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“Sustaining the
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for a Better Quality of Life”

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“ **Sustaining the Resilient, Beautiful and Safe
Cities for a Better Quality of Life** ”

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GREEN CITY CONCEPT (GCC) AND IT'S SUBMISSIVE ATTACHMENT AMONG COMMUNITIES IN MELAKA

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Abstract

With an increasing trend of urbanization, green city seeking for evolution from a traditional city paradigm to a sustainable city. Throughout the years there has been struggle in the development of the concept and programs of 'greening' however, such fast urban transformation has not been simple to manage. This paper aims to find out the level of understanding and awareness of communities on the Green City Concept. At the end, some discussion been made to compare the GCC in Melaka, Malaysia with Ho Chi Minh, and Hanoi in Vietnam. Total of 86 respondents reach during survey distributed among people who lived in Melaka. The findings show that, some programs and projects implemented by the government successfully supported the implementation of GCC however, to improve further, government can refer to the neighbour's state to fully develop the GCC Plan.

Keywords: *Green City Concept (GCC)*

INTRODUCTION

In 2018, only 3 percent of cities in low- and middle-income countries met World Health Organization's air quality guideline. Outdoor air pollution is set to be the leading environmental cause of mortality. It shows that as urban population and development grows, so thus the use of petrol and diesel vehicles and polluting household fuels, and manufacturing, power generation and waste burning. These activities release pollutants that contribute to heart attacks, lung cancer and asthma as well as to the greenhouse emissions which exacerbate global warming. It is very important to come out with solutions in tackling these issues as it can give health and environmental benefits. Some of the ways to tackle these issues are by prioritizing clean household, industrial and vehicle fuels, investing in public transport and monitoring air quality levels. During the celebration of World Environment Day sponsored by United Nations Environment Program (UNEP) in 2005, Urban Environment Agreement- Green City Declaration was endorsed by more than 60 mayors from the worldwide cities, to promote the green oriented urban development and improve the quality of community life. Some cities have implemented the green development strategies successfully, such as Freiburg in Germany and Curitiba in Brazil, covering green facilities construction, carbon-emission reduction scheme and other green development planning (Carvalho et al, 2012).

By having a city that is environmentally friendly means that the city keeps a lifestyle that is not harmful to the environment. It might involve "green living" where the residents live with awareness towards the environment and its well-being. Things like traffic, messes of people and air pollution are associated with cities. Green cities encourage and provide for the most sustainable lifestyles. They have an active approach towards addressing climate change and being environmentally friendly. These cities might implement things such as recycling programs, bike lanes, community parks, and have water quality standards. According to

research done by Lauwrens (2020), the top five green cities in the world in 2020 are goes to Copenhagen Denmark, Amsterdam Netherland, Stockholm Sweden, Berlin Germany & Portland Oregon. Each of the cities has their own uniqueness in implementing environmentally friendly city.

Problem Statement

In developing countries, most cities suffer from numerous problems associated with the processes of their urban management and development. Population movement and growth is leading to a dramatic growth of cities as global phenomena. Fast industrialization, new technological inventions such as automobiles, and the availability of cheap land and inexpensive fossil fuels were some of the driving forces of urban development. These problems have a great influence on the environmental performance of those cities (Hegazy, Seddik and Ibrahim, 2017). Malaysia, being one of the Asian countries that are rapidly developing, may increasingly face the tension between the economic incentives and the claim for ethical consciousness regarding accounting for the environment. Study done by Sumiani, Haslinda and Lehman (2007) showed that in Malaysia, air pollution and waste management were perceived of as the main local environmental issues, with industrial air emissions and vehicular exhaust two of the major sources of local environmental degradation. Air pollution may be the more difficult of these problems to solve, perhaps conflicting with economic development interests. Loss of critical habitat, ozone depletion and climate change were viewed as important to global-scale environmental conditions, although habitat destruction was seen as somewhat less important to the local situation. River pollution was identified as the major ecological problem in Malaysia, although drinking water quality was not seen as a critical issue. Malaysian environmental professionals' perceptions of global-scale environmental problems are consistent with much of the international environmental community, knowledge that should be helpful in negotiating future international agreements.

As at Melaka, it is very important to the global and recently it has been listed as a UNESCO Heritage Sites facing environmental pollution right now. To address these problems some relevant laws and policy are being implemented. Urbanization that happening at Melaka is placing a growing environmental strain on cities, such as air, water and noise pollution, traffic congestion, and inadequate solid waste management. Poorly managed urbanization also worsens risks posed by climate change. Cities also face massive infrastructure financing gaps, at US\$60 billion (RM248.3 billion) per year based on ADB's estimates (Subramaniam, 2020). Overall study done by Mohammad (2013) found that the serious environmental issue happening in Melaka is poor of water quality. Water as a natural resource provides a variety of uses from drinking water in cities to the irrigation of crops in rural areas. Furthermore, it offers recreational uses as well as habitat for wildlife. Clean water is essential for life and various recreational, industrial, and agricultural uses. Among the main causes of poor water quality at Melaka are discharge of untreated wastewater, agricultural practices, water receive from up streams activities also sewage and wastewater discharge from STPs and septic tanks (Green City Action Plan, 2014).

Research Objective

The main objectives of this study are to identify the level of understanding on the Green City Concept among communities in Melaka and to measure the level of awareness among the communities towards the implementation of Green City Concept in their area. At the end, some discussion been made to compare the GCC in Melaka, Malaysia with Ho Chi Minh, and Hanoi in Vietnam since these states had implementing the GCC.

LITERATURE REVIEW

Green City Concept (GCC)

A “green” city means an area that is resilient and inclusive, manages its natural resources well, promotes low carbon growth to remain competitive, and improve the livelihoods of all citizens. The GC also implies a city designed for individuals who prioritise minimal wastage (Latif et al., 2013) with high environmental performance for social and economic advantages (Brilhante & Klaas, 2018; Barbier, 1987). The GCC is one of the latest responses to the diverse efforts and research conducted to address the problems caused by the dispersed model of city development and to help cities to become more sustainable (greener), less dispersed and more liveable (Brilhante & Klaas, 2018). Further, green city also can be defined as a city that is characterized predominantly by its environmental performance, with the intention of maximizing social and economic benefits. According to the research done by Brihante & Klaas (2018), green city also can be defined as a city that promotes energy efficiency and renewable energy in all its activities, extensively promotes green solution, applies land compactness with mixed land use and social mix practices in its planning systems and anchors its local development in a principle of green growth and equity (Brilhante & Klaas, 2018; Lubis et al., 2019; Murtini et al., 2020). This notion entails three pillars of sustainability theory (Brilhante & Klaas, 2018; Barbier, 1987; McCosh, 2001) together with health, greening, resilience, and equity (Brilhante & Klaas, 2018).

The term ‘GC’ in Malaysia was initially made public during the 10th Malaysia Plan (2010-2015) tabled by Datuk Seri Mohd Najib, former Malaysian Prime Minister, in 2010 (Azmi & Romlee, 2015). The GCC in Malaysia was incorporated into the Green Neighbourhood Initiative and Melaka Carbon Low Town Programme in 2010 (Ali et al., 2019) and enforced in the 2011 Low Carbon Cities Framework or LCCF. The Asian Development Bank Green City Action Plan (ADB GCAP) was established to support the Malaysian GCC in 2013 (Ahmad et al., 2017; ADB, 2014; Ramli et al., 2019). In 2015, Malaysia developed the Green Technology Master Plan (GTMP) launched by Kementerian Tenaga, Teknologi Hijau, dan Air or KeTTHA (KeTTHA, 2017) while tabling the 11th Malaysia Plan (2016-2020).

In last five years, Melaka has made great movement towards achieving and becoming a sustainable green city. Melaka is a front runner in Malaysia that is actively involved in embracing the concept of ‘Green City’. The state government has announced an ambitious plan to become the first state in Malaysia to adopt green technology and be a green ‘city-state’ by 2020. This project has its goal to reduce GHG emissions in cities in Malaysia. It will achieve this by providing support to the development and enhancement of national urban policy framework in an integrated and inclusive manner. Towards this, it has a two-pronged objective, firstly, to promote an integrated approach to urban planning and management that is guided by evidence-based, multidimensional, and broadly inclusive planning process that balance economic, social, and environmental resource consideration; Secondly, to build awareness and institutional capacity, and promote investment in climate risks mitigation technologies through demonstration projects.

Green City Action Plan at Melaka

The Green City Action Plan (GCAP) is a step towards helping Melaka reaching its vision to become a Green City. It is based on the underlying premise that integrated and comprehensive approaches will lead to a greener Melaka. In 2014, GCAP for Melaka have been introduced by YAB Datuk Seri Ir. Hj. Idris bin Hj. Haron, the late Chief Minister of Melaka which reflects Melaka’s long-term commitment to pursue low carbon growth, improve environmental quality and strengthen economic competitiveness. It can support the Prime Minister’s pledge at the United Nations Climate Change Conference in Copenhagen in 2009 (COP15) to reduce greenhouse gas emissions in Malaysia (Adb.org, 2020). The Asian

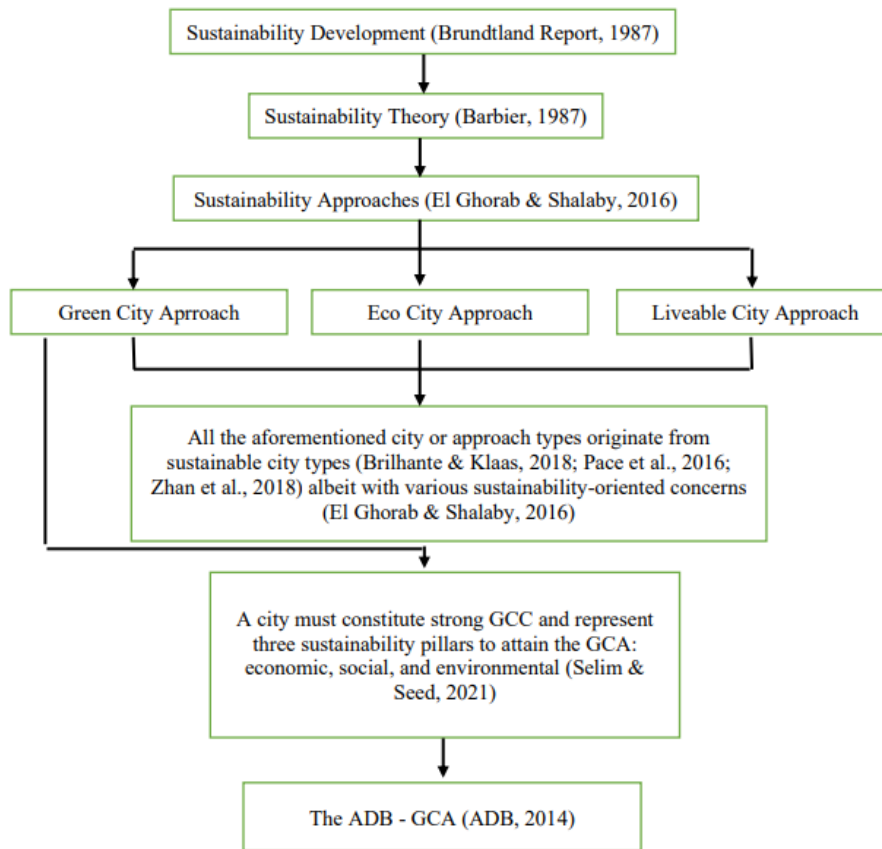
Development Bank (ADB) have worked with Melaka to develop the GCAP (figure 1). In addition, ADB also helping Melaka to implement the GCAP that have been stated including by structuring bankable projects for solar energy and street lighting, setting up a database to track indicators in environment and economic growth, and conducting training in urban development, environment planning, and knowledge sharing (Subramaniam, 2018). By establishing the GCAP, Melaka has been stated as the green model city and currently embarking several initial key projects includes Green City Benchmarking and Baseline Indexing with ADB – CSIRO, GHG Carbon Inventory calculation using HEATPlus Software by ICLEI, International Green Training Center (IGTC) and others. The Melaka projects are the first to be implemented under the Green Cities Initiative of the Indonesia-Malaysia-Thailand Growth Triangle (IMT-GT), an ADB supported sub-regional cooperation programme focused on the development of 32 provinces in these three countries. It aims to help states and provinces discover and use their relative comparative advantages to work together in the sub-region. There are four cities that have been developed similar plans which are Songkhla and Hat Yai in Thailand, Medan, and Batam in Indonesia (Subramaniam, 2018).

There are six main areas in Melaka Green City Plan Action (GCPA) namely as;

- i. **Water Management:** Melaka aims to protect and enhance the quality of surface and groundwater bodies.
- ii. **Zero Waste:** Melaka aims to become a “zero waste” state while reducing its waste related GHG emissions.
- iii. **Energy Efficiency & Renewable Energy:** Melaka is determined to reduce its GHG emissions by applying efficiency practices and increasing its use of renewable energy sources.
- iv. **Cultural Heritage & Tourism:** Melaka aims to promote sustainable tourism to balance needs of visitors with those of residents while ensuring preservation of cultural heritage.
- v. **Green Transportation:** Melaka aims to reduce its transport related GHG emissions through the implementation of public transport and e-mobility.
- vi. **Urban Forestry & Agricultural:** Melaka aims to protect forests and areas with rich biodiversity and improve agricultural practices.

Figure 1

The Evolution of GCC Development in Southeast Asian City Planning and Practise



Implementation of GCAP in Melaka

Melaka prepared the first GCAP as part of the initiative and set an example for other cities within the sub-region. City government departments, residents, the business community, national ministries, and development agencies have since pursued a way forward for sustainability, which led to several initiatives that mark the implementation of the GCAP planning process. One initiative utilizes a unique model for Melaka Green Technology Council (MGTC) to access technical expertise through a Technical Assistance (TA) package with ADB as Green Cities Support for Follow-up Activities in Melaka, Malaysia. In addition to the TA, Melaka has started to implement the GCAP through its renewable energy program, a 5-megawatt solar farm that was inaugurated in 2013, and establishment of the Melaka World Solar Valley. Moreover, Melaka has started transforming the Melaka River from a polluted backyard drainage canal to a popular cultural amenity, tourist attraction, and enjoyable green space. Melaka has several other implementation efforts underway, including a pilot energy efficiency project to upgrade streetlights and selected public buildings, electric vehicle charging stations, development of the Hang Tuah Jaya Green City, conversion of diesel buses into electric buses, and initiation of the Melaka Green Seal for buildings certification. The action plan provides Melaka with a path toward becoming a sustainable community, and it reflects a comprehensive approach that brings together individual actions that have already started.

The other initiative done by Melaka state in ensuring the GCAP as a successful plan was by introduced three days of ‘No Plastic Bag Day’ back in 2014, where consumers were required to bring their own bags every Friday, Saturday, and Sunday. The move then was extended to every day from January 2016. Melaka Green Technology Corporation chief

executive officer Datuk Kamarudin Md Shah said that the initiative was in accordance with the government effort to enhance environmental quality and progress towards a green technology city state by 2020. He advised the people of Melaka to support the state government move by bringing along their own bags on their shopping trips. As of 2017, the city has implemented over 1600 LED streetlamps, Melaka city plan also aims to further save 40 to 70% of energy by using timers and motion sensors to reduce energy consumption during low activity hours. In terms of transport, the GCAP proposes to provide alternatives to motorize personal transport. The proposed interventions include a comprehensive transportation plan to prioritize public transport, convert existing public fleet to fuel-efficient vehicles. Melaka city administration has already introduced projects such as bike sharing, electric vehicles for public transport and the use of electric scooters as an alternative to conventionally fueled scooters. Furthermore, with the support of international entities such as Institution for Transportation and Development Policy (ITDP) and the Asian Development Bank (ADB), the city has conducted studies to redesign streets for sustainable mobility and reduce the priority to personal cars. Melaka is currently facing severe transportation problems, having very low numbers of non-motorized transportation users due to safety issues and unpredictable weather conditions, increased numbers of private vehicles and an insufficient network of public transport.

The GCAP proposes to put Melaka city on a “zero- waste” path and reduce the GHG emissions from the waste sector. The strategies include expansion of waste collection, segregation and increase the recycling rate. As of 2017, Melaka city has already implemented policies that ban polystyrene and plastic bags. This ban was encouraged with a large awareness campaign titled “Don’t Mess with Melaka”. Overall the GCAP for the city aligns with the Low Carbon City Framework (LCCF), and through the interventions in the GCAP, the 4 key areas (Urban Environment, buildings, Urban Infrastructure, and Urban Transport) in of the LCCF are addressed (Melaka City, 2017). The main issues of sustainable waste management in Melaka is the insufficient infrastructure, the population growth, the lack of public awareness of the waste problems in the city and insufficient maintenance of existing land-fill sites, creating a health hazard for Melaka’s residents.

METHODOLOGY

The quantitative applied in conducting this research. The study enlists the participation of 86 respondents in total chosen via convenience and purposive sampling. All the respondents been given a set of questionnaires which the items focus on identifying their level of understanding and awareness on Green Technology Initiative in Melaka. The data gathered from the respondents been analyse for descriptive analysis using IBM Statistical Package for Social Science (SPSS) version 26.

RESULTS

Table 1

Responds on the successful of the Green Technology Initiatives

Items	Frequency
Areas of staying	
Cheng, Melaka Tengah	27
Alor Gajah	16
Kuala Sungai Baru	14
Masjid Tanah	12
Other areas in Melaka	17

Terms of staying			
More than 2 years	11		
3 to 5 years	15		
6 to 10 years	15		
10 to 20 years	24		
More than 21 years	17		
Green Technology Initiatives	Yes successful	Not successful	Uncertain
Program Melaka Bebas Asap Rokok	17	18	11
Comos Eco Ride Melaka	12	7	27
Electric Bus	11	10	25
LED Lamp Street	22	5	19
No Plastic Day	29	11	6
No Polistrene	23	16	7
Melaka Electric Car Charging Station	12	10	24
Melaka River Cruise	29	7	10
Melaka Sollar Valley	23	11	12
Bandar Hijau Hang Tuah Jaya	23	6	17
Melaka Bike Share	11	7	28

Total of 86 respondents involved where majority of them staying at Cheng area which is in Melaka Tengah. The rest are from Alor Gajah (16), Kuala Sungai Baru (14), Masjid Tanah (12) and 17 respondents from others area around Melaka. In addition, looking at the duration of staying, most of them lived in Melaka between 11 to 20 years (24) followed by 17 respondents lived more than 21 years, 15 respondents each lived from 6 years to 10 years and 3 years to 5 years of living in Melaka. However, only 4 respondents lived within 16 to 20 years and only 11 respondents lived not more than 2 years. From the findings it shows that people in Melaka have a good understanding towards the implementation of Green Technology Initiatives. It can be justified where total of 212 responded that most of the program was successfully executed and they realized that the initiatives taken by government was to support the GCC program which benefited to the communities. However, some of them are not aware on the action plan and initiatives because they are uncertain (186) on the program implemented for GCC.

GCC IMPLEMENTATION IN NEIGHBOUR STATES

Green City at Ho Chi Minh City and Hanoi, Vietnam

Ho Chi Minh and Hanoi are the two largest cities in Vietnam that are faced with increasing population density owing to rapid urbanization. The average growth rate of urban population in Vietnam is 3 percent per year make it Ho Chi Minh and Hanoi as the fastest growth in Southeast Asian. As a result, the public and private sector are working towards developing sustainable cities. Substantial amount of dollars (US\$6 billion) has been injected into several mega projects to make Ho Chi Minh City the **first smart city** in Vietnam by 2020, and the second in Hanoi by 2030. These two cities have become the strong growth poles in the country at a pace that is **twice the national average rate**, contributing over 50% of Vietnam's GDP (Gross Domestic Product). By transforming into sustainable cities, Ho Chi Minh City and Hanoi will see higher productivity and growth, while leveraging on the positive elements such as lower costs, more efficient labor markets, and young, urban, and talented demographics.

Key Aspects of Green City at Ho Chi Minh City and Hanoi, Vietnam

Government of Vietnam always put the goal to reshape its urbanization process in Ho Chi Minh and Hanoi to create efficient and sustainable cities. Thus, Vietnam has focused on the four key aspects that are essential to achieving the status of sustainable cities to support the future of Vietnam which are public transportation, Green urban environment, green buildings and Smart cities. Public buses are the most common mode of public transportation in the cities of Vietnam but still, they are not enough to serve the growing population in Hanoi and Ho Chi Minh City. To mitigate traffic congestion, an extensive urban rail network is now under construction which is a metro system with two lines will be completed and fully operated in Ho Chi Minh City in 2020. Another eight lines are still being planned in Hanoi. The government of Vietnam welcomed the private sector to invest in this monumental transport project with an estimation of US\$17 billion in 2017. Ho Chi Minh City and Hanoi are still lacking green urban environment or green spaces compared to other Asian cities. To tackle the challenge to create sustainable cities and provide better quality of life, the government has made progress to create more open green space, especially around the residential areas. Some previous green space projects that have been proven effective include Nhieu Loc-Thi Nghe Canal and Nguyen Hue Walking Street in Ho Chi Minh City; and Ho Guom Walking Street in Hanoi. On top of that, the initiatives that are underway to develop more green spaces are the development of 60 parks by 2050 in Hanoi, and new urban and residential projects in Ho Chi Minh City.

Green construction is also one of the key aspects in achieving the goal of sustainable cities. Initiatives for green construction have been happening for some time and are mostly driven by international companies. There were 60 certified green building projects in Vietnam in 2017, and the other 110 projects are currently in the process of being planned and developed. The green buildings also include the incorporation of smart technologies into different types of buildings. Particularly in Hanoi and Ho Chi Minh City, the private sector and the government of Vietnam are working together to implement smart city initiatives. To date, 33 cities and provinces have incorporated the smart city concept to enhance the quality of life in these densely populated urban areas. The framework of creating a smart city includes Internet of Things (IOT), e-government, smart community, sustainable environment, smart economy, and ICT infrastructure. Creating green, smart, and sustainable cities will allow Vietnam to ensure economic growth and sidestep the environmental pitfalls of rapid urbanization seen elsewhere. The Global Green Growth Institute (GGGI) is working with the Vietnamese government to help make this vision (Ward, 2019).

CONCLUSION

Melaka, Ho Chi Minh, and Hanoi have been implemented several green cities plans to be named as a sustainable city and applicable in Malaysia. The green city plan has been the priority for the development of the cities. However, there are many challenges faces by the state government to make it all the plan successful. The challenges are in term of lack of infrastructure, lack of awareness from citizens, lack of strict enforcement from the officer and may come from the lack of knowledge. To tackling these challenges will require city governments to integrate social and environmental considerations into locally customized economic development plans. It is time for policymakers to make their own Green City Action plans a reality. The implementation process needs strong coordination between multiple government agencies, the private sector, and communities. It will also require a management approach easily adaptable to project monitoring, data analysis and citizen feedback.

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Tarikh : 20 Januari 2023

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Sekian, terima kasih.

“BERKHIDMAT UNTUK NEGARA”

Saya yang menjalankan amanah,

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Timbalan Ketua Pustakawan

nar

Setuju.

27.1.2023

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