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E-B Environment - Behaviour Proceedings Journal

*ICoPS2023Bosnia*

https://www.amerabra.org

e-IPH e-International Publishing House Ltd., United Kingdom

**International Conference on Public Policy & Social Sciences 2023**
13-15 September 2023
Organised by the Faculty of Administrative Science & Policy Studies, Universiti Teknologi MARA (UiTM), Seremban Campus, Negeri Sembilan, Malaysia, and International University of Sarajevo (IUS), Bosnia and Herzegovina

# Green City Development: An analysis of green open space concept and its strategies in the urban context

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**Abstract**
Green Open Space (GOS) refers to any publicly accessible green park within or near the city or metropolitan areas. This paper introduces a Green Open Space-Green City Conceptual Framework (GOS-GCCF) and its strategies for implementing GOS based on the urban context of Shah Alam City. Semi-structured interviews were conducted to analyse the strategies that emphasise the critical functions of GOS in Green City Development (GCD) across economic, social, and environmental aspects. The study addresses various gaps in the Green City (GC) field through GOS implementation. It integrates the existing GC framework into actionable GOS-GCCF and strategies.

Keywords: Green City; Green Open Space; Local Authority; Strategies


DOI: https://doi.org/10.21834/e-bpj.v9iSI22.5900

## 1.0 Introduction

Green Open Space (GOS) makes towns and cities more liveable. Urban green spaces are significant for residential regions and business, leisure, retail, and other commercial developments (Baycan-Levent et al., 2002). The quality of green spaces contributes to the identity of towns and cities, which increases the appeal for living, working, investing, and tourism. As a result, they can positively impact city competitiveness. The achievements of the mission to become a 'garden city' (Dewan Negeri Selangor, 2012) and reduce 45% carbon dioxide emission by 2023 in alignment with the National Carbon Reduction (Majlis Bandaraya Shah Alam (MBSA), 2020) and Sustainable Development Goals (SDGs) have made MBSA as the first local authority to implement the Low Carbon City Framework (LCCF) successfully (Idris, 2018). According to Aiman (2021), there are five strategic cores pinpointed in the action plan towards making Shah Alam a low-carbon city:

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DOI: https://doi.org/10.21834/e-bpj.v9iSI22.5900

1) Providing efficient transportation service and mobility
2) Solid waste management system that is environmentally friendly
3) Integrating nature into the built environment
4) Efficient and effective energy and water resource management
5) City administration and management based on green technology

Nevertheless, each strategy must be constantly improved to meet the needs of the present urban situation. Resultantly, the study aimed to examine and propose a Green Open Space-Green City Conceptual Framework (GOS-GCCF) that highlights the components of GOS implementation contributing to the realisation of a Green City (GC) in Shah Alam City, Malaysia, addressing four research questions (RQ) and four research objectives (RO):

(RQ1) Why is GOS implementation in Shah Alam City essential in Green City Development (GCD)?
(RO1) To identify the essential functions of GOS implementation in Shah Alam City's GCD.
(RQ2) How do MBSA manage their GOS based on their current city urbanisation conditions towards GCD?
(RO2) To analyse MBSA's best practice of urbanisation management in GOS implementation towards GCD.
(RQ3) How can MBSA's financial stability on GOS implementation towards GCD be increased?
(RO3) To analyse financial management that can increase MBSA's financial stability in GOS implementation towards GCD.
(RQ4) What are the strategies to increase community participation in GOS implementation towards GCD?
(RO4) To analyse MBSA's strategies to increase community participation in GOS implementation towards GCD.

## 2.0 Literature Review

The authorities often use the terms sustainable city, GC, and low-carbon city to describe a city as a 'green' friendly city. This city can mitigate pollution, withstand natural disasters, and has a thriving urban ecology for city dwellers economically, socially, and environmentally. Malaysia's first GC framework, known as LCCF, was issued in 2011 by the Ministry of Energy, Green Technology, and Water (KeTTHa) (Rahman, 2020), and by utilising this LCCF, the MBSA, in partnership with Universiti Teknologi MARA (UiTM) Shah Alam, successfully introduced their own GC framework, known as the Shah Alam Low Carbon City Framework (SA-LCCF), in 2021. This initiative is called the Low Carbon City Action Plan Shah Alam 2035 (Mohamed, 2023). Besides, MBSA has used the term 'low-carbon city' to describe the city as sustainable. Table 1 outlines the framework of a GC similarity between Malaysia's MBSA and the Netherlands' Institute for Housing and Urban Development Studies – Green City Conceptual Framework (IHS-GCCF), where GOS serves as a foundational element for safeguarding and conserving urban green spaces to achieve GC status. By adapting to the existing GC framework from both countries, the researchers attempted to design a conceptual framework focusing on GOS implementation as the vital element in GC achievement.

Table 1. Similarities and Differentiation of Green City Concept Development Core Elements between MBSA and IHS

| **SA-LCCF, Malaysia** (MBSA & UiTM, 2021) | **IHS-GCCF, The Netherlands** (Brilhante & Klaas, 2018) |
|---|---|
| ▪ Building, Water and Clean Energy (Strategy 1) | ▪ Energy Efficiency or Renewable Energy in All Sectors (1st Core) |
| | ▪ Environmental Quality / Water Security (3rd Area)<br>▪ Greening of Public Services – Drinking Water and Sanitation (6th Area) |
| | ▪ Green Building (5th Area) |
| ▪ Urban Greening and Built Environment (Strategy 4) | ▪ Greenery Extensive Use in All Sectors (2nd Core)<br>▪ Green Infrastructure - Storm Water System (7th Area)<br>▪ Greening Urban Agricultural-Green Vertical Farms (2nd Area) |
| - | ▪ Spatial Planning with Land Compactness / Mix Use / Social Mix (3rd Core) |
| ▪ Urban Transportation and Mobility (Strategy 2) | ▪ Green Transport and TOD (1st Area) |
| ▪ Solid Waste Management (Strategy 3) | - |
| ▪ Communication, Education, and Public Awareness (CEPA) (Strategy 6) | - |
| - | ▪ Green Growth and Equity Principles (4th Core) |
| - | ▪ Green Technologies / Smart ICT (4th Area) |
| ▪ City Governance (Strategy 5) | - |

*The Highlighted Colour Denotes GOS Implementation
*(Source: MBSA and UiTM (2021) and Brilhante and Klaas (2018))*

The GC concept is one of the latest responses to the diverse efforts and research aimed at tackling challenges arising from the decentralised model of urban development and assisting cities to become more sustainable (greener), less dispersed, and more liveable (Brilhante & Klaas, 2018). The GC concept is an environmental preservation attempt by developing parts of a city's surroundings into natural green fields to develop cohesiveness between nature and urban lifestyles (Subadyo et al., 2019). On the other hand, GOS refers to any green area freely accessible to the public located in the city centre or close to a city or metropolitan area, emphasising human well-being and environmental health (Dewi et al., 2018). According to Brilhante and Klass (2018), GOS has become the second most

crucial element in the GCCF. As refer Table 2, GOS became a crucial element because of its extraordinary ability to cover most basic human needs. We can see its benefits under four types of ecosystem services: support ecosystem services, regulating ecosystem services, cultural ecosystem services, and provisioning ecosystem services (Mohamed et al., 2023).

Table 2: The 19 Advantages of Green Open Space Towards Green City Development

| No. | Urban Ecosystem Services Theory (Keane et al., 2014) | Malaysia | Indonesia | Three Pillars of Sustainability Theory (Barbier, 1987) |
|---|---|---|---|---|
| | **Support Ecosystem Services** | | | |
| 1. | Biodiversity | √ | √ | Environmental Sustainability |
| 2. | Ecological Interconnections | √ | √ | |
| 3. | Soil Fertility | x | x | |
| 4. | Habitat | √ | √ | |
| | **Regulating Ecosystem Services** | | | |
| 5. | Air Quality | √ | √ | |
| 6. | Noise Regulation | x | √ | |
| 7. | Extreme Weather Protection | √ | √ | |
| 8. | Water Quality Regulation | √ | √ | |
| 9. | Climate Adaptation | √ | √ | |
| 10. | Pollination | x | x | |
| | **Cultural Ecosystem Services** | | | Social Sustainability |
| 11. | Health | √ | √ | |
| 12. | Sensory Experience | √ | √ | |
| 13. | Social Interactions | √ | √ | |
| 14. | Nature Pedagogic | x | √ | |
| 15. | Symbolic and Spiritual | x | x | |
| | **Provisioning Ecosystem Services** | | | Economic Sustainability |
| 16. | Food Production | √ | √ | |
| 17. | Freshwater | x | x | |
| 18. | Material | x | x | |
| 19. | Energy | x | x | |
| | | 11 Services | 13 Services | |

*(Source: Mohamed et al. (2023))*

Nevertheless, GOS implementation in Asian countries towards GCD is still unable to conserve and preserve urban ecology due to the inability to understand the current urbanisation situation and the lack of full involvement from all urban citizens (Zain et al., 2022), including financial instability in financing urban sustainability projects (Trovato, 2021). For example, according to Mohamed et al. (2023), in Malaysia and Indonesia, the implementation of GOS still does not provide comprehensive benefits, especially in terms of soil fertility, noise regulation, pollination, nature pedagogic, 'symbolic and spiritual', freshwater, material, and energy aspects (Refer to Table 2). In addition, the indifference among city residents, particularly city developers, regarding environmental preservation in every city development project has led to various pollution issues that adversely affect the city's environment. These problems have escalated due to extreme urbanisation and unregulated industries. The situation worsens annually due to insufficient green areas as an effective natural resilience against urban challenges (Murtini et al., 2020). Therefore, the awareness of urban citizens in understanding the advantages of environmental protection must be emphasised and applied in every sector by understanding the critical function of GOS in developing a GC (Mohamed et al., 2023).

## 3.0 Methodology

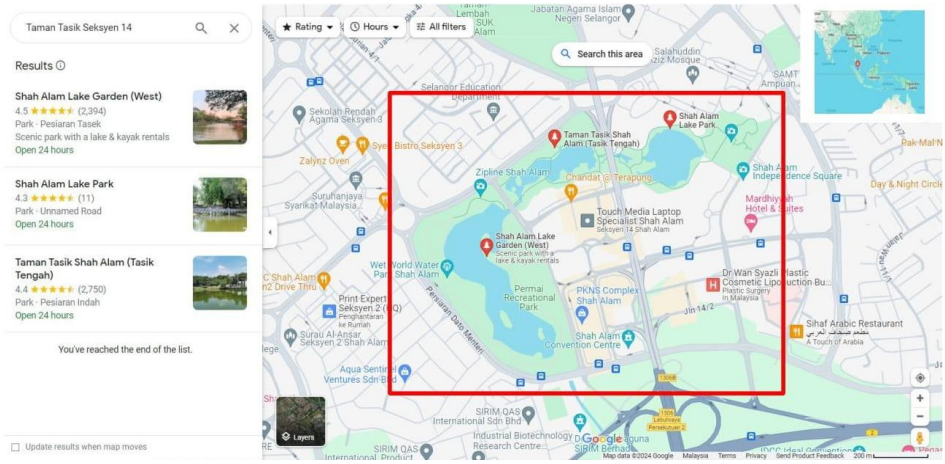


Fig.1: Location of GOS Taman Tasik Shah Alam Seksyen 14 (GOS14) in Shah Alam City Centre, Selangor, Malaysia
*(Source: Google Maps (2024))*

One GOS has been selected as a cross-sectional single case study area, called Taman Tasik Shah Alam Seksyen 14 (GOS14) – that comprises three sub-park areas, a public recreational park located in the middle of the city centre of Shah Alam City at Selangor state in Malaysia (Refer to Figure 1) and the study area also involved Shah Alam City Council (MBSA). This local authority and GOS14 were chosen following their active urban planning through Local Agenda 21 empowerment since 2000 to achieve 17 United Nations SDGs (TheStar, 2021) and low-carbon city development through the 2017 Low-Carbon Pilot Project at GOS14 (Asia Pacific Energy Research Centre (APERC), 2018). In addition, according to Urbanice Malaysia (2021), MBSA is also active in creating recreational parks, botanical gardens, and lake parks for city sustainability. Therefore, it will be an excellent platform to analyse the current phenomenon of GOS14 implementation in Shah Alam City in achieving a GC status. The data for the study was collected using qualitative research methods. Face-to-face semi-structured interviews were conducted following clear interview protocol at the MBSA office building between December 2022 and January 2023, with five MBSA officers directly involved in the GOS policy implementation being selected as the sample size. The questions were well prepared with a letter of approval by the UiTM Research Ethics Committee and sent to the informants at least two months before the interview. The researchers fixed an appointment with the informants, and the discussion was undertaken through email for formality.

The key informants for this study comprise the officers listed in Table 3. Purposive sampling was employed to select these informants, as the researchers had already identified individuals who were directly involved in and experienced the implementation of GOS. The interview sessions took around one hour and 30 minutes for each informant. They were recorded using a voice recorder and transcribed into texts with the help of a tool called transkriptor.com.

Table 3. List of Informants

| Informant ID | Department |
|---|---|
| Officer 1 (O1) | Department of Urban Planning (GIS Unit) |
| Officer 2 (O2) | Department of Environmental Health |
| Officer 3 (O3) | Department of Urban Planning (Sustainable Development Unit) |
| Officer 4 (O4) | Department of Landscape |
| Officer 5 (O5) | Department of Urban Planning (Sustainable Development Unit) |

*(Source: Research Analysis)*

The NVivo software was utilised with deductive thematic analysis to identify various themes that addressed the RQ. Subsequently, deductive pattern matching analysis (Pearse, 2019) and peer examinations (Mavrogenis & Scarlat, 2023) were performed to increase reliability and validation. The flow of data analysis is comprised of three phases. The first phase was when the researcher identified text fragmentation from the interview transcript and divided it according to the relevant RQ. That process has been repeated until relevant themes appear. Next is pattern matching by comparing the dataset with the current study framework and theories, including the identification process of frequency of the theme repeated by the informant. The last phase ended with peer review dataset analysis among experts and was followed by a descriptive-explanatory approach to describing and explaining the current phenomenon that happened in GOS14 implementation toward GCD in Shah Alam City based on study findings.

## 4.0 Findings

The study has identified 15 functions of GOS by adapting the dimensions from 'Three Pillars of Sustainability Theory', namely economic, social, and environmental sustainability, which has shown to be essential in GCD (Refer to Table 4). Additionally, the study identified three other elements that emphasise the strategy required for GOS implementation, contributing to GC achievement. Overall, the study discovered 43 themes. As exhibited in Table 3, the term 'file' refers to the number of informants who mentioned the theme. On the other hand, the term 'reference' refers to the frequency of the theme repeated by the informant. Each informant involved in a particular theme was recorded using the table symbol ( √ ).

### *4.1 The Functions of GOS Taman Tasik Shah Alam Seksyen 14's on Green City Development*

Figure 1 illustrates the state of the GOS landscape in GOS14. It has various social facilities and the organised placement of flora and fauna habitats, including various commercial areas provided by MBSA inside and surrounding the park. It has shown that GOS14 brought a comprehensive benefit for city sustainability that is essential to Shah Alam City in achieving a GC status.

A total of 15 themes were found in this study (Refer to Table 4). Economic sustainability has four themes: income generation, increasing tourist numbers, boosting property values, and attracting foreign investors. The formation of this theme shows that GOS14 could function as an income-generating area for the surrounding population and contribute to the city's economic development. Subsequently, within the dimension of environmental sustainability, the most frequently mentioned theme is the ability of GOS14 to restore urban biodiversity, purify urban water and prevent flooding, adapt to extreme weather, clear water, and provide screening and noise reduction. Most information states that GOS14 has proven successful in conserving and preserving urban ecology, effectively protecting the city from urban ecology degradation. In social sustainability, GOS14 has a high capacity to improve urban residents' psychological well-being through emotional and mental therapy, enriching human bonds, providing outdoor learning opportunities for children, strengthening physical fitness, and reducing social problems.


Fig.2: Layout Plan for GOS Taman Tasik Shah Alam Seksyen 14 (GOS14)
*(Source: MBSA Department of Landscape)*

Table 4. The Functions of GOS Taman Tasik Shah Alam Seksyen 14's on Green City Development

| Dimension | | Theme | Informant | | | | | File / Reference |
|---|---|---|---|---|---|---|---|---|
| | | | O1 | O2 | O3 | O4 | O5 | |
| The Functions of GOS14's on Green City Development | Economic Sustainability | Income Generation | √ | √ | √ | √ | √ | 5/8 |
| | | Increasing Tourist Numbers | | | √ | √ | √ | 3/6 |
| | | Boosting Property Values | | | √ | √ | | 2/4 |
| | | Attracting Foreign Investors | | | √ | | | 1/2 |
| | Social Sustainability | Emotional and Mental Therapy | | √ | √ | √ | √ | 4/15 |
| | | Enriching Human Bonds | √ | √ | √ | √ | √ | 5/10 |
| | | Outdoor Learning for Children | √ | √ | √ | √ | √ | 5/5 |
| | | Strengthening Physical Fitness | √ | | √ | √ | √ | 4/9 |
| | | Reducing Social Problems | √ | | √ | √ | √ | 4/6 |
| | Environmental Sustainability | Restoring Urban Biodiversity | √ | √ | √ | √ | √ | 5/11 |
| | | Purifying Urban Air | √ | √ | √ | √ | √ | 5/7 |
| | | Preventing Flooding | √ | √ | √ | √ | √ | 5/7 |
| | | Adaptability to Extreme Weather | | √ | √ | √ | | 3/4 |
| | | Clearing Water | | | | | √ | 1/1 |
| | | Screening and Noise Reduction | √ | | | | | 1/1 |

*(Source: Research Analysis)*

An informant mentioned that GOS14 serves as a resource area for generating income for residents:

*"...tadi soalan you berkenaan dengan apa increase lokal income kan. Boleh increase lokal income, mungkin dari segi penyewaan basikal ke kan. Sekarang ni ada banyak yang macam apa nama Beam Scooter Shah Alam, yang macam macam scooter tu kan ha...dengan Wet World Water Park Shah Alam lah ha, flying fox (Zipline Shah Alam), kayak, kayak tu sekali dengan bot tu kan (Antan Batura Watersports). Restoran, restoran ada dua, satu, restoran terapung yang dekat tengah-tengah tu (restaurant SACC Kelana Seafood), satu lagi yang restaurant Kedai Kopi dan restaurant Antan Batura, ada tiga. So dekat taman, dekat Dataran ini banyaklah dia akan jual macam belon ke, apa ke, yang itu mungkin dari segi membantu penduduk mungkin boleh." - [O4]*

*"...your question was whether increasing local income, right. It can increase local income, maybe in terms of renting a bike, right. Nowadays there are a lot of what we call - the name Beam Scooter Shah Alam, which is like a scooter, right ha...with Wet World Water Park Shah Alam, flying fox (Zipline Shah Alam), kayaking, kayaking with the boat, right (Antan Batura Watersports). Restaurants - there are two: one is the floating restaurant near the middle (SACC Kelana Seafood restaurant), and the other is the Kedai Kopi restaurant and the Antan Batura restaurant, there are three. So, near the park, near the Dataran - many things are sold*

*like balloons or others, which may help the residents." - [O4]*

In addition, GOS14 contributes to the social sustainability and well-being of the city's citizens. The GOS serves as a space for emotional and mental therapy through activities such as green micro-break, gaining happiness, and reducing stress.

*"Saya pernah pergi kawasan tu jalannya bangunan je semua tapi mereka buat macam potted plants. So, kat situlah orang tanam pokok bunga cantik-cantik apa semua. So, benda-benda itu bila ia dibuat setiap satu blok tu ha, ia akan jadi satu elemen terapi jugalah. So, kita akan tengok bunga yang cantik..." - [O2]*

*"I've been to that area where the streets are all buildings, but they have potted plants. So, that's where people plant all the beautiful flowers. So, if those things are made on every single block, it will also be an element of therapy. So, we will see beautiful flowers..." - [O2]*

From the environmental sustainability perspective, one of the informants stated that GOS14 is a natural carbon sink that effectively filters the urban air.

*"...kawasan hijau ni sangat berperanan untuk menjadi carbon sink lah ha....kita kena make sure pokok-pokok kita still ada sebab itu pentingnya pengekalan macam Taman Tasik Shah Alam ini dan kita add on lagi pokok-pokok, kita add on lagi pokok sebab kita perlukan carbon sink tu tadi kalau tidak dia tak akan capai Bandar Hijau tu tadi lah. " - [O3]*

*"...this green open space plays a very important function in becoming a carbon sink lah ha....we have to make sure our trees are still there; that's why it's important to maintain the Taman Tasik Shah Alam, and we add more trees. We add more because the main reason is that we need the carbon sink mentioned earlier. Otherwise, the Green City cannot be attained. " - [O3]*

*4.4 The Strategies to Implement Green Open Space in Urbanisation Areas*

Eight themes were discovered under the 'strategies to implement GOS in urbanisation areas' (Refer to Table 5). The theme 'fragmentation by population' is frequently mentioned by informants due to the practice of many developments under MBSA's administrative authority not adhering to the allocation of 10% GOS according to population. Instead, as stated by O3, they only allocate green space according to the new development area, leading to an imbalanced distribution of green areas within the city. In addition, the effort to build GOS by adopting the concept of vertical green spaces was also mentioned as a strategy to ensure balanced and equal GOS distribution, followed by green industrial areas, park enrichment, park connectors, park within walkable distance, and underground spaces.

Table 5. The Strategies to Implement Green Open Space in Urbanisation Areas

| Dimension | Theme | Informant | | | | | File / Reference |
|---|---|---|---|---|---|---|---|
| | | O1 | O2 | O3 | O4 | O5 | |
| The Strategies to Implement Green Open Space in Urbanisation Areas | Fragmentation by Population | √ | √ | √ | √ | √ | 5/15 |
| | Vertical Green Spaces | √ | √ | √ | | | 3/3 |
| | Green Industrial Areas | √ | | √ | | | 2/2 |
| | Park Enrichment | | | | √ | | 1/3 |
| | Park Connectors | | | | √ | | 1/2 |
| | Park within Walkable Distance | | √ | | | | 1/1 |
| | Planting in Pots | √ | | | | | 1/1 |
| | Underground Spaces | | | | √ | | 1/1 |

*(Source: Research Analysis)*

According to O3, one of the most effective strategies for implementing GOS in a high-density city is to align the total population with the total GOS.

*"As you know eh Perancang bila mereka masuk kebenaran merancang, mereka mesti menyediakan 10% kawasan lapang daripada overall development. Tapi 10% tu 10% tu daripada overall development, bukan melihat kepada bilangan population. Mereka melihat kepada jumlah kawasan. Jadi, kalau misal kata katakanlah kawasan besar A4 ni kita buat rumah teres. So, bila rumah teres bilangan penduduk dekat dalam itu kurang compare dengan satu lagi A4 yang kita buat apartment naik atas, tapi kawasan lapang masih 10% kan. So, basically kawasan hijau tu ia sepatutnya ia kira by populasi lah bukannya by area. So, memang kawasan lapang sebenarnya 10% tu tak cukup." - [O3]*

*"As you know, Planners, when they receive planning permission, a developer must provide 10% green open space from the overall development area. But that 10% is 10% of the overall development area, not the number of populations. They look at the total area. So, for example, let's say this large area of A4 paper we make a terrace house. So, the number of residents in the terraced house is less compared to another A4 paper that we built an apartment, the green open space is still 10%, right. So, basically, the green open space should be calculated by population, not by total development area. So, it's true that 10% of green open space is not enough." - [O3]*

*4.5 The Strategies to Increase Local Authority Financial Stability*

A total of 12 themes described the strategies to increase the local authority's financial stability (Refer to Table 6). The primary traditional revenue sources of MBSA include tax, intergovernmental revenue, fines, and asset leases. Additionally, financial audits support MBSA in stabilising its financial collection. In addition, MBSA is assisted by Corporate Social Responsibility (CSR), which has reduced MBSA's financial burden to finance the management and maintenance of GOS. Nevertheless, the theme of tightening the law was frequently mentioned. According to the informants, the issue of vandalism in GOS persists due to the lack of stringent laws. Therefore, the issue of vandalism in GOS must be given immediate attention as it has increased the cost of management and maintenance and has indirectly reduced the MBSA's financial stability. Nonetheless, MBSA has organised the themes of sponsorship and joint venture and educates the people on increasing their financial stability. Themes such as Community-Based Organisation (CBO), foreign and corporate investors, frugal spending, and immediate repairs are not strategies prioritised by MBSA.

Table 6. The Strategies to Increase Local Authority Financial Stability

| Dimension | Theme | Informant | | | | | File / Reference |
|---|---|---|---|---|---|---|---|
| | | O1 | O2 | O3 | O4 | O5 | |
| The Strategies to Increase Local Authority Financial Stability | Traditional Sources of Revenue | √ | √ | √ | √ | √ | 5/25 |
| | Commercialisation | √ | √ | √ | √ | √ | 5/8 |
| | Financial Audit | √ | √ | √ | | √ | 4/5 |
| | Corporate Social Responsibility (CSR) | √ | √ | √ | √ | | 4/4 |
| | Tighten the Law | √ | | | √ | √ | 3/9 |
| | Sponsorship | | √ | √ | | | 2/2 |
| | Joint Venture | | √ | √ | | | 2/2 |
| | Educate the People | | √ | √ | | | 2/2 |
| | Community-Based Organisation (CBO) | √ | | | | | 1/3 |
| | Foreign and Corporate Investors | √ | | | | | 1/1 |
| | Frugal in Spending | | | | √ | | 1/1 |
| | Immediate Repairs | √ | | | | | 1/1 |

*(Source: Research Analysis)*

Both O4 and O1 stated:

*"...MBSA memerlukan top up daripada kerajaan negeri lah, kena minta by stages lah…. MBSA memang 100% tu ia menerima daripada support negeri." - [O4]*

*"…Tapak je MBSA, tapi dia macam dia sewa dengan MBSA. Yang lain-lain pun sama lah bayar kepada MBSA, flying fox tu pun kita appoint operator untuk handle, operator luar bukan dalam, dia akan bayar sewa hasil daripada dia punya income tu, every month dia kena bayar certain amount lah kepada MBSA. " - [O4]*

*"…so, macam penjanaan daripada segi tu memang daripada cukai lah." - [O4]*

*"…orang cakap ni apa kalau PBT selalu saman-saman kan ha dekat situ juga." - [O4]*

*"…kalau misalan developer tak boleh...developer tak boleh...developer tak boleh provide 10% kawasan hijau, mereka kena bayar denda kan, ha denda yang mereka bayar tu lah yang kita gunakan untuk kontra kan...untuk kontra kan, maksudnya beli pokok tanam pokok." - [O1]*

*"...MBSA needs a top-up from the state government lah. You have to ask for it by stages lah... MBSA indeed 100% receives from state support." - [O4]*

*"...It's MBSA's site, but they are renting with MBSA. The others also pay to MBSA. We also appoint an operator to handle the flying fox, an external operator, not an internal one. They will pay the rent from the income they gain. Every month, they have to pay a certain amount to MBSA." - [O4]*

*"...so, the kind of financial resources from that aspect is indeed from taxes." - [O4]*

*"...what do people say if the local authority (PBT) is always suing, right ha, it's also come from there." - [O4]*

*"...if, for example, a developer can't...a developer can't...a developer can't provide 10% of the green open space, they have to pay a fine, right, ha the fine they paid we use to contra right...contra right; it means to buy trees and plant trees." - [O1]*

*4.6 The Strategies to Increase Community Participation*

Eight themes within the dimension aim to increase community participation in developing GC through implementing GOS. These themes include diverse events, citizen involvement in the process, diverse facilities, proactive resident representatives, social media engagement, viral marketing, suggestion boards in parks, and enhancing aesthetic value.

Table 7. The Strategies to Increase Community Participation

| Dimension | Theme | Informant | | | | | File / Reference |
|---|---|---|---|---|---|---|---|
| | | O1 | O2 | O3 | O4 | O5 | |
| The Strategies to Increase Community Participation | Diverse Events | √ | √ | √ | √ | √ | 5/16 |
| | Citizen Involvement in the Process | √ | √ | √ | √ | √ | 5/11 |
| | Diverse Facilities | √ | √ | √ | √ | | 4/7 |
| | Proactive Resident Representative | √ | | √ | √ | | 3/3 |
| | Social Media | | | √ | √ | | 2/3 |
| | Viral Marketing | √ | √ | | | | 2/2 |
| | Suggestion Board in the Park | | | | √ | | 1/1 |
| | Aesthetics Value | | √ | | | | 1/1 |

*(Source: Research Analysis)*

As noted by O4 and O1, the presence of diverse events in the GOS could increase community participation in GCD:

*"…macam tahun lepas kita buat sempena Hari Bandaraya Shah Alam kita buat program pesta bunga dengan program memancing peringkat negeri." - [O4]*

*"Jadi nak menghidupkan atau nak orang menghargainya, kena ada program-program yang orang datang dan orang tahu dekat situ ada wujudnya taman tu tau. Wujudnya taman tu jadilah barulah orang datang kan…ha macam tu lah dia macam bila kita tarik orang datang." - [O1]*

*"...just like last year we did in conjunction with Shah Alam City Day, we did a flower festival with a state-level fishing programme." - [O4]*

*"So, if you want to bring it to life or if you want people to appreciate it, there have to be programmes where people come, and people know that the park exists nearby. The existence of the park only then people come, right…ha, that's how it is when we attract people to come." - [O1]*

## 5.0 Discussion

The 43 themes found in the attempt to develop Shah Alam GOS-GCCF (SAGOS-GCCF) hold credibility to be improvised according to the context of Shah Alam City. This credibility is determined by the frequency with which the informants repeatedly emphasised the theme. The subsequent themes were illustrated by developing SAGOS-GCCF based on the researchers' analysis. The SAGOS-GCCF proposal was developed by researchers according to the context of Shah Alam City (Refer to Figure 3). Based on Figure 3, the 'Three Pillars of Sustainability,' economic, social, and environmental sustainability, become interconnected core elements crucial for the successful implementation of SAGOS-GCCF. Similarly, the emphasis on three strategic elements is also interconnected: ensuring the maintenance of GOS through structured urbanisation management, continuous financial support to the local authority to cover

management and maintenance costs, and active community participation in GOS-related programmes or projects. Collectively, these strategies contribute towards achieving a GC status.

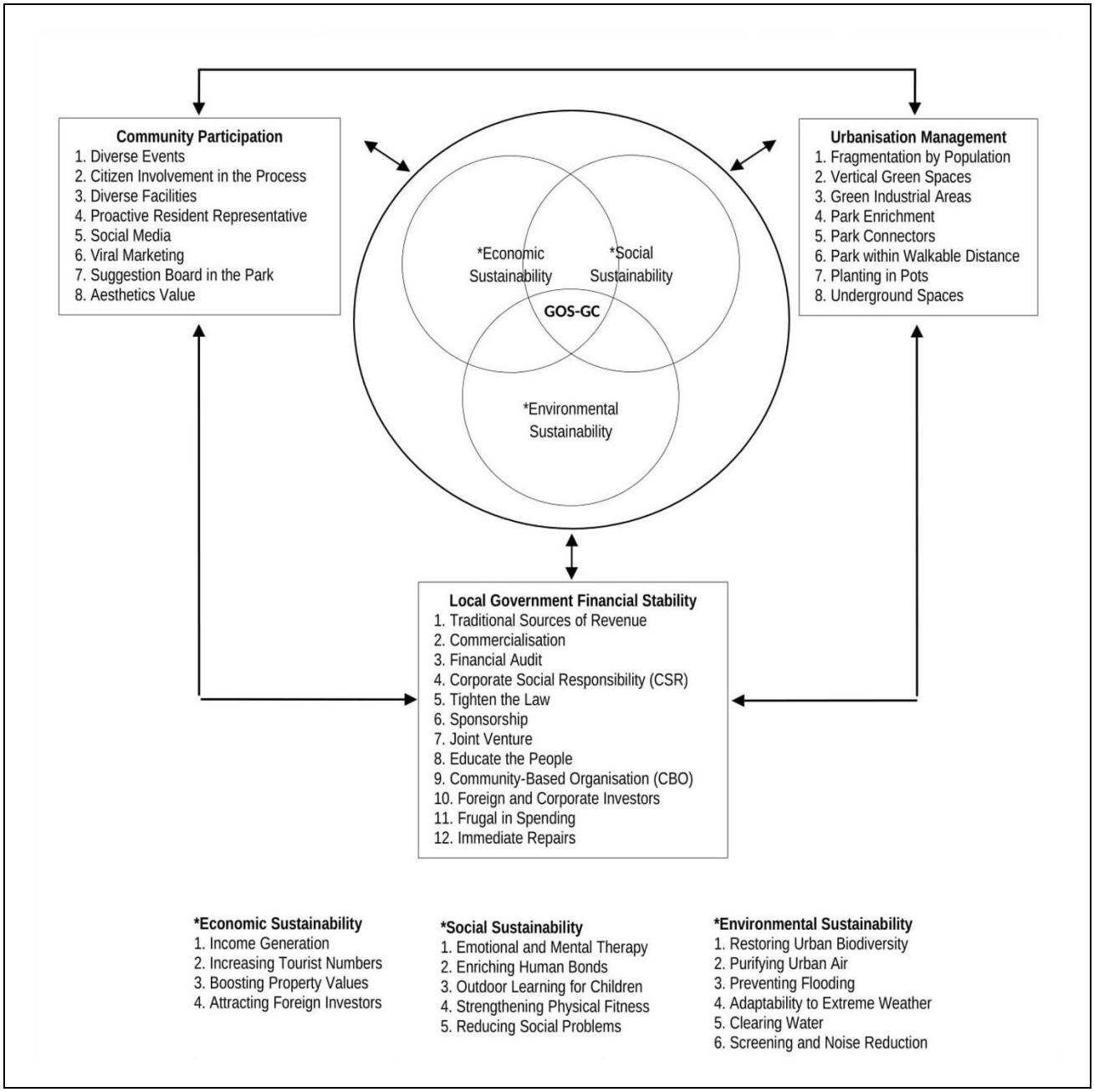


Fig.3: The Propose of Shah Alam Green Open Space-Green City Conceptual Framework (SAGOS-GCCF)
*(Source: Research Analysis)*

According to the researchers' analysis, implementing GOS to achieve GC is possible when these four dimensions coordinate. The GOS area, built according to the 'Three Pillars of Sustainability,' allows a city to meet the requirements for achieving SGDs [O1, O2, O3, O4, and O5]. Subsequently, the GC can be built. This finding aligns with the results of a study by Mohamed et al. (2023), which emphasises that for a GOS to assist a city in achieving GC status, the GOS implementation must possess specific characteristics or capabilities. These should provide resources to fulfil human basic needs, encompassing social and economic sustainability as well as the human-nature relationship aspect of environmental sustainability. Moreover, the presence of GOS within a city indirectly safeguards its inhabitants, flora, fauna, and urban areas from the adverse impacts of climate change (Graça et al., 2022) and natural disasters (Watson et al., 2022). However, our study revealed that nine aspects were not frequently mentioned by informants in relation to GOS implementation (refer to Tables 4, 5, 6, and 7). Therefore, the local authority (MBSA) needs to prioritise these nine aspects to comprehensively achieve sustainability. These aspects include: increasing tourist numbers (O1 and O2), boosting property values (O1, O2, and O5), and attracting foreign investors (O1, O2, O4, and O5) in the economic sustainability dimension; strengthening physical fitness (O2) and reducing social problems (O2) in the social sustainability dimension; as well as adaptability to extreme weather (O1

and O5), water purification (O1, O2, O3, and O4), and 'screening and noise reduction' (O2, O3, O4, and O5) in the environmental sustainability dimension.

Nevertheless, SAGOS-GCCF must complement the three other dimensions: urbanisation management, local authority financial stability, and community participation. The dimension of urbanisation management highlights the importance of understanding the construction of GOS based on current urban conditions. This understanding involves considering the prevalent density type in Shah Alam City, as it influences the design of the GOS to be built. As discussed by the informants, Shah Alam City suffers from traffic congestion [O1 and O4] and tall buildings [O3]. Nevertheless, O5 stated that Shah Alam City is uncrowded. This opinion was supported by O2, who stated that the city of Shah Alam is a planned city and is not overcrowded. Nonetheless, according to O2, many GOS in residential areas are converted to cement to save costs. Therefore, O2 agreed that population density is prevalent in Shah Alam City. A large population or dense concrete construction in a city will not affect the quality of GOS in achieving a green city because, based on the world ranking by the Netherlands' IHS, most of the cities with the greenest city status are cities that have high-density – possess more than one million residents such as in Toronto City, Auckland City, London City, Paris City and many more (Brilhante and Klaas, 2018). This shows that density is not a critical problem in implementing GOS in a high-density city. It touches on the creativity of the local authority itself (MBSA) in managing the layout of GOS in a crowded and concrete city, whether by using the vertical greenery systems [O4 and O5], underground spaces [O1, O2, O3, and O5] or planting in pots [O2, O3, O4 and O5]. In addition, MBSA can also enrich the implementation of GOS [O1, O2, O3, and O5] in high-rise buildings [O4 and O5], especially in industrial areas [O2, O4, and O5]. Furthermore, two aspects in the implementation of GOS14 are also less practised by MBSA, namely park connectors [O1, O2, O3, and O5] and park within walkable distance [O1, O3, O4, and O5]. Park connectors can balance GOS spots in the city, making it easier for city dwellers to access GOS wherever they are. Therefore, the 'City in the Park' concept from China in 2018 and the 'Park Connector Network' model from Singapore (Wang et al., 2019) can be a very good reference to MBSA to build GOS in high-density areas [O2 and O4].

Subsequently, understanding the significance of the local authority's financial stability is crucial. Since local authorities manage cities, they play a pivotal function in ensuring the effective establishment and long-term management of GOS. Local authorities must devise innovative financial solutions to ensure that their financial stability remains intact even during budget cuts to guarantee the successful construction and maintenance of GOS. The community-public-private financial initiative to increase local authorities' financial stability has become a trend nowadays (Mohamed & Vadeveloo, 2023). The local authority gets financial help from the private sector and the surrounding residents through crowdfunding. In Italy, crowdfunding emerged as the foremost fundraising method, gathering contributions from various community groups, citizens, public or civic organisations, and even private companies. These entities have converged on a single platform known as Meridonare. This platform, launched in November 2019, represents the inaugural social crowdfunding platform, and it successfully funded the GOS project in March 2020, gained recognition from the Italian government, and was subsequently enshrined in Italian law (Trovato, 2021). In addition, community self-organisation or CBO has also been practised in Egypt, Albania, the United Kingdom, and the Netherlands when they faced very bad financial constraints in funding GOS implementation and maintenance (Mohamed & Vadeveloo, 2023). Nevertheless, the creativity of MBSA finding funds is limited as they are bound by existing laws [O1, O2, O3, O4, and O5].

The final dimension centres on community participation achieved through awareness and cooperation by aligning citizen efforts with governmental initiatives to attain GC status. This dimension is a pillar of the successful implementation of GOS towards GCD. A development solely driven by the local authority's efforts and ignored by the city's citizens is bound to fail [O1, O2, O3, O4, and O5]. Suggestion board in the park [O4] and aesthetics value [O2] (Refer to Table 7) could be another hook to attract more people to come and use the park facilities or even participate in any MBSA's green awareness program conducted inside or surrounded of GOS14. But a digital suggestion board will be the best hook because it is a preference of the new generation nowadays. Meanwhile, the aesthetic value of urban ecological areas shows that human-nature relationships built from natural beauty based on human perceptions and judgments through their visual capability have improved the Quality of Life (QoL) of city dwellers (Doğmuşöz and Vardi-Topal, 2024). However, the implementation of GOS14 in Shah Alam City has less practice of these two aspects by MBSA; the digital suggestion board and aesthetic value should be implemented in GOS14 to boost people's awareness of the importance of having an excellent green space in their neighbourhood.

Overall, by examining the formation of themes in each dimension, the proposed SAGOS-GCCF (Refer to Figure 3) is designed to ensure that the implementation of GOS aligns with the needs of Shah Alam City as a measure towards the achievement of GC. The priority level of each theme is calculated through frequency, which shows that the informants repeat the theme to indicate the current and ongoing situation. Nevertheless, the lesser-mentioned themes by the informants show that these themes occur less or do not occur in GOS14 implementation. In terms of the first dimension, namely 'Three Pillars of Sustainability', the researchers discovered that GOS14 has a weak ability to attract foreign investors within the economic sustainability themes as it was only mentioned by one informant, and the theme was only repeatedly mentioned twice (1/2). Subsequently, regarding environmental sustainability, GOS14 remains inefficient for water purification and 'screening and noise reduction', as each recorded a frequency of 1/1.

On the other hand, the frequency of the theme under social sustainability was impressive, as almost all informants recorded the same frequency of repetition. The themes of park enrichment, park connectors, park within walkable distance, planting in pots, and underground spaces within the dimension of 'the strategies to implement GOS in urbanisation areas' recorded a very low repetition frequency, indicating that MBSA is less involved in these themes during GOS14 implementation. Subsequently, the themes of CBO, foreign and corporate investors, frugal spending, and immediate repairs within the dimension of 'the strategies to increase local authority financial stability' could have been stronger, as each recorded weak frequency (<2 files). The themes of the suggestion board in the

park and aesthetics value under the dimension 'the strategies to increase community participation' also show weak frequency (1/1) that needs MBSA's prioritisation in GOS14 implementation towards achieving GC status.

## 6.0 Conclusion & Recommendations

A qualitative study was conducted using semi-structured interviews involving five city council officers. The study aimed to identify the functions of GOS within the context of a GC through the dimensions of the 'Three Pillars of Sustainability.' Additionally, the study explored three strategic dimensions concerning GOS14 implementation toward achieving GC status, all within the specific context of Shah Alam City. A total of 43 themes were identified in the development of SAGOS-GCCF. These themes encompass four dimensions: sustainability pillars, urbanisation management, local authority financial stability, and community participation. The formation of the 43 themes was based on the frequency of the theme repeated by informants. This study provides valuable recommendations, especially for policymakers and urban planners in Shah Alam City. It suggests focusing on key themes such as attracting foreign investors, water purification, 'screening and noise reduction,' park enrichment, park connectors, parks within walkable distances, potted plant installations, underground spaces, CBO, foreign and corporate investment, immediate repairs, suggestion boards in parks, and aesthetic enhancements when implementing GOS to attain GC status. Additionally, the study recommends further research to address several limitations identified, such as the study's focus solely on one area of GOS, namely Taman Tasik Shah Alam Seksyen 14 (GOS14), and the relatively small sample size of informants. Future research could benefit from broader perspectives, including those of residents, with larger sample sizes to improve data generalisation. The last recommendation for future study is - that it would be good if future researchers could choose audio-visual data collection to see the perspective among park users, primarily through Google Reviews, as nowadays people prefer to drop their comments to represent their experience using any services in Google Reviews wherever they go. It should be exciting to see from that perspective, too.

## Acknowledgements

The Faculty of Administrative Science and Policy Studies, Universiti Teknologi MARA (UiTM) Shah Alam, MALAYSIA, funded the publication fee.

## Paper Contribution to Related Field of Study

The contribution of this paper is in the field of Sustainable Development Goals.

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