International Conference on Real Estate Management and Valuation – 2022

Application of Green Features in Property Valuation in Sri Lanka: Perspectives of Professional Valuers

K. G. K. T. Jayasiri[a], N. C. Wickramaarachchi[b*]

[a]*Department of Estate Management and Valuation, University of Sri Jayewardenepura, Sri Lanka*
[b]*Department of Estate Management and Valuation, University of Sri Jayewardenepura, Sri Lanka*

Abstract

In the concept of sustainability, the green building plays a salient role in the path of achieving sustainability goals in the country. In line with that, RICS has also introduced RICS professional guidance to estimate the sustainability factors in the property. Moreover, there is an emerging trend in Sri Lanka to going green and now the financial sector is in the process of introducing new financial facilities for the buildings with green features. Hence, valuers as professionals who directly involved in the property market and provide a professional opinion on property value, can have a distinct impact in the context of green buildings. Accordingly, this study analyzes the perspectives of professional valuers on the application of green features introduced by the GBCSL in property valuation in Sri Lanka. The study was conducted as quantitative research and the data was collected through a questionnaire survey. The questionnaire was distributed among 100 professional valuers and 60 responses were collected. The collected data were analyzed by using descriptive analysis and mean comparison using Statistical Package for Social Sciences (SPSS) version 23.0. Findings revealed that most of the valuers have a moderate level of awareness and knowledge on green features and do not currently consider them in property valuation. A key challenge/barrier to consider green features in property valuation is the lack of proper guidelines and knowledge. Also, the importance of considering green features in property valuation is varied from different phases of the life cycle of the building and property types. As per the perspectives of valuers, 12 sub green features out of 18 were considered to estimate the value of a condominium and 7 sub-features were considered for commercial and office building valuation.

Keywords: Green Building, Green Features, Green SL Rating System, Property Valuation

Introduction

Sustainability and sustainable development are two concepts that are rapidly spreading throughout the world. The concept of sustainability and sustainable development were become more popular by the United Nations (UN) Brundtland Commission Report in 1987 (Ashkin, 2018). According to that report, sustainable development has been defined as "The development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Brundtland, 1987)". Furthermore, according to Boyd and Kimmet, 2005, sustainability comprises the economy, environment and society which is also called a triple bottom line or three pillars.

Accordingly, the World Green Building Council (WGBC) is working hand in hand with the Asia Pacific region to endorse the benefits of sustainable building practices. Thus, the construction of green buildings generally takes into account environmental, social and economic factors

* *Corresponding author*: *nishani@sjp.ac.lk*

throughout its life cycle. Hence, it is clear that green building is one of the major drivers to promote and support sustainable development. Consequently, green buildings play a salient role in the process of achieving the sustainability goals of a country.

Green building has been defined by (WGBC, 2021) as "a building that, in its design, construction or operation, reduces or eliminates negative impacts, and can create positive impacts, on our climate and natural environment and which preserves precious natural resources and improve our quality of life". Accordingly, green features are the green attributes or the green components of the buildings. In line with that, many professions such as accounting, architecture and engineering so on, have already adapted to this concept by upgrading their professional framework and standards. Thus, the previous researches done by scholars have found that those green features have an impact on the value of the building and that is where the green features become an important factor to be considered in property valuation. Valuation is not only about assessing real estate developments, but also about assessing feasibility or development potential that helps investors and developers to make their investment decisions. Hence, a valuer is a professional who assesses and advises on the value of real estate. In other words, the valuer is a professional who directly impacts the real estate and property market decisions as well as promotes real estate to the public.

In line with that, the Royal Institution of Chartered Surveyors (RICS) has also introduced RICS Professional Guidance for sustainability and commercial property valuation. When considering the Sri Lankan context, the green building council of Sri Lanka (GBCSL) has taken numerous steps to promote green buildings in the country. In line with that, the GBCSL has introduced two rating systems called the "GreenSL® Rating System" and GreenSL® Labelling System. Under the GreenSL® Rating System, the BGCSL rates the already built environment using 8 green aspects/features and under the GreenSL® Labelling System, BGCSL rates the products/materials used in the construction industry.

Consequently, according to the (Green Building Council Sri Lanka (GBCSL), 2021), around 61 green buildings exist right now in the country and thousand plus trained professionals have been introduced to the construction industry who are intend to be proactive in promoting green buildings across the country. Furthermore, the government is also working hand in hand with the GBCSL with the goal of "Greening Sri Lanka 2030". In addition to that, financial facilities such as green mortgages, green leases and credit enhancements for green buildings are to be introduced in the country (Perera, 2021).

Hence, there is a necessity for valuers to identify these 8 green features that are introduced by the GBCSL to rate the built environment since valuers are the professionals who are directly involved in estimating the value of the property. Consequently, it is important to identify how these green features have applied to property valuation in Sri Lanka through the perceptions of professional valuers in the country.

Objectives of the Study

In the global context, it is already being recognized that green building is one of the important aspects of the concept of sustainable development. Hence, considering the green features in property valuation is utmost important to support greening the buildings and promoting sustainability. Green building increases the efficiency of using water, energy and materials. However, there is a few numbers of researches that have been conducted on green features associated with property valuation and that research have mainly considered the green features that are implemented only in their countries. Thus, those studies were limited to a maximum of 6 number of green features. In the context of Sri Lanka, there are few pieces of studies on the green features that have been conducted but, those are not based on property valuation and those

are not conducted based on the green features that are introduced by the Green Building Council of Sri Lanka. In addition to that, there is an emerging trend in the country to going green and now the financial sector is in the process of introducing new financial facilities such as green mortgages, credit enhancements and green leases etc. for the buildings with green features. Providing such facilities depends on the property valuation produced by the professional valuers. Consequently, it is vital to identify to what extent the professional valuers are considering the application of all green features (8 features) that have been introduced by the GBCSL in property valuation.

Accordingly, the main objective of the research is to analyze the application of green features in property valuation based on the perspectives of professional valuers in the country. In order to achieve the general objective, 4 specific objectives were generated.

i. To identify the valuer`s perspectives on the awareness and application of green features in property valuation.
ii. To rank the valuers` perspectives of the green features introduced by the GBCSL.
iii. To analyze the perspectives of valuers on the effects of green features introduced by GBSL on the main variables considered in property valuation related to the building life cycle.
iv. To assess the most significant sub feature or features that valuers consider in the property valuation in Sri Lanka.

Literature Review

Definitions for Green Building

There is a wide range of definitions for green building given by different scholars and institutions. Among them, the definition given by the world green building council (WGBC) is widely accepted since that is the major institution that promotes green building around the world. According to the (WGBC, 2021), the green building is "a building that, in its design, construction or operation, reduces or eliminates negative impacts, and can create positive impacts, on our climate and natural environment and which preserves precious natural resources and improve our quality of life". Thus, as per The Appraisal Foundation (2015), the term green building is used to describe "a structure with sustainability-related features and/or the process of constructing or remodelling of a structure with sustainability-related features".

Furthermore, according to Thomas (2008), a green building is a specific type of building that provide a special set of performances required by the occupant. Hence, the green buildings mainly focus on key elements of sustainability which refers to economic affluence, social development and environmental protection (Levy, 2008). Hence, green building is an effort to expand the positive effects and eliminate the negative effects of the built environment on nature and society as a whole (Kriss, 2014).

Moreover, as Zafar, (2013) stated that the green building mainly focuses on the efficiency factor on design and development, energy, water, resource and indoor environmental quality. But, Jung Ying Liu (2012), Shalley (2008), Schumann (2010) & Vinyangkoon (2012) argued that green building also includes elements that consider social responsibility. Hence, the most important fact on the green building to be understood is, it is one of the drivers of principles of sustainability. Consequently, it is something more than energy efficiency and it encompasses other features that are related to the sustainability concept (The Appraisal Foundation, 2015). Hence, there is a clear distinction between "energy efficiency" and the term "green" since green building comprises water efficiency, sustainable site selection, indoor environmental quality, material selection and operations and maintenance etc. Consequently, the energy-efficient building does not consider as a green building since it only possesses less energy than other

conventional buildings (The Appraisal Foundation, 2015). Hence, it is more vital for valuers to understand the green building and its distinction between energy-efficient building.

Scholar Perspectives on Green Building Valuation

The theoretical approach to integrating sustainability factors into property valuation was begun in 1996 (Harrison and Seiler, 2011) and (Lützkendorf, 2011). However, at the present, green building constructions and developments are rapidly growing around the world. Consequently, there are numerous approaches, frameworks and methods that have been introduced by various scholars and institutions.

Thus, Lützkendorf (2011) stated that sustainability issues can be seen in any valuation, including conventional building valuation because such buildings are already related with high risk (e.g.: - faster obsolescence and shorter remaining economic life span). Through that, it explains that the green buildings generally possess lower risk and as a result, the valuer should be careful enough to select appropriate discount or capitalization rates for valuing green buildings.

But, according to Sundberg (2009), though awareness of the issue of identifying sustainability/ green features is rising rapidly, there is no prescribed framework for the implication of sustainability factors in property valuation. Although the principles of sustainability can be incorporated into the policies of property owners and occupants, it is still hard to interpret them into their property decisions (Tim Dixon, 2009). The reason for this is all green characteristics related to sustainability cannot be easily presented or translated into market value (RICS, 2009).

However, RICS has introduced professional guidance to identify and estimate the sustainability factors in property valuation. This was firstly introduced in 2009. Hence, it is the valuer`s responsibility is to identify those green features in a property and for that, he should be competent enough to address those requirements (RICS, 2013). Further, Lorenz (2006) stated that in order to maintain the credibility and the accuracy of the valuation report, the valuer should consider sustainability features in property valuation.

On the other hand, Abdullah (2018) stated that the specific knowledge and experience of the valuer are also not specified when including sustainability in the valuation process. The valuer should consider the impact of green building design and construction on property value. It is the job of the appraiser to decide whether a building with green features is more appreciated in its market than a traditional building. Further Abdullah (2018) stated that the appraiser needs to identify the impact of a new market force on sustainability and green building and understand new property features (green features). But he emphasized that not every market believes that green features increase market value and that it should only reflect the factors that have an impact on prices. Therefore, the validity of including sustainability in the assessment process depends on the assessor's capacity, specificity and experience.

Consequently, there are ongoing debates in the valuation industry since some scholars state that valuer should identify green features with reference to the desire of the client and some scholars state that it is mandatory to identify green features in property valuation. However, it is the valuer`s duty is to provide accurate information about the property and as per the RICS, valuer should consider sustainability factors in property valuation.

Empirical Findings for Perspectives of Valuers on Green Building Valuation

According to the research done by Abdullah (2018), most of the valuers do not consider the green elements in the property valuation. The selected valuers are mainly working in the Penang property market in Malaysia which is among the top 3 states in Malaysia with the highest numbers of green-certified buildings. As per the findings, the comparison method was considered

as the most appropriate method to estimate the value of green buildings as there were enough comparable in the market.

As per the findings, one valuer who has 14 years of experience agreed that there is a 10% increase in the residential property value and another valuer who has 28 years of experience stated that the price will differ 10%-20% from the conventional residential buildings. But, 4 valuers out of 6 don't believe that there is an impact on the property value due to the green elements in a building. However, as a reason, they have mentioned that the green buildings constructions in the Penang market are not prominent.

Another research done by Ali (2015) found that most of the valuers do not incorporate green issues into property valuation. Even though most of the valuers do not consider green issues at present in property valuation, most of the valuers strongly agreed that there will be an increment in the market value due to the green factors in the near future of 2-5 years. Moreover, the research has been analyzed the impact of the green factor on 5 valuation variables. They are low yield due to the low-risk premium, lower operating costs compared to conventional buildings, higher rents due to a "green" rent premium, the lower vacancy rate in comparison to conventional buildings and lower exit yield due to gentler depreciation.

As per the findings, 80% of valuers agreed that presently, there is no change in valuing green buildings and they use the same market evidence to value green buildings. Moreover, 90% of valuers agreed that they have limited knowledge of sustainability and its role within the property market and property valuation. Thus, 85% of the valuers believed that there is a lack of current cures in the use of sustainability in property valuation and 80% of respondents agreed that they do not aware what the numerous input parameters of green building are and how to adjust them to replicate the benefit of green features accurately in the valuation process.

Another research done by Wilhelm (2012) has also analyzed the perspectives of valuers in UK. The survey has been conducted on 20 valuers (65% of them have more than 16 years of experience in property valuation) through distributing questionnaires. According to the findings, the awareness of values on sustainability in property valuation is at a moderate level while 45% have a good understanding. Thus, only 55 of the valuers agreed that they consider sustainability in property valuation. Astonishingly, although all respondents have indicated their level of awareness of sustainability in property valuation at least at the moderate level and more than 45% of valuers do not consider it.

Moreover, 6 out of 11 valuers who claim responsibility for sustainability consider green features by directly adjusting key variables. One valuer said that he accounts for both direct adjustments and lump-sum adjustments. Further, another valuer stated that he used both (above mentioned) with the help of the calculation of a sustainability-correction factor. Thus, as per the valuers` perspectives, operating costs, rental growth and market rent are the key valuation variables that have an impact on the property valuation. Moreover, discount rate/risk premium, depreciation, lease terms and marketing costs have less impact on property valuation in terms of sustainability.

Methods

The population of the research is all the professional valuers in Sri Lanka. Accordingly, 60 professional valuers from both private and public sector were selected through simple random sampling. In order to collect primary data, a structured questionnaire survey was carried out among the selected sample. The questionnaire was distributed as a google form and a hard copy. Accordingly, the structured questionnaire comprises with 3 sections including 23 questions. The three sections of the questionnaire are demographic profile of the respondents, valuer`s perspectives on the awareness and application of green features in property valuation, valuer`s

perspectives on the application of green features introduced by Green Building Council of Sri Lanka (GBCSL) in property valuation.

The secondary data were gathered from the GBCSL, RICS guidelines and other related articles and researches.

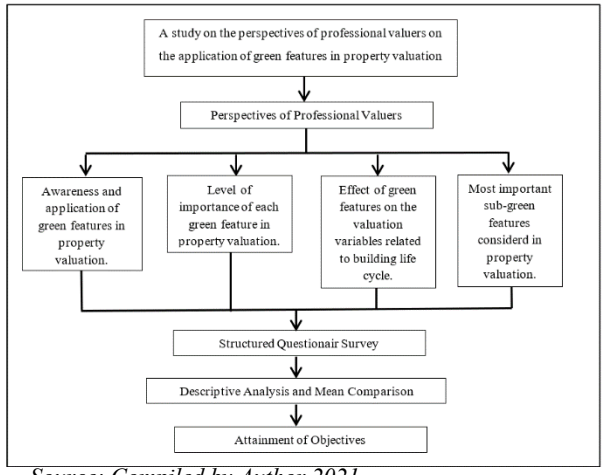
Table 01: Variables of the Research

8 Green Features Introduced by GBCSL	Main Variables Considered in Property Valuation
1. Management (MN)	1. Lower Operating Cost
2. Sustainable Sites (SS)	2. Higher Rent
3. Water efficiency (WE)	3. Lower Vacancy Rate
4. Energy and Atmosphere (EA)	4. Lower Depreciation
5. Materials and Resources (MR)	5. Lower Discount Rate
6. Indoor Environmental Quality (EQ)	6. Higher Yield
7. Innovation and Design Process (ID)	
8. Social and Cultural Awareness (SC)	

Source: Compiled by Author 2021

The data gathered through a structured questionnaire were analyzed using SPSS version 23.0. Accordingly, the descriptive analysis was done to identify the awareness and application of green features in property valuation, to rank the main green features in terms of the importance of considering them in property valuation and to analyze the effect of green features on the valuation variables related to building life cycle. Then mean comparison was done to assess the Most important sub-green features considered in property valuation. Finally, the conclusion of the study was presented with research implications and recommendations for future researches.

Figure 01: Methodological Framework of the Research



Source: Compiled by Author 2021

Results and Discussion

Table 02: Valuer`s Profile

Criteria	Number	Percentage
Gender		
Male	29	48.4
Female	31	51.6
Age		
Less than 30	13	21.7
30-39	16	26.7
40-49	23	38.3
50-59	08	13.3
60-69	00	00
More than 70	00	00
Academic Qualification		
Diploma	00	00
Graduate	37	61.7
Post Graduate Diploma	03	05
Master	20	33.3
PHD	00	00
Sector of Work		
Public Sector	39	65
Private Sector	21	35
Designation		
Deputy Chief Valuer	1	1.7
Assistant Valuer	15	25
Junior Valuer	12	20
Valuer	30	50
Graduate Trainee	02	3.3
Professional Membership		
No Membership	11	18.3
Probationary	11	18.3
IVSL	29	48.5
IVSL & MRICS	2	3.3
MRICS	5	8.3
IVSL & FRICS	2	3.3
FRICS	00	00

Source: Survey Data (2021)

Table 03: Working Experience

Criteria	Mean	Mode	Std. Deviation	Minimum	Maximum
Working Experience	11	15	5.845	1	24

Source: Survey Data (2021)

According to Table 02, the gender distribution of the study is approximately 50% for each gender. However, most of the respondents are female i.e., 51.6% while male respondents are 48.4%. Thus, most of the respondents are in the age between 40-49 years i.e., 38.3% while the least number of respondents are in the age of less than 30 i.e., 21.7%. However, no valuer was recorded with the age limit of 60-69 and above 70. Thus, 61.7% of respondents are graduated and 33.3% have done masters while the least number of respondents have post-graduate diplomas i.e.,5%. However, no valuer was recorded with diploma and PHD. As per the collected data, 65% of respondents work in the public sector while 35% work in the private sector. Furthermore, 50% of respondents are working as valuers while only one respondent is working as a Deputy Chief Valuer. In addition to that, 48.5% of respondents have IVSL membership. Thus, a similar percentage i.e., 3.3% is recorded in the respondents who have IVSL & MRICS and IVSL & FRICS. Also, respondents with no membership and who are working as probationary have been recorded as 18.3%. According to Table 3, 13.3% of valuers have 15 years of working experience. The average years of working experience is 11 years.

Awareness and Application of Green Features Introduced by GBCSL in Property Valuation

As per the Table 04, the study found that the level of awareness of green features in property valuation is at a moderate level in Sri Lanka. Similarly, the studies by Wilhelm (2012); Ali (2015) Abdullah (2018) have found that the awareness of green features in property valuation is at a moderate level. Hence, unawareness of green features in property valuation can be seen in any country.

Table 04: Awareness of Green Features

Criteria	Number	Percentage
High	03	05%
Moderate	47	78.3%
Low	10	16.7%

Source: Survey Data (2021)

However, according to the Table 05, the study found that 90% of the responded valuers have agreed that the green features of a building have an impact on its value. Though the situation in Sri Lanka is like that, that is quite doubtable, as there are various perspectives that have been found in previous researches. For example, the research done by Abdullah (2018) has found that most of the valuers in Malesia did not believe that green features have an impact on its value. The research done by Wilhelm (2012) has found that most of the valuers in UK believed that the green features of a building have an impact on its value. Furthermore, the research done by Nurick (2015) has found that some valuers in South Africa have stated that the value of the green-certified buildings is greater than the non-green certified buildings. Hence, though the world situation is like that, the valuers in Sri Lanka agreed that the green features of a building have an impact on its value.

Moreover, Table 05 depicts that 42% of the valuers agreed that they don't receive adequate guidance from their working organization to identify green features in property valuation. However, 43.3% of the valuers have agreed that they receive good guidance in terms of green features in property valuation by professional organizations such as the RICS. But, 41.7% of valuers neither disagree nor agree with statement No. 03. Hence, it reveals that there is no proper guidance to incorporate green features in property valuation in Sri Lanka. However, the same result was found in previous researches in other countries mentioning that most of the valuers do not get a proper guideline to consider green features in property valuation. Thus, Wilhelm (2012) also emphasized that this is a clear sign to the RICS and other professional bodies to react to this deficit and create a professional framework for this matter.

Table 05: Frequencies for Awareness Measured by 5 Point Likert Scale

Statement	Percentage					Mean
	SA*	A*	N*	D*	SD*	
1. Green Features of a building have an impact on its value.	36.7	53.3	10.0	0.0	0.0	1.73
2. I receive adequate guidance from my working organization in terms of green features in property valuation.	0	23.3	35.0	35.0	6.7	3.25
3. I receive good guidance in terms of green features in property valuation provided by professional organizations such as the RICS.	08.3	35.0	41.7	15.0	0.0	2.63

SA*=Strongly Agree, A*=Agree, N*=Neutral, D*=Disagree, SD*= Strongly Disagree

Source: Survey Data (2021)

Furthermore, Table 06 shows that 58.3% of responded valuers do not currently consider green features in property valuation in Sri Lanka.

Table 06: Consideration of Green Features in Property Valuation

Criteria	Number	Percentage
Yes	25	41.7
No	35	58.3

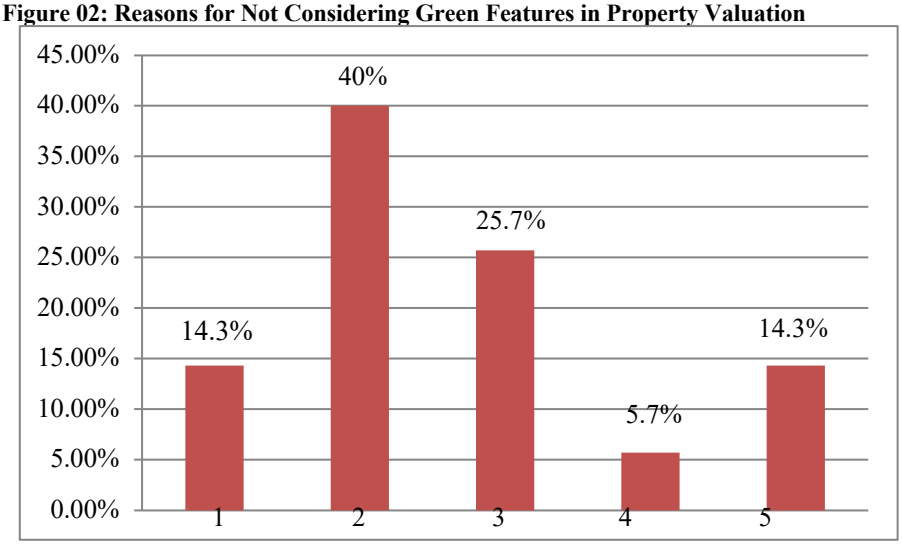
Source: Survey Data (2021)

This research identified the reasons for not considering green features in property valuation and how the valuers who already consider them incorporate them in the property valuation. Accordingly, as per the figure 02, 5 main reasons were identified and 40% of the valuers have pointed out that lack of guidance for considering green features is the main reason.

Reasons for not considering green features in property valuation

01. Cannot directly adopt rates for green features without any research on their impact on the value.
02. No guidelines have been provided to consider it.
03. Low awareness of the organization and poor level of guidance on applying sustainability concepts.
04. Mostly the buildings are not with the green features.
05. Mainly consider type, purpose, condition of the building and locality.

Figure 02: Reasons for Not Considering Green Features in Property Valuation



Source: Survey Data (2021)

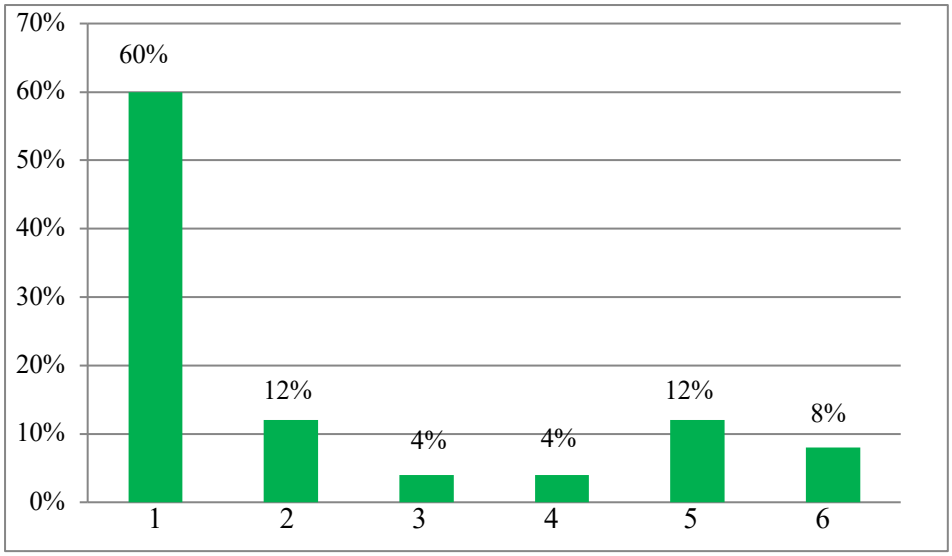
The other fact that arose in the study is unless the demand for green buildings is high, the market value of those buildings may not be increased. Hence, according to the valuers` perspectives, they can adopt a high rate for those buildings if the demand is high but, not considering the benefits of green features to the building. The other factor that valuers emphasized is that there is no proper guidance or framework about the impact of green features on the operating costs of the building or any other monetary factors. The major reason for not considering green features in property valuation in Sri Lanka is the lack of proper guidelines for that.

Thus, as per the figure 03, there are main 6 ways that valuers use to consider green features in property valuation. Among them, 60% of the valuers emphasized that they accounted green features as special facilities or convenience of the property. But there may have property value increment or may not, depending on the demand and the purpose of the valuation. The least number of valuers i.e., 4% have said that they consider green features by indirect adjustments and directly reflecting by the value.

How to consider green features in property valuation?

01. Green features are accounted as special facilities or convenience of the property.
02. View of the Property, property maintenance and scenic view of the property is considered for appalled to rate.
03. Indirect adjustments.
04. Directly reflected by the value.
05. By direct adjustment of the extent of advantage, economic & environmental performances are also considered.
06. It is adjusted by adopting a rate for the building value.

Figure 03: The Way of Considering Green Features in Property Valuation



Source: Survey Data (2021)

As shown in the Table 07, 56.7% of the values have believed that there is an informational duty to the valuers to inform their clients about the sustainable benefits of the property. However, as mentioned above, though they accepted that there is an informational duty to inform the client, they do not consider green features in property valuations.

Table 07: Informational Duty

Statement	Percentage			Mean
	A*	N*	D*	
I have an informational duty to inform their clients on sustainable benefits as they might influence the value stability and value development of the subject building	56.7	30.0	13.30	1.57
A*=Agree, N*=Neutral, D*=Disagree				

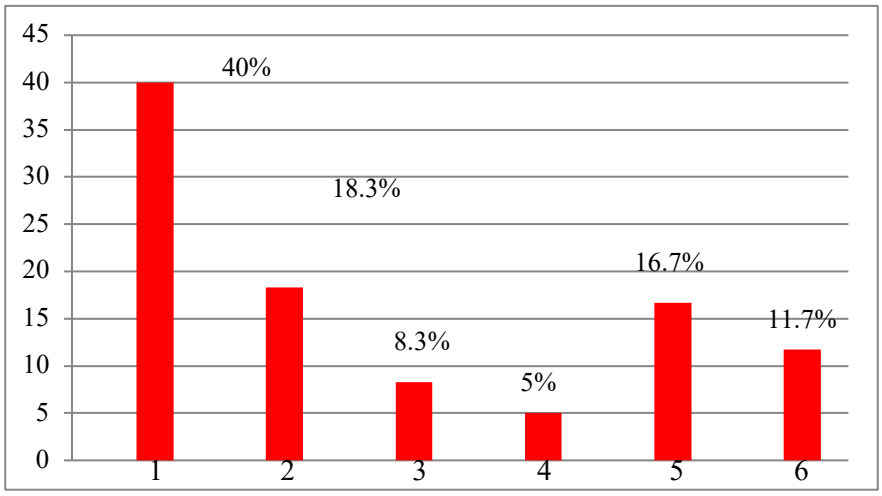
Source: Survey Data (2021)

Consequently, as per the Figure 04, the study found 6 main challengers to consider green features in property valuation. Among them, major challenge for considering green features is the lack of awareness & knowledge about green features and their impact on the building and the occupant. Hence, it is clear that there is an informational duty to the valuer to consider them in their valuations but, the level of awareness needs to be enhanced and proper guidelines should be prepared.

Challengers for considering green features in property valuation.

01. Lack of awareness & Knowledge.
02. No standard, guideline or yardstick has been introduced to value those buildings.
03. cannot fix value due to the high cost.
04. laws and acts of the governments.
05. No proper mechanism and convenient way to identify the level of impact on value based on the green features.
06. Data related to green buildings are limited.

Figure 04: Challenges and Barriers



Source: Survey Data (2021)

The other interesting finding of the study as shown in the Table 08, 58.3% of the valuers believe that consideration of green features is not varied from one property type to another. According to them, once you started to consider green features, there should be no difference from property to property and you have to consider all the features. But, as we don't have proper guidance in Sri Lanka to consider them in the property valuation, valuers may have their own property ranking for considering green features.

Table 08: Is Consideration of Green Features Varied from Property to Property?

Criteria	Number	Percentage
Yes	25	41.7
No	35	58.3

Source: Survey Data (2021)

Accordingly, as per the Table 09, 'Hotel and Restaurant" has been ranked as the most important property type to consider green features and "General Detached Residential building" as the least important property type. Rank No. 2 and 3 for condominium and office buildings consecutively.

Table 09: Ranking for Different Property Types

Property Types	Mean	Mode	Rank
Commercial Building	3.60	4	4
Hotel and Restaurant	1.23	1	1
Office building	3.20	3	3
Condominium	1.97	2	2
General Detached Residential building	3.75	5	5

Source: Survey Data (2021)

Ranking of Green Features Introduced by GBCSL

As per the Table 10, the study found that "materials and resources" has been ranked as the most important green feature that should be considered in property valuation. Secondly, "environment management" has been ranked as the second important feature which is about occupant comfort and thirdly "Indoor environment quality" feature. However, rank no. 8 has gone to "social and cultural awareness features".

Table 10: Green Features Ranking

Green Features	Mean	Mode	Rank
Environment Management	3.08	2	2
Sustainable Sites	3.32	4	4
Water Efficiency	5.18	6	6
Energy & Atmosphere	5.17	5	5
Materials & Resources	2.92	1	1
Indoor Environmental Quality	2.98	3	3
Innovation & Design Process	5.68	7	7
Social & Cultural Awareness	7.58	8	8

Source: Survey Data (2021)

Perspectives of Valuers on the Effects of Green Features Introduced by GBSL on the Main Variables Considered in Property Valuation Related to the Building Life Cycle

According to the Table 11, the study reveals that sustainable site, water efficiency and energy and atmosphere green features have a greater impact on the valuation variables in the first phase, environment management and energy & atmosphere have a greater impact on valuation variables in the middle phase and materials & resources and indoor environment quality have an impact on valuation variables in the last phase of the building life cycle.

Thus, the study found that the impact of green features on property valuation is greater in the middle phase of the building than the first and last phase of the building life cycle. Furthermore, the "operating cost" is the most affected valuation variable by green features. Secondly affected valuation variable is "lower vacancy rate". A similar result has been discovered in the researches done by Elain (2015) & Saul Nurick (2015). As a summary, the study reveals that, Environment Management, Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources and Innovation & Design Process are the green features which have greater impact on valuation variables as per the perspectives of valuers in Sri Lanka. Further, Moran (2010) & Schumann (2010) emphasized that the materials and the design of the green buildings reduce the costs of operating, costs of repair, maintenance and replacement of materials which ultimately increases the net operating income impacting the property valuation. Maintenance cost of green features of buildings is not static but varies with age of building. Hence, it should be highly considered in the valuation as it affects to the net operating cost of the building. The same result was discovered in this study as well. Hence, it is clear that green features impact on valuation variable and it is important to consider them in property valuation.

1 Lower Operating Cost
2 Higher Rent
3 Lower Vacancy Rate
4 Lower Depreciation
5 Lower Discount Rate
6 Higher Yield
7 Lower Operating Cost

Table 11: Perspectives of Valuers on the Effects of Green Features Introduced by GBCSL on the Main Valuation Variables

Main Green Features	First Phase (%)							Middle Phase (%)							Last Phase (%)						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Environment Management	10	36.7	38.3	15	1.7	6.7	16.7	41.7	8.3	50	10	20	8.3	5	45	11.7	41.7	11.7	25	8.3	11.7
Sustainable Sites	16.7	50	41.7	5	3.3	6.7	5	21.7	43.3	50	5	0	8.3	10	18.3	5	35	8.3	5	8.3	25
Water Efficiency	50	8.3	11.7	3.3	3.3	48.2	16.7	40.7	5	8.3	10	3.7	38.3	11	52.3	4.8	20.3	3.3	2.5	48.5	9.8
Energy and Atmosphere	36.8	28.5	15.8	11	8.3	24.3	12.6	56.3	36.4	39.6	11.4	12.8	27	10	35.6	24.6	31.2	6.5	8.3	14.3	17.3
Materials and Resources	12.3	8.3	18.3	15.6	3.3	11.7	28.3	14.6	9.7	20.3	15.6	8.3	10	38.3	14.3	10	15.4	6.5	8.3	10.5	38.5
Indoor Environmental Quality	15.8	11.7	18.9	3.3	18.3	10	5	28.5	11.3	20.7	3.3	8.3	9.5	0	28	10	25.4	8.3	3.3	6	0
Innovation and Design Process	30.5	16.4	16.7	10	25.4	18.6	28.4	44	20.3	15.4	11	15	38.2	14.3	38	16.5	25	20	18.4	12	28.4
Social and Cultural Awareness	8.3	10	15	0	10	5	56.4	5	3.3	11	0	12	3.3	50	3.3	7.2	14	0	15	5	48.3

Source: Survey Data (2021)

The Most Significant Sub Feature or Features that Valuers Consider in the Property Valuation in Sri Lanka

The study results are presented in the Table 12.

Table 12: Perspectives of Valuers on the Consideration of Sub Green Features Introduced by GBCSL on Property Valuation

Sub Green Features	Condominium	Mean Commercial Building	Office Building
Management	**3.41**	**2.16**	**2.86**
01. Optimizing occupant Comfort	4.82	1.83	3.50
02. Environmental management	1.98	2.50	2.23
Sustainable Sites	**2.72**	**3.34**	**2.60**
03. Development Density and Community Connectivity	3.80	4.93	3.50
04. Environmental Pollution Reduction	1.65	1.75	1.70
Water Efficiency	**3.64**	**3.43**	**3.42**
05. Use of water-saving performances	3.50	3.82	3.72
06. Innovative Wastewater Technologies	3.64	3.75	3.68
07. Innovative Water Transmission	3.80	2.72	2.86
Energy & Atmosphere	**3.72**	**2.58**	**2.14**
08. Renewable Energy	4.64	2.75	2.34
09. Green Power	2.80	2.42	1.95
Materials & Resources and Waste Management	**3.38**	**3.20**	**2.91**
10. Rapidly Renewable Materials	3.50	3.84	4.05
11. Global Warming Potential (GWP) of Buildings	2.45	2.58	2.08
12. Materials Produced with Waste Materials	2.50	1.52	1.48
13. Operational Solid Waste Management	3.83	4.18	3.50
14. Hazardous Waste Management	4.64	3.89	3.45
Indoor Environmental Quality	**4.37**	**3.41**	**2.45**
15. Increased Ventilation	4.25	3.95	2.65
16. Daylight & Views	4.50	2.87	2.25
Innovations and Design Process	**1.52**	**1.67**	**1.65**
Social & Cultural Awareness	**1.57**	**1.76**	**1.61**
17. Social Wellbeing, Public Health & Safety	1.50	1.78	1.80
18. Cultural Identity	1.64	1.75	1.42

Source: Survey Data (2022)

According to the above Table 12, the results as per the valuers' perspectives are summarized as follows.

Management	Valuers have agreed that they consider it when valuing condominium property while they do not consider it for valuing commercial buildings. However, they neither consider nor do not consider it for valuing office building.
Sustainable Sites	Valuers in the position of neutral in their opinion for condominium and commercial property valuation, but they do not consider it when valuing the office buildings.
Water Efficiency	Valuers have agreed that they consider this feature to estimate the value of all three property types.
Energy & Atmosphere	This has been considered for condominium property valuation but, not for commercial and office buildings.
Materials & Resources and Waste Management	This has been considered by valuers to estimate the value of condominium and commercial buildings only and they neither consider nor do not consider it for office building valuation.
Indoor Environmental Quality	Valuers highly consider it for condominium property & commercial property valuation and do not consider it for office building valuation.
Innovations and Design Process	There is no need to consider it when estimating the value of condominium, commercial and office buildings.
Social & Cultural Awareness	There is no need to consider those two sub green features in property valuation

Accordingly, the study reveals that according to the valuers, there is no need to consider "Social & Cultural Awareness" green feature in property valuation. However, this study reveals that though "Innovations & Design Process" green feature has impacted on valuation variables, valuers do not consider it in condominium, commercial and office building valuations. Furthermore, the summary of the results is depicted in the following Table 13.

Table 13: Summary of the Results

Condominium	Commercial Building	Office Building
1. Optimizing occupant Comfort	1. Development Density and Community Connectivity	1. Optimizing Occupant Comfort
2. Development Density and Community Connectivity	2. Use of water-saving performances	2. Development Density and Community Connectivity
3. Use of water-saving performances	3. Innovative Wastewater Technologies	3. Use of water-saving performances
4. Innovative Wastewater Technologies	4. Rapidly Renewable Materials	4. Innovative Wastewater Technologies
5. Innovative Water Transmission	5. Operational Solid Waste Management	5. Rapidly Renewable Materials
6. Innovative Water Transmission	6. Hazardous Waste Management	6. Operational Solid Waste Management
7. Renewable Energy	7. Increased Ventilation	7. Hazardous Waste Management
8. Rapidly Renewable Materials		
9. Operational Solid Waste Management		
10. Hazardous Waste Management		
11. Increased Ventilation		
12. Daylight & Views		

Source: Compiled by Author 2021

Conclusion

The purpose of this study is to analyze the perspectives of professional valuers on the application of green features introduced by the GBCSL in property valuation in Sri Lanka. As key findings of the study, most of the valuers have agreed that their awareness and knowledge of green features is at a moderate level and most of the valuers do not consider green features in property valuation. A key challenge/barrier to considering green features in property valuation is the lack of proper guidelines and knowledge. Also, as per the perspectives of the valuers, material and resources have ranked as the most important feature to consider in valuation while social & cultural awareness is the least important feature. Furthermore, as per the findings, sustainable site, water efficiency and energy & atmosphere green features have a greater impact on valuation variables in the first phase, environment management and energy & atmosphere have a greater impact on valuation variables in the middle phase and materials & resources and indoor environment quality have an impact on valuation variables in the last phase of the building life cycle. Thus, according to the findings, 12 sub green features out 18 are considered by valuers to estimate the value of condominium and 7 sub green features are considered to value commercial and office buildings. Hence, it is found that the consideration of green features is varied from one property type to another.

Consequently, with those findings, it is clear that the valuers are in the position of considering green features in property valuation. However, green lack of knowledge and proper guidelines have become the barrier to consider features in property valuation. Hence, this study revealed that though there is a necessity to consider green features in property valuation, the application of green features in property valuation is not positive in Sri Lanka and valuers do not consider them and some of them consider them in property valuation according to their own ways. Hence, this study recommends followings.

01. Enhance the valuer's knowledge on green buildings and green features.
02. Identify the benefits of each green feature which may affect to the property value.
03. Build a framework or guidelines to consider green features in property valuation.
04. Enhance the knowledge of buyers, sellers and investors, on the importance of green features of property.

Acknowledgements

International Conference on Real Estate Management and Valuation, Center for Real Estate Studies (CRES), Department of Estate Management and Valuation, University of Sri Jayewardenepura.

References

Ali, J. &. M. (2015). Valuation of Green Commercial Office Building: A Preliminary Study of Malaysian Valuers' Insight. International Journal of Humanities and Social Sciences, 9, 2879-2884.

Brundtland (1987). Report of the World Commission on Environment and Development: Our Common Future, s.l.: United Nations (UN).

Boyd & Kimmet (2005). The Triple Bottom Line Approach to Property Performance Evaluation, Brisbane, Australia: School of Construction Management and Property.

Green Building Council Sri Lanka (GBCSL), (2021). [Online]

Available at: https://srilankagbc.org

Jung Ying Liu, S. P. L. &. X. H. (2012). Green Practices in the China building industry: drivers & impediments. Journal of Technology Management in China, 50-63.

Kriss, J. (2014). What is green building? [Online] Available at: https://www.usgbc.org/articles/what-green-building

L. Abdullah, T. M. S. F. C. P. a. N. A. (2018). Green Building Valuation; from a Valuers' Perspective. s.l., AIP, 7.

Lawther, J. R. &. P. (2008). The Valuation and Appraisal of Sustainable Development, s.l.: www.irbnet.de.

Levy, F. &. (2008). The impact of sustainability on the investment environment. Journal of European Real Estate Research, 72-87.

Lorenz, D. P. (2006). The Application of Sustainable Development Principles to the Theory and Practice of Property Valuation. Karlsruher Schriften zur Bau-, Wohnungs- und Immobilienwirtschaft, Band 1, 1.

Lützkendorf, D. L. &. T. (2008). Sustainability in property valuation: theory and practice. Journal of Property Investment & Finance, 482-521.

Lützkendorf, D. P. L. &. T. (2011). Sustainability and property valuation: Systematisation of existing approaches and recommendations for future action. Journal of Property Investment and Finance, 644-676.

Perera, A. (2021). Financing Sri Lanka's Sustainable Built Environment: Pathways for Collaboration. THE GREEN GURARDIAN VOL.02 | ISSUE 03, 21-25.

RICS (2009). Sustainability and Commercial Property Valuation, London: Royal institute of Chardet Surveyors (RICS).

RICS (2013). Sustainability and Commercial Property Valuation, London: Royal institute of Chardet Surveyors (RICS).

Saul Nurick, K. L. J. E. D. R. F. a. J. W. (2015). Incorporating Green Building Features and Initiatives into Commercial Property Valuation. The Journal of Sustainable Real Estate, 7, (1), 21-40.

Schumann, B. (2010). Impact of Sustainability on Property Values, s.l.: Universty of Regensburg.

Scott, M. &. (2010). Value Beyond Cost Savings: How to Underwrite Sustainable Properties. s.l.: The Muldavin Company Inc.

Shalley, M. &. (2008). Green Buildings: A New Paradigm in Real Estate, IPT Property Tax Symposium, s.l.: Institute for Professionals in Taxation.

Sundberg, S. (2009). Sustainable property: a premium product? Stockholm, KTH University.

The Appraisal Foundation (2015). APB VALUATION ADVISORY 6: Valuation of Green and High-Performance Property: Background and, Washington, DC: The Appraisal Foundation.

Thomas (2008). A National Green Building Research Agenda, s.l.: USGBC Research.

Tim Dixon, C. R. G. E.-R. &. S. S. (2009). Demand for Sustainable Offices in the UK Summary Report, s.l.: Investment Property Forum 2009.

Vinyangkoon, A. (2012). Commercial green building: the value-added gap perspective, Stockholm: Department of Real Estate Management.

WGBC (2021). what is green building. [Online]

Available at: https://www.worldgbc.org/what-green-building

Wilhelm, T. (2012.) The incorporation of sustainable features in commercial property valuation. Journal of Property Investment & Finance, 30, (4).

Wills, B. (2008). Valuing Green: How green buildings affect property values and getting the valuation method right, s.l.: Green Building Council of Australia.

Zafar, S. (2013). Features of Green Building. [Online]

Available at: https://www.ecomena.org/author/salman/page/31/