Challenges in Implementing Green Urban Space: From the Lens of Private Developers

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ABSTRACT

Urbanization should involve physical development such as the building itself and urban green space, a public space filled with plants. However, creating urban green space is not a priority by private developers which consider financial aspect and high-return developments that provide them with greater benefits. As a result, most modern urban development lacks urban green space, which impacts the character of urbanites' lifestyles. As a result, the goal of this study is to encourage private developers in Kuching to create urban green space. This research adopted a survey using questionnaires focusing on Kuching city. The result highlights the challenges of establishing urban green space from the perspective of private developers in Kuching. This outcome will add to the knowledge where the perception of private developers is being discussed. Future research should continue to explore ways of enhancing positive attitudes among private developers to enhance their engagement in urban green space.

INTRODUCTION

The increasing growth of urban populations makes urbanization one of the most important challenges adequately addressed. Urban green space (UGS) is a development that provides residents with a breath of fresh air, room for physical activity, and opportunities to socialize with their neighbours (Keniger et al., 2013).

The uninhibited and unoccupied property in the urban area provides an unpleasant atmosphere for the city's residents which sometimes used as a wasteyard by those nearby (Kim et al., 2018). As a result, it tarnishes the city's reputation by lowering property values, acting as a barrier to investors, and necessitating a larger budget to restore the area to liveability. The establishment of the UGS is not a high priority in the urbanisation process, particularly among private developers. This is because private developers are more interested in the development of high-return properties.

Focusing on urban development today, there are no established UGS areas that influence the nature of the urban population's lifestyle, necessitating research. The preliminary study aims to find out the mechanism to promote the UGS in developments by the developers needs to be highlighted to spread the benefits of the UGS.

URBAN GREEN SPACE

Concept

Rapid urbanization in the city leads to unbalanced development. Indirectly, it affects the urban population's lifestyle, including their social life, behaviour towards their surroundings, and the impact of the development on the environment (Li, 2014). Most development focuses on constructing the building structure, leaving little space for the communal area such as urban gardens or parks (Dagley, 2019). Due to the scarcity of space in metropolitan areas, thoughtful planning and design are required to utilize the site to benefit the community, ecology, and environment (Schueler, 2015). The UGS is an endeavor to bring greenery into the concrete jungle (Dagley, 2019) by providing space for the public to plant green floras and complement the public utilities (Schueler, 2015).

The UGS implementation is divided into different classes based on the space's nature, objectives, and functioning, which are heavily influenced by the surrounding environment (Panduro & Veie, 2013). Parks, green corridors, gardens, and green spaces are examples of unique characteristics that fit the aim of the establishment.

Park is a space opened for public use, consisting of mixed flora and artificial features known as semi-natural features and is not limited to outdoors only, but it can be built indoors as well (Rifai, 2019). The Garden complements the park establishment, in which the planned cultivation of plants and flowers beautifies that designated area. According to Rifai (2019) garden can be explained as open land being planted with greeneries such as trees, grasses, and shrubs, which can also be used for sports activities and recreational areas by the public. Green corridors, also known as greenways or green networks, are planned greenery networks that connect existing parks or gardens in urban areas. The goal of green corridors is to conserve animal habitats prone to moving from one location to another, with green corridors connecting their movements (Zardo Geneletti et al., 2017).

The Push Factors for UGS Adoption

Recognition and rewards, required implementation, government incentives, and awareness workshops are just a few of the techniques utilised to promote the UGS. To raise public knowledge about UGS, a determined effort must be made to persuade the developer of the facility's public benefits. The developer can expand their portfolio as a green developer by incorporating green practices into development planning (Virtanen, 2017). The platform of public demand can shape the living standard for a sustainable lifestyle (Cho, Nasution & Mascarenhas, 2017).

Newspapers, online platforms, and social media participation with the community are the most cost-effective venues for disseminating information (Kim & Cho, 2019). According to Hou (2017), interview sessions were an efficient technique to obtain input from the community to improve current processes. The townhall session is important to bring everyone to discuss the issues and bridge the gap between the internal and external stakeholders (Kriznik et al., 2019).

The motivation of developers and construction companies can be cultivated by recognising and awarding the quality of green infrastructure development work. In England, the Green Flag Award Scheme was established in 1996 to recognise high-quality green and public spaces that meet sustainability, environmental, and management standards (Kioller et al., 2015). As a result, there is a significant increase in the number of awarded green spaces in the country by recognizing the quality of workmanship of development. The awards and recognition specifically for green infrastructure are almost like other international awards (Kay, 2018).

The government's required adoption of UGS demonstrated its commitment to long-term development (Dickinson & Hobbs, 2017). This includes the state government's commitment to the area's locale (Maryanti et al., 2017). To urge developers to have urban green space in their development planning proposals, the state government and local governments should emphasise the policy's enforcement at the state level (Maryanti et al., 2017). The provision of government incentives allows building developers to support UGS in producing higher-quality infrastructure for the country's benefit (Darko & Chan, 2016).

Furthermore, when the rules and regulations are followed, the rebate or refund programme significantly benefits developers, allowing them to save even more money (Shazmin et al., 2016). The government provides the incentive in the form of a green management team and green expert help. It gives administrative management assistance to the developer's organisation through guidance and guidelines for non-financial incentives (Olubunmi et al., 2016). The government's helping team provides developers with a second view on green development planning (Shazmin et al., 2016) and reduces the financial burden of hiring private green specialists or facilitators.

At the awareness workshop, the project stakeholders can meet with industry experts and other project stakeholders' teams to exchange information and ideas on green and sustainable development and green space allocation (Klein, 2018). The strategy taken during the awareness workshop is to emphasise the development's fundamental value by emphasising the sustainable component that may be implemented into the development. Apart from accepting the value, developers must also understand the standard work implementation techniques to achieve high standards in green development (Klein, 2018). Through the awareness workshop, the developers pledge to review the benefits of creating a more environmentally friendly project that considers the importance of surrounding economic features, social interaction, and nature preservations.

CHALLENGES RELATED TO URBAN GREEN SPACE ADOPTION

The challenges related to UGS adoption may cause the drawback in introducing the UGS to the industry. The challenges may come in various forms, such as the low level of awareness among the project owner, project team, and end-user. Among the challenges are listed in Table 1.

Table 1: Challenges in Implementing the UGS Standards

Type of Barriers	References
Increase in Urbanization Rate	(Wen & Ren, 2017; Chen, 2015; Yang, Long & Sun, 2015; Maryanti et al., 2017).
The satisfaction of The Public	(Rouhi, Monfared & Forsat, 2017; Bazzi & Mirshekari, 2016)
Accessibility	(Jang, An, Yi & Lee, 2017; Rigolon, 2016; (Johnsona, Dasguptaa, Hashimoto, Kumara & Onishi, 2019)
Implementation Cost	(Oyewole, Ojutalayo, & Araloyin, 2019; Nordin, Halim & Yunus 2017; Gomez & Yung, 2018)
Inexperience	(Algburi, Faieza & Baharudin, 2016; Nordin, Halim & Yunus 2017; Mohamed, 2015; Zainordin & Mei 2015; Ubale, Martin & Wee 2015)
Capacity of Implementation	(Rahim, Yussof Chen & Zainon 2016; Lee, Yun, Pyka, Won & Kodama, 2018; Kim & Choi, 2018)
Development Strategy	(Razali, Yunus, Zainudin & Mei, 2017; Gomez & Yung, 2018; Mell, 2018)
Client support	(Mell, 2018; Jerome, Mell & Shaw, 2017; Meerow & Newell, 2017)

The growing urban population demanded basic infrastructure, which necessitated the acquisition of new residential areas either within the central business district or in the suburbs (Wen & Ren, 2017). Because of recent increases in market demand, there has been a clear trend to prioritise infrastructure construction, especially in heavily populated areas like the city centre (Yang et al., 2015). As a result, it directly increases demand for property to commence new development in restricted land supply and land acquisition costs are higher within the urban region (Chen, 2015). When government-owned public land is converted for other purposes, such as commercial development, less focus is placed on environmental protection, especially in urban areas, resulting in smaller UGS allocation.

The UGS establishment is based on the guidelines that should be complied with by the planners and developers to achieve the objectives of the standards. The public's satisfaction with the quality of the UGS should be an essential element in establishing the UGS (Rouhi et al., 2017). The public's satisfaction towards space is declining when most of the UGS in the urban area usually only focus on the quantity itself but not on product quality, instead of making it less attractive for the public to utilize the space (Bazzi & Mirshekari, 2016). This happens as the public's opinions are not being considered by the builders regarding the suitability and the needs of the facilities demanded by the public. As a result, some of the existing UGS does not fulfill the needs of the people leading to less interest for the public to make use of the area, thus decreasing the number of visitors (Rouhi et al., 2017).

The accessibility issue arises from poor location selection for UGS, such as slopes and distant regions that are difficult to reach by the general people (Rigolon, 2016). Some USGs stationed in isolated places were involved in the infamous crime activities that are expected to attract more tourists. The key to this issue is poor planning and studies, as the feasibility studies

conducted by the developers were not adequately executed (Johnsona et al., 2019). As a result, the decision was taken only based on the established norms, without considering the critical factors that contribute to the establishment's success in terms of accessibility and suitability of the space in the development plan (Jang et al., 2017).

It has long been assumed that everything associated with "green" will be more expensive. This statement was made since the user and developers will need more money to add the green element to the project (Oyewole et al., 2019). One of the reasons developers are hesitant to include a green component in their project is a lack of clarity about the long-term benefits of investing in a green and sustainable project. Because of the resistance, developers will opt for a lower-risk option, as is customary, to ensure a return on investment (Nordin et al., 2017). Furthermore, developers are still unaware of the many incentives available from various organisations, such as rebates and loans, which help with the project's capital costs. Developers must know about the cost of the green element in the development to dispel the myth that green projects are costly, although they bring value to both the property and the end-users (Gomez & Yung, 2018). The cost of UGS is considered an additional cost that will be passed on to end-users later.

According to Nordin et al. (2017), the concepts of sustainable development are poorly defined among construction stakeholders, with a study revealing that understanding and awareness of the subject are below average. As a result, the construction industry can be classified as unprepared to use sustainable practices in development planning due to a lack of understanding of the idea that results from the least amount of sustainable development, particularly in metropolitan areas (Mohamed, 2015). According to Ubale et al. (2015), construction industry players do not take any steps to expand their understanding of green and sustainable development, contributing to a low number of green development specialists, limiting the industry's acceptance.

According to Rahim et al. (2016), the company's capacity to engage in green development is limited in terms of human resources by the number of green project specialists accessible on the market. Furthermore, the rapid growth of new technology, such as digitalization, offers the industry a new tool for working that improves job quality while shortening production time (Lee et al., 2018). According to Kim and Choi (2018), the construction industry's acceptance of new technology is still in its early stages, with the majority of work being conducted using traditional methods. The cost, knowledge, and availability of digital infrastructure hinder developers' ability to adapt to new technologies, which directly impacts the developer's ability to take on a challenging project or another unique aspect in the development of green infrastructure (Lee et al., 2018).

Private developers manage the majority of profit-driven projects. This project demands vital planning and strategic management to get a faster return on investment (Gomez et al., 2018). Developers are more likely to invest in highly sought-after projects on the market, the majority of which are unrelated to green initiatives, to achieve the goal (Nordin et al., 2017). This strategy looks to be the best alternative for developers because it reduces the risk of profit from the project.

According to Mell (2018), this method appears to limit developers' involvement in green initiatives by avoiding risky judgments on lower-demand projects. Because the green feature has historically been linked with being a costly element, developers are likely to remove it from

the project to compete on property price. As a result, due to the stigma of difficulty in execution, higher expense, and lesser demand, green projects are not a popular choice among private developers.

According to Jerome et al., the benefits of green infrastructure are rarely discussed at the decision-making session with all project stakeholders during the planning stage of development (2017). This method has made it difficult to budget for green space provision, resulting in a reduced financial margin, which has a detrimental impact on the development's green infrastructure quality. The importance of green infrastructure is underappreciated, resulting in misunderstandings that substantially affect top-level management decisions, as seen by the absence of funding for green space provision in development planning (Meerow & Newell, 2017).

METHODS

This research is conducted using the quantitative method by utilising the questionnaire to collect the data. This methodology section will examine the questionnaire design, sampling strategy for subject recruitment of study participants, ethical considerations, and data collection to ensure the feasibility of the pilot study protocol.

Study Area

In Sarawak, the Public Parks and Greens Ordinance 1993 has been the reference in planning the public parks by both government and private developers. Public parks in the context of Sarawak local government as 'all parks (other than National Parks and Nature Reserves constituted under the National Parks and Nature Reserves Ordinance, 1998 [Cap. 27], gardens, recreational grounds, open spaces, esplanades, or other land or areas (including any marine, estuarine, or foreshore areas) which has been designated for public use or enjoyment and which are maintained by or placed under the control or management of a local authority or a management agency.

The Study Area is Kuching Urban Green. Kuching is located in Sarawak, and the state is planning to reflect the richness of the state rainforest within the city area by mixing the urban development with the greenery in parks and recreational areas. Most of the UGS in Sarawak are initiated by the local governments to cater to the local community's needs. This initiative can be seen with a few establishments of gardens and parks in the Kuching city such as Kuching Reservoir Park, Friendship Park, Orchid Park, and Sarawak State Library Park, which focuses more on recreation as well as a cooling agent (green lungs) to the city.

Questionnaire and Sampling Method

The questionnaire for this study includes closed-ended questions with multiple choice answers and Likert Scale questions, which indicate the respondent's level of agreement with the statement. The questionnaire is divided into several sections, including Section A, which contains demographic questions answered using closed-ended questions. In Sections B, C, and D, which include the Likert scale and closed-ended questions, questions relevant to the objectives will be asked. The Likert Scale questions allow respondents to select a response level, which standardises the responses using the scale choice.

Purposive sampling is a technique that identifies subsets of the population with similar goals and features. The respondents' primary selection criterion was private house developers in the Kuching division. There are 217 developers' companies in Sarawak, which are dispersed around the state. This information was obtained from the website's publicly available information. There are 156 developers' companies in the Kuching division from the overall population, which is the emphasis area.

The sample size was calculated using a sample size calculator with a margin of error of 5%, a confidence level of 95%, and a 50% response distribution. As a result, the total number of private housing developers in the research sample size is 112. The 112 developers were chosen at random and contacted by email.

RESULTS AND DISCUSSION

The questionnaire is initially provided via Google Form, and the respondent has one (1) month from February 1st to February 29th, 2020, to complete it. The questionnaire is returned by auto-submitting the Google form once it has been filled out, sending a scanned answered questionnaire through email or self-collection. Because of the poor response rate, the hardcopy version of the form was also transmitted directly to the respondent's office, and the self-collection method was chosen, which proved to be more effective.

The questionnaire's results were checked to verify that only legitimate questionnaires were recorded. The replies to the questionnaire were then imported to IBM SPSS software for analysis. The results of the reliability analysis using Cronbach Alpha were used to conduct the missing values screening. With a total of 16 entries, the Cronbach Alpha value is reported as 0.831. The recorded figure indicates that data dependability is in the "Good" category above the allowed range. This range assumes that the data for this study is trustworthy and can be used (Shanmugam et al., 2018).

Demographic Background

As part of the data analysis, the respondents' profiles were examined in this area. The goal of analysing the respondents' demographic profiles is to comprehend better and define their features, such as their work experience and organisational type.

Table 2: Age of the respondents

	Frequency	Percent (%)
25 and Below	1	2.9
25-30	15	42.9
31-40	10	28.6
41-50	5	14.3
51 and above	4	11.4
Total	**35**	**100.0**

Table 3: Developers' years of experience

	Frequency	Percent (%)
One year and below	6	17.1
1-5 years	11	31.4
6-10 years	3	8.6
11-15 years	5	14.3
Above 15 years	10	28.6
Total	**35**	**100.0**

Tables 2 and 3 shows that respondents aged 25 to 30 had the highest number of responses (15 respondents), accounting for 42.9 percent of the total respondents. Developers with 1 to 5 years of experience in the field lead by 31% or 11 replies. The group with the highest experience among the other respondents, those with more than 15 years of experience, received 28.6% of the vote, or ten respondents, a difference of only one respondent from the preceding group.

Challenges in implementing UGS Standards in Kuching

Table 4: Challenges in terms of developers' implementation on UGS standards

	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree	
	f	%	*f*	%	*f*	%	*f*	%	*f*	%
Increase in the urbanization rate	-	-	3	8.6	11	31.4	16	45.7	5	14.3
Public expectation	-	-	2	5.7	16	45.7	13	37.1	4	11.4
Accessibility for the public	1	2.9	2	5.7	12	34.3	17	48.6	4	8.6
Implementation cost	-	-	2	5.7	3	8.6	19	54.3	11	31.4
Inexperience in the green construction	1	2.90	4	11.40	10	28.60	15	42.90	5	14.30
Incapacity due to limited resources	2	5.70	3	8.60	8	22.90	19	54.30	3	8.60
Development is based on profit-oriented agenda	1	2.90	1	2.90	7	20.00	15	42.90	11	31.40
Lack of client support	-	-	1	2.90	14	40.00	13	37.10	7	20.00

f= frequency, %=percentage

The developer is under increased pressure to follow the UGS criterion in the development as the rate of urbanisation rises. Table 4 shows that more than half of the respondents (60%) acknowledge the problem, with 46 percent responding "Agree" and 14 percent stating, "Strongly Agree." The remark above indicates how the rate of urbanisation limits developers' ability to examine the provision of green space due to limited space and the need to maximise land use.

Next, the developer's reputation to deliver greater UGS for the public is harmed by the high public expectation for green space quality. According to the results in Table 4, respondents have a split opinion, with 48 percent agreeing with the statement and 46 percent stating "Neutral." According to Bazzi and Mirshekari (2016), the decline in public satisfaction with present green space is attributable to a failure to meet public demand, with provision based solely on quantity rather than quality. The statement stressed that developers are having problems meeting public demand, as evidenced by 48 percent of respondents agreeing with the scenario.

In this case, 58 percent of developers think it's tough to find an appropriate spot in the development for green space allocation to allow public access, with 49 percent saying "Agree" and 9 percent saying, "Strongly Agree." Meanwhile, 34% of respondents are undecided about the subject, while 9% disagree with the remark. According to Jang et al. (2017) and Rigolon (2016) emphasised that adequate planning is necessary to evaluate the location's significance, for the UGS should be built in a strategic location to allow public access via any mode of transportation public. Research conducted by Aziz, van den Bosch, & Nillson (2018) has confirmed that distance plays a vital role in encouraging the usage of the park.

According to Table 4, 85 percent of respondents agree that UGS provision necessitates a higher implementation cost, with 54 percent approving and 31 percent strongly agreeing. "Neutral" was voted by 9% of respondents, while "Disagree" was opted by 6%. According to Oyewole et al. (2019), green construction is a premium project that necessitates more cash at the outset. Everything, including a green element in construction, is regarded as costly. This conclusion is supported by data in Table 4, which reveals that 85 percent of respondents felt that establishing a green feature in development requires a higher implementation cost.

The UGS guidelines can be challenging to execute for developers who have no prior experience with green development. According to Table 4, 57 percent of respondents acknowledge the challenge, with 43 percent stating "Agree" and 14 percent stating, "Strongly Agree." On the other hand, 15% of respondents disagreed with the statement, and 29% chose the "Neutral" option. Even though the market for green development is increasing rapidly, according to Zainordin and Mei (2015), there is the fewest number of experienced professionals and consultants in the field. As a result, the results revealed that 57 percent of respondents struggle to participate in green construction due to a lack of expertise in the company.

Around 63 percent of those surveyed agreed with the statement, while 15% disagreed. According to Kim and Choi (2018), new technology acceptance is still in its early phases in the construction industry due to slow adaption to new technology, highlighting the issue of implementation costs and infrastructure readiness. The developers' ability to provide green space is limited due to a shortage of funds. As a result, more than half of those polled felt that a lack of resources is impeding the developer's ability to adopt UGS standards.

Table 4 shows that most respondents agree with the statement, with a total of 73 percent approving. In contrast, 6 percent of respondents disagree with the statement, while 20% rate it as "Neutral." According to Nordin et al. (2017), developers are more likely to invest in high-demand projects and lower-risk initiatives to secure a return on investment. Their preference for profit-oriented development hampers the developer's desire to implement the UGS standards. Furthermore, Mell (2018) emphasised that the stigma associated with risky investments in green projects must be overcome. To summarise, 73 percent of respondents believed that developers favoured profit-based initiatives due to lesser investment risk and stronger market demand.

As a project financier and developer, the client fails to recognise the significance of the UGS, which restricts the supply of open space in the development. According to Table 4, respondents had a mixed reaction, with 57 percent agreeing with the statement and 40 percent describing the situation as "Neutral." The benefit of green infrastructure is not routinely highlighted during decision-making sessions with all project stakeholders, according to Jerome et al. (2017). The remark above demonstrates that the value of green infrastructure is not widely appreciated by private developers, resulting in the green infrastructure part of the development receiving the least attention.

The majority of the challenges they faced in incorporating and executing the UGS were agreed upon by the participants in the survey. The uninterested respondents in promoting urban green space account for 31% of the total, which should be explored further since this could be a barrier to implementing UGS. More assistance from decision-makers in terms of knowledge, incentives, and financial incentives for developers is required as a result. Aside from that, the government can collaborate with private developers, non-governmental organisations, and the general public to create a secure and comfortable UGS. As cities worldwide become more involved in greening initiatives to improve human health and tackle climate change, the findings of this paper should help shed light on the challenges private developers face in providing UGS and pave the way for finding the best solution to increasing UGS practises.

CONCLUSION

A few obstacles hinder the developers' ability to offer appropriate green space during development planning, limiting the adoption of urban green space requirements in development. The literature research identifies the most common challenges that developers confront, divided into three categories: location, management, and demand. The issue on the location expresses the developer's concern on the limited space on-site, where the supply of land within the urban and sub-urban area is limited due to the increase in the urbanization rate that is also highly influencing the usage of the land.

Furthermore, because the standard has a more significant capital cost, firms are less likely to prioritise green space allocation, which does not yield a significant financial return. Furthermore, because the practise of urban green provision in development is only part of the authority's need, and the quality standard has always been overlooked, the issue of unmet public demand for the quality of present UGS puts developers under pressure to fulfil high public expectations.

Hopefully, the outcome of this paper will provide basic knowledge on the UGS for industry players and its application in Kuching City. Kuching City itself, known as Garden City, should be the driver to promote UGS adoption among private developers and, thus, prepare a pathway to improve the longevity and higher quality of life for Kuching residents. In particular, the findings could also be helpful to other critical stakeholders in the field of urban green spaces to understand the perception of private developers on UGS.

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