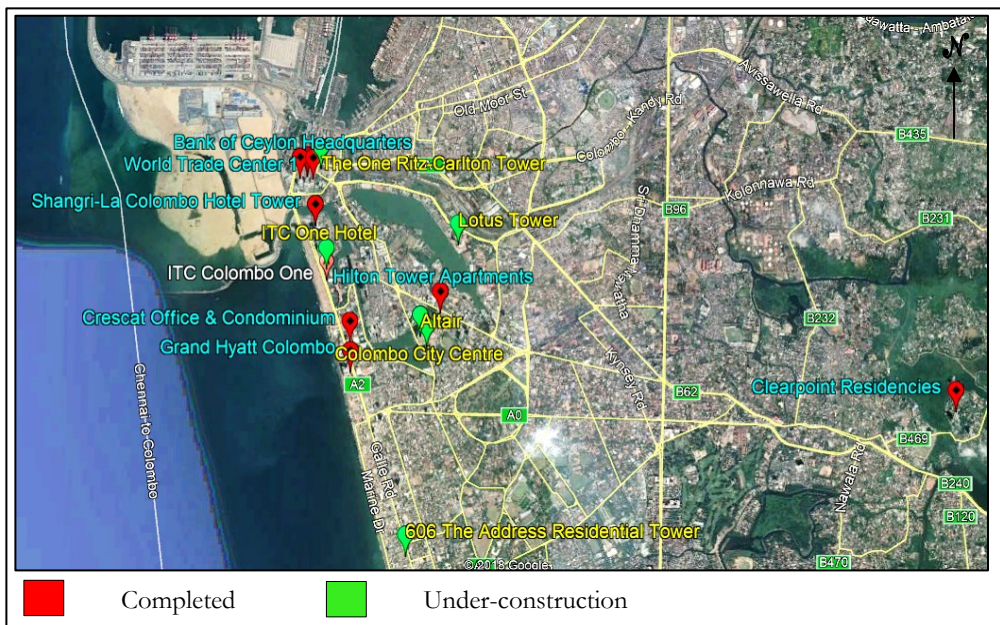
Sources: Compiled by Author using data available on CTBUH (2018)

As shown in Table 05, Lotus Tower will become the tallest building in Sri Lanka by 2018 which is also a mixed-use project that includes functions of telecommunication, observation and commercial use. In addition, it is evident that the leading three upcoming development projects fall under the category of mixed-use developments.

	Building Name	Height (m)	Height (ft)	Floors	Completed	Use
01	Lotus Tower	350	1,148	13	2018	Telecommunications/ Observation/ Commercial
02	The One Ritz-Carlton Tower	326	1,070	80	2021	Hotel/ Residential/ Office
03	Altair	240	787	131	2018	Residential/ Commercial
04	Sapphire Residences	225	738	55	2021	Residential
05	606 The Address Residential Tower	213.4	700	63	2021	Residential
06	Shangri-La Colombo Residential Tower 1	194	636	51	2018	Residential
07	Shangri-La Colombo Residential Tower 2	194	636	51	2018	Residential
08	Colombo City Centre	183	600	48	2018	Residential / Hotel/ Commercial/ Office
09	ITC One Hotel	140	459	33	2021	Hotel

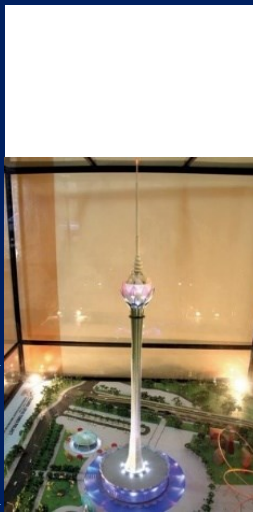


Moreover, it was identified that all these developments are located within the Colombo city as shown in Map 02. Further, the majority of them have clustered around Colombo 01, 02 and 03. The details of those developments are as follows.

Map 02: Location of the Completed and Upcoming Skyscrapers in Sri Lanka



Sources: Compiled by Author using data available on CTBUH (2018)

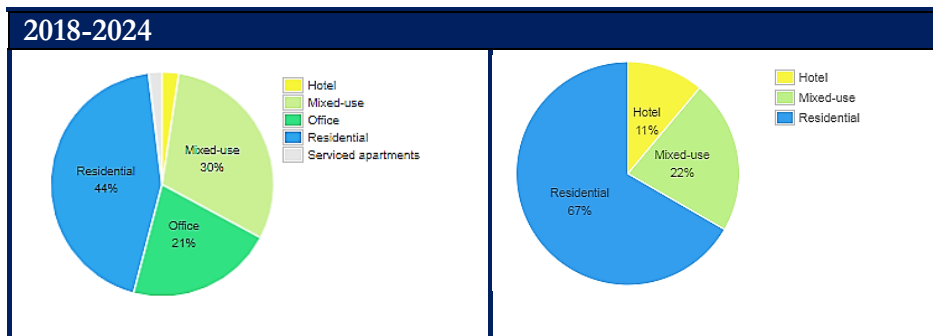
Table 06: Key Characteristics and Details of Upcoming Mixed-Use Developments in Sri Lanka

LOTUS TOWER		
Location	D.R. Wijewardana Mawatha, Colombo 10, Sri Lanka	
Completion Year	2018	
Functions	Telecommunications/Observation/Commercial	
Estimated Cost	US\$ 104.3 million	
Ground Floor area	30,600 m ² / 329,376 ft ²	
Height: Architectural	350 m / 1,148 ft	
Height: Occupied	248 m / 814 ft	
Height: To Tip	350 m / 1,148 ft	
Total Floors	13	
Floors Above Ground	07	
Height: Observatory	248 m / 814 ft	
Designed by	Civil and Structural Engineering Consultants (Pvt.) Ltd	
Main Contractor	Aerospace Long-March International Trade Co. Ltd; China National Electronics Import and Export Corporation	
THE ONE RITZ-CARLTON TOWER		
Location	York Street, Colombo 01	
Completion Year	2021	
Functions	Hotel/ Residential/ Office	
Height: Architectural	326m / 1,070ft	
Height: To Tip	326m / 1,070ft	
Total Floors	80	
No of Hotel rooms	200	
Developer	One Transworks Square Pvt. Ltd.;Zhong Tian Ding Hui Investment Company	
Designed by	CCDI Group	
Main Contractor	Zhongtian Construction Group Co., Ltd.	
Marketing Consultant	The Ritz Carlton Hotel Company, LLC	
ALTAIR		
Location	121A, Sir James Pieris Mawatha, Colombo 02	
Completion Year	2018	
Floor Area	140,000m ² / 1,500,000ft ²	

Height: Architectural	Vertical -240m / 787ft Leaning - 209.0m/ 686ft	
Height: To Tip	Vertical - 240m / 787ft Leaning - 209.0m/ 686ft	
Total Floors	Vertical – 68 Leaning - 63	
Developer	South City	
Designed by	Moshe Safdie and Associates	
Main Contractor	Shapoorji Pallonji Co. & Ltd	
COLOMBO CITY CENTRE		
Location	137, Sir James Pieris Mawatha, Colombo 02	
Completion Year	2018	
Functions	Residential / Hotel/ Commercial/ Office	
Estimated Cost	US\$ 170 million	
Floor Area	7,000 m ² / 75,340 ft ²	
Height: Architectural	183m / 600ft	
Total Floors	48	
Developers	Next Story Group from Singapore & The Abans Group in Sri Lanka	
Designed by	Aedas Singapore	

Discussion

In the above review of literature evidences and data on selected databases, it is evident that the developments of mixed-use developments are increasing around the world as well as in Sri Lanka. Following figure shows the trends identified through the review in mixed-use developments during 2018-2024 in the world and in Sri Lanka.



As shown in the above figure, the use of mixed-use functions in skyscrapers in the world is expected to be increased up to 30% by 2024 and in the Sri Lankan context, although the percentage decreases, the number of development projects is increasing.

Conclusion

Based on the review, it can be concluded that although land use mixing was not much common in developments around the world during past years, after 2005 property developers adopt land use mixing and the projects increased. Moreover, it is evident even in past that Sri Lankan developments included land-use mixing and it is expected to increase further. In addition to that, although the percentage of mixed-use developments in Sri Lanka is decreasing, the number of development projects is increasing as revealed by the reviewed data. On the other hand, when analysing the location of these developments, it was apparent that they are strategically located on Colombo CBD around Colombo 01, 02 and 03 through fare and high street shopping destination especially along Galle Road and Marine Drive, which have become Colombo's fastest-developing hotel and entertainment area.

However, when compared to the global development projects, Sri Lankan projects are being carried out at a sluggish pace at comparatively lower budgets and characteristics. Thus, it can be recommended for the government to formulate policies or adjust the existing policies related to property development sector that will facilitate both local as well as global property developers and investors to invest more on these developments which will lead to increase the contribution from the property development sector to the entire economy of the country.

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A Study on Risk Factors in Public Real Estate Development Projects in Colombo, Sri Lanka

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Abstract

The Real Estate (RE) industry is perceived as essential in the development of a country. Sri Lanka as a lower-middle income country needs to understand the construction and the RE market sector, one of the major industry consists of private and public sector in a very special way. Immovable properties in a country are one of the major valued items which have a significant role within the net worth of the country's economy. Real Estate Development (RED) is a multiphase process: it starts with land development followed by residential and/or commercial development and ends up with the marketing phase and the sale or leasing of the completed site (Ariyawansa, 2009; Alpaos and Canesi, 2014). RED is a process of development of land with the aim of satisfying user's needs and wants. Yet the RED is continuing process which encompasses the great probability of risk and uncertainty. The concept of risk can be defined as the uncertainty of an expected rate of return from an investment (Baum and Crosby, 2008), while Hargitay and Yu (1993) state it as the unpredictability of the financial consequences of actions and decisions. Similarly, according to Huffman (2002), risk is the extent to which the actual outcome of an action or decision may diverge from the expected outcome.

Keywords: Real Estate, Real Estate Development, Risk Factors, Public Real Estate Development, Risk Management

Introduction

Real Estate Development (RED) is a multiphase process: it starts with land development followed by residential and/or commercial development and ends up with the marketing phase and the sale or leasing of the completed site (Ariyawansa, 2009; Alpaos and Canesi, 2014). RED is a process of development of land with the aim of satisfying user's needs and wants. Yet the RED is continuing process which encompasses the great probability of risk and uncertainty. The concept of risk can be defined as the uncertainty of an expected rate of return from an investment (Baum and Crosby, 2008), while Hargitay and Yu (1993) state it as the unpredictability of the financial consequences of actions and decisions. Similarly, according to Huffman (2002), risk is the extent to which the actual outcome of an

action or decision may diverge from the expected outcome. Accordingly, actual risk related to the public RE project is uncertain towards,

- (a) Loss the principle amount invested
- (b) Loss of forecasted future income

Public real estate is a good or service which try to fulfil people's individual and common needs and wants. Therefore, risk of a project mainly associates with the understanding of public requirement from a specific location. Public RE belongs to the state bodies and ultimate goal of the public RED is to ameliorate public wellbeing.

RE risk can be identified under the different categories. Hargitay and Yu, (1993); Brown and Matysiak, (2000); Baum and Crosby, (2008) classified the risk into two categories of systematic, and unsystematic. Huffman (2002) classified, major risks associated with commercial RED into three categories, including (a) Financial risks, (b) Physical risks, and (c) Regulatory risks. Accordingly to Khumpaisal et al. (2010) the risk of RED project can be mainly discussed under the topic of Micro Environmental and Macro Environmental risk factors while risks related to a project categorized in two groups of external risks (market risks, regulation, inflation and social impacts), and internal risks (management, schedule, cost, design, changes in technology and licenses)

Further Hargitay and Yu (1993), Brown and Matysiak (2000) and Baum and Crosby (2008) define risks in property investment as "total risk." Total risk itself is associated with several factors, but can be subdivided into 2 major categories: "systematic" and "unsystematic" (or "specific") risk.

Alternatively, investors and developers have some degree of control over unsystematic or specific risk as they are able to deeply investigate the company's internal strength and weakness. As well as company can make their investment decisions based on project management team's performances.

According to the Khumpaisal (2009) major risk a factor of commercial RED project consists of; Environmental, Social, Economic and Technological risks. Khumpaisal, Ross & Abdulai (2010) examine the risk of RED project can be mainly discussed under the Micro environmental and Macro environmental risk factors.

Relating to RED in particular, there are risks that derive from Social, Technological, Environmental, Economic and Political (STEEP) factors (Morrison, 2007), and these factors are often of concern to developers during the project feasibility analysis stage (Matson, 2000; Millington, 2000; Thompson, 2005).

However, risk by the economic and financial uncertainties is the most significant factors which has higher impact to the project success or failure. One of the main lacking point of Sri Lankan risk analysis is not practicing to conduct early market research and analysis. Basically surveys work also not reliable. Competition in the industry is the main sales risk. More competition in the industry indicates that there is higher market risk to introduce new project.

Lin and Fei (2014), stated real estate related risk factors stated under the five categories as Competition in the market risk (Business risk, liquidity, and purchasing power), financial risk, interest rate risk, Social risks and Natural risks.

Financial structure risk reflects the risks within the fund structure itself. Blundell (2005) suggested a risk assessment methodology intended to capture as broad a selection of potential sources of risk as possible. And further that study found six factors which have significant impact upon portfolio performance such as: Average asset size, Property type and Geographic exposure, Average lease length, Tenant credit strength, and Portfolio vacancy rate.

According to risk factors which are identified under previous research which are related to the RED projects, this research measured the risk factors of Colombo public RED projects under the main headings of macro (external) and micro (internal) economics factors as similar to the previous study of PMBOK (2004). Macroeconomic factor describes as Political, Economic, Environmental, Social, Technological, and Legal (PEESTL), further developing Morrison (2007)'s STEEP factors including legal factors. Micro economic factors identified as Managerial, Strategic and Operational. The main and sub risk criteria selected based on the literature survey and expert survey.

Research problem and objective

Based on the factors of previous research findings, number of public sector projects failures were identified in Sri Lanka during past years and as a result investors drop projects, and huge discrepancies of actual & expected outcome of the project after construction were recorded as per Urban Development Authority. Research problem identified as most of the public sector real estate developers are giving less attention to identify the possible risks factors and to conduct risk assessment and management techniques in real estate projects except the financial feasibility studies. Risk assessment and management is one of the mostly ignored aspect of the real estate development process. On the other hand most of development projects show huge discrepancies of expected income and actual income after construction. Expected payback period of the project vary due to the income variations.

General objective: To study on risk factors in public real estate development projects in the city of Colombo.

Specific objectives:

- I. To identify major micro and macro environmental risk factors on the public real estate development projects in the city of Colombo.
- II. To analyze professional's perception on identified major risk factors.
- III. To measure impact of the risk in connection of selected projects in the study area.
- IV. To develop risk management model for public sector real estate development projects.

Data collection

This study mainly deals with qualitative as well as some of quantitative data, and this study can be identified as a descriptive research approach. This research is describing two interlinked segments. The first segment examines the general definition and analysis of risk factors as a tool to identify nature of risk in public sector RED projects. The second outlines the case study analysis of selected four projects in the city of Colombo using identified risk factors as a tool to measure the success or failure of existing projects. The target population of the risk factors analysis was professionals who are currently engaged in public sector RED projects in the city of Colombo while target population for case study analysis was the users of currently functioning REprojects in the city of Colombo. Non-probability sampling techniques and convenience, and Judgmental sampling methods used to determine the sample. Sample size was 50 experts, and 100 of customers and shop owners.

Data Analysis

Data analysis based on descriptive statistics analysis which maintain elements of either quantitative analysis or qualitative analysis (case study analysis) within the same study. The **mean comparison** is used to determent the overall trend of a professionals' perception and to represent rapid snapshot of primary data collectedthrough questionnaire. **Standard deviation, and Median** are also adapted based on the analysis requirements in different circumstances.**NPV and Financial analysis**conducted to measure case study projects. Mean comparison was tested in order to verify results and to understand the relationship among the PESTILE factors.

Conclusion

Macro-environmental risk factors are the main factor that affect project failure in public sector real estate development projects in the city of Colombo. Major Macro

sub risk factors are Social, Economic, Environmental, Political, and Technological. Case study analysis showed that risk factors of Economic, Social, and Operational are affecting to having probability of future project failure in financial viable projects measured in case study area. Payback period is comparatively higher in the public RED projects in city of Colombo.

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Assessing the Risk in Commercial Real Estate Development

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Abstract

Property development is inherently a riskier business. Investors who are keen on real estate development tend to invest their capital on various types of developments irrespective of the risk. Property development risk has limited evidence on what factor is significantly effect on the risk especially in the commercial property development sector in Sri Lanka. The main purpose of this research is to analyze the commercial property development risk factors from the entrepreneur's point of view in three selected commercial projects from Gampaha, Ja Ela and Ekala. The data was collected through face to face interviews using a questionnaire. The analysis of the risk factors involved the Analytic Network Process Model (ANP model) using super decision software. The results show that the highly affected risk factors for the development are the council approval process, climate changes and natural disaster. The policy formulation should focus on the above identified three risk factors in order to mitigate the risk in every stage and to achieve sustainable project development while increasing the satisfaction of long term investment goals.

Keywords: Risk Assessment, Commercial Real Estate, Analytic Network process, Entrepreneur

Introduction

At present Real estate development industry is getting significant contribution to the Sri Lankan property development industry and economy. So that many entrepreneurs are concerned about property development sector because this sector is profitable. An entrepreneur is always mostly innovative and creative captures the opportunities from outside and convert to marketable ideas through adding some value to the product. Therefore, many developers attract to develop residential and commercial properties. But risks are strongly affected to the real estate development process and to the each and every stage of the development process from the conceptual design development stage, constructing and execution and letting to the rent or occupying the building and handover stage.

Khallafalah (2002) is defined that “The risk management process is generally an ongoing and iterative process, even each real estate project is different and unique”. Morrison (2007), Gehner, et al. (2006) and Clarke (1999) are defined “STEEP” which is Social, Technological, Economic, Environmental, and Political factors are arisen in real estate development. Those risks are impacted to the overall development process then it may cause huge lost to the entrepreneur. Most of the time developers are conducted the project by feasibility analysis. It helps to assess the validity and forecast uncertainties of the project. People invest lot of money to develop real estate expecting higher return but in entrepreneur’s point of view they have to face lot of difficulties and uncertainties. There is inadequate evidence on analysis the risk factors in commercial development in Sri Lanka. It is identified that majority of such development has taken place in western province. The research focuses to identify the best development on the basis of the risk factors using Analytical Network Process (ANP model)

Empirical Findings

Corporate real estate risk management and assessment (Forrest, 2003) analyzed the inherent risks associated with corporate real estate (CRE). First, the author looks at corporate risk in general and at the context in which CRE decisions are made. Next, the types of risk generally inherent in CRE usage is examined, beginning with development risks and then grouping other risks into three categories: financial, physical and regulatory CRE risks. Possible risk management strategies are offered, to reduce the risks associated with CRE usage. Lastly, conclusions and recommendations for accounting for risk in corporate real estate management (CREM) are provided. The discussion of the risks inherent in CRE usage offers a starting point for future and more detailed discussions of the risk in CREM and provides a new perspective on the management of CRE assets.

The reporting of risk in real estate appraisal property risk scoring (Adair & Hutchison, 2005) was done for the purpose of examining the financial risk management. The UK valuation profession has been criticized for inconsistencies and failures to reflect risk and uncertainty in certain valuation assignments such as the pricing of urban regeneration land. Also, the Investment Property Forum/Investment Property Databank specifically concluded that a new approach is needed which combines predictable analysis of returns uncertainty with a more comprehensive survey of business risks. Methodology of this paper is commencing with an examination of risk analysis within investment decision making and the property industry, drawing on the findings of the most recent literature that assesses the utilization of risk management approaches. Findings – Financial risk management is examined and the workings of the D&B credit rating model

illustrated. The paper explains the decision-making framework within which the property risk score is applied. The aim of this paper is to present an alternative paradigm for the reporting of risk based on techniques utilized within business applications. In particular it applies a standard credit-rating technique, based on the D&B model, to report the level of risk within property pricing – property risk scoring (PRS).

A novel analysis approach to support real estate developers in decision-making to deal with potential risks in each project development stages has introduced (sukulpat, 2006). The analysis model applied in this research is the multi-criteria approach, based on Analytic Network Process (ANP) theory. Risks assessment criteria to accomplish the ANP calculation are defined based on both literature review and related experience, against Social, Technological, Economic, Environmental and Political (STEEP) requirements of the real estate development in order to assess the risks in this business effectively. The ANP model is proved in its efficiency and can be adopted by real estate developers to suit for the business needs in order to assess risks in a real estate development projects..

Focusing to introduce a novel decision-making approach to risks assessment in commercial real estate development against social, economic, environmental, and technological (SEETP) criteria another approach has introduced (Khumpaisal & chen, 2009). It is therefore aims to describe a multiple criteria decision-making model based on analytic network process (ANP) theory, and to use an experimental case study on an urban regeneration project in Liverpool to demonstrate the effectiveness of the ANP model. Design/methodology/approach – The paper commences with a description about risks related to commercial real estate development and provides a list of risk assessment criteria based on literature review and experience in related areas. The ANP is then introduced as a powerful multi-criteria decision-making method. An experimental case study is finally conducted with scenarios and assumptions based on a real urban regeneration project in Liverpool. Findings – The paper defines a group of risks assessment criteria against SEET requirements directly related to commercial real estate development. An ANP model is set up with 29 risks assessment criteria, and results from an experimental case study reveal that the ANP method is effective to support decision-making based on risks assessment to select the most appropriate development plan; and therefore, it is applicable in commercial area. Originality/value – this paper defines SEET criterion for risks assessment in regard to SEETP requirements to emphasize sustainable development; while the ANP is introduced to assess risks in commercial real estate development. The ANP model provides a platform for decision makers in commercial real estate

development to evaluate different plans based on the degree of interactions among risk assessment criteria.

Methods

The primary data was collected through face to face interview using a questionnaire from the owners of three projects selected from Gampaha (Plan A) Ja-Ela (Plan B) and Ekala (Plan C) areas. As identified in the literature review, 5 major risk criteria (Social, Technological, Economic, Environmental and Political (STEEP)) and 32 sub criteria were used to analyse all types of possible risk. Super Decision software was used to analyze the risk in commercial real estate development. The First step is to build the ANP model by using software and then a paired comparison was done.

Results and Discussion

Table Number 1 shows the results of comparisons of the alternative projects.

Table 1. comparisons of alternative development plans based on ANP modeling

Plan Alternatives			
Results	Plan A	Plan B	Plan C
Synthesized Priority			
Weights	0.0704	0.0532	0.0431
Ranking	1	2	3

Source: Compiled by author

Table 1 presents that Plan A is the best development where less risk is identified.

Types of Risk Prioritization

Prioritization shows the key risk factors affecting to the commercial real estate development process is important to take decisions. This is helped to get an idea about what risk factor is highly affected when developing a commercial real estate. The following Table 2 presents the results of risk prioritization.

Table 2 .Risk Prioritization Table

Name	Risk Type	Normalized By Cluster
4.4 Confidence to the Market	Economic Risk	0.01304
4.9 Lifecycle value	Economic Risk	0.01462
4.14 Investment Return	Economic Risk	0.01631
4.11 Currency Conversion	Economic Risk	0.01814
4.1 Interest Rate	Economic Risk	0.02405
5.9 Durability	Technological Risk	0.02425
4.5 Demand and Supply	Economic Risk	0.02636

5.6 Amendments	Technological Risk	0.03103
5.3 Multiple Functionality	Technological Risk	0.03468
3.4 Public Hygiene	Social Risk	0.03973
5.4 Constructability	Technological Risk	0.04258
4.2 Property Type	Economic Risk	0.04501
5.1 Site Condition	Technological Risk	0.05544
4.6 Purchasability	Economic Risk	0.07303
5.8 Accessibility and Evacuation	Technological Risk	0.07434
4.13 Tenants	Economic Risk	0.07544
5.2 Designers and Construction	Technological Risk	0.11323
4.10 Area Accessibility	Economic Risk	0.1316
4.12 Buyers	Economic Risk	0.13199
4.3 Market Liquidity	Economic Risk	0.13671
4.8 Capital Exposure	Economic Risk	0.14581
3.1 Workforce Availability	Social Risk	0.14716
4.7 Brand Visibility	Economic Risk	0.14787
6.3 Political Group / Activist	Political Risk	0.17403
6.2 Commercial Tax Policy	Political Risk	0.19128
5.7 Facilities Management	Technological Risk	0.2224
5.5 Duration	Technological Risk	0.40207
3.2 Cultural Compatibility	Social Risk	0.40579
3.3 Community Acceptability	Social Risk	0.40732
2.1 Climate Changes	Environmental Risk	0.5
2.2 Natural Disaster	Environmental Risk	0.5
6.1 Council Approval	Political Risk	0.63469

Source: Compiled by author

According to the table number 2 the red arrow is depicting the lower risk to the higher risk and confidence to the Market is lowest risk whereas council approval process is the highest risk factor.

Conclusion

The results revealed Ward City was 0.0704 indicating that it is comparatively less risk and hence can categorize as the best development. Considering the sub risk factors, the results shows that the highly affected risk factors for the development are, the council approval process, climate changes and natural disaster and the least affected

risk factors are confidence to the market, lifecycle value, investment return and currency conversion factor. Therefore, policies should be formulated to minimize the risk in the highly affecting risk factors in Sri Lanka.

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Moving towards Smart Sustainable Communities: A Systematic Literature Review

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Abstract

Land-use planning, urban smart housing, and urban transport are important determinants for green space policies. The ecosystem service approach has helped scholars to attract policy attention to these benefits, but the concept remains poorly implemented in urban policy and governance. Within this context, what is needed is a bridge between ecosystem services and policy processes. This can be accomplished through Multi-Criteria Decision Analysis (MCDA) as a decision support tool. Research in Land Use & Urban Governance, will also need to investigate whether the two trends of increased digitization within governance and increased participatory mechanisms. This will help develop a more robust understanding of the institutional, technological and social conditions that act as barriers or incentives for inclusion, via the lens of empirical cases both situated within Sri Lanka and Sweden. It draws on the concept of “Citizen Observatories” that is gaining traction within the academic community focusing on GIS and Urban Planning. By fostering collective interaction between different stakeholders, citizen observatories provide communities with an increased influence in decision making, allowing them to contribute first-hand to key economic, social and environmental issues. To investigate this issue broadly and scientifically, the ‘Systematic Review’ was conducted. It would pave the way for completing this task successfully. This review included both quantitative and qualitative research articles conducted to investigate the research questions, research designs, methodologies adopted, etc. in the field of urban planning with special reference to smart sustainable communities.

Keywords: Urban Planning, Smart Sustainable Communities, Citizen Observatory, Public Participation

Introduction

Research Area

Land-use planning and urban transport are important determinants for green space policies. Land use defines the structure and function of urban and rural ecosystems and the benefits these provide to humans, such as air purification, runoff mitigation, and sustainable habitation. While urban transport addresses the flows of resources, the emissions and energy consumption needed to support our current urban and rural realities. The ecosystem service approach has helped scholars to attract policy attention to these benefits, but the concept remains poorly implemented in urban

policy and governance. Within this context, what is needed is a bridge between ecosystem services and policy processes. This can be accomplished through Multi-Criteria Decision Analysis (MCDA) as a decision support tool. A key strength of this tool in informing green space policies lies in its capacity to accommodate conflicting stakeholder perspectives and to address trade-offs between ecological, social and economic values.

Research within this area of Land Use & Urban Governance, will also need to investigate whether the two trends of increased digitization within governance (be it via GIS or policy modeling) and increased participatory mechanisms within decision making are shaping the relationship between state and civil society today. This will help develop a more robust understanding of the institutional, technological and social conditions that act as barriers or incentives for inclusion, via the lens of empirical cases both situated within Sri Lanka and Sweden. Here we can draw on the concept of “Citizen Observatories” that is gaining traction within the academic community focusing on Geographic Information Systems (GIS) and Urban Planning. These observatories are community-based environmental monitoring and engagement systems to inform science and policy. Their shared design and activation provide key tools for decision makers and empower communities to be part of the solutions to this global environmental challenge. By fostering collective interaction between different stakeholders, citizen observatories provide communities with an increased influence in decision making, allowing them to contribute first-hand to key economic, social and environmental issues. At DSV, we currently are engaged in an EU H2020 project called Ground Truth 2.0 that addresses this very research question, where this proposed research can make a valuable contribution.

Problem Identification

Sweden and Sri Lanka are two countries located in two continents, namely; Europe and Asia. The level of development with respect to socio-economic, and physical achievement along with technological application is vast. Sweden is among the top 10 countries based on inequality-adjusted human development index (IHDI), as published by the UNDP in its 2016 Human Development Report. Sri Lanka is ranked as 46. Sweden is represented as a highly developed country while Sri Lanka can be categorized as a developing country which has attained a moderately high IHDI due to its socio-economic achievement. However, it is worthwhile to highlight the fact that Sri Lanka is lagging its physical development, mainly urban planning, urban housing and transport due to its inherent weakness for decades. For example, Colombo City comprises of nearly 50% of its population living in under-served settlements such as slums and shanties. Further, cost of traffic congestion due to substandard urban transportation system especially in Colombo City is calculated to

be massive amount. Therefore, it is pertinent to investigate this socio-economic phenomenon and physical development achievement in a comparative basis, a developed country perspective and a developing country perspective. Based on this phenomenon, the following research question is formulated for further investigation.

Research Question of the proposed study: Whether the policy framework, practices and experience of urban planning, mainly smart sustainable communities adopted in selected municipalities in Sweden, mainly Stockholm, can be applied to municipalities or urban set up in Sri Lanka, a developing country?

Methods

This review was conducted based on the systematic literature review process. A systematic review is a review of the research literature whose aim is to arrive at conclusion about the state of knowledge on a topic based on a rigorous and unbiased overview of all the research that has been undertaken on that topic. For this purpose, the selection of the articles was based on the research area of urban planning, mainly; smart sustainable communities. Theme of the research proposal is "Decision Support and GIS within Urban Planning: Moving towards Smart Sustainable Communities".

Research Questions

As this article is to review the research articles published in various journals, it is essential to identify the major sources including data bases. Therefore, the following research questions were used for this purpose:

RQ1: What are the research questions and goals set on smart sustainable communities and its related fields?

RQ2: What research design and methodologies have been used in studies on determinants of developing sustainable communities?

RQ3: What are the research findings in systematic literature review in the selected field?

Literature Search

A total of four scientific databases were chosen to search for articles, namely; Scopus, Web of Science, Emerald Insight, and ScienceDirect. This section covers all relevant aspects of the literature search (search words, databases, inclusion and exclusion

criteria and the number of papers found at each state) and description of how the analysis based. Table 3 summarizes the articles reviewed under qualitative and quantitative basis.

Rubrics selected for the analysis

This section covers the literature search under the Research objectives, Material included, Participants, Research Design and Strategy, Methods (Data Collection), Data Analysis, Results and Conclusions. The articles reviewed for writing this assignment basically include quantitative and qualitative research while some articles are based on mixed approach. Table 4 summarizes the main rubrics applied with overall reference to articles reviewed. The relation between research area and scientific traditions and societal implications

This systemic review included both quantitative and qualitative research while some of them are based on mixed approach. The analysis of the articles indicates how important it is to introduce different theoretical concepts, models, systems, and research methodologies to study urban planning, especially with reference to smart sustainable communities. The studies conducted in different parts of the world show how effective and important they are to improve the quality of life, economic and societal development, lowering urban problems, especially urban housing and environment, etc. As highlighted during this systemic review process, the proposed research is based on social science domain and it is basically an interdisciplinary perspective. Therefore, it combines different fields of investigation such as urban planning, sociology, politics in the form of public participation, environmental science and management, etc.

Table 3

No	Qualitative	Quantitative
01	Mihai A, Marincea A, Ekenberg L (2015) A MCDM Analysis of the Roşia Montană Gold Mining Project.	Badland H, Mavoa S, Boulangé C, et al (2017) Identifying, creating, and testing urban planning measures for transport walking: Findings from the Australian national liveability study.
02	Antonson H, Hrelja R, Henriksson P (2017) People and parking requirements: Residential attitudes and day-to-day consequences of a land use policy shift towards sustainable mobility. Land use policy	Zubelzu S, Álvarez R, Hernández A (2015) Methodology to calculate the carbon footprint of household land use in the urban planning stage. Land use policy
03	Gutiérrez V, Theodoridis E, Mylonas G, et al (2016) Co-creating the cities of the future. Sensors (Switzerland)	Wang C, Wang Y, Wang R, Zheng P (2018) Modeling and evaluating land-use/land-cover change for urban planning and sustainability: A case study of Dongying city, China.
04	Perveen S, Kamruzzaman M, Yigitcanlar T (2017) Developing policy scenarios for sustainable urban growth management: A Delphi approach.	Ebrahimian Ghajari Y, Alesheikh AA, Modiri M, et al (2018) Urban vulnerability under various blast loading scenarios: Analysis using GIS-based multi-criteria decision analysis techniques. Cities
05	Petit C, Bakelmun A, Lieske SN, et al (2017) Planning support systems for smart cities.	Kourtit K, Nijkamp P (2018) Big data dashboards as smart decision support tools for i-cities – An experiment on stockholm. Land use policy
06	Mardani A, Zavadskas EK, Khalifah Z, et al (2017) A review of multi-criteria decision-making applications to solve energy management problems: Two decades from 1995 to 2015. Renew Sustain Energy	Niehaus M, Galilea P, Hurtubia R (2016) Accessibility and equity: An approach for wider transport project assessment in Chile.
07	Marsal-Llacuna M-L, López-Ibáñez M-B (2014) Smart Urban Planning: Designing Urban Land Use from Urban Time Use.	Abastante F, Lami I, Lombardi P (2017) An Integrated Participative Spatial Decision Support System for Smart Energy Urban Scenarios: A Financial and Economic Approach.
08	Sanesi G, Colangelo G, Laforteza R, et al (2017) Urban green infrastructure and urban forests: a case study of the	Subasinghe S, Estoque R, Murayama Y (2016) Spatiotemporal Analysis of Urban Growth Using GIS and Remote Sensing: A Case Study of the Colombo

	Metropolitan Area of Milan.	Metropolitan Area, Sri Lanka.
09	Fenton P (2017) National infrastructure, small towns and sustainable mobility—experiences from policy and strategy in two Swedish municipalities.	Baudry G, Macharis C, Vallée T (2018) Range-based Multi-Actor Multi-Criteria Analysis: A combined method of Multi-Actor Multi-Criteria Analysis and Monte Carlo simulation to support participatory decision making under uncertainty.
10	Gagliardi D, Schina L, Sarcinella ML, et al (2017) Information and communication technologies and public participation: interactive maps and value added for citizens.	Guerreiro T de CM, Kirner Providelo J, Pitombo CS, et al (2018) Data-mining, GIS and multicriteria analysis in a comprehensive method for bicycle network planning and design
11		Boggia A, Massei G, Pace E, et al (2018) Spatial multicriteria analysis for sustainability assessment: A new model for decision making.
12		Sun Z, Deal B, Pallathucheril VG (2009) the land-use evolution and impact assessment model: A comprehensive urban planning support system.
13		Le Roux A, Augustijn PWM (2017) Quantifying the spatial implications of future land use policies in South Africa.
14		Wang Y, Montas HJ, Brubaker KL, et al (2017) A Diagnostic Decision Support System for BMP Selection in Small Urban Watershed.

Table 4

No	Rubrics Used	Main Areas of Concentration
1	Research Objectives and Research Questions	It was able to identify that most of the research conducted for urban planning and related areas. All research conducted was directed towards identifying urban issues, policies, and related areas and searching for solutions. Other research areas of environment and ecology related had their research questions and objectives in the fields.
2	Material included	In general, all research developed or utilized ‘models’, some are based on mathematics and statistics while some are

		based on descriptive pattern. Researchers extensively used mathematical and computer models.
3	Participants	Majority of the research used public or key-respondents including experts in the field for respective research.
4	Research Design and Strategy	Majority of the articles in literature search belong to quantitative approach, 14 and qualitative approach included 12 articles. However, there a few of articles based are based on mixed methods. Most research strategies are based on 'case study'. It has been able to identify that all studies utilized 'systematic review' approach in designing the respective research so that it is possible to check the research process with respect to validity and reliability effectively.
5	Methods (Data Collection)	All most all methods of data collection techniques were used for the selected research under review. Among them, questionnaires, interviews, observation, documents, etc. were extensively used.
6	Measures/Analytical Tools (Data Analysis)	It has also observed that most of the research used quantitative while there are substantial number of research used qualitative data analysis tools. Further, mixed method, combining both qualitative and quantitative methods were used. Multi criterial decision analysis, GIS applications, Model building, and Decision Models were frequently employed as quantitative techniques. Qualitative techniques such as Grounded theory, Content analysis, Narrative analysis, Image-based data analysis, Discourse analysis, etc. were used for selected research review.
7	Results and Conclusions	This section covered the main outcomes of research searched during the preparation of this assignment. As highlighted, most of the findings were based on empirical approach due to high level of application.
8	Credibility and Reliability (Validity and Dependability)	Though these criteria are mainly established for qualitative research, in general, they should be maintained for any research. All research under review established these important aspects of research process and research outcome as prime importance. It has been able to identify that each research equipped with almost all information to check 'validity and reliability.'

Conclusion

The results and conclusions of the selected research articles once again proved that they are basically pragmatic and empirical. The proposed research will also be grounded with this approach due to its nature of the subject areas. However, the probable limitations will affect the research outcome, for instance, Sri Lanka has changed government policies with respect to urban and regional planning so that it would affect policy formulation negatively. Further, Sri Lanka lacks the application of public participation in designing and implementing ‘policies and procedures’ to solve important socio-economic issues in general. This situation might create incompatible expectations and objectives from both partners of the research, namely; the researcher and the participant. Overall, the systematic review of research articles of this nature has improved the confidence and interest into systematic investigation of related and partly related research articles in diverse sources available.

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Evolution of Condominium Market in Sri Lanka: A Review and Predict

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Abstract

In the country's growth, real estate sector has played a key role. When considering the residential real estate sector in Sri Lanka, it includes the different types of properties such as single houses, storied houses, annexes, twin houses, lined houses, condo/apartment units and so on. Among them, condominium as a quite type of property shines in modern Real Estate industry particularly in Colombo where there is a booming trend in the sector at present. It is not something just happen suddenly. The current upward trend in residential condominium sector took a long period of evaluation. In fact, it is nearly 6 decades long. In 60's and 70's the government launched housing apartment projects as a strategic measure to solve the burning housing issues of low and middle-income communities in Colombo where lands are limited in supply. During the last few decades, this type of properties; apartments/flats/high-rise housing solutions have been developed under different projects at different scales. Accordingly, it has been evolved throughout the succeeding decades along with the gradual change of human needs and wants and the socio-economic backdrop of the country. It can be graphically presented as "from housing apartments/flats" into "housing schemes" and then into "residential condominiums" which is a fully market-based product. Currently, there are over 900 apartment complexes in the country having over 15, 000 residential units while another 200 condominium projects are in pipe-line with over 13,000 residential units. They are going to be completed within the next three-four years to come. Among that bulk, 90% of condominiums are located within Colombo and its suburbs. Through this evolution of the Condominium sector in Colombo, a prime market for "vertical growth" has been emerged and the private sector has become the main actor in the market. Under this backdrop, this paper aims to identify the patterns of evaluation of the condominium sector in Colombo and to analyze the current trends and to predict the future of the sector in Colombo.

Keywords: Condominium Market, Housing, Land Market, Property Development, Real Estate Sector

Introduction

The real estate sector is one of the most significant sectors that contributes toward the socio-economic growth of a country. The residential real estate sector as the most visible real estate asset classes, the entire country has 5,207,740 number of occupied housing units and among that bulk 84.8% belong to single houses category. (Department of Census and Statistics, 2012). Accordingly, the most popular housing type in Sri Lanka is single houses.

When considering the condominium category, it is quite different in nature and defined as a form of absolute ownership of individual apartment units with co-ownership (by percentages) of common areas, such as land, corridors, hallways, stairways, lobbies, recreation rooms, porches, rooftops, and any outdoor areas at the ground of the buildings (https://en.wikipedia.org/wiki/List_of_house_types, accessed on 28th February 2018). Accordingly, a condominium property affords dual ownership, that is, individual ownership of the unit designed for independent use and joint ownership of common elements or all areas that do not form part of the condominium unit.

The condominium concept is a widely spread property type and provides a better solution for urban housing issue where the land is limited and the population is rising so the demand. (Anthoniz and Perry, 2015). When turning to the Sri Lankan context, the condominium development has been in existence for more than 60 years (Wijeyeweere,2004). This paper reviews that history at stage wise up to the present and predicts the future context too.

Evolution of Sri Lankan Condominium Market

When explaining “the evolution of the condominium sector” in Sri Lanka, it can be identified under four eras as follows,

Era 1-Condominiums before 1980

In conjunction with the condominium development initiative in Sri Lanka, it goes back to the 1950's. Basically, most of the condominiums were low-rise and does not have laws to govern or regulate. At the time, they became known as “Flats” or “Urban Housing Schemes” and government was the foremost developer. Actually, they provided housing with very basic facilities such as water, electricity, sewerage systems, stairways and etc. (Wijeyeweere,2004).

The Condominium Property Act No. 12 of 1970 was the first legislation and it was repealed and replaced by the Apartment Ownership Law No. 11 of 1973 (otherwise known by its short title “Apartment Ownership Law”) embodying

the current law for registration of multi-story properties capable of being divided into separate units. Further, this law has been subsequently amended by several acts in 1982, 1999, 2002 and 2003 to meet the existing challenges appear in those years regarding condominium properties (Edirimane, 2006).

Further, the government realized the need to maintain the low and middle-income residential flats/condominiums, the common amenities and element in a good state of repair. This need gave birth to the Common Amenities Board. It was formed by Act No.10 of 1973 and amended by Act No: 46 of 1982 (Wijeyeweere, 2004).

With the establishment of the National Housing Development Authority (NHDA) in 1979, so many multi-story developments were constructed within that era namely Armour's Street H/S, Torrington Flats, Maligawatta Flats, Bambalapitiya Flats, Soysapura Flats, Anderson Flats, etc. Most of them were constructed in urban areas to accommodate government servants as well as to meet the low- and middle-income base housing requirements in urban areas.

Era 2- Condominiums in 1980-2000

Considering the level of development taken place during this era, it can be discussed under two sub-eras as follows,

1980-1990

Due to the Sri Lankan Civil War, most Tamil people were vacated their hometowns in Jaffna and drastically moved for settlements mostly in Wattala and Wellawatta areas where they found their own communities most. Even though in Wattala area got much vacant land, it is not the case in Wellawatta area. As a result, the most viable option was to go for high-rise developments as it could be able to accommodate more in the fairly small land plot. Gradually private sector developers were entered into these kinds of developments and consequently, the high-rise developments become mushrooming fast. Really, they were just basic/standard apartment units which provide a place to live mostly for migrated Tamil communities from the North. Further, required finance for those developments was pumped from Tamil expatriates who lived in Europe and the West (US, UK, Canada, Italy, Australia). Also, the relatives of local Tamils who live in those countries have financially supported their relatives to purchase condominium units in Colombo.

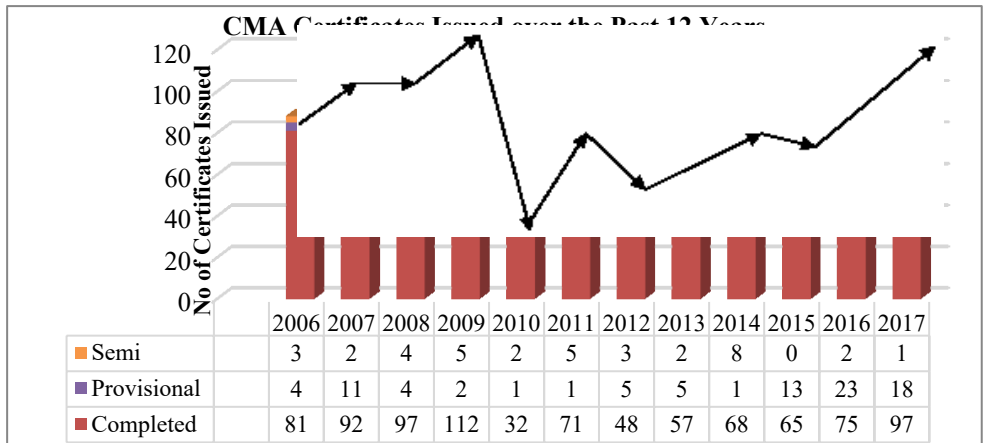
1991-2000

It was almost a continuation from the previous era but it was gradually moving into upper middle and high-end residential users' segment. Most of the development was undertaken by private sector developers. Those condos become more formal with modern facilities and services, particularly with a branding. Accordingly, the first high-rise luxury condominium property in this category was the "Royal Park" located in Rajagiriya which was completed in 1994. The developer was Kiangnam Constructions and it built to cater to the high-end demand in the city. In all aspects, it was the landmark high-rise residential condominium development in the country and it consisted of 24 floors and 240 units with so-called luxury facilities and services. The second high-rise luxury development is Crescat Residencies located in the heart of Colombo city which was completed in 1998 consisting of 24 floors and 150 units (Anthoniz and Perry, 2015). Indeed, these developments have emerged as the best solution to accommodate ever-growing housing demand in the City for most segments.

Era 3 - Condominiums in 2001-2020

With the establishment of the Condominium Management Authority in 2005 under the Act No 24 of 2003, it became the main agency which governs the condominium properties. Correspondingly, that Law shall apply to any building or buildings having two or more stories on alienated land, held as one land parcel capable of being subdivided into parcels, and to any building or buildings having only one storied on the same land capable of being subdivided into parcels, ("Condominium Property"), any building proposed to be or in the process of being erected on alienated land, held as one land parcel and which shall be capable of being subdivided into parcels ("Provisional Condominium Property") and any partly completed building in which there are more than one completed condominium parcels fit for human habitation shown in the registered Provisional Condominium Plan ("Semi Condominium Property"). Figure 1 shows that certifications issued for Completed, Provisional and Semi Condominiums by the Authority over the past 12 years.

Figure 1: CMA Certificates Issued from 2006-2017



Source: Condominium Management Authority, 2018

As per the above graph, the highest number of certifications issued for Complete Condominiums (112 numbers) has been recorded in 2009. There was a gradual increase over 2012-2017 time period. Further considering the supply of condominium units during 2006-2017, there are 895 numbers of certified completed properties and 15,483 numbers of condominium units in the bulk as at 2017. Therefore, data revealed that there are a growing supply and effective demand in the condominium market over the past 12 years in Sri Lanka.

When considering the private sector developers who engaged in condominium development, it can be identified different types of developers. Some leading developers are focused on the development of Luxury type condominiums within the Colombo city limits (Ex: Indocean Developers, John Keells Holdings). Some developers are to cater to upper- middle and middle-income people (Ex: Prime Lands, Blue Ocean Residencies, Home Lands, Blue Mountains). Basically, they are focused on development of condominium properties in periphery of Colombo and suburb and can be considered as the secondary level developers. Besides, there are some developers to facilitate the lower middle-income population. Basically, their developments lie out of Colombo suburbs and provide low budget apartments. (Ex: Gampaha Development Company (Pvt) Ltd). In addition, the involvement of individual developers in this field also can be identified as an emerging trend in this industry.

Era 4 - Condominiums beyond 2020 & way forward

Currently, there are over 900 apartment complexes in the country having over 15,000 residential units while another 200 condominium projects are in pipeline with over 13,000 residential units to come. They are going to be completed within the next three-four years to come (2020-2022 year). Indeed, this evidence confirms that the developers have moved to high rise condominium developments with more units to accommodate more people within a single plot of land. Furthermore, 90% of ongoing condominium developments are located within Colombo District and rest (10%) is in outer Colombo District. Accordingly, it has started to dominate the entire Colombo cityscape. Further considering the dispersion of ongoing condominium developments, over 50% of those projects are concentrated within Colombo City limits and the rest are distributed within the suburbs of Colombo.

Further elaborating major ongoing luxurious condominiums in Colombo city limits, there are numerous projects namely Altair, The Residence at Colombo City Centre, Cinnamon Life, The Residence at One Galle Face, Prime Residencies, Ward Place, Capitol Twin Peaks, Astoria, etc. Thus, the concepts of vertical living have been brought forward and becoming popular. Actually, this happens because the residents can enjoy the convenience of having the facilities at their doorsteps.

Further expounding ongoing condominiums in Colombo's Suburbs, there are also having numerous projects such as Prime Residencies-Mahabage, Fairway Urban Homes- Koswatta, C M Tower-Dehiwala, Lotus Garden-Athurugiriya, Access Residencies-Thalawathugoda, 96 residencies-Sri Jayewardenepura Kotte, Orchid Apartment-II-Malabe etc. Indeed, those are erected to cater for Middle income and Upper middle-income population, where they represent the 1/3rd of Colombo condominium market prices.

On the other hand, there is an emerging trend of tourism destination-based condominium development in Sri Lanka. For examples, The Beach Front-Uswetakeiyawa, Fairway-Galle, The Beachfront-Balapitiya. Further, Galle, Unawatuna, Weligama, Jaffna, Pasikuda, Trinco, Negombo areas have been identified as emerging destinations for the condominiums along with the development of tourism industry. Example for an upcoming condominium in outer of Colombo suburbs is the Oceanfront, Galle. So, day by day, condominium development spread out of Colombo and there is no reverse seen in this industry.

Conclusion & Recommendation

Thus, the condominium living is becoming the only solution to increasing urbanization in areas like Colombo, the fastest growing city where the land is in short supply. Actually, this living style is very interesting whereas it uses the so-called limited resource “land” effectively and efficiently. Further, as a good investment vehicle in the real estate market, it is high time to think about the way forward for the sustainable living. So, the following recommendations are brought forward to ensure a healthy condominium industry in future,

- ✓ Regeneration of existing condominiums and flats in the outdated state with the vision of the future plan.
- ✓ Promote sustainable green concepts/features in future condominium development in line with global condo trends.
- ✓ Ensure value for money and elimination super profit scenarios to promote condos among the most who wish to live in apartments accordingly built up effective demand.
- ✓ Find more pragmatic approach from both the Government and the Private sector to promote condo living in Urban areas and suburbs (Private Public Partnership).
- ✓ Maintain the quality of design & construction with strong commitments for industry compliance to ensure sustainability and public trust.
- ✓ Wipeout bottlenecks in the approvals process of planning agencies and funding process of financial institutions to promote condo developments and also promote potential buyers.
- ✓ Fortify the existing legal structure that governs the condos in order to ensure sustainability & credibility with hassle-free industry environment.
- ✓ Develop a proper basis for categorization of the condominium as the super luxury, luxury, semi-luxury and accordingly pragmatic pricing model & ethical marketing mechanism.
- ✓ Carry out pragmatic research and development by professional and academics to support developers to identify potential destinations and demand drivers, innovations and value additions to ensure quality development and value for money and so on.

Further, this review could be used as an eye-opener for policymakers, industry specialists, academics, professionals and others who interested and responsible to ensure the quality, sustainable development and performances in the Sri Lankan condominium industry.

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Attributes of City Brand of Galle City, Sri Lanka

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Abstract

A city is a socio-economic integrated large human settlement. This socio-economic background creates an identity for a city, forming an opportunity to maintain an image about the city among the target audiences' mind. In today's global environment, governing authorities of cities continuously invest in branding on their cities with the intention of maintaining the reputation of the city and create a competitive advantage over the brand image of the city. The literature on city branding identifies the importance of people, symbols, meaning/ideas and physical characteristic of the city as inputs of city brand. Therefore empirical investigation of the main inputs of city brand is important for the conceptualization of the brand image for a given city. This study attempts to investigate possible attributes for development of city brand for Galle; a city in southern part of Sri Lanka which holds a UNESCO World Heritage site with fabulous sea beach along to Rumassala Mountain. Galle appears to be one of most urbanized regions outside of Colombo Metropolitan Region of Sri Lanka and possessed historical, cultural and natural significance where the untapped potential to attract local and foreign visitors. In this context, the aim of this study is to identify the attributes of the city brand and enables policymakers to design an appropriate brand for the city considering the complex nature of the city. The Partial Least Squares Path Modeling has been used to empirically test the attributes of the city brand. The effective sample size was 150 which have been selected among the citizens who live in municipal limits of the city of Galle. The analysis confirmed that Ancient Architecture and Nature are the two main attributes of city branding of Galle. Despite this, the Culture of the city does not become significant to be included in the attribute list. The empirically tested result of the perception of citizens of the Galle of this study is important to design an effective city brand which used in future branding campaign of the city of Galle.

Keywords: City Brand, Perception, Partial Least Squares

Introduction

A city is a large and densely populated area which has a complex land-use pattern compared to a town. It is an active place where many people live and work and a relatively permanent and highly organized center of population. It includes mixed land use according to development guidelines with attention on undeveloped or under-develop areas. Living in a city has a lot of advantages includes many ways of spending free time in theatres, concerts, exhibitions with cultural events, restaurants, and shopping centers etc... Also, city allows its residents to easily move within jobs because of availability of a job market.

In the context of a dynamic business environment and competition among opportunities including investment, tourist attractions, and government funding etc... formation of unique identity for a city is critical. Thus, the governing authorities of the city focus on branding the city as a unique destination by considering the nature, climate, quality of life and people. The intention of such promotions is the distinctively separate city from its competitors based on unique functional attributes and values. However, according to (Hudson, Cárdenas, Meng, & Thal, 2017), these general factors are no longer create a competitive advantage for a city and it needs to create a strong brand identity based on specific attributes of the city.

Today, cities around the world are trying to show the best possible image to the world in many directions. However as noted (Hudson et al., 2017), the main problem on achieving this goal is ambiguity on attributes on city brand. On the other hand, when compared with a product or service a city has four basic characteristics which are unique from each other. This includes design (place as character), infrastructure (place as fixed environment), basic services (place as a service provider), and attractions (places as entertainment and recreation) (Kotler, Asplund, Rein, & Heider, 1999). Thus, focus on these four areas is important to identify the possible combination of attributes of a city brand. Therefore identification of the best possible combination of attributes to be included in the brand of the city is important for policymakers to maintain a sustainable city brand.

City of Galle

A city on the southwest coast of Sri Lanka; Galle is famous for Galle Fort, UNESCO World Heritage site founded by Portuguese colonists in the 16th century and the natural beauty with Rumassala Sanctuary. However, the city failed to brand itself as a unique city and tapped opportunities in tourism, investment, and infrastructure development. In this context, the aim of the

study is to factors affecting to city brand of Galle City, Sri Lanka and determine the impact of criteria/factors on city branding for the city of Galle in Sri Lanka.

Literature Review

The presentation of the unique business model in the form of visual and behavioral expression which molded through company's mission, core values, culture, and overall design is identified as Corporate Brand (Kavaratzis, 2009); (Kavaratzis, 2009; Knox & Bickerton, 2003). The fundamental idea on the corporate brand can be adapted to define city brand where it is a form of visual, verbal and behavioral expression of a place which incorporates and communicate the core values, core purpose and the great culture of the city which assorted with stakeholder expectation (Zenker & Braun, 2010). Thus, the key to successful implementation of city brand is the identification of citizen's idea (main stakeholder group of the city) and embedded with core purpose and the great culture of the city to proposed branding strategy of the city.

City branding is the appropriate way to describe and implement city marketing. Thus, it is argued that city branding is the outcome of the successful construction, communication, and management of the image of the city. In this context, two premises on the development of city branding identified as (a) what is in the peoples' mind about the city and (b) how people understand city through their perception on an image of the city. According to (Crang, 2000), (Holloway & Hubbard, 2001) people's mind on city brand visualized the city image through three processes. First, work on the planned intervention through planning regulations and urban designs. Secondly how and why citizens use different places in the city and finally how literature including novels, films portrays the city. Consequently, it is the application of product branding concept to a place based on urban planning structure, existing attraction of city and visualization/imagination of the city (Kavaratzis & Ashworth, 2005).

The idea presented by (Bayrakdaroğlu, 2017) noted that city brand is the incorporation of activities happening in the city which is a place to be center of attraction for existing and potential customers with the application of branding strategies to boost its output in the minds of target people. Thus, city branding is the form of activities used to developed mental map among existing and potential target customers of the city to transform the existing and potential needs to the desired form of the city. A successful city brand is a support to the city in several ways. At the inception, it is a possible tool consistent and integrated marketing message to existing and potential users of the city. This

enables the management arm of the city to create an unambiguous marketing message about the city. On the other hand, city branding allows disparate stakeholder groups to interact with the one brand. As geographical place has its own name, the city brands naturally use the same name as brand and branded place makes people aware of the location and connects desirable associations (Keller & Aaker, 1998).

Contributory Factors of the City Brand

As noted (Crang, 2000), (Holloway & Hubbard, 2001), contributory factors on City Brand on Galle City identified in a form of planning interventions, urban designs, uses of the city by citizens and existing customers and depicts of the city of Galle in films, and novels etc... Thus, Ancient Architecture, Culture, and Nature of Galle city identified as main dimensions of the city of Galle.

The Ancient Architecture is identified as heritage monuments and urban design pattern of the Galle which support to create nature of the fortress to the city. Therefore, the architecture of the city has the ability to differentiate the city from other cities. The symbolization of the ancient architecture is based on Galle Fort, Dutch Reformed Church, Galle National Museum, Ancient Harbour, Lighthouse and Amanglla Hotel.

The second proposed attribute; culture is identified as beliefs, attitudes, and practices of the city or within the city over the long period. Culture has a capacity to influence the behavior of citizens. The cultural places can evoke emotions and create memories which combined with personal experience and expectations; it will decide the point of positioning the city compared to other cities. There are six contributory factors on the culture of the Galle identified. This includes Galle Literary Festival, Japanese Peace Pagoda, Galle Dialog, Galle Sports, Buddhist Philosophy and Christian Philosophy.

The final attributes of the city brand of the Galle identified as Nature, which gives an important perspective towards its dwellers as well as its visitors in many kinds. In develop city branding; natural areas are preserving as its unique features differentiated that city from other cities. Galle has many unique places to be branded. There are six indicators of nature includes, Lagoon Canoeing Tour, Whale Watching, Jungle Beach, Flag Rock, Gin River, and Turtle Hatchery.

Methodology

The study applied reflective constructs of the Partial Least Square Structural Equation Model (PLS-SEM) for analysis. The total population of the study identified as citizens who live in Galle Municipal council limit. As per the guidelines of the G-Power statistical tool, the total of 107 respondents identified as a minimum sample size with the statistical power of 95% (1-beta error) effect size (f^2) of 0.15. Empirical data collected by means of the questionnaire as a quantitative method. The first section of the questionnaire is focused on demographic/socio-economic Profile information of the respondents' and the second section focused on attributes of City Brand for Galle. A total of 15 Likert Scale questions included in this section. To achieve the target sample size a total of 200 questionnaires distributed and the data collection was carried out during the period in May 2017. A completed 150 valid questionnaires returned.

The PLS-SEM allow the authors to test multiple dependent variables in a simultaneous manner with a central advantage of inclusion of the disturbance error for the variable in a form of measurement errors and unexplained variances (Nunkoo & Ramkissoon, 2011) authors follows the guidelines of (F. Hair Jr, Sarstedt, Hopkins, & G. Kuppelwieser, 2014), on formulating the model and the conforming decisions of results of the model. Based on the reflective model; a total of three hypotheses derived as

H₁: Ancient Architecture has significant impact on city brand of Galle

H₂: Culture has significant impact on city brand of Galle

H₃: Nature has significant impact on city brand of Galle

Results

The profile of respondents includes 38 percent of females and 62 percent males. The ethnic background of the respondents distributed as 85 percent Sinhalese. The balance 15 percent belongs to other main ethnic groups. A total of 33 percent of respondents are graduates while 53 percent of respondent passed G.C.E Advanced Level Examination. Thus, it is confirmed that a balance reflection of citizens of the Galle has been included in the sample to review perception of the citizen on attributes of City Brand for Galle.

The results of PLS-SEM have been presented in two stages. At the first stage outcome of the measurement model has been presented. Once the confirmation of the reliability and validity of the measurement model established, the study moved into the evaluation of the structural model.

Results of Measurement Model

The analysis of measurement model focused on indicator reliability, internal consistency, convergent validity and discriminant validity of the constructs of the model.

The indicator reliability of the model measures based on the results of outer loading, where a common threshold criterion is the more than 70% of an indicator's variance should be explained by the latent construct. However, factor loading records below 0.7 on indicator C4, N2 and, N4. Nevertheless, considering (Vinzi, Trinchera, & Amato, 2010), those indicators are taken into further analysis. The results of the Cronbach's alpha 0.708 for Ancient Architecture, 0.713 for Culture, 0.708 for Nature and 0.789 for City Brand is well above the threshold level of the 0.7 (F. Hair Jr et al., 2014) established the internal consistency of the model.

The outer loadings of the indicators, as well as the Average Variance Extracted (AVE) of indicators used to measure the convergent validity of the model. The convergent validity measure extent of indicators of reflective constructs correlated positively with alternative measures of the same construct. High outer loadings on a construct indicate that the associated indicators have much in common, which is captured by the construct. According to (F. Hair Jr et al., 2014) outer loading should be 0.708 or higher. However, indicators with outer loadings between 0.40 and 0.70 might be considered for removal from the scale only when deleting the indicator leads to an increase in the composite reliability (or the Average Variance Extracted) above the suggested threshold value. As suggested by (F. Hair Jr et al., 2014) all AVEs are higher than the threshold value of 0.5, and all reflective items in the model retained. As a result, convergent validity of the model established.

The final requirement of the measurement model is the discriminant validity of the model which measures based on Fornal-Larcker Criteria for the measurement model and Cross Loadings of the measurement model. The results confirmed that both requirements are above the threshold level. Accordingly, the study confirmed that discriminant validity of the model established. The summary of the results is in table 01.

Table 01: Results of Measurement Model

Factor	Indicator	Indicator Reliability	Convergent Validity	Internal Consistency		Discriminant Validity
		Loadings	AVE	Cronbach's Alpha	Composite Reliability	
Ancient Architecture	A1	0.863	0.625	0.708	0.832	Yes
	A2	0.709				
	A3	0.792				
Culture	C1	0.793	0.538	0.713	0.823	Yes
	C2	0.747				
	C3	0.730				
	C4	0.659				
Nature	N1	0.860	0.519	0.708	0.808	Yes
	N2	0.581				
	N3	0.789				
	N4	0.616				
City Brand	B1	0.843	0.702	0.789	0.876	Yes
	B2	0.867				
	B3	0.803				

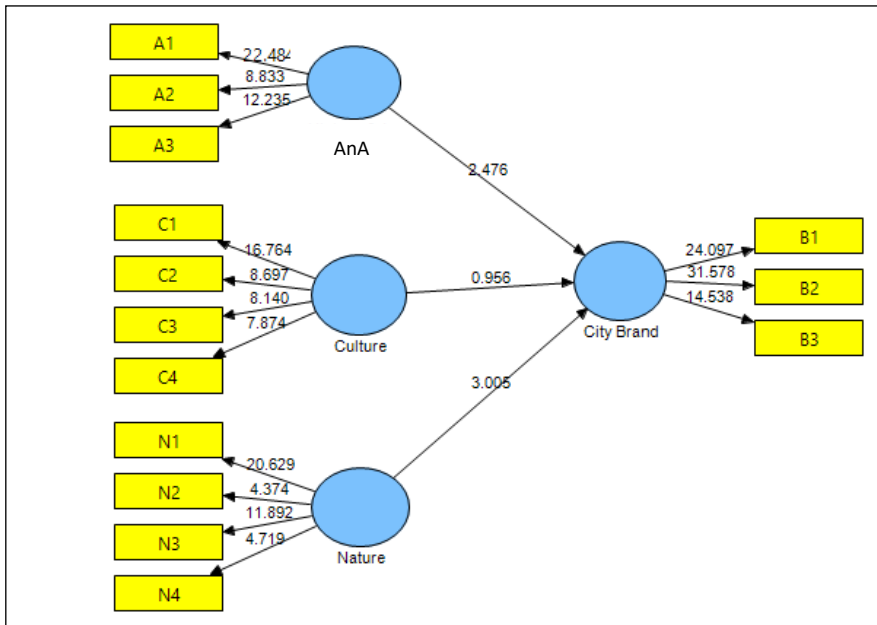
Source: compiled by authors (2017)

Results of Structural Model

With the confirmation of the validity and reliability of the measurement model, the study moved to the analysis of the structural model of the study. The purpose of the structural model is to draw conclusions from the sample, including the causal relationships and predictions. The collinearity issues, significance, and relevance of the structural model and relationships evaluated. Further, the level of R^2 and the predictive relevance Q^2 evaluated.

The Variance Inflation Factor (VIF) used to measure the collinearity of the model. all VIF values of the model is well above the threshold level 5 (Hair, Ringle, & Sarstedt, 2011). After the confirmation of non-availability of collinearity of the constructs of the model, the bootstrapping procedure was performed using 5000 samples, where the use of individual sign changes was used as sign change option (Hair et al., 2011) and the results of the structural model is depicted in the Figure 1.

Figure 01: Results of the Bootstrapping of the Model



Source: compiled by authors (2017)

Based on the results of the bootstrapping t statistics, all reflective indicators are significant as t statistics are greater than 1.96. Accordingly, it can be concluded that the outer model loadings are highly significant or in other words, corresponding results for the total effects are significant at least at a 5% level.

The t statistics of the path coefficient is also well above 1.96 which confirmed the corresponding results Path Coefficients are significant at least at a 5% level. Refer Table 2 for details

Table 02: Results of Path Coefficients

Path	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	Standard Error (STERR)	T Statistics (O/STERR)
Culture -> City Brand	0.1070	0.1181	0.1120	0.1120	0.9561
Ancient Architecture -> City Brand	0.2398	0.2356	0.0968	0.0968	2.4760
Nature -> City Brand	0.2701	0.2842	0.0899	0.0899	3.0054

Source: compiled by authors (2017)

The Coefficient of determination or R² of the model measure of the model's predictive accuracy and is calculated as the squared correlation between a specific endogenous construct's actual and predicted values. The resulting data provides 0.266 of R² for the model with positive week relationship with its exogenous latent variables' with its endogenous latent variable (Hair, et al., 2014). Refer figure 2 for details

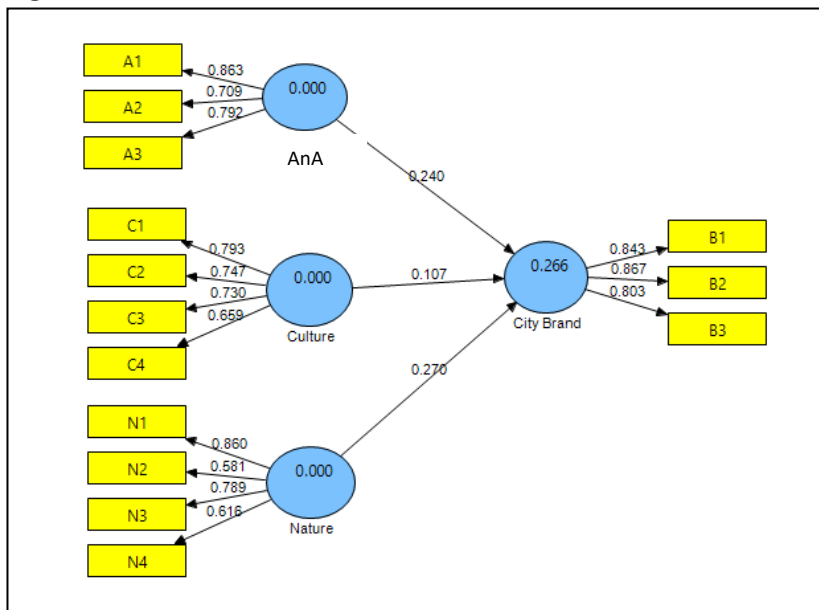
Once the model validity established, the study evaluated the stated hypothesis of the study and confirmed that “Ancient Architecture” and the “Nature” are significantly contributed positively to City Brand of the Galle while, Culture does not support for City Brand of the Galle. Refer Table 3 for details

Table 3: Results of the Hypothesis Testing

Hypothesis	Relationship	Beta	T value	P Values	Decision @ Alfa 5%
H1	Ancient Architecture -> Brand	0.24	2.462	0.014	Supported
H2	Culture -> Brand	0.107	0.952	0.341	Not Supported
H3	Nature -> Brand	0.270	2.911	0.004	Supported

Source: compiled by authors (2017)

Figure 02: Results of the Structural Model with Path Coefficients



Source: compiled by authors (2017)

Finally, the study value the predictive power of the model based on Q^2 which is considerably above zero (0188), thus providing support for the model's predictive relevance regarding the endogenous latent variable.

This confirmed that Ancient Architecture and Nature of the city are two forms of contributory attributes of the City Brand of Galle and policymakers need to focused how attributes of Ancient Architecture including Galle Fort, Dutch Reformed Church, Galle National Museum, Ancient Harbour, Lighthouse and Amanglla Hotel as well as attributes of Nature which includes Lagoon Canoeing Tour, Whale Watching, Jungle Beach, Flag Rock, Gin River, Turtle Hatchery used to create a form of visual, verbal and behavioral expression of a place which incorporates and communicate the core values, core purpose, and the great culture of the city which assorted with stakeholder expectation.

Conclusion

The Galle city possesses strong historical, cultural and natural identity with rich of attractions. However, the city is in a fairly weak attention on preserving its identity and careful use of city resources for differentiates the city from others. Thus, the city is in a relatively competitive disadvantage compared to other main cities in Sri Lanka.

The findings of this study confirmed that Ancient Architecture and Nature are contributors to the city brand of Galle. Thus, authorities who involve with city promotion need to collaborate with local authority of the Galle to focus on the specific characteristic of Ancient Architecture and Nature to articulate city brand for Galle. The Galle Fort, Dutch Reform Church, Ancient Harbour, Lagoon Canoen, Jungle Beach and Flag Rock are support for the potential city brand blending with emerging physical constructions including Galle Bus Terminal, new hotels and the network of expressways which support to requirements of Ancient Architecture and Nature. The result of such symbolization of unique brand image to the city of Galle helps stimulate development, strengthen the identity and activate differentiation advantage of the city. Thus, the resulting model provides a focus and a clearer picture of what the city wants to achieve and how to achieve it or from which factors to develop to achieve it.

Moreover, the findings of this study have a number of practical implications for the local authorities of Galle city. It draws attention to the unawareness of visitors regarding the uniqueness of the places and events available in the city. In order to enhance the satisfaction of local and foreign visitors and increase the rate of visitors' arrivals of the city the local authority of the city, should

make a concerted effort to improve the quality of the facilities available to visitors in those places and events.

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Discussion on Land Use Changes due to Colombo Outer Circular Road Network. (In relation to the Kadawatha Interchange)

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Abstract

A road network operates like a circulatory system of a human body. A strong quality and well-planned road network contributes to the development of a country and it plays a vital role in achieving national development in overall performances and increases the quality of social functioning of the community. The mobility of labor and capital in an economy highly depends on the efficiency of the road network. As a part of road network, highways/expressways play a vital role in increasing economic efficiencies. Highway road network energizes economic system as well as the transportation system of a country. Due to the rise of traffic congestions and inefficiencies in public mobility, highway road networks were introduced as a solution to mitigate those social issues. Highway is important as transport service because highway makes possible the rapid, flexible and relatively inexpensive movement of persons and freight between cities and throughout the countryside. Colombo Outer Circular Highway network is considered as a significant value addition to the property market in Sri Lanka. Accordingly, this study mainly focuses on identifying changes of land values and land use, effects on real estate sector, land market and natural environment of Colombo Outer Circular Road Network in relation to Kadawatha interchange. Furthermore, it explains the relationships among land value, transportation and the environment directly relate with economic growth. This study will help to understand the land uses changes of outer circular area, which will help urban development authority and land administrative departments to develop their policies, to get accurate decisions and continue their projects regarding highway constructions.

Keywords: Land use, Land Use changes, Road network, Highway interchange, Land value Changes

Introduction

Highway and expressways play a vital role in increasing economic efficiencies. Even though Sri Lanka has an extensive road network, most roads do not have the capacity and efficiency. The Sri Lankan expressway road network includes mainly three expressway road networks: E01 – Southern Expressway, E02 – Outer Circular Expressway and E03 – Colombo to Katunayake Expressway facilitating both public and private transportation systems (Road Development Authority, 2017). The Colombo Outer Circular Expressway was constructed under the guidance of the Ministry of Highways. This was planned to be developed under three stages consist of stage 01-Kottwa to Kaduwela,

Stage 02-Kaduwela to Kadawatha and stage 03-Kadawatha to Kerawalapitiya. (Anon, 2018).

As stated by Kulasinghe (2015), over the past five to ten years, urbanisation has been shaped by infrastructure investment that has both linked and developed key cities, primarily Colombo and Galle. Further, the expressways constructed connecting major cities in the island are driving up land values along them. Thus, the objective of this study was to identify how the uses and values of lands are changed due to the construction of these road networks focusing on Colombo Outer Circular Expressway. In order to identify those areas, this study includes a survey, conducted within 1km buffer from the Kadawatha interchange, based on 816 respondents who owned either residential or commercial properties within the above mentioned area and data were accordingly analysed.

Literature Review

Land use

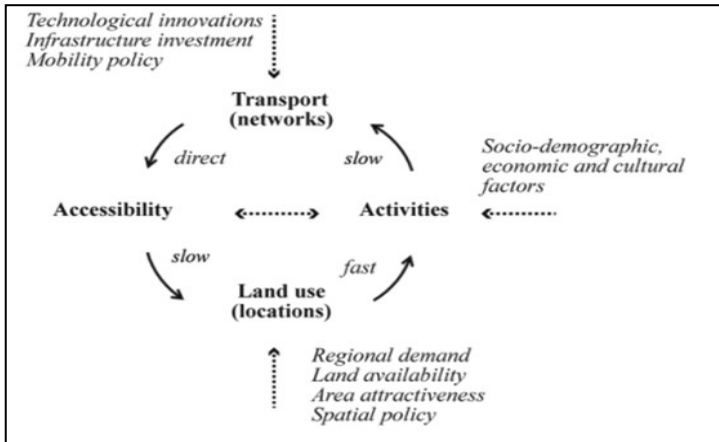
Land use is the function or functions that humans apply to the land available to them. The study of land use is the study of how the land is managed, including how the natural world is adapted to human needs. According to Barlow (1958), various classification scheme can be used to describe the principle types of land use found through the world. Those are residential, commercial, industrial site, crop land, pasture, grass land, recreational lands, transportation, and service land, barren and waste (Barlowe, 1958). Further he stated that it has been reported that land use capacity has major components and the one of them is accessibility. Accessibility involves how to access the land and what kind of road network available there as well as time and distance. The Radial or Axial development theory refers that the importance of transportation routes as urban land uses development. It says that urban growth will occur around transportation route considering the impact of physical features on land uses and show how land use tend to disperse along the transport route such as Expressways, roads, and rail roads. The main land use factors of this model depend on distance, journey time, accessibility. (Edirisinghe, 2015).

Road Network

Land use and transportation systems are considered as the two most important subsystems determining urban form and structure in the long term (Barlowe, 1958). Land use and road network are interdependent variables. The development or underdevelopment is decided based on the dependency of these two variables, which means change of one variable directly affects to other variable formulation. The relationship between these two variables shape the urban form, first changes in land use alter travel demand patterns. Second changed traffic flows drive the improvement of transport facilities. Third new transportation facilities change the accessibility pattern. During this

process, both transportation and land use are evolving constantly, leading to salient spatial transformations. (Levinson, 2007).

Figure 01: Transport LU feedback cycle



Source: Wegner & furist, 1999; adapted by Bertolini, 2012

Effective and efficiency utilization of land accelerate the urban activities, types and pattern of roads and transport facilities. When creating new roads or expanding existing roads to fullest extent it increases the attractiveness of land, they pass through, promoting new urban facilities. (Morimoto, n.d.)

The construction of Expressways will increase the regional accessibility and enhance human activities along the transportation routes. Consequently, a convenient Expressway system attracts new commercial and real estate projects that lead to a boom of economic development and population. With the improvement in quality of life, travel demand increases this in turn, promotes the extension and improvement of the transport network.

Land Value Changes

In a study by (Verheye, 2013), Value is defined as the esteem in which something is held or can be exchanged under current market conditions. If a commodity has less demand, the value of that commodity will be decrease and if a commodity has high demand, the value of that commodity will be increase. Development of the road network may increase values of residential and commercial property values due to improvements of the accessibility and other related benefits. Classic urban location theory states that lower transport costs will result in higher land and property values (wrigely & Wyatt, 2001). According to the research at (Anon., 2018) is determine where there is a relationship between improvement of the investing transportation infrastructure and property value changes.

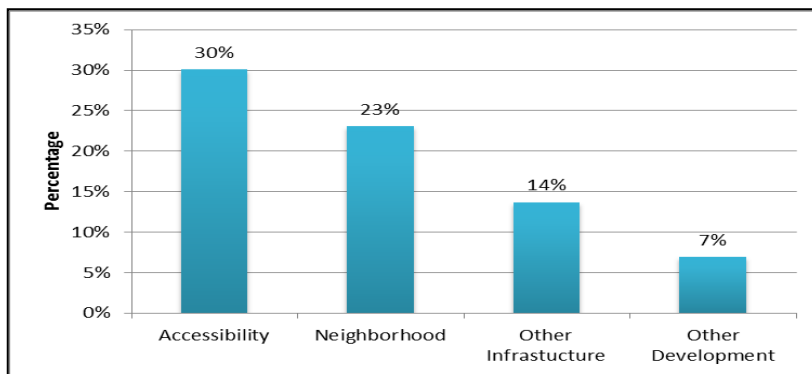
Findings and Observations

In this case study, data were collected from 816 respondents living within the area of the 1km buffer from the Kadawatha interchange and a descriptive analysis was carried out. The findings are as follows.

Residential property analysis

According to this analysis, nearly 40% of the residents who lived around Kadawatha interchanges were new comers that came after the development of the interchange. Different residents had different perspective about selecting residential properties around Kadawatha interchange.

Figure 02: Reasons for occupation residential property



Source: Compiled using Survey Data (2018)

According to figure 02, 30% of residents which is the majority have selected residential properties around Kadawatha interchange due to accessibility meanwhile 23% have selected residential properties due to attributes of the neighborhood. Other factors like facilities and development were considered less in making decisions of selecting a residential property around Kadawatha interchange. Accessibility became a key factor when selecting a residential property after the development of the interchange as the accessibility were increased for retail, banking, religious and educational services.

Further, it was noticed that there were significant land use changes occurred as a result of the development of Kadawatha interchange. There were significant non built-up areas before the interchange development in Kadawatha. However, due to some agriculture land which were acquired for the interchange development and due to the increased residential land use, that non built-up area has been reduced.

In addition, a significant increase in residential property values was noticed. According to table 01, capital values of residential properties indicate high

increment after the interchange development. Similarly, rental values of residential properties also indicate a rapid increase as a result of the development. Generally, residential property values increase with time, but here, a significant increase with compare to general increasing rate was observed.

Table 01: Changes in Residential Property Values

	Before (Rs)	Present (Rs)	Estimated (Rs)
Capital value (Per perch)	270,000	520,000	900,000
Rental value (Per sq.)	9.50	15.00	18.00

Source: Compiled using Survey Data (2018)

Commercial Property Analysis

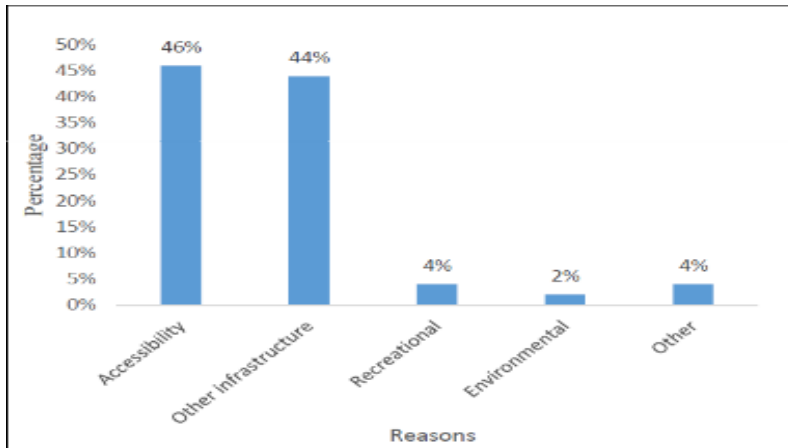
During the analysis of commercial properties, several key findings were noticed with regard to the nature of commercial properties as well as the changes that they faced after the development of Expressway.

Among all the available ownership types of commercial properties within the boundary of 1km buffer centering Kadawatha Expressway interchange, the majority are under leasehold or sub-leasehold ownership category. If it can take as a percentage it holds 54% from the total number of commercial properties that were observed. After the construction of Kadawatha Expressway, the percentage of leased out properties has increased rapidly. Other than leasehold properties, 25% of commercial properties are owned by inheritance. Most of the commercial properties under this ownership type can be found inside the villages of the Kadawatha area facing to any kind of road. Some have occupied a portion of their residential lands for a small scale commercial uses. Similar to different ownership types there are also different types of commercial uses available in the area at different rates. Further, it was found that commercial properties that provide professional services, retail/trade services, recreational services, lodging services, service centers and other services. Among all these types of commercial uses, 88% of commercial properties are occupied in providing retail/trade services. Most of the commercial properties are occupying in the area for more than 10 years or in another words most of the commercial properties have been established before the construction of an expressway project. Therefore, for these commercial properties which exceeds 10 years have no strong influences for their businesses from the Expressway development.

The convenience on accessibility has attracted many of commercial properties to this area. This fact was proved by 71.1% of total respondents mentioning that easiness in accessibility is their main reason of selecting the area. The rest of 28.9% have selected their respective properties due to other reasons such

as 30.6% or 53 are satisfied with current infrastructure facilities infrastructure development, telecommunication etc.

Figure 03: Reasons for Occupation of Commercial Properties



Source: Compiled using Survey Data (2018)

It is evident that while 30.6% of respondents are satisfying with current infrastructure facilities of the area, 69.4% of respondents are not satisfied with it. The opinions regarding the satisfaction of infrastructure may differ from commercial and residential property owners. Because the commercial property owners expect more advanced infrastructure facilities compared to the residential property owners. This may include proper parking areas, less traffic congestions, proper pavements for pedestrians etc. Further, when it comes to the satisfaction of the development of the area, only 17.3% have stated that they are satisfied with the development and the rest are not satisfied. This raises the question that why most of people are dissatisfy with the development in the area while a major development projects like Kadawatha Outer Circular Project is taking place in the same area. The negative reaction related to this fact may because of the negative impacts that the development projects have brought especially on their commercial activities. So it is critical to look into this matter and see what kind of developments are they seeking and the drawbacks and loopholes of the current development projects.

According to the collected data we identified that there is a huge difference of property values over the time period, before and after the Expressway project. The capital value of commercial properties per perch is averagely fluctuated on Rs. 400,000/= before the construction of Expressway (in 2010). But within 1km buffer from the interchange. But when it comes to the present the average capital value has increased up to Rs.800,000/=. Similarly, the average rental values of the commercial properties have also highly increased after the construction of the Expressway. It was Rs.25/= per sqft before the Expressway project (in 2010). But today it has gone up to Rs.32/=. Further, the respondents expect same rapid increase in both capital and rental values

of commercial properties because they believe that Expressway interchange has added more value to the area thus making high demand for the location.

Table 01: Changes in Commercial Property Values

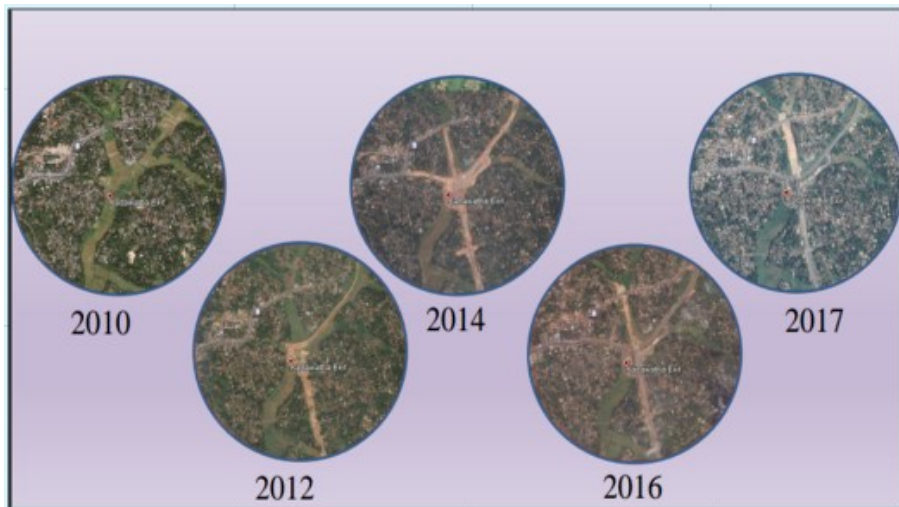
	Before (Rs)	Present (Rs)	Estimated (Rs)
Capital value (Per perch)	400,000	800,000	1,000,000
Rental value (Per sq.)	25.00	32.00	44.00

Source: Compiled using Survey Data (2018)

Conclusion

Considering the information which was taken through 816 numbers of individuals after the development of outer circular expressway, we identified that the land uses of Kadawatha area have changed and different land uses have adopted. The selected area in Kadawatha has mainly used for agricultural purposes including paddy fields. But now lands near the Expressway have considerably converted into residential and commercial uses. Significant number of agricultural lands have been developed and sold out for residential uses after the development. Some have occupied their residential land spaces for small scale commercial activities.

Figure 04: Conversion of land use from 2010-2017



Source: Compiled by Author using Google Earth (2018)

Considering the land value before and after the Expressway development it clearly illustrates that the value has increased at great extent. Further Kadawatha villagers predict that it will further rise rapidly. Even though most lands as and real estate have developed in the area if was found that some portion of individuals face some inconveniences after the development. For

examples decreasing under water levels, noise, dust and losing their private land especially their paddy lands.

By analyzing all the facts collected from respondent in the buffer zone, the development around the Kadawatha area should be parallel with the increasing land demand. Land is demanded either to residential or commercial purposes. Most of commercial activities are set around Colombo- Kandy main road. Similarly, there is high increasing demand for residential as single or storied houses, apartments and for the condominiums in Kadawatha area. Therefore, relevant local authorities or institutes should examine and set out suitable guild lines for new developments and should increase all the physical and social infrastructure capacity linear with upcoming constructions.

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Green Rating Systems for Built Environment and its Implications for Real Estate Valuation: A Review of Literature

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Abstract

"Sustainability" is becoming an increasingly important attribute of economic activities in terms of methods of construction and attributes of capital investment. This is due to the current concern with environmental conservation, and changes in perceptions among consumers and investors. At present, the built environment and "sustainability" are closely intertwined, and popular attention to "green building" has greatly increased over the past decade. This reflects the potential importance of real property in matters of environmental conservation. As built environment and their associated construction activities utilize 40% of total energy production, 12-16% of all available water, 32% of nonrenewable and renewable resources, 25% of all timber production, 40% of all raw materials, produces 30-40% of all solid wastes and emits 35-40% of CO₂. As a result, there has been a remarkable attention to "Green Buildings" by planners, developers, and investors. It is claimed that green-certified buildings have lower operating costs and increased asset values and that they offer a healthier and safer environment for occupants. The award of the Green Status by a Green Rating System demonstrates an owner's commitment to environmental protection and social responsibility. Globally evidence emerged that green-certified buildings achieve higher financial returns which are referred to as "Green Premium or Green Value" in the literature. Therefore, this paper reports a systematic review of the existing body of knowledge related to Green Building Features and related performance and answers Why should green buildings have higher market values?

Keywords: Green Buildings, Green Premium, Green Rating Systems, Real Estate Valuation, Sustainability

Introduction

Built Environment has a profound impact on the natural environment together with the quality of our lives and the world around us. It can enrich our communities, health, and well-being, as well as support and enable business. It is the visible progression of human culture on the environment. Yet, Globally, the Construction Industry utilizes 40% of total energy production, 12-16% of all available water, 32% of the resources (non-renewable and renewable), 25% of all timber, 40% of all raw materials while it produces 30-40% of all solid wastes, and emits 35-40% of CO₂ (Darko et al., 2017). The extensive use of natural resources and energy, pollution of air, land, soils and water resources are some examples of the impact to environment from construction industry (Jayalath, Ayesha and Gunawardhana, 2017). The Construction Industry has attempted to enhance the sustainability of its activities by adopting “Green Building Technologies” as a solution for rising environmental concerns (Darko et al., 2017; Yin and Li, 2018).

Going Green is no eccentric concept to Sri Lankans, having a proud history of great civilizations with long-lasting yet environmentally friendly structures and monuments together with irrigation systems that amaze the entire world even today. The concept of Green Buildings focuses on improving the efficiency within which buildings use resources; such as materials, water, and energy while reducing the undesirable impacts of buildings on human health and its surrounding environment during its lifecycle. This is achieved through better design, construction, operation, maintenance and through the recycling and proper removal of waste.

A Green Rating System for Built Environment is a set of performance standards used to certify Built Environments in the form of residential, commercial, industrial or institutional of all sizes, both private and public (GBCSL, 2011). The main purpose of a Green Rating System is to encourage the design of buildings in an environmentally acceptable manner (GBCSL, 2011). This will be a major step towards adopting a sustainable practice in developing buildings to utilize the natural resources and make efficient designs to utilize nature for the betterment of mankind. As most of the resources that are being used at present account for environmental pollution, it is time to search for new materials and designs to reduce the impact to the environment. Hence Green Building concept has been developed to encourage the development of environmentally friendly building solutions.

It has been often and widely believed that green buildings provide an uncertain advantage to investors, developers and landlords. But in contrary, a relationship is beginning to emerge between the market value of a property and its green features and related performance. This is due to the efforts of the industry to quantify the financial and non-financial benefits of green

buildings. The increased cost of green buildings has been considered as the major challenge in a wider adaptation of Green Rating Systems. While the cost has remained a matter of debate, the more the enhanced value exceeds the increased cost, the higher the motivation to go green, which is the focus of “Green Value” or “Green Premium” (Oyedokun, 2017).

According to Plato, the notion of value is considered the most difficult term to define among all sciences. There is a gap in understanding and knowledge exists between the green industry and financial industry, particularly with valuers who advise on the investment side of the real estate. Until the green and the financial industries work together and start seeing each other’s point of view, the benefits of green buildings, both financial and non-financial will be neither fully understood nor be quantified.

The significance of the Study

Worldwide including Sri Lanka, it is the public sector that has taken lead to move towards Green Buildings. In 2017, Ministry of Mahaweli Development & Environment has initiated “Sri Lanka NEXT – A blue Green Era” programme to ensure Sri Lanka’s contribution to reducing global warming with respect to the Paris Agreement (UDA, 2017). The programme introduced “The Blue Green Sri Lanka” National Green Building Rating System, which is a set of guidelines that will introduce, construct and to maintain Green Buildings in public and semi-government sector as a primary step to greening building sector in Sri Lanka (UDA, 2017). Similarly, non-government organizations such as Green Building Council of Sri Lanka (GBCSL) and The Ceylon Institute of Builders (CIOB) have too introduced green rating systems for built environment for voluntary adoption by construction industry (GBCSL, 2018) (CIOB, 2018).

As the construction industry including investors, public and private property developers become aware of the productivity benefits of green buildings, the demand for them will rise. This will result in driving the green buildings to success and subsequently the demand for conventional buildings will fall where the impact of the asset value of green buildings will be experienced firsthand by those buildings. As a matter of fact, the valuation industry must do well to embrace the developing green movement and to develop and start adopting valuation standards for better evaluation of green value or green premium.

The green building industry has been led by architects, engineers, and others, as a result, much of the finance, including valuation industry professionals have yet to catch up the phenomenon. Through this study, real estate and finance industry professionals, including real estate valuers, will become aware of the latest insights and information on the financial and non-financial

benefits and performance of green buildings. Policy makers may find this study useful in identifying the importance of green buildings in order to encourage and preserve the natural environment for promoting the sustainable built environment.

Purpose of the Study

The intention of this paper is to review the Green Value or Green Premium of a building adopted in Green Rating System and its implications for Real Estate Valuation. Further, it is attempted to highlight major concerns related with application of the green value/premium in the real estate valuation profession in the country.

Methodology

The review is conducted through a systematic literature search and data was collected from published empirical researches which include scholarly articles published in peer-reviewed journals, conference proceedings, books, and reports. Based on contents, the following databases such as Science Direct, Emerald and Taylor & Francis were searched in order to find relevant literature. In order to evaluate the size of literature content, a pilot literature search was performed which addresses the green value or green premium of green buildings. As per the observation, the literature which addresses the green value or green premium of green buildings is relatively low. Moreover, a substantial amount of the literature investigates the costs and economic returns or benefits associated with green buildings. As the main purpose of the study is to cumulate and review the empirical findings on the green value or green premium of a green building, the search was narrowed to the scholarly articles and publications which provide empirical evidence on the green value or green premium of a green building. To meet the set criterion, keywords such as “green building”, “sustainable building”, “green value” and “green premium” were used in the search fields which were limited to publication title and keywords.

A synoptic of keyword search within above mention databases is shown in Table 1. It is important to note that summarizing the search results doesn't deliver evocative information as many publications would appear in more than one scholarly databases. The retrieved publications were analyzed and considered in the study if it meets the following criteria.

- I. The publication addresses financial and non-financial benefits (Green Premium/Green Value) of adopting a green rating system as a main topic in the research.
- II. The publication draws clear conclusions about the Green Premium/Green Value.

III. The publication relies on empirical data to draw the conclusion.

Table 01: Summary of Keyword Search

No.	Database	Search Field	Number of Retrieved Results for “Green Value”	Number of Retrieved Results for Green Premium”
1	Science Direct	Keyword	13,643	171
2	Emerald	Keyword	36	6
3	Taylor & Francis	Keyword	95	1

Based on these criteria, a total of 20 empirical studies were selected for further review and analysis.

Concluding Remarks

- There is a rising need to appraise green assets by investors, owners, developers, and renovators through valuation.
- In order to drive real estate valuers to adapt to green values, Governments and Clients will need to play an important role. Since valuation profession is largely a service business it’s often regulated and client led, valuation professionals must make aware their members on adopting green value/green premium into valuations.
- Even though valuation lags behind in accounting for green features within existing standards, knowledgeable valuation professionals can apply valuation methods to green assets.
- An informed professional valuer on the integrated design team will help to understand how green aspects will be valued and decide what choices will improve value. This will ultimately helpful for the marketing of green features and to improve the valuation of the property.
- It has been an established fact that financial measurements of value are incompetent in the sense to take account green values to satisfy Corporate Social Responsibility.
- Developers usually produce what they believe market wants, and at the moment don’t offer green buildings as customers knowledge and understanding about their benefits are much lower. This would include customers who could pay for green if developers were to offer the choice.
- Customers could only buy what is available in the market. So, in the absence of both knowledge and choice, they will continue to invest in conventional buildings. If society knows more about green buildings, the more they demand them.

- Appropriate methodologies should be developed in order to understand the impacts of green features on asset values which will be beneficial for valuation professionals.
- Literature has indicated, valuation can back green buildings where it will benefit asset value through green design and building practices.
- In order to drive valuers to adapt to green values, Governments and Clients will need to play an important role. Since valuation profession is largely a service business it often regulated and client led, valuation professionals must make aware their members on adopting green value/green premium into valuations.
- Literature indicates that in order to establish the link between asset value and green building, Life Cycle Cost Analysis is essential.
- Green building performance within the real estate market and the degree to which their capital value rises should be asses further yet still the sample size and the availability of operational data for green buildings is not adequate. So proficient documentation and tracing is a must.

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The Headlong of Hosting Real Estate Investment Trusts: The Way forward to Real Estate Development in Sri Lanka - A Review

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Abstract

Sri Lanka has been passing through massive changes on development perspective in many fields. Currently, real estate sector of the country is being attracted and encouraged by the government with the intention of developing the country. Accordingly, Sri Lanka has been proposed to introduce Real Estate Investment Trust (REIT), officially by the budget 2016 with the objective of impressing much-required capital to the real estate, infrastructure development and also to provide an avenue for the small investors as a benefit of the development in the sector. In deciding to host this investment mechanism, Sri Lanka has had the confidence on REIT by the world operation in the practical scenario as the other Asian countries. As REIT has been passing through a stage of rapid growth since its implementation in the USA in 1960 towards the development of the country followed by the real estate development, emphasizes the essentiality to do a study regarding this indication of introducing REIT for Sri Lanka. Thereby, this study has focused on a collaborative industrial work with a primary objective of identifying key areas to be tackled in introducing REIT for Sri Lankan real estate towards its development. This execution has been tracked by the information collected through interviews and secondary data such as textbooks, official statistics, reports, and online articles and publications. The major findings of the study are the considerable key areas that should be backed in the introduction of REITs in Sri Lanka like legal framework, investment climate performance and many other areas with the consideration of the global application of REITs backed with recommendations towards its development.

Keywords: Real Estate Investment, Real Estate Development, REITs, Sri Lankan Real Estate Market

Introduction

As one of most fashionable tools of the global real estate investment, a REIT has come to the operation as a collective investment vehicle that invests in a diversified pool of professionally managed, investment grade real estate. The assets are typically office, residential, retail, hospitality and industrial or logistics property. Accordingly, REIT markets first emerged in the 1960s in the US as the pioneer and later on the worldwide and some REITs specialize

in one asset type, while others offer a mixed portfolio. (Atchison & Yeung, 2014).

The core essence of this investment tool of REITs, clears out that it has been backed by a collaborative application of many theories like Modern Portfolio Theory where an investor constructs a portfolio of multiple assets that will maximize returns for a given level of risk, Decision Theory where the reasoning of choices is studied, Contract Theory where it is studied the way individuals and businesses construct and develop legal agreements and many other theories have been blended in the application of REITs in the practical scenario.

In the current dynamic world, many reviewers have stated that the Real Estate Investment Trust (REITs) has become a lucrative investment opportunity for individuals as well as institutional investors by providing greater access to real estate sector. Among such reveals, Representatives, US House, (2010) has stated that the primary motivation for introducing REITs is to provide all investors with the same opportunity to invest in the large-scale commercial real estate which previously was open only to large financial institutions and wealthy individuals through direct investment in such real estate.

However, things had started to change when some countries introduced REIT-like structures in the mid-1990s. The major growth of REITs happened only after 2000 when some of the key Asian countries introduced this mechanism. Most Asian REITs development modes have followed the US pattern (Guannan, 2009). This emergence of REITs has been due to the need of injecting much-needed liquidity to revive the real estate (Silva & Malith, 2016).

Today at present the success stories have given confidence to Sri Lanka in considering launching REITs. However, this execution should necessarily be backed with a strategic approach in addressing key areas. Hence, primary objective of this study is to identify such key areas to be tackled in introducing REIT for Sri Lankan real estate towards its development based on literature review and interviews with some of the professionals in the fields of real estate, valuation and financial sector of the country and sources such as papers, official statistics, reports and online articles and publications. Furthermore, the identified key areas of this study would be beneficial to real estate developers, investors, the parties who are involved in building the REITs mechanism and for the future research directions.

Literature Review

The Concept of REITs and its Operation

REITs have been created to provide access to individual investors to earn income through commercial real estate ownership. According to Guannan (2009), the concept of REITs is dated back to 1880, US and at that time tax advantage existed in all trusts since trusts were not taxed at company level if the dividends were distributed to investors. However, in 1930 this rule was changed. At that time real estate industry was not much active with this rule and did not appear in the market as a trust until 30 years later according to him, the rule in which the tax was only at the individual level and not in company level has attracted the investors.

In the world practice, mainly three types of REITs can be seen as Equity, Mortgage and Hybrid (Guannan, 2009). Equity REITs are real estate companies that acquire commercial properties such as office buildings, shopping centers, and apartments and lease the space in the structures to tenants, Mortgage REITs provide financing for real estate by purchasing or originating mortgages and mortgage-backed securities and earning income from the interest on these investments (NAREIT, 2017) and Hybrid REITs combine the investment strategies of Equity REITs and Mortgage REITs by investing in both properties and mortgages (Guannan, 2009).

NAREIT (2017) has styled REITs sectors in the world application as; Office, Industrial, Retail, Lodging, Residential, Timberland, Healthcare, Self – Storage, Infrastructure, Data Center, Diversified and Specialty.

As per the study done Leong (2016), it has been stated that REITs are considered real assets as the income and value are tied directly to properties in the investment world and it also can have stock and bond characteristics in offering growth potential and consistent income where REIT has not been treated to follow the price moves of stocks and bonds always in leading to diversify a portfolio.

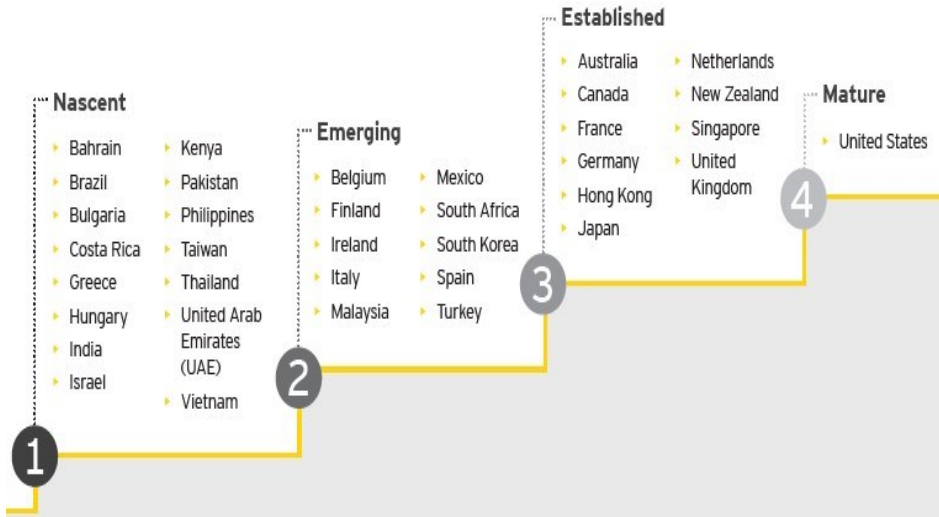
With regard to the practical scenario of working on REITs, Capital Capable Media PLC (2018), has stated mainly four ways that REITs engage in properties as operating and improving existing properties, developing new properties, acquiring new properties and disposing of existing properties as well.

Every investment comes with certain advantages and disadvantages and so REITs are no exception. Barnes (2015), in his study, has stated the benefits of REITs as higher dividend, portfolio diversification, income being secured by long leases, liquidity, professional management, transparency while risks have been stated as growing at a slower pace, reliance on debt, down turnings in real estate business cyclical, tax treatment and rising of property taxes of investments in REITs.

Global REITs Application

With the introduction of REIT in the USA, the world expansion of REIT jurisdictions in several segmentations of the time performance and the maturity can be examined by the following figure according to (EY, 2016).

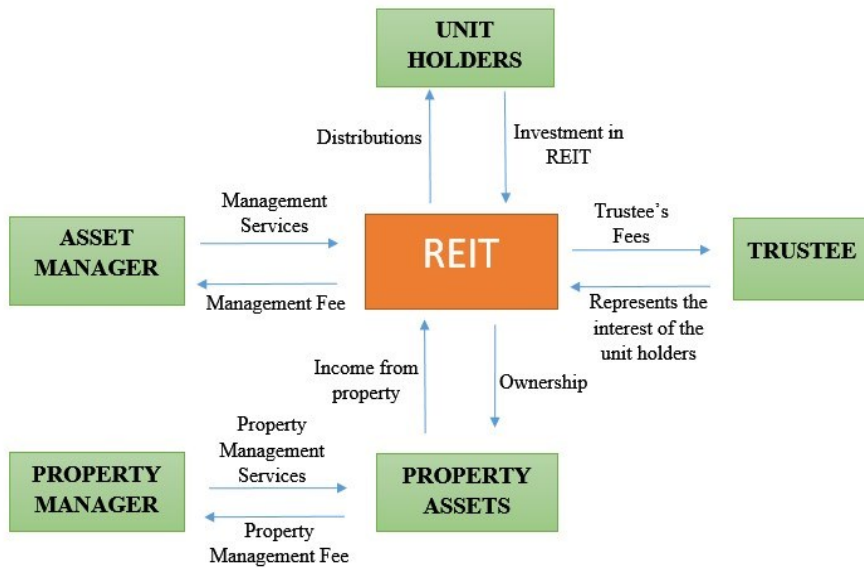
Figure 1: REIT Jurisdictions



Source: (EY, 2016)

When studying the Asian REIT application, the typical structure has been drawn as follows according to (Hwa, 2015).

Figure 2: Typical Asian REIT Structure



Source: (Hwa, 2015)

In the global platform of REITs, according to EY (2016), there are 12 areas of focus for REIT management within the above structure as presented in the following table.

Table 1: The Focusing Areas of REIT

Capital flows/ flow of funds to the sector	Corporate Structure	Capital allocation	Transaction activity
Financing	Property specifics	Regulatory environment	Risk management
Corporate governance	Financial reporting	Cross-border issues	Market trends

Source: (EY, 2016)

Sri Lankan Real Estate Gloom for REITs

With land and house prices seeing unprecedented appreciation in 2017 alone, Sri Lanka has emerged as Asia's new destination for attractive real estate returns (Property, 2017). At present, Sri Lankan real estate has proven over time to be a sound asset class for capital preservation and wealth creation because of its tangibility, physical nature and other factors that have given investors a solid assurance over paper assets while rentals allow for passive income. Further, it states that financing can be secured to facilitate ownership

and land can be developed while refurbishments to completed homes will yield better capital returns ranging 20% - 200%. Moreover, it has been stated that this performance of the real estate as the best investment among other investments has become marvelous in Sri Lanka with better returns than any other assets.

Having confidence in the above described significant local attraction to real estate investment, Sri Lanka has ranked among Asia Pacific's top 10 foreign direct investment (FDI) hotspots, according to a study by US-based global information company IHS Inc (BOI, 2017).

Sri Lanka has also witnessed an impressive revival with the declaration of peace in 2009 with tremendous growth in terms of infrastructure and prosperity and as a result, in real estate too (Lamudi, 2017). It also expresses that 2016 was a very promising year for property, particularly in Colombo. With an increased population, thanks to urbanization driven by increasing GDP per capita, mainly Colombo has become a major attractive city which is now thriving. Accordingly, the city's skyline has become transformed with high rise buildings and an increasing number of high profile companies and wealthy individuals moving in. All of these factors contribute to Sri Lanka's movement towards becoming a developed nation that can attract investors from far and wide. The country is becoming more connected, more open, and more attractive as the years go on.

This situation of the country indeed highlights that this is the right place and right time for introducing REITs for the real estate in order to harvest more and more to enhance the real estate sector as well as the country performance in many aspects.

The Methodology

As the methodology of this study based on literature, the following elaborated theoretical framework has been equipped in focusing the primary objective.

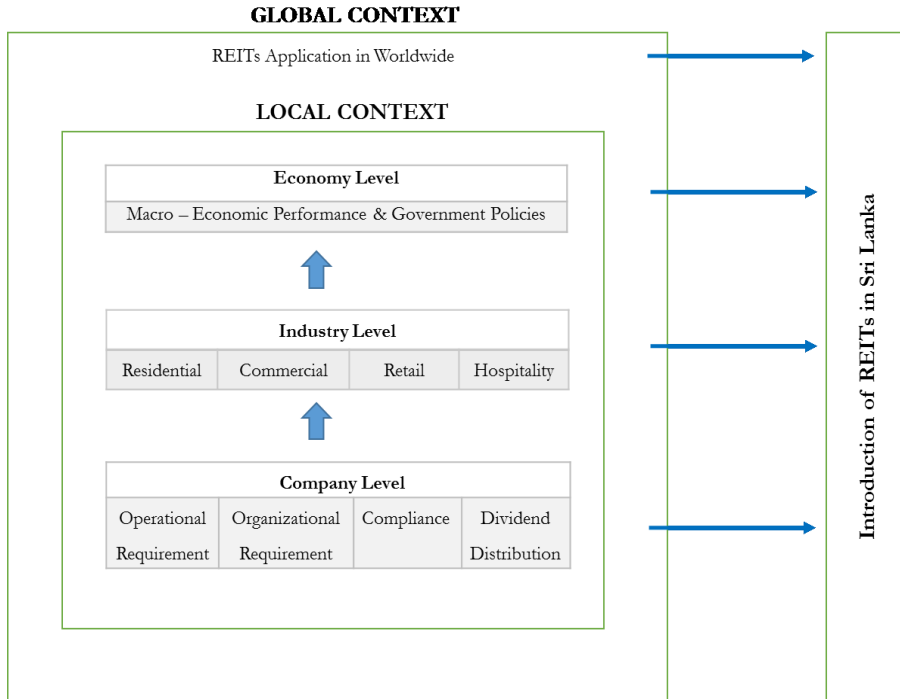
Theoretical Framework

The theoretical framework has been developed as follows with the assistance of the literature in the application of REITs. NAREIT (2017), has stated that the company application of REITs should address organizational requirements, operational requirements, compliance, and dividend distribution and in the economic application of REITs, economic performances and government policies should be addressed while JLL (2017), has studied the Sri Lankan real estate industry with main submarkets of residential, commercial, retail and hospitality.

The above factors have been arranged in the way of a fundamental analysis in a qualitative manner which has been given a major consideration in the investment decision making by so many reviewers. According to McClure (2017), the fundamental analysis has been considered as the cornerstone of investing and in fact, he has stated that some would say that it is not really

investing without performing fundamental analysis because the subject is so broad and it is tough to know where to start.

Figure 3: Theoretical Framework



Source: Compiled by Author, 2017

Findings

Studying the literature and the information collected, the following identified key areas have to be addressed mainly with the introduction of REITs in Sri Lanka.

01. Government policies and Legal Framework

It is highly recognized that the existing government policies and legal framework of the country with respect to investment, play a major role in the minds of the investors. Many professionals in the respective industries expressed that this key area with regard to the property investment is highly sensitive and property tenure, major property legislation, foreign investment incentives, tax legislation, and establishing a specific act by addressing all the legal and policy requirements come under this key features.

02. Monitoring mechanism

The requirement of a trustful monitoring mechanism to monitor the functioning of REITs as per the rules and regulations has been identified as another essential key area and this mainly addresses the matter of trust and good governance to assist the performance of investing in REITs.

03. Participation of the professionals

Well – qualified professionals' engagement with proper knowledge, experience, and good exposure, is another key area to be paid attention on introducing REITs. Those professionals' decisions affect the smooth flow of this tool with major requirements such as stating accounting standards, dividend policies, reporting process, responsibilities of stakeholders, rights of investors and so on.

04. Investor – developer relationship

Building and maintaining a good relationship between the investor and the developer also affect the success of REITs. In this key feature, transparency, credibility, sufficient diversification, tenancy durations and the quality of tenants play sensitive roles in the intended functioning.

05. Investment climate performance

The attention on investment climate performance touches the story of REITs in a successive manner. With the overall perspective, this helps to keep proper eye contact with the investment climatically strengths, weaknesses, challenges, and opportunities along with so many respective incentives such as variations of the prices or valuations of properties and so on.

Conclusion And Recommendations

The flowering of the Sri Lankan real estate industry has become more attractive and its continuation is depending on the decisions taken by the relevant acting parties. Accordingly, the idea of introducing REITs for Sri Lanka is an intelligent approach. But it was found that even though the investment mechanism of REITs in the income-producing real estate is beneficial, there are some key areas to be addressed towards the development of the real estate sector of the country.

Finally, backed with the above findings two touches can be recommended. Firstly, to address the actual sense of real estate where real estate does not only limit to the areas of residential, commercial, retail and hospitality and it does cover a broad area of the earth in downwards to the center of the earth and upwards to the infinity in attaching both natural and artificial resources. Thereby, as Sri Lanka is famous an agricultural country throughout the history, REITs can be recommended to fit out in encouraging that aspect as well towards its development in local context and also in global context. Secondly, to focus on a balance application with every up and down traits in the practical

scenario like immediate focus on reducing debt in construction field which will badly affect for the future development of the country.

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The Pricing and Investor Returns from Operations in Colombo Apartment Market; the Supply Perspectives

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Abstract

Real Estate investments are a significant contributor to the economic development of the country. With the post-war developments, Sri Lanka is shown to have a growing real estate sector, out of which significant contributions were observed to be generated through the investments in apartments. Thus the article attempts to investigate what does apartment pricing offered in the market imply about investor returns from operations in the Sri Lankan apartment market. Here the investor is referred to the apartment unit buyers who would commit their capital with the expectation of buy-to-let whilst the term “implied” is used to indicate that the discussion of this paper is limited to the supply perspective of the apartment market – what does the apartment supply imply or signal the investor to form demand. The study analyses this implied investor returns by providing an analysis on

asking prices and rentals, operational expenses and net operating income that the apartments anticipated to be generated. The data related to the above factors were collected from a convenient sample of 234 “luxury” apartment units within the district of Colombo. It was found that market supply implies that the investor return for average 135 sq.m bedroom apartment units within Colombo city and transition suburbs could range from 3,62% -6.35%. Whilst this reflects the hybridity of character that the apartments carry being both income producing (i.e commercial) as well as residential, it calls for a further research agenda to investigate more into the Sri Lankan apartment market with respect to its variations between asking price and market prices.

Keywords: Investor Returns, Colombo Apartments

Background

The post-war developments of Sri Lanka since 2010, resulted in rapid expansion of the real estate market in the country. From 2010-2016 the real estate related activities have contributed LKR million 307,112 to LKR million 676,760 to the national Gross Domestic Product (Department of Census and Statistics, 2016). Within this, apartment market gets a premier position within the residential property market of Sri Lankan Real Estate sector. Here, apartment denotes individually owned housing units but owns the land and common property (elevators, halls, roof, stairs, etc.) jointly with other unit owners, and shares the upkeep expenses on the common-property with them (Business Dictionary, 2018). Unit owner pays property taxes only on his or her unit and may mortgage, rent or sell it just like any other personal property (ibid). In Sri Lanka, the ownership and management of apartments are primarily regulated through Apartment Ownership Law No. 11 of 1973 (Principle Enactment) as amended and Common Amenities Board (Amendment) Act No. 24 of 2003. From a market perspective, apartments have a peculiar feature - income producing or *commercial* real estate whilst its occupancy would be *residential* whilst inviting both local and globalization forces (See, for example, Horrigan et.al, 2009; Wu, 2000). According to the said Apartment Ownership Law, in Sri Lanka, an investor³ has the possibility to purchase an apartment as an outright purchase (i.e. freehold interest), whilst apartments in many other countries such as UK, Singapore, Hong Kong etc. are traded in the market under leasehold ownership.

³ In Sri Lanka, time to time the government may regulate the foreign ownership of apartment properties.

All around the world apartments have become a popular investment vehicle within the investor portfolios. Here, the investor meaning denotes the apartment unit buyers who commit their capital having the expectation of buy-to-let. The new government initiatives, inbound migration, the growth of the middle-income sector and increase in tourist arrival have been acting as pull factors to increase in apartment investments in Sri Lanka. With this anticipated investment influx for apartments, it is important that both investors and developers operating in Sri Lanka to understand the investment return performances to assess their investment portfolios and development decision making respectively. On this basis, this paper aims to analyse, what does the readily available market information, particularly the online (smart) platforms would imply about the investment performances of the apartment market in the Colombo district. Colombo district has shown a high growth and contribution to the national economy over the years, continuous incensement of demand for the residential real estate and is poised to be the centre of Asian property market in the near future. Knowledge gaps are identified as an agenda for future research to better understand the apartment market and its impact on the real estate sector in Sri Lanka. Besides this research would provide valuable insights for property investors for their investment portfolio analysis, the academic researchers also may find this is useful for future research opportunities in Sri Lankan Apartment Market.

The aim of the study

The purpose of this research is to provide insights with respect to the implied investor returns from operations⁴ in the apartment market of Colombo City and its immediate suburbs. For this, the analysis of the paper first considers the apartment unit pricing during the first quarter of 2018, giving consideration to property related attributes of apartment units. These include both rental and freehold prices quoted in the market. Secondly, the operational cost of apartment units was identified to analyse the implied net rate of returns for apartment investments. Finally, followed by the implied investor return analysis in Colombo apartment market, the paper compares the apartment quoted pricing and rental yields of Sri Lanka with that of other Asian cities. This is to reflect the positioning of Sri Lankan apartment pricing and implied returns within the overall regional real estate market in Asia.

⁴ This study has not taken into account the investor returns from capital appreciation

Literature Review

Real estate is a fundamental asset type available in the capital markets for investment (Garcia.R.H., et al., 2004). It is a unique type of asset where unlike shares and bonds, its' data on price transactions is not computed on a daily basis. The unique character that the real estate associated with makes the investor difficult to assess the investment performance more accurately (ibid). However, similar to other investment vehicles, the investment performances on real estate can be assessed through the rate of return or what is commonly known as return on Investment (ROI) (see, for example, Newell and Seabrook, 2006). Keeping the focus to supply perspectives of Sri Lankan apartment market, this study measures the cost of investment in the light of asking price, whilst highlighting that the actual asset prices in the markets are set on an individual transaction basis by negotiators whose motives, talent, and access to information may vary (Black and Diaz, 1996). Thus the ROI measures in the study are said to be implied ROI. Basically, it measures, how much money an investor would make from the operating income of the property by factoring that into the *maximum size of the initial investment*. The measuring of ROI in the light of Cap rate (capitalization rate) is found to be effective where the rate of return on an income property is based on the net operating income (NOI). It is the current understanding of the market that ROI above 6-7 % considered being a good return on income-producing real estate investment (see, for example, Mashvisor; Investopedia) whilst for residential investment, this could be acceptable in the range of 3%-5%. ROI is a profitability indicator that shows the rate of return that regards the method of financing. In countries where real estate investments are performed under securitized markets and information on systematic risks are available, the investment performances have been measured through safe ROI. This is by adjusting the ROI with the risk associated with the property investments. See, for example, Haw's (2003) property investment analysis in Malaysia, Bello's (2003) residential and securities' investment analysis in Lagos and so on. In the absence of such market information in the context of Sri Lanka, the study is limited to employing of the simple ROI in the form of cap rate to measure the operational performance of apartment investments.

Methodology

A convenience sample of 234 apartment units within the Colombo City and its immediate suburbs was selected for this study (Table 1). Data regarding property specifications, sale prices, rental returns and operating costs were collected through both primary and secondary sources. Those include interviewing of property developers, brokers and apartment occupants, browsing of online property listing websites such as Lanka Property Web,

Lamudi.lk, Ikman.lk, Airbnb, booking.com and Global Property Guide. These are listing websites – a form of “smart” platforms, in which the market supply information is available to inform and direct the apartment investors at the preliminary stages of the investment decision making – streamlining which regions, cities, neighbourhoods to invest. The analysis of data is descriptive, performed through Statistical Package for the Social Sciences (SPSS) version 23.

Data Analysis

Data has been gathered from 234 apartment units within the Colombo district (Table 1) having the condition of “luxury”. The average prices indicate the price collected from one to four-bedrooms apartment units excluding the effect of taxes such as value-added tax⁵. The mean, mode and median of floor areas that the average asking prices and rentals were computed were 1460 sq.ft, 1400 sq.ft, 1441 sq.ft respectively. Accordingly, the average prices and rental analysis in the paper primarily reflect the two – three-bedroom apartments which are on average 1453 sq.ft or 135 sq.m equivalent. Regardless of the scale of “luxury”, all properties included the attributes such as lift elevator (four floors or above), swimming pool, Fitness centre, lobbies, garbage collection & disposal system, CCTV & security system, backup generators, water etc. These were the common facilities that the investors are primary being charged as payments for operating costs. In addition to such operating cost comes as management fees, in calculating of implied rate of returns, the study also adjusted the rental income with annual rates⁶ and contingencies such as vacancy periods (2-3%; *Jaffe and Sirmans, 1995*). Pricing of apartments showed to be varied depending on the locational character, number of bedrooms, scenic view, lot size, floor area, floor level, basement area, number of fireplaces, number of parking spaces, access to schools, shopping centres, highway, parks etc.

Table 1: Case Processing Summary

Location of the apartment	Number of apartment units
Colombo 3	9
Colombo 5	53
Colombo 7	5
Colombo 8	18
Moratuwa	20

⁵ Data was collected in the 2018 first quarter where the Value Added Tax had not been imposed on Sri Lankan apartments.

⁶ Assumed the rates for the apartment will be paid by the apartment investor.

Nawala	12
Nugegoda	20
Rajagiriya	49
Thalawathugoda	9
Battaramulla	39
Total	234

Source: Compiled by Authors, 2018

As per the Table 2, the average asking prices of the Colombo city and its suburbs varied between LKR 86,666,667 to LKR 15,425,000, recording a minimum of LKR.14,600,000 to maximum LKR.150,000,000. According to the study, the average prices of a one-bedroom apartment varied between LKR.38,000,000 and LKR.39,000,000, two-bedroom LKR.15,380,000 - LKR.61,500,000, three-bedroom LKR. 14,600,000 - LKR.150,000,000 and four-bedroom LKR. 48,500,000 - LKR.83,000,000.

Table 2: Average Asking Price of Colombo and immediate suburb

Location	Mean (LKR)	Minimum (LKR)	Maximum (LKR)
Colombo 3	86,666,667	38,000,000	150,000,000
Colombo 5	42,291,509	27,700,000	83,000,000
Colombo 7	60,220,000	51,500,000	78,900,000
Colombo 8	52,730,556	38,450,000	60,000,000
Moratuwa	15,425,000	14,600,000	16,700,000
Nawala	32,016,667	27,000,000	35,500,000
Nugegoda	31,345,702	28,380,066	34,000,000
Rajagiriya	39,765,306	19,950,000	65,000,000
Thalawathugoda	18,816,667	17,350,000	19,950,000
Battaramulla	25,877,891	15,380,000	41,800,000

Source: Compiled by Authors, 2018

These apartment units were shown to be recorded an average gross rent between LKR 991,800 to LKR 5,081,325 (Table 3) from operations. Colombo 03 recorded the maximum operational gross rent whilst the Moratuwa- the Colombo suburb recorded the lowest within the data. Moreover, the operational gross income found to be generated from short-term rentals where the consumption of the apartment was not merely for “residential” use, but also as “hotel staying” and rental income flows being influenced by globalization forces such as flexible labour-markets (employees coming for short term staying) was also observed.

Table 3: Average Gross Rent Per annum

Location	Mean	Minimum	Maximum
Colombo 3	5,081,325	3,230,000	6,920,000
Colombo 5	2,270,789	1,320,000	6,290,000
Colombo 7	3,108,000	2,640,000	3,600,000
Colombo 8	2,869,000	2,040,000	3,420,000
Moratuwa	991,800	864,000	1,140,000
Nawala	1,775,000	1,080,000	2,550,000
Nugegoda	1,611,429	1,170,000	1,800,000
Rajagiriya	2,448,245	1,020,000	5,400,000
Thalawathugoda	1,306,667	1,200,000	1,400,000
Battaramulla	1,925,538	780,000	3,480,000

Source: Compiled by Authors, 2018

The operational expenses (computed based on the aforementioned basis) on average were ranging from LKR 146,133 to LKR 475,077. Apartments in Colombo 05 showed the maximum operational expenses whilst the lowest was recorded from Battaramulla (Table 4). But the average operating expenses in other areas of Colombo suburbs such as Nugegoda, Rajagiriya shown to be relatively higher having LKR 475,077 and LKR 457,910 respectively.

Table 4: Operational expenses

Location	Mean (LKR)	Minimum (LKR)	Maximum (LKR)
Colombo 3	268,624	134,872	378,310
Colombo 5	365,434	140,400	1,257,600
Colombo 7	213,240	199,200	228,000
Colombo 8	301,055	205,200	369,504
Moratuwa	247,950	216,000	285,000
Nawala	173,250	152,400	196,500
Nugegoda	475,077	201,506	510,480
Rajagiriya	457,910	142,800	1,080,000
Thalawathugoda	146,133	144,000	148,000
Battaramulla	281,621	111,720	487,200

Source: Compiled by Authors, 2018

The implied net rent analysis of apartments as shown in Table 5 were derived by synthesis the data in Table 3 and 4. In line with the gross return of

apartments, Colombo 5 indicated the highest net return whilst the Moratuwa performed to have the lowest net returns for investors. In terms of net return per square foot (Table 5), the annual average varies between LKR.513 and 2984. The highest net return per sq. ft was gained from Colombo 03 and the lowest shown to be from Nugegoda area. According to the analysis, the ceiling limit and floor limit of average implied net rent per sq. ft per annum within Colombo was Rs.4216-Rs.460 respectively.

Table 5: Implied Net Return Analysis

Location	Implied Net Rental Price Per annum (LKR)			Implied Net Return per sq. ft per annum (LRK)		
	Mean	Minimum	Maximum	Mean	Minimum	Maximum
Colombo 3	4,812,701	3,090,328	6,537,190	2984	2188	4216
Colombo 5	1,905,355	1,179,600	5,030,400	1463	985	2484
Colombo 7	2,894,760	2,440,800	3,372,000	1901	1524	2070
Colombo 8	2,567,945	1,834,800	3,142,560	1547	1334	1746
Moratuwa	743,850	648,000	855,000	513	472	586
Nawala	1,601,750	927,600	2,353,500	1465	833	2027
Nugegoda	1,136,352	968,494	1,289,520	603	460	808
Rajagiriya	1,990,335	877,200	4,320,000	1320	871	2057
Thalawathugoda	1,160,533	1,056,000	1,252,000	987	881	1100
Battaramulla	1,643,918	658,668	2,992,800	1275	741	2027

Source: Compiled by Authors, 2018

Table 6: Implied ROI Analysis on Apartment investments

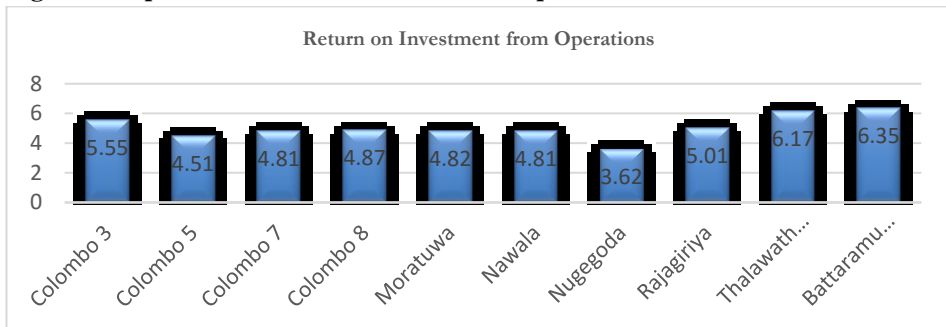
Location	ROI %		
	Mean	Min	Max
Colombo 3	5.55	8.13	4.36
Colombo 5	4.51	4.26	6.06
Colombo 7	4.81	4.74	4.27
Colombo 8	4.87	4.77	5.24
Moratuwa	4.82	4.44	5.12
Nawala	5	3.44	6.63
Nugegoda	3.62	3.41	3.79

Rajagiriya	5.01	4.4	6.65
Thalawathugoda	6.17	6.09	6.28
Battaramulla	6.35	4.28	7.16

Source: Compiled by Authors, 2018

The implied net rental yields for the apartments are within the range of 3.62% to 6.35% per cent per annum (Table 06). Despite the highest mean of the asking price and net operating income of apartments were shown to be from Colombo 03 (i.e LKR.86,666,667 and LKR.4,812,701 per annum, respectively), Colombo suburbs (Battaramulla and Thalawathugoda) shown to have the highest implied ROI from operations indicating a figure of 6.35% and 6.17% respectively. The distribution of implied ROI from operations is indicated in Figure 1.

Figure 1: Implied Return on Investment from operations



Source: Compiled by Authors, 2018

Comparing the 135 sq.m (mean floor area) apartment average prices per square meter of Sri Lanka with that of other selected Asian countries (where mean floor area is taken as 120 sq,m), Sri Lanka records to have the lowest price per apartment square meter (Table 7 and 8). The highest square meter price recorded within the data for Sri Lanka is UD\$ 6,893 which is yet lower than average prices of Mumbai, Hong Kong, Tokyo, Singapore Taiwan and Shanghai. Moreover, contrary to apartment market yields for Colombo, these cities more primarily records lower (gross) rental yield. The investment performance of Colombo is much closer to the apartment markets in Phnom Phen, Bangkok, Metro Manila and Jakarta showing a yield that falls under the income-producing commercial properties.

Table 7: Comparison of apartment price and annual gross rent of 120 sq. m. Apartment in Asian countries

Country & City	Buying Price US \$ per Sq. m.	Buying Price LKR per Sq. m. (1US\$=160LKR)	Gross Rental Yield (%)
Cambodia, Phnom Phen	2,913	466,080	5.33
China, Shanghai	11,829	1,892,640	2.10
Hong Kong, Hong Kong Island	28,570	4,571,200	2.35
India, Mumbai	10,932	1,749,120	2.32
Indonesia, Jakarta	2,823	451,680	7.40
Japan, Tokyo	16,322	2,611,520	2.66
Malaysia, Kuala Lumpur	3,441	550,560	3.72
Philippines, Metro Manila	3,952	632,320	6.13
Singapore	13,748	2,199,680	2.54
Taiwan, Taipei	10,373	1,659,680	2.06
Thailand, Bangkok	3,952	632,320	5.13

Source: Global Property Guide Data, 2018

Table 8: Comparison of apartment price and rental of 135 sq. m. (1460 Sq. Ft.) apartments in Sri Lanka

Description	Absolute Price - LKR	Absolute Price - US \$	Price - Per Sq.m in LKR	Price - Per Sq.m in US \$
Mean Asking Price	37,918,650	236,992	278,814	1,743
Minimum Asking Price	14,600,000	91,250	107,353	671
Maximum Asking Price	150,000,000	937,000	1,102,941	6,893

Source: Compiled by Authors, 2018

Discussion & Conclusion

Through web-based information platforms, the apartment market supply perspective (for 135 sq.m size apartments) implies, an apartment investor who would invest in Sri Lanka is likely to earn a yield of investment (ROI) between 3.62% to 6.35% from operations. The apartments within the Colombo city centre implied a less varied yield: 4.51% -4.81% except for the apartments in Colombo 3 showing a ROI of 5.55%. The variation of yields was high in the

transition suburban zones of Colombo – 3.62% in Nugegoda whilst Battaramulla and Thalawathugoda recorded 6.35% and 6.17% respectively. It provides market signals in a way to attract investors on the basis of lowest investment payback period for the committed capital on apartments. In sum, the hybridity of income producing (commercial) and residential character that the apartments carry seems to have been somewhat affected to generate these ROI figures. The investor yield comparison with other selected Asian cities indicates that the Sri Lankan apartment investment context is similar to the conditions recorded in Jakarta, Bangkok, Phnom Penh and Metro Manila where the apartment markets are yet to mature. In comparison, the more established markets in developed cities such as Tokyo, Shanghai, Taipei, Hong Kong and Singapore where urban dwellers are more accustomed to apartment living recorded a lower gross rental yield.

Implications for the further research agenda

The above analysis sets a further research agenda to investigate further into the investor returns based on transaction prices of apartments in Colombo district. This can more accurately showcase the market conditions by integrating demand perspectives by investors. Those would also provide more accurate and in-depth market insights indicating the variations between apartment market prices and offered prices and would indicate the apartment market positioning of Colombo within its competitive Asian region to attract investors. Highlighting the nature of the efficiency in the apartment markets would also inform the readers as to what level the investor returns in the apartment market in Sri Lanka likely to generate normal and abnormal profits and to what implications those would have on attracting investors for apartments in Colombo.

Notes and assumptions

1. *Investor returns have ignored the return generated through capital appreciation of apartments.*
2. *Return calculated are non-risk adjusted*
3. *ROI calculated denotes implied ROI - primarily based on market supply perspectives*

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The Concept of Makumbura Multi Model Centre

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The Ministry of Megapolis and Western Development initiated the 3K township project, which was funded by the soft component of the Outer Circular Highway (OCH) development under JICA STEP loan, to formulate the plans for township development around the three interchanges of OCH where there are envisioned potential for real estate developments with the advantages of its strategical location.

Makumbura MMC was nominated as the one of the priority projects within the 3K project. The concept of Multi-modal Centre (MMC) is to provide smooth and effective services for passenger to transfer different types of transport mode (rail, bus and para-transit) at the same place, especially, Makumubra is the strategic location to have a connection of KV-line, High-level roads and Kottawa Interchange of OCH, therefore, it is good opportunity for built the public bus terminal for long-distance luxury buses service. Currently, the buildings are almost completed and the pilot operation will be commenced within next a few months.

Since there are several envisioned land developments from the year of 2005 (before OCH was opened), Makumbura MMC will plays the important roles to facilitate the land use changes by its accessibility of public transport network and system. It is hoped that the MMC's impacts will be utilized to shape the new urban land use with new life-style. In this session, the concepts of MMC and its service will be presented and the expectations to the research activities on real estate management and valuation will be discussed.

Poster Presentation Abstract

Risk Assessment in Commercial Real Estate Development: An application of Analytic Network Process

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Abstract

Real estate is getting a significant industry with a considerable contribution to the economy of Sri Lanka. Hence, it draws the attention of many entrepreneurs. Investors who are keen on real estate development tend to invest their capital on various types of developments irrespective of the risk. Property development is inherently a riskier business. It is difficult to predict in what stage a developer has to face with risk and uncertainty. Risk is associated in each and every stage of the development process from the conceptual design to construction stage, letting on rent or occupying the building and probably in the handover stage. However, property development risk has limited evidence on what factor is significant specially in the commercial property development sector in Sri Lanka. It is identified that the majority of such development has taken place in Western Province of the country basically around the three major cities such as Colombo, Gampaha and Kaluthara. The main purpose of this research is to analyze the commercial property development risk factors from the entrepreneur's point of view in three selected commercial projects from Gampaha, Ja Ela and Ekala respectively Ward City, Reality Plaza, and Orex City. The data was collected through face to face interviews using a questionnaire. The analysis of the risk factors involved the Analytic Network Process Model (ANP model) using super decision software. A pairwise comparison was conducted and the results were prioritized, aligned to the systematic and unsystematic categories. The results revealed that there are five major risk factors such as Environmental, Social, Economic, Technological and Political risk and 32 sub risk factors. According to the super matrix calculation, the synthesized values for three projects were respectively 0.0704, 0.0532 and 0.0431. It was identified that Ward City was 0.0704 indicating that it is comparatively less risk and hence can be categorized as the best development. Considering the sub risk factors the results show that the highly affected risk factors for the development are, the council approval process, climate changes and natural disaster. The research findings are helpful in improving risk management strategies in the country and policy formulation should focus on the above identified three risk factors in order to mitigate the risk in every stage and to achieve sustainable project development while increasing the satisfaction of long term investment goals.

Keywords: Risk Assessment, Commercial Real Estate, Analytic Network process, Entrepreneur

Study on adoption Green building concepts in to the construction of Hotels in Sri Lanka

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Abstract

In the context of Sri Lanka, concept of green building is rapidly expanding with the search of more energy efficient buildings for the usage of the Hotels. Locally Green buildings are often perceived as having higher initial design and construction cost to construct a green building is a major challenge. This is same for the construction of hotels in Sri Lanka. Question arises weather is it worthwhile to spend higher amount of money for the construction of green hotels. The construction of green hotels is beneficial to a country like Sri Lanka. Today most of the Hotels are considering the importance of environmental preservation. Because the success of the Hotel industry will depend on the satisfaction of the tourists' whether local or foreign. As a result of that, construction of green Hotels has become a new trend in Sri Lanka. But as a developing country, to invest high initial cost to construct a green Hotel is a major challenge, especially without considering if it is beneficial to the country. Thus, there is a need of investigating what are the barriers to adopt green building concept and what are the new components of the green building concepts in the construction of Hotels in Sri Lanka. This study is focused on the adoption of green building concept in to the hotels in Sri Lanka. Three main objectives are identified in first step of research. Seven main variables were to be studied the adoption of green building concept. Literature review contained information obtained from the general view of literature relating to the sustainability, green hotels, sustainable development and green rating system. The case study based on hotels in Colombo district and various professionals related to building design. 50 Hotels were chosen from 3 star to 4 stars for the purpose of data analysis which are located around the Colombo city. As well as 40 professionals were chosen as a sample. They were Architects, valuers, civil engineers, quantity surveyors and designers. Seven variables such as Sustainable site, Energy Efficiency, Water Efficiency, Material & Resources, Indoor, environmental quality, building operation and Maintenance and Demolition were considered for the data analysis. A process in which the values of observed data are expressed as functions of a number of possible causes in order to find which are the most important is called the factor analysis. As per the study it was found that the current position of green hotels in Sri Lanka. Apart from that, it was identified that, the Barriers in Adopting Green Building concept and finally identified new developed components to be adopted in Green Hotels in Sri Lanka. According to the overall result of the analysis, adoption green building concepts in to the hotels in Sri Lanka is coming under Moderate level. Accordingly, it was found out that sustainable site related practices are most effective factor in the context.

Keywords: Sustainability, green hotels, Sustainable development and green rating system.

Determinants of Residential Condominium Prices in Colombo

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Abstract

Colombo is the fastest growing region in the country as well as the prominent commercial city. There are several new condominium properties being constructed in the main city areas. As a residential development, condominium property has been an emerging trend in the housing market in the City of Colombo during the recent decades. The current growth of Sri Lankan economy causes to continue the growth of condominium sector in the coming years. Hence, identification of market forces will be important for the decision makers particularly the price rated factors. The aim of this study, therefore, is to examine the factors affecting the price of residential condominiums in Colombo. Data collection was done from professionals and occupants through structured questionnaires survey, field visits and interviews. Five main factors were considered such as Locational Factors, Physical factors, Neighborhood Factors, Community Attributes, Basic Amenities with several sub factors. Data was descriptively analyzed. This research found that the physical factors and neighborhood factors are the most influential factors under both professional and occupants' point of view. Considering those factors Colombo inner suburb has the highest prices and when it moves outwards the prices are tend to decrease. This research is useful to the people who concern about the pricing behavior on the basis of that just demand and supply there are other factors existing which affect to the prices.

Keywords: Condominium in Colombo, Distribution of Prices, Determinant of Price of Condominium, Residential Condominium Market

Study on Application of Green Building Features in Residential Condominiums in Colombo

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Abstract

Green Building Concept is the way of enhancing occupant well-being and minimizing environmental impact throughout the entire life cycle of the building. With the global advancements, adoption of green building concept has become a new tangled trend in Sri Lanka. Therefore, for the purpose of developing a sustainable Sri Lanka, “Revival” environmental Conservation National Programme was established and under that all government and semi-government buildings constructed since January 2017, should be certified under the Green building guidelines for Sri Lanka. Therefore, this study attempts to evaluate the private sector preference on Application of Green Building Features in Residential Condominiums in Colombo through evaluating the existing application and barriers identified in the process of application from the developers’ point of view and preference on green living from condominium householders’ point of view. Data collection was done through a questionnaire survey using twelve condominium developers and forty condominium householders. Based on descriptive analysis and univariate analysis, study found that green building features were moderately applied by the condominium developers under the Green Building Guideline for Sri Lanka and barriers such as lack of strategy, high investment cost, lack of public awareness, lack of government support showed significant impact on the application of green building features. When considering about householders’ preferences, they had an adequate level of awareness of green living and lack of supply, high price, lack of information were the main barriers holding them back from green condominiums.

Keywords: Condominium Properties in Colombo, Green Building, Green Condominium, Residential Condominium, Sustainable Development.

Applicability of Eco-Industrial Parks in Sri Lanka. (Case study on Panadura industrial park)

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Abstract

Eco industrial park concept is one of the best solutions for the minimization of industrial issues in all over the world. Also, countries like US, China, Japan, Korea and England already used this concept. As previous authors mentioned those countries accomplished environmental sustainability goals with maximum economic benefits. When concerning on industrial parks available in Sri Lanka they largely contribute to economic development with simultaneously increasing GDP as well as employment rate. But also, there are some negative impacts on natural environment and quality of life of people. As a community if we are able to minimize those issues, it can be easy to achieve sustainable development. The purpose of this research is to review available challenges in Panadura Industrial Park in Sri Lanka for determine the applicability of Eco Industrial Park concept. The final outcome of this research was whether it can be applicable or not in case study area. Therefore 06 challenges already identified by previous researchers used to to evaluate industrial areas with in-depth study. The author examined each and every challenge with qualitative approach. To analyze the above six issues carried out 10 interviews with different professionals in deferent professions. Also, used an interview guide which comprised with 07 slots with the aim of obtaining reliable information. Each and every slot contained with different research questions and basis for the question was above six challenges. Except to that author used photographs, publications and websites to support for in depth qualitative analysis. Out of the 06 challenges, one of them showed progress, three challenges show lack of progress, two challenges to potential progress. Most of progress has been made in transportation system. The challenging factors like government responsiveness, technological innovations and joint use of utilities showed lack of progress. Proposed challenges, indicators and facts are of value for industrial people, policy makers and potential researchers. Also, knowledge on this research can be useful for sustainable designing of industrial parks with minimum environment effects. The study is facilitating the way towards sustainable development of the community. Enhancing the quality of life of people was the ultimate goal which expected from this research.

Keywords: Eco- Industrial park, Industrial Ecology, Industrialization, Sustainable Development, Challenging Factors.

Study of Service Quality Gap between Local Authorities in Batticaloa District

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Abstract

Measuring the service quality of an organization is vital in determining whether an organization meet its customers' expectations successfully. This research work is studied the 'Service Quality gap between Local authorities in Batticaloa district. Service quality can be defined as, 'How well the service meets or exceeds the customers' expectations on a consistent basis. 'It seems that Batticaloa Municipal Council has been received complaints from its beneficiaries regarding the services. Specifically, services of garbage clearing, authorization of construction and sanitary service. Hence, there is a gap to study about the service quality of the Batticaloa Municipal Council. The structured questionnaire was used to collect primary data for this study. Direct observations, friendly discussions and interviews were also contributed here to complete this research report. From the study the service quality of Batticaloa Municipal Council mostly indicates in moderate level and both rate payers and employees of Batticaloa Municipal Council have the responsibility to upgrade the quality. This research report recommends some useful remedial actions from the findings of the study to maintain sound service quality.

Key Words: Challenges, Services quality, Finance, Recommendations

Factors Affecting the Customer Satisfaction on Street Food Trade at Soratha Mawatha, Nugegoda

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Abstract

Since the changes in lifestyle and the family structure and as there is a limited time to prepare foods, people have led to significant changes in their consumption and choices of food. In this context, street food trade plays a significant role. According to UK Department of Health, street foods have been defined as “ready-to-eat foods and beverages prepared and/or sold by vendors, especially in the street and other similar public places”. Much of the urban population relies heavily on street food on daily basis, especially in Asian countries. Also, there is a gap in literature in the street food trade in Sri Lanka, specifically on the determinants of street food consumption from the perspective of the consumers. This is to answer to the question of why people seek food from street food trade at Soratha Mawatha, Nugegoda which is the main access to the University of Sri Jayewardenepura. The main objective of the research is to identify the factors affecting the customer satisfaction on street food trade at Soratha Mawatha. Three types of data collection methods were used: questionnaires, observations and photographs. 150 completed questionnaires were returned by the consumers of street food vendors. Partial Least Squares-Structural Equation Modeling (PLS-SEM) was applied to the resultant data using smart PLS software 3.0 and SPSS 20.0 version software. The sample size of this research was calculated using the G*power tool. Based on the literature, consumer satisfaction on street food trade depends on factors such as convenience, food quality, price, hygienic and cleanliness and public perception. Majority of the respondents are university students as University of Sri Jayewardenepura is situated facing Soratha Mawatha. The results revealed that the convenience directly influences to the customer satisfaction, the food quality directly influences the price of food, the price directly influences to the customer satisfaction and though the hygienic and cleanliness directly influences the public perception, there is no enough evidence to say that the public perception directly influences the customer satisfaction of street food. The findings proved that street food trade play a significant role at Soratha Mawatha predominantly because of the convenience and price of the food. But when considering under urban beauty they create a negative image along the road. However, with proper planning these vendors can be accommodated in the economy of the area by minimizing these negative impacts.

Keywords: Customer Satisfaction, Street Food Trade, Determinants of Customer Satisfaction

Urban Development and Land Value Fluctuations in Kadawatha Town

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Abstract

Land values play a major role in the urban development. Urban development creates high land demand for various land uses and cause fluctuations in land values. Many direct and indirect factors related to urban development affect land values. The purpose of this research is to identify the factors that cause fluctuations in residential land values of Kadawatha town. Further, this research also analyses the relationship between land value fluctuations and its causing factors. After the development of outer circular road, Kadawatha became a major intersection point and a main exit point of the Kandy-Colombo road. It created high land demand and land values increased unpredictably. Studying such land value fluctuations is important for real estate studies, but there exists a clear research gap in this area. This study attempts to address this research gap. Questionnaire survey was used as the main data collection method, where residents of the area were the focus. To select the sample, random sampling was used and multiple regression use to analyse the relationship between land value fluctuations and its causing factors. Twelve causing factors of land value fluctuations were identified based on literature, where basic amenities and some neighborhood factors show significant relationships with land value variations in the town.

Keywords: Land value, Neighbourhood, Outer circular road, Land demand, Fluctuation,

Study on factors affecting the assessment of compensation for victim of garbage mountain slide with special reference to Meethotamulla, Sri Lanka

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Abstract

The purpose of this paper is to propose suitable ways and means to adopt for the assessment of payment of compensation special reference to Meethotamulla Garbage Mountain slide. This study investigates the factors affecting for the compensation. Valuation to support estimates of damage and loss, effective decisions on resettlement and compensation. The first stage of methodology, involved content analysis of related research materials and second stage were utilized to identify the factor affected to victims according to victims' point of view, to identify relationships between the factors and to propose a method for assessment of compensation. this paper is based according to willingness to accept basis. For analysis, SPSS statistics 23 and SmartPLC software were used Majority of Victims of Meethotamulla garbage mountain slide are not satisfied with amount of compensation paid for their damage and loses. There is a higher impact from Economical, environmentally attributes than the others. According to the study victims are affected by structure damages, content damages, vehicle damages, loss of income, affection for the livelihood, increase cost for medicine, illness due to air and water pollution, loss of environmental quality could be identified

Key words: Compensation, Disaster, Willingness, Physical, Economic, Environmental

GIS Assisted Land Use Changing Pattern in the Trincomalee Town and Gravets DS Division

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Abstract

The data and information about the land use are seemed to be important to undertake the activities connected to the development of any area. These should remain updated and precise. From time to time because of increase in population and development activities etc., changes occur in land use. This study was carried out in Trincomalee Town and Gravets (T&G) D.S Division with the aim of assess the past and present land use changes for the period from 1992-2016. The above aim is built by the specific purposes that to make thematic and spatial generalization of the past and present land use maps, to detect the land use changes occurred in different period of times (1992, 2008 and 2016) and to identify reasons for the changes in land use pattern between 1992, 2008 and 2016. To achieve the above purpose primary and secondary data were collected from variety of sources. Land use data and information from focus group discussion and key informant interview were used in this study. The collected data were analyzed using change detection in GIS analysis. Nine types of land use were identified in the study area. Most general trend observed was the increase in area of built up land, homestead and decrease in area of agricultural land, water body. The development work undertaken by the Trincomalee Town and Gravets (T&G) divisional Secretariat, increase in population, increase of land values and socio-economic factors were attributed for such changes. These results could help planners and policy makers to attain and sustain future urban development.

Keywords: Land Use, GIS, Land Use Change, Change detection

Study on problems faced by owners Compensation for the Land Acquired under the Land Acquisition Act No 09 Of 1950: Reference in Kurunegala & Narammala

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Abstract

The land is a scarce natural resource and there are hardly any human activities that do not require the use of land. The government acquires land for the public purpose. The land is the main factor of production for human activities. There are many infrastructure development projects in the world. Therefore, we can see the same situation in Sri Lanka.

This study aims to identify problems faced by owner's compensation for the land acquired under the Land Acquisition Act No 09 of 1950, reference in Central Expressway project in Kurunegala district. According to this Highway project compensation assessment has done under the Land Acquisition Act No 09 of 1950, LARC and Supper LARC. This study includes literature review, questionnaire survey and professional interviews. The literature review was used to identify theoretical framework. The methodology included questionnaires and interviews, in addition to secondary data. After collecting primary and secondary data analyzed using SPSS. The methodology mainly used to identify current compensation system and its satisfaction on that particular compensation. According to the analysis of current system of compensation, it is required the improvements to bring about equity to owners whose land were acquired. The major findings were majority of the respondents are highly dissatisfied with the compensation and compensation procedure. The Land Acquisition Act is very old Act in Sri Lanka, hence Land Acquisition Act No 09 of 1950 should be amended.

Keywords: Land Acquisition Act, Compensation, Client Satisfaction, Equity Principle

Analysis of environmental, social and economic issues of destructing Coastal Zones, Reference to Kalido Beach Kalutara

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Abstract

The coastal zone is the interface where the land meets the ocean or sea, encompassing shoreline environments as well as adjacent coastal water. It is absolutely essential for the purposes of resident, recreation, tourism, fisheries and agriculture as a source of socio-economic development of local community. Some of the activities will affect the coastal line changes. Coastal line changes may occur due to two main factors include natural factors and also by the factor of human activities in coastal areas. Sea level rise, erosion and sedimentation are among the factors that can contribute to the changes in the coastal line naturally. Reclamation, coastal pollution and development in coastal areas are factors of coastal zone destruction due to human activities. Coastal zone destruction occur environmental, social and economic issues for local community in the coastal areas. A significant effect can be seen through destruction of infrastructure, loss of income source, and destroy of scenic beauty. Kalido is an area with significant changes of coastal line and destruction of coastal resources. In this Research, objective is analysis of environmental, social and economic issues of destructing of coastal zone. Data analyses will be done by using collected primary data and secondary data and it is used on the quantitative data analysis methods. Primary data will be collected from direct observations and questioner surveys. Questioners will be given to the residents and professionals. In addition to that, the changes of coastal line from 2004 to 2018 can be determined by using topographical maps and satellite images where the changes images are taken in 2017 and 2018 respectively. According to the findings, there are many environmental social issues and economic issues in this area due to destructing coastal zone.

Keywords: Coastal zone, coastal zone change, environmental, economic, and social issues

A Study to Examine the Success of introducing rubber plantation to Monaragala District

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Abstract

Rubber is one of the major plantation crops grown in Sri Lanka. Wet zone is the most suitable area for rubber cultivation. However, because of the non-availability of land and labour required for rubber cultivation in wet zone, government introduced rubber cultivation in to intermediate and dry zone areas. As a result, Monaragala is one of the areas selected for expansion of rubber cultivation and based on research findings government implemented a rubber plantation project both small and large scale in the year 2008 expecting to fit into two of the themes in Millenium Development Goals(MDGs); poverty alleviation and environmental sustainability. The objective of this study is to examine the success of introducing rubber plantation in Monaragala District, based on status of the year 2018. The study identified the majority of the respondents reached their cultivation to tappable stage less than 7 years, 7 years and 8 years from planted year. Especially, age of plantation when start tapping is less than or equal 7 years at 5% level of significance. Further more than 92% of farmers get at more than 151 plants per acre at the tappable stage. More over this study concluded that proportion of sample, qualified number of plants for tapping is greater than or equal 160 plants (median) at 5% level of significance. In respondent's point of view, there is a favorable impact on weather condition of the area. According to their feelings 94% of them ensured about that favorable environmental impact. Majority (64.6%) of respondents have reached Rs.17500.00 income, and also this study can conclude that the mean value of average monthly income is significantly greater than or equal Rs.15000 at 5% level of significance. Those are considered as the plus point to measure the success of rubber cultivation of the area. Furthermore, after analyzed the land value changes which illustrate that on average there is a Rs 451500.00 value addition for a one acre of land because of the rubber cultivation. So, engage with rubber cultivation supposed to increase the wealth of the cultivators. And also, according to the results of the data analysis daily living condition of 32% of farmers are depending on the income earn by rubber sector. The information derived through this study offer a ground for rubber cultivators, project implementers who are in rubber development sector and policy makers for effective decision making on expanding of rubber sector to non-traditional areas also.

Key words: Rubber, Success, Monaragala District

Study on Solid Waste Management Problems and challenges Faced by Residents: Case study on Karandeniya Pradeshiya Sabha

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Abstract

Improper solid waste management causes many of the health, environmental and social problems. Most of the local authorities are failed to provide require level of waste management and solid wastes are disposed without any treatment not considering future hazards. Further because of ignorance and carelessness of the people, solid wastes are disposed to streets, waterways etc. The research was carried out to study on solid waste management problems and challenges faced by residents. Data collected through questionnaire survey by selecting 50 sample of residents who are in buildup area of Karandeniya Pradeshiya Sabha, face to face interview with Pradeshiya Sabha Officers, reviewing documents and observations. After collecting data, data analyze in to qualitative manner. Some part of the analysis cover with Quantitative analysis by using SPSS. After analysis it can be revealed that the residents generate average solid waste 1.3Kg per day. There were strong positive correlation (r 0.722) between family size and solid waste generation. But there were weak relationship (r 0.221) between solid waste generation and family income. So solid waste generation not highly depend on family income. many of the residents who are not access to waste collection service have no enough space to dispose their waste which are daily generate. Specially the residents who are access to waste collection service facing difficulties such as , Unpleasant odor, Breeding of mosquitos and files ,Warms and insect breeding because of accumulating waste till waste collectors collect them. Some of the residents in the area facing difficulties because of it is stopped waste collection from that area. Thereof most of the residents have no enough land extent to dispose their waste. There are residents facing difficulties with illegal disposal of solid waste of others to road sides near to houses of them. Unpleasant view and unclean environment they are experiencing.

Key words: Solid Waste Management, Solid Waste Generation, Solid Waste Disposal

Visitor's Satisfaction on National Zoological Garden Dehiwala: An Empirical Study

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Abstract

A one of famous author Bostock said that “one in a zoo is better than one in a film”. Millions of people visit zoological garden regularly but we know very little about the visitor's satisfaction in relation to the quality, hygiene, and benefits of zoological gardens. Even though people visit to the zoo the lack of researchers are found that measuring the satisfaction level of visitors in Sri Lanka. This study attempts to determine the overall satisfaction of visitors to the National Zoological Garden Dehiwala. Their satisfaction level with their behavior, and what are the factors that affecting the level of satisfaction of visitor. Also, this study examines the most significant factor that affecting the level of satisfaction of visitors. These aspects were related to socio economics demographic characteristics of respondents like gender, education level, religion and age. Nearly 80 zoo visitors completed an exit survey. Partial Least Squares- Structural Equation Modeling (PLS-SEM) was applied and both smart PLS software 3.0 and SPSS 20.0 version software were used to find statistical significance. The data were collected through the interviews, photographs, observing and questioners using Likert Scale. There are three dependent variables identify from the literature that influence the satisfaction level of the visitors such as hygiene, benefits, and behavioral intention. To measure the satisfaction level of the visitors from these variables the researcher developed hypothesis. The results disclosed that most zoo visitors are highly satisfied with their experience in the zoo. when considering the hypothesis testing there were some statistically significant differences found between benefits and the behavioral intention. There is no relationship between hygiene and the quality towards the visitor's satisfaction. Finally, the results reveled that there is a relationship between satisfaction and the behavioral intention towards the visitor's satisfaction.

Key Words: Zoological Garden, Visitors, Satisfaction, Quality, Benefits, Behavioral Intention

Adaptability of Sustainable Construction Practices: An Analysis of Issues Faced by Sri Lankan Construction Industry

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Abstract

There is a significant impact of the construction industry on environment, society, and economy which implies the need of adaptation sustainable construction practices in the construction industry. Accordingly, this research intended to identify sustainable construction practices adopted in Sri Lanka, the key issues affected by construction industry in the adaptation of sustainable construction practices and to develop an action plan for the construction organizations. The stakeholder theory is the base of this research and accordingly, this research was limited for the construction organizations and professionals in the construction industry for the data collection. First, four construction organizations which are experienced in sustainable construction were selected and four semi-structured interviews were conducted with a relevant officer from each organization and seven semi-structured in-depth interviews were conducted with the professionals who are experienced in sustainable construction to gather data on sustainable construction practices and issues. A content analysis and a stakeholder analysis were done in order to meet the objectives of the research. The content analysis was based on a framework proposed in a previous research and the findings show that the construction organizations have passed the early stage of sustainable construction but there are more to improve and develop. Lack of awareness, training, and education/negative attitude, gaps in the legal framework and enforcement, non-availability of materials and suppliers, lack of research and development on sustainable construction practices were identified as key issues in the adaptation of sustainable construction practices. Finally, an action plan was developed for the construction organizations through the stakeholder analysis. This research provides a useful guide for construction organizations to identify their gaps in the adaptation of sustainable construction practices and also provides guidance for decision making authorities on the issues in the adaptation of sustainable construction practices to take appropriate measures.

Keywords: Adaptability, Construction Industry, Sustainable Constructions

Transit Oriented Development at Godagama Interchange of Southern Expressway

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Abstract

Transit Oriented Development (TOD) is a popular planning notion that use to evaluate the success of the transition nodes such as railway or bus transits etc. This study focuses on evaluating the success of Sri Lanka - Southern Expressway interchanges in the light of the TOD notion. For this, Godagama Interchange at Southern Expressway, Matara was considered as a case study. Applying qualitative methods, data were collected through researcher's observation, semi-structured interviews, recruiting respondents within 1km buffer from the Godagama Interchange. These respondents included both residents living in the area and the businessmen. Documentary evidence was used to triangulate the primary data analysis. As a result of Godagama Interchange development, a clear transition could be observed in the areas of amenities within the walking distance, mixed land use patterns, quality transport system, connectivity between neighbourhoods and livable environment with open spaces. Transitions with respect to optimization of transit capacity and availability of parking spaces were shown minimum.

Keywords: Transit Oriented Development, Southern Expressway; Godagama Interchange

The Future Adaptivity of Archeological Protected Buildings in the City of Colombo

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Abstract

The Sri Lankan architecture has empowered by several factors. It has existed as a kingdom as well as the effects of some invasions of external countries such as Portuguese, Dutch, and the British colonialism. The survivals of that colonialism still exist in different areas. Those have become heritage buildings now. Considering the Real Estate sector buildings decayed with the effect of the time and meanwhile operational and commercial performance decreases and eventually they fall below the expectations of owners and occupiers. Then there is a choice whether the building is to be demolished or maintain as a historic building while preserving its intrinsic value. The new concept of “Future adaptivity” was developed as an approach to extend a building’s useful life before it reaches obsolescence. The purpose of this Research was to introduce the “adaptSTAR model” in Sri Lanka with regards to maximizing the future Adaptivity and sustainability of existing built heritage and its surroundings. The adaptSTAR model has been developed with the hope that designers will be able to receive guidance in the effectiveness of their proposals towards achievement of true resource efficiency, taking into account the impact of embodied energy, churn, retrofitting, refurbishment and renewal over the entire life cycle of a building, and benchmark this against best practice. AdaptSTAR model is a score sheet for each archaeologically declared buildings This score sheet consist 26 design criteria with weighted percentages that are classified into physical (long life), economic (location), functional (loose fit), technological (low energy), social (sense of place), legal (quality standard) and political (context) categories. This research has focused on two case studies which are Arcade Independence Square and Old Dutch Hospital Colombo for determining their Future Adaptivity. The data was collected from questionnaire surveys mainly from architects and other professionals. According to the final results derives from the “adaptSTAR model”, both buildings are in a position of a considerable level of future adaptivity. The significance of this study stresses the importance of preserving a nation’s heritage amidst the development of new materials and technologies, where the future adaptive reuse of these buildings is ensured.

Keywords: Future Adaptivity, Archeological Protected Buildings, Heritage, AdaptSTAR model, Arcade Independence Square, Old Dutch Hospital Colombo.

Cinnamon Land Valuation in Karadeniya Pradeshiya Sabha

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Abstract

This study focused on cinnamon land valuation in Karadeniya area. Cinnamon is the most important minor export crop in Sri Lanka. Based on the observations of present situations and the statistical references Cinnamon is a key product in export agricultural sector. World demand for the Sri Lankan cinnamon is increasing day by day. Cinnamon land has derived demand. Therefore, cinnamon land value is also increase. The valuer should have more knowledge about cinnamon cultivation to estimate the real market value. furthermore, valuers should know all outgoings of cinnamon cultivation and their percentages before doing the valuation. Therefore, the research is designed to find the solutions for the concerns on Cinnamon valuation. Based on the background of the study the research is to be developed to get the real market value for the cinnamon land based on modified investment method valuation with presenting the findings and conclusion. The general objective of the study is designated as to introduce new model to get real market value of cinnamon lands based on investment method of valuation. To achieve the main objective, the secondary objectives are developed to identify the net income and outgoings of cinnamon cultivation and percentages of outgoings and the contribution level of labour for cinnamon production which will be facilitate the development of the model as the solution for identified problem. Because of the availability of the resources the research used the Sampling method rather than the entire population for the data collection. Primary data collected through structured questionnaires, in person face to face interview with those who cultivated cinnamon more than 5 acres in extent on snow ball sampling methods. The collected data used to code and analyses with the support of SPSS (Statistical Software for Social Studies) and Microsoft Excel spread sheets as an input to analyze to make the easier presentations of the results and findings in quantitative terms. Use relevant article, internet, Cinnamon research institute, Banks, relevant books, government and private institute. Based on the collected data and the support of analysis software the research provides the effective method of valuation on Cinnamon Lands which will be very useful for the user of the solutions and re-present the findings along with desired conclusion. Finally analyzing collected data researcher design a new model to get market value of cinnamon cultivation based on investment method of valuation.

Key Words: Cinnamon, Income ways of Cinnamon, , Outgoings of cinnamon, Cinnamon Yield, Market value of cinnamon, Investment method of valuation

A study on Tourism attraction on natural landscape, reference to Belihul-oya

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Abstract

Tourism attraction in natural landscape is a broader concept. It is very important to identify about the level of the tourism attraction and effect of the tourism attraction on economic condition of the country as well as society. Natural landscape is highly affected to the increase of tourists' attraction. Belihul Oya is a naturally rich area located in the Sabaragamuwa Province and most foreign and local tourists are attracted to this area. Lack of studies observed the positive and negative effect of this natural landscape areas in Belihul Oya. Aim of this study is to identify naturally attractive places in Belihul-oya area. In addition study attempted to analyze social, economic and environmental impact to that natural attraction places. Outcome of the study highlighted level of tourist attraction in the Belihul Oya area in economic social and environmental aspects. Questionnaire survey used as major data collection method focused on residents and tourists. Data analyses using descriptive way using descriptive statistics and thematic analysis. Results indicated tourism of this area created positive impacts to people like; improve the job opportunities, improvement of living standards of the people, improvement of infrastructure facilities. As well there can be seen negative impacts such as environmental pollution, and a higher level of threaten on area shows negative impacts.

Keywords: landscape, cultural landscape, natural landscape, tourism, tourism industry positive and negative impact of tourism

Awareness of Dengue Epidemic in Urban Community: A Case Study of Mannar Urban Council Area.

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Abstract

Dengue epidemic is becoming more prevalent in Sri Lanka and occurs every year. During the last twelve months of the year 2017, 185,195 suspected dengue cases have been reported to the Epidemiology Unit of the General Hospital of Colombo from all over the Island. Approximately 41.53% of dengue cases were reported from the Western Province. The Health Ministry of Sri Lanka warns of possible increase in the spread of dengue in the Western, Sabaragamuwa, North-West and North Provinces. In the recent past, the dengue incidence has been more marked in the Northern Province with the movement of people to the area after cessation of war. This research is focused to find the level of awareness of the general public on dengue epidemics in highly affected area in Mannar Urban Council limits. The study was a prospective, cross sectional study and was conducted in 2018 in an Urban Area of Mannar Urban Council Limits. Data was collected through a pre-tested interviewer-administered questionnaire to assess the level of awareness of one hundred randomly selected residents in the Mannar MOH area. Findings of the study indicate that, all respondents that were interviewed had heard of Dengue epidemic, and 88% of respondents were aware that dengue epidemic is transmitted by a mosquito, and most of the people aware about dengue epidemic, dengue transmitting mosquitoes (82%), symptoms (89%), complication of dengue (89%), medication (67%) and prevention and control measures of dengue epidemic. However according to the analysis most of the respondents had middle level of awareness on dengue epidemic. Awareness on active involvement in prevention measures to Dengue shows low-level. The final conclusion is that the participants demonstrated gross knowledge toward the dengue epidemics which may affect the level and frequency of preventive measures. The research findings highlight the need for further information, education and communication programs in the community.

Keywords: Dengue Epidemic, Awareness, Urban community

Urban Green Space and Scenic View as an Element within Residential Property Values: Application of Hedonic Pricing Model

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Abstract

Urbanization under market operations in the world creates a paradoxical effect on urban space and scenic view of places. Whilst urbanisation urges urban green spaces and scenic view to enhance the quality of life of city dwellers, it is also the cause of its destruction. Under the urbanised context, urban green spaces and scenic view is a scarce resource, thus getting a balance between urban development and, green space and the scenic view is a challenging task. Therefore, one way of addressing this paradox under market conditions is to offer a price for the green spaces and scenic view for the utility that the city dwellers consume so that it will encourage the private developer to invest on green space and scenic view. This study accordingly investigates, to what extent the green spaces and scenic view contain a market value within the real markets in Colombo suburbs-where the urban greenery is highly threatened due to urbanisation. The application of the hedonic pricing model for the seventy-five questionnaires consists of forty freehold properties and thirty-five leasehold properties. The dependency of the residential property values under different ownership in the vicinity of Kesbewa Lake was selected as the case study. The character of green space and scenic view and householder's perspectives on utility consumption of green space and scenic view analysed based on qualitative approach and how different property ownership in the market offer willingness to pay for greenery and scenic view analysed based on quantitative approach. Analysis showed both freehold and leasehold interests have the willingness to pay for the green space and scenic view of the market. Nevertheless, freehold interest had greater willingness to pay for green space and scenic view than that of the leasehold interest. Moreover, for the purpose of rating green space and scenic view had not been considered. This indicates ratepayers enjoy green space and scenic view but they do not pay for the benefits that they gain (free riders).

Keywords: Urban Greenspace, Scenic View, Residential property values, Willingness to pay.

Consideration of Operational Cost of Conventional Buildings Versus Green Buildings in Office Buildings (Case Study: Hatton National Bank Pvt. Ltd.)

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Abstract

Within the general context, construction of buildings has a negative impact on the environment thus, green building is improving quality of life and thus allowing people to live in a healthy environment, hence it is becoming increasingly popular worldwide. Operational costs are the costs required for annual operation and periodic maintenance during the lifetime of buildings. Since the green building has become much more prevalent in Sri Lanka, previous research findings in relation to the operational cost have become contradictory to each other. Further, operational costs of green building is an under research area in Sri Lankan construction industry. Therefore, the main objective of this research study is identifying the saving of operational costs of green buildings compared to conventional buildings. This research problem was approached through a case study of the green bank building and parallel conventional bank building, situated in the western province. Semi-structured interviews and document survey were conducted as the data collection tools for the case. Descriptive analysis is done based on the above findings. After the next analysis is done in two different ways first one is an analysis about reasons for cost changes between cost components of operational costs and another one is an actual cost comparison between green and conventional buildings. The findings revealed that based on building function, the running costs vary between green building and the conventional building. However, the whole analysis showed that the operational cost is less in the green building than a conventional building. In addition, mainly the operational cost saving is from energy saving other costs are additional cost in green building. Therefore, it is essential to green building developers and stakeholders to consider the operational costs of the green building. Therefore, improve green building construction is part of the duty of government authority, green building council as well as professional bodies who are involving green construction.

Keywords: Operational cost, Construction industry, Conventional buildings, Green buildings

Factors Affecting on Adoption of Soil and Soil Moisture Conservation Measures in Tea Cultivation: A Case Study in Deniyaya Area

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Abstract

Soil erosion has become a serious environmental issue in the world, also has been an issue in tea lands of Sri Lanka compared to rubber and coconut plantations. Heavy rainfall, steepness and poor management practices are responsible for severe soil erosion on tea lands. It is estimated that about 10 % of the tea land has been abandoned due to reduction of productivity caused by soil erosion in mid country. Therefore, investment on soil conservation in tea land has been an essential requirement for the sustainability of tea cultivation. Until addressing on factors affecting soil and soil moisture conservation, the effectiveness of soil and soil moisture conservation programmes will always be limited. Therefore objective of this study was to investigate about determinants adoption of soil and soil moisture conservation measures in tea cultivation in mid country. The study area was Deniyaya which belongs to WM1a agro ecological region. Data from a Sample of 35 tea smallholders were collected. Primary data were collected Based in a structured questionnaire and field observation. Also secondary data were obtained through records maintained by divisional office of tea research institute situated in Deniyaya. Data were analyzed using SPSS computer software. This study detected majority of tea smallholders in percentage 88.6% adopted recommended soil and soil moisture conservation methods. Most of tea lands were steep in topography. All smallholders owned except lands in flat and gentle, adopted soil and soil moisture conservation strategies.

Keywords: Tea cultivation, Soil, Soil erosion, Soil and soil moisture conservation

Issues of Visual Pollution: A Comparison between Maharagama and Mawanella Cities

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Abstract

One of the awesome issues that the world is facing today is the variety of environmental pollution causing a substantial damage to the natural systems. There are various types of pollutions such as water, air, soil, noise, thermal and radioactive pollution and among them another concern is the visual pollution. Visual pollution is an aesthetic issue, referring to the impacts of unattractive actions altering the natural systems that impair one's ability to enjoy or appreciate the view or vista. Damaging to one's view the visual pollution contributes to number of silence issues such as mental and physical health issues, environmental issues, traffic safety issues etc. Notably, the majority of the countries in the developing world such as India, Nigeria, Beijing, Seoul and Brazil have been affected by the visual pollution. It is also becoming a serious issue and is severally observed in the urban areas of Sri Lanka. However, there are limited evidences on the characteristics of the sources of visual pollutions, related issues and the reasons contribute in the country. This research intends to compare the characteristics of the specific sources and issues arise due to visual pollution in two selected cities such as Maharagama and Mawanella. Data was collected using a questionnaire from 80 pedestrians from each area. The result reveals that the billboards are the main source of visual pollution in both areas. It was observed that people were strongly unhappy about too much of billboards, banners, and litter on ground, posters, many kinds of tiny notices posts and traffic congestion. The entire respondents agreed that the visual pollution has impacts on mental and physical health, natural and built environment of the cities and traffic safety. Among them the salient are the increase stress level, eye fatigue, distraction, disturbance to enjoy the view, destroy the aesthetic beauty of cities. All mean values of the perception of people in Maharagama city related to health, environmental and traffic safety issues were respectively 3.8, 4.0 and 3.5 while Mawanella represented as 3.5, 3.7 and 3.2, reflecting that compared to Mawanella city, visual pollution is major in Maharagama city. Poor regulations and the relevant actions to overcome the implications have been identified by the people as the major cause of encouraging such pollution. On one hand It can conclude that visual pollution is significant in the populated areas while the deficiencies in the implementation of proper regulations is contributing to massive number of sources on visual pollution. Hence, it is recommended to enforce proper guidelines to discourage too much of polluting sources with an appropriate monitoring system.

Keywords: Visual pollution, Environmental issues, Health issues, Traffic safety issues, Visual pollutants

A Study on Developing a Green Rating System for New State University Buildings in Sri Lanka

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Abstract

The construction industry has paced a progressive step by integrating sustainability concept to the development of a building and the construction of a green building is expressed as a part of sustainable construction. The concept of green buildings aims at increasing the efficiency of resources used by buildings such as energy, water and materials while reducing the impact of buildings on human health and its surrounding environment during its lifecycle, through better design, construction, operation, maintenance and through the removal and recycling of waste. According to, “Revival”, 3 years Environmental Conservation National Programme, all Government and Semi-government buildings in Sri Lanka should be certified as “Green buildings” under the code of green building guidelines, since 2017 as an attempt of developing Sustainable Sri Lanka or “Blue Green Sri Lanka”. Proper development and operation of special nature buildings such as state university buildings, can contribute significantly to the mission of sustainable development. But as at present all buildings are assessed using a general green rating system irrespective of the building type and weightings. Thus there exists a vacuum in developing specific green rating systems to assess the greenness of special nature buildings. Thus this research aims to develop a green rating system for new state university buildings in Sri Lanka to rate the buildings on the degree of its “greenness”. Various international and national construction industry standards have been reviewed in order to decide the criteria that affect the sustainability of new state university buildings. Then questionnaire survey and unstructured interviews were conducted from one hundred respondents and ten experts of the field respectively to identify the final list that is deemed important, in rating new state university buildings. Degree of importance and weights of these criteria were determined using Relative Important Index. Final criteria results from this research are used to develop a green rating system for new state university buildings in Sri Lanka with the aim of achieving sustainable development.

Keywords: Sustainable development, Construction industry, Green buildings, Green rating systems.

Study on the Constraints in Obtaining Loans for Real Estate Developments from State and Private Banks from Bankers and Developers View Points: Reference in Colombo Area

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Abstract

Real Estate developers play a major role in Sri Lanka and they always deal with lands. Land is one of the main factors of production. In addition to that, value is added by real estate developers providing infrastructure to the land. There are significant problems related to real estate developers when granting bank loans. This research is focused on identifying constraints and benefits faced by the developers when taking bank loans from both private and public banks. From bankers and developers' point of view, Colombo District is the main point of real estate field comparing to other districts. Research is carried out in Colombo area. All the analysis, opinion, arguments are based on the thirty real estate developers and five major financial institutes. This financial institutes consist of two main public banks and three major private banks. Data is collected using telephone interviews and face to face interviews. There are three specific objectives, such as; to identify the real estate borrowing procedure for real estate developers and to suggest solutions to real estate industry and banking industry to control constraints face by the developers when taking bank loans. Descriptive analysis method was used for the analysis. The findings of the analysis were, real estate developers are suffering constraints from government banks than private banks. This research provides significance guidance to the real estate industry and banking industry to identify their constraint and measure customers' satisfaction about banks and provide sustainable solutions to create stable real estate industry and banking industry.

Key words: Banks, Real estate development, Credit facilities

GIS Assisted Green Space Analysis A Case Study in Gampaha Divisional Secretariat Division

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Abstract

This research is focused to the GIS Assisted Green Space Analysis in Gampaha Divisional Secretariat Division. Green spaces are an essential part of the land use planning and Green spaces or the green areas are considered as the lung of the cities. Green spaces create green image to the cities as the key components of urban ecosystems and also contribute to sustainable development, landscape and environmental quality, quality of life, and citizen health. The main Purpose of this study was to identify the green spaces in Gampaha Divisional Secretariat Division and examine the issues related to the conversion of green spaces in to residential and industrial purposes. Land use maps used for identifying green space changes using GIS. In addition, questionnaire survey used to identify issues about green spaces and it focused on professionals and residents who are in Gampaha Divisional Secretariat Division. Issues could be categorized as Ecological, Social, and Economic issues. Those issues arisen a result of conversion of green spaces such as residential and industrial. Research, outcome highlighted the remaining issues are causes the conversion of green spaces to residential and industrial purposes.

Keywords: Green Spaces, Utilization, land conversion, Socio-economic issues, Environmental Issues

Study on Factors Affecting Demand for Middle Income Housing Market in Homagama Pradeshiya Sabha in Colombo District

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Abstract

The survey Study on factors affecting demand for middle income housing market in Homagama pradeshiya sabha in Colombo district. In this research specific object is To analyse the existing housing market of the study area during past few years and To identify the factors determining the middle-income housing demand from house holder's point of view. A determinant of consumer buying decision of a house is a broad concept. To identify the behaviour of consumer is essential to have a good knowledge about consumer's needs, wants, desires and expectations. Therefore, can it be pointed out that the consumer should be the focal point of market strategies. As well consumer's desires and expectations attitudes are highly subjective. As a real estate product, a house has a very distinct characteristics and it influences heavily on each and every human being. The purpose of this research is to identify the factors affecting to demand for middle income housing in Homagama area in Colombo district. The study highlights the factors important to the buyers when purchasing residential property. Reliability analysis and factor analysis has been used to understand these preferences of buyers. The data are collected from the 60 middle income residential units in Homagama area. Demographic factors like age, ethnicity, educational level, income source play an important role in deciding purchase of house. As well economic factor, external physical factor, internal housing factor, locational factor, neighbourhood factor and community factor affect to the middle incomers' housing demand in Homagama area.

Key Words: Housing Market, consumer behavior, Residential Property

Material Waste and the Level of Adherence for the Sustainable Construction Practices in Large-Scale Residential Projects in Sri Lanka

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Abstract

At present, the Construction Industry is playing a major role in the Si Lankan economy. It is an indicator of the economy for the measurable growth of the economy. As far as the construction industry is concerned, 'wastage' is one of the major problems. This study focused to find the factors affecting the material wastage in large-scale residential projects in Sri Lanka and how they are working on 5R's (Refuse, Reduce, Reuse, Recycle and Recover) concept to manage the material wastage. This case study done by two selected residential projects belong to the private construction sector and the private construction sector. The analysis showed seven factors contributing to the material wastage. Those were periodic design changes during the construction project, procurement error, poor storing facilities and weather condition, non-reclaimable consumables, designing, detailing errors, unskilled labour, poor communication. Both case studies in principle have acknowledged the 5R's concept within their construction process and have helped to reduce the material wastage significantly. However, lack of infrastructure to support some initiatives within 5R such as recycling has been failed to adapt displacing the optimal material wastage reduction.

Keywords: Material Waste Management, Construction sector, Sustainable Construction, Refuse, Reduce, Reuse, Recycle and Reform

Analysis of Compliance with Building Regulations in Heritage Areas: A case study in Galle Fort, Sri Lanka

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Abstract

United Nations Educational, Scientific and Cultural Organization (UNESCO) identified and listed some of the sites as World Heritage Areas based on the special cultural and physical significance of each. Responsible governments have been introduced certain special regulations to maintain and improve the quality of the said sites, aiming to preserve the natural setting. Galle fort in Sri Lanka is one of such sites listed by UNESCO and to protect the heritage value, historical value and the archeological value of the site, several special regulations have been introduced by the Urban Development Authority (UDA) of Sri Lanka through the gazette No. 1604/29 on 2009.06.05. Currently the authorities are facing difficulties in ensuring on meeting the said provisions by the occupiers. There is inadequate evidences the level of compliance with the regulations in heritage areas in Sri Lanka. The research intends to identify the level of compliance to regulations introduced by the Urban Development Authority. To identify the violations of the regulations, observation was conducted in 83 buildings inside the said area from a systematic random sample. Face to face interviews through a self-structured questionnaire was used to collect data on the reasons for the non-compliance to the regulations from a random sample of 44 property owners. Thirdly a focus group discussion was conducted with invited seven numbers of professionals from Galle Heritage Foundation, UDA Galle, Galle Municipal council, Archeological Department and with the Grama Niladhari. Descriptive analysis shows that 11 numbers of regulations have been violated by at least one occupier ranging from 4% to 30% while the majority violated the regulation on mar characters on roof (Characters which disturbing to the appearance on the roof). Minor violations are identified in the regulation of constructing ponds and swimming pools. Several reasons were identified on the non-compliance with the regulations by the occupiers. Majority are reluctant to adhere to the regulations as they believe that the regulations acting as a barrier to their promotions to attract tourists. Secondly some members are having poor awareness on the importance of the regulations. The focus group discussion pointed out similar results that lack of awareness of people about the guidelines, the slow process of taking actions to regularize the shortcomings and the political influence to implement some of the regulations are the main reasons. Accordingly, it can conclude that unawareness of the guidelines and the attitudes of the occupiers are the most influence factors on the shortcoming of adherence to the regulations. It is recommended to hold several awareness programmes to change the individual's minds to understand the value of the regulations.

Key Words: Heritage Areas, Building Regulations, Non-compliance, Perceptions

Analyze of causes of traffic congestion reference to the high-level road from Maharagama to Nugegoda

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Abstract

Due to increase in population and the attraction of human activities into urban region which in turn leads to the growth of vehicle ownership and use, there is demand for road space which has led to increase in the number of public transport operation. Consequently, the demand for road space is greater than the supply because the rate of provision of transport facilities is less than the rate of growth of vehicle ownership and use which result into traffic congestion. Traffic congestion is the impedance of vehicles imposed on each other due to speed-flow relationship in conditions where the use of transport system approaches capacity. Traffic congestion in Colombo, taking A04 road (high level road) from as a case study area has been analyzed using experimental and theoretical approaches. These involve traffic counting and delay survey. The study used a quantitative research approach where a survey was conducted to questionnaire both drivers and passengers were engaged. While descriptive statistics were used to present the demographic characteristics, nature, frequency of the traffic congestion. Furthermore, the study has used factor analysis, correlation and regression analysis under the inferential analysis. Regression analysis shows most significant variables that caused to traffic congestion. There are many factors affecting the traffic congestion in this area among those, the survey has used eight factors that influenced to the traffic congestion based on the study area. The study has used delay time as the dimension of the traffic congestion. According to this analysis, study area is almost like high urbanized area was identified as the most significant factor in the delay time. Second factor is inadequate road capacity and third factor is on- going construction activities. The survey recommends some solutions to minimize the traffic congestion based on the respondents' opinion.

Key words: Traffic congestion, Causes of traffic congestion, Factor analysis, Regression analysis

Impact of causes affecting on post-harvest losses in paddy cultivation in Tangalle Divisional Secretarial Division

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Abstract

Rice is the most important staple food in Asia, feeding almost half of the world's population. In the world Asian farmers plant 89 percent of the world's harvested rice accounting for 91 percent of global rice production. In the paddy cultivation known some dynamic problems which are occurred in mostly after harvesting process. It is called as "Post-harvest problems". In the farming management, field operations and the post- field operations determine the quantity and quality of final output. Generally post-harvest losses occur during the harvesting, threshing, cleaning, drying, storage and transportation. This study too identified some major causes, during the harvesting, cutting, drying and storage stages. The primary data were collected from 80 farmers who were randomly selected and they were belong to Tangalle Divisional Secretarial Division. This study is focused on the identify major causes of post-harvest losses in paddy cultivation. In addition, introduces new feasible solutions to control the post-harvest losses and study background of paddy cultivation in Tangalle Divisional Secretarial Division. Under the study Post-harvest losses from cutting, drying and storage stage collect data for investigate, what factors highly affect for the post-harvest losses. Run the regression to identified major causes. The results of the survey showed that major causes of post-harvest losses as well as after the study identified the causes (independent variables) 67% affected for the post-harvest losses (dependent variable). Finally identified the major reason for the post-harvest losses became farmers have not sufficient storage facilities to store the yield.

Key words: Post-harvest losses, Paddy cultivation, harvesting, threshing, drying, storage

GIS Analysis of Socio-Environmental Risk Factors of Dengue Incidence in Urban Planning Context: A Case Study in Maharagama MOH area

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Abstract

Health, convenience and beauty could be considered as a significant component in urban planning. Thus controlling vector born diseases and enhancing the public health becomes a part and partial requirement of it. Dengue outbreak could be considered as a fast growing vector borne disease in western province, Sri Lanka. Thus identification of the socio-cultural and environmental factors affecting dengue incidence and spatial mapping of the dengue prone areas based on those factors has been considered in the study. Maharagama MOH area in Colombo district which reported highest number of dengue cases during last year was selected as the base spatial unit in the study. Dengue incidence was calculated GND wise for six GNDs within Pamunuwa and Nawinna PHI areas of Maharagama MOH. Data were collected through a questionnaire survey from all 57 dengue confirmed households within Nawinna and Pamunuwa PHI areas for the period of January-June, 2018. . Out of eight variables consisting 28 dimensions, four variables were correlated significantly at 0.1 confident level. These four variables were used in regression model and two variables: Prevention measures taken for controlling dengue and Frequency of cleaning water storage containers were significantly contributing for the dengue incidence with a R² of 0.738. IDW interpolation technique of Geographical Information System (GIS) has been used to generate risk map of dengue incidence by linking the spatial points and significant socio-cultural and environmental factors affecting dengue incidence. The composite weight map considering all eight risk factors depicts the risk map with three risk levels i.e. high, moderate and low risk. Thus, it is useful for enhancing health and convenience of urban citizens through effective urban planning and implementation of the dengue controlling plans within the area.

Keywords: Geographical Information System, Dengue Incidence, Socio-Environmental Risk Factors, Urban Planning

The Potential of Property Crowdfunding Applications in Sri Lankan Real Estate Market

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Abstract

Crowdfunding can be considered as an emerging source of real estate financing which primarily depends on online platforms. This research aims to analyze the potential of crowdfunding applications into the Sri Lankan Real Estate Market. Employing in-depth interview methods elite interviews were conducted recruiting academics and professionals in the field of commerce, planning and financing. The results indicate that for Sri Lanka to introduce crowdfunding for property markets it needs tackling of sophisticated online platforms, strong institutional and legislative framework, awareness and attitudes of interested parties, favourable economic conditions. This study will be helpful as a guideline for potential investors and policymakers having the attention on Sri Lankan real estate markets.

Keywords: Crowdfunding, Real Estate investments, Real Estate Market

A Study on factors affecting to the householders' beliefs on "Vasthu Shastra"

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Abstract

Traditional beliefs have always been recognized as examples of "good design" in the context of SriLankan architecture according to many scholars. It is believed that their creation has been influenced by the systems of beliefs in the traditional society; an established system closely followed in their design process which has led to their phenomenal architectural design. Home is abode of love where people expect to enjoy the fruits of their labor. They expect to enjoy their peace and happiness, progress and prosperity, health and wealth and faith and spiritual development from their home. If its surroundings and construction are poor and the weird atmosphere, people can neither be happy nor healthy. Today in design the house vasthu shastra is also very important which deals with the natural energy present in the surrounding. The design according to the vasthu principles increases the aesthetic beauty with increase in prosperity, health and wealth of house. Using vasthu shastra as a framework, the objective is to conduct a questionnaire survey on 50 houses of Gampaha municipal council area and identify the factors that affecting to the beliefs of householders' on vasthu shastra. Under that ethnicity of the respondents, age of the respondents, religion of the respondents, direction of the land facing, placement of the septic tank and well, number of entries, number of windows are the main factors that impact on the householders' beliefs. As well some interial principles are very much concerned by the people when constructing a house.

Keywords: Vasthu Shastra, Householders' Beliefs

Factors Affecting Tourists' Satisfaction on Sri Lanka as Destination

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Abstract

Sri Lanka is an island in Indian Ocean and it is a major destination for tourism activities. Natural beauty, wildlife, better climate are some major reasons for this popularity. The conclusion of terrorist war in 2009 which was continued for 30 years, established national security and support to thrive the tourism industry in Sri Lanka. Within this supportive environment, it is evident that continuous increase of tourist arrival in Sri Lanka during the period of 2009-2018. In this context, it is important to evaluate satisfaction of tourist about Sri Lanka as a destination for repeat visits and increase number of nights stay. Accordingly, the aim of the study is to evaluate the satisfaction of tourist on hospitality, attraction and accessibility, infrastructure, environment and the cost of stay as major determinants of tourism satisfaction. The study used PLS-SEM as analysis tool. A total of 191 tourists interviewed based on five-level Likert item scale reflective measurement questionnaire. The final outcome confirmed that Hospitality, Attraction and Accessibility and the Cost of Staying statistically significant on contributing tourists' satisfaction while Infrastructure and the Environmental are statistically not significant on satisfaction. Therefore, study argued that policy makers need to focus on Hospitality, Attraction and Accessibility of Sri Lankan tourist destinations to make satisfied tourist.

Keywords: Contributory Factors, Satisfaction, Tourism,

Pedestrian Oriented Urban Roads within Urban Design.

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Abstract

The planning and design of the walkable environment is receiving more and more attention for its various benefits related to public health, sustainability, economy, or social life. Walking behavior is very complex one, as it involves different aspects and types of activities. Walking can be seen as a physical activity behavior, as a travel behavior, as personal recreation, as a social activity, and so on. Different kinds of walking activities vary in their goal, effort, frequency, duration, etc. The neighborhoods are created by formally defined routes and naturally formed routes, as alternative routes. Whatever the basement of Alternative routes are created, ultimately the significance to Walkability should be more comfortable and attractive to the Walkers and its neighborhood on pedestrian point of view.

The Parameters which makes a better walkability within a neighborhood is critical for understanding by planning and designing stage of roads. The study intends to focus on a neighborhood in Kotahena in order to understand the parameters that make such routes more pedestrian friendly. Four zones were selected for the study where a significant variation between formal and alternative routes were observed. The most significant parameters on the formation of alternative routes were identified. Selected few alternative routes and its' ignored formally defined routes in the four zones were analyzed comparing with the related urban design principles and pedestrian friendly elements established in literature through questionnaires' and checklists. The results revealed the pedestrian friendly elements applicable to a local neighborhood.

Key words: Pedestrian point of view, Walkability, Parameters, Pedestrian friendly

A Study on Critical Success Factors in Land Development in Homagama Pradeshiya Shaba, Colombo

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Abstract

This paper explores the factors that critically affected to land development in Homagama Pradeshiya Sabha in Colombo. And literature review used to identify critical factors in land development that are clearly affected to the success of land development as a process. And land development has a large number of factors and these eight factors were more critical than other factors. Site selection, feasibility study, development finance, regulatory environment, developing planning, team member selection, project management and sale and marketing are the selected as critical factors. And those factors were surveyed through land development teams active in Homagama Pradeshiya Sabha area in Colombo. And this study includes a background survey for finding the land development pattern in Homagama Pradeshiya Sabha area. Those developments were related to residential development and it shows the residential bare land demand in Homagama Pradeshiya Sabha area.

Land development is not a single task and it has processed and these eight factors were also playing a role as phases in the land development process and it will increase the importance of those eight factors. This factor also contributes as functions and those functions interrelated and each factor has some unique sub factors and this study tries to identify their importance one by one throughout the questionnaire survey and literature review.

Land development has numerous factors and developer should identify what are the critical factors that help with success in the land development field. This research aims to find those critical factors and tries to identify most important two or three factors that clearly affected to developer success.

Land development was highly profitable in the present and also should invest considerable capital to run a project and developer should managed critical factors to gain profit or complete land development successfully. This study will show critical factors in land development in Homagama in Colombo.

Key words: land, land development, real estate, residential lands, site selection, feasibility, finance, regulation, planning, project management, sales and marketing

The Influence of Home Gardening on Occupants' Life Satisfaction

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Abstract

Leisure and aesthetic beauty is considered as a vital amenity that ensure mental health of humankind. Among them greenery is considered as a valuable environmental resource. While people in urban living are trapped within a very limited area available for greenery. The urban life is considered as more stressful to inhabitant. Extraneous noises, from traffic, People, construction and media sources have been known to cause mental fatigue while habitants try to screen out multiple stimuli. Urban inhabitants can link with the environment through gardening. Greenery and quality environment enhance the mental health of people and it increase the well-being and productivity of the people. Therefore it is important to investigate the influence of home gardening on life satisfaction. The survey investigate the influence of home garden on occupant's life satisfaction. The research focused study Socio economic characteristics of respondents and the relationship between these characteristics and the level of satisfaction. To measure the importance of the home gardening from the respondents point of view. Using results from randomly selected 61 respondents to a questionnaire survey conducted in Maharagama Urban Council area, the researcher describes the relationship between overall life satisfaction and socio economic characteristics of people who are engaged with home gardening. As per this study, it is identified that the relationship between socio economic characteristics of home gardeners and the influence of home gardening on their life satisfaction. Research found that specific grouping of indicators that predicted life satisfaction. These included: Financial benefits, psychological benefits, health benefits, environmental and social benefits and outdoor environment quality. This research empirically demonstrates that a variety of mechanisms for engaging the home gardening significantly contribute to overall life satisfaction.

Keywords: Home gardening, life satisfaction, environmental quality.