





In a study conducted and written by Jerry Yudelson (2008), LEED (Leadership in Energy and Environmental Design), or the Green Building Rating System, was launched in the US in 2000 to provide a standard definition and way to measure green buildings. It's a point-based system that rates buildings according to crucial environmental attributes such as site impacts, energy and water use, materials and resource conservation, and indoor environmental quality.

According to the Department of Building Officials (DBO) & Quezon City Government (2011), "Green building refers to an integrated whole-building approach to the planning, design, construction, operation, and maintenance of buildings and their surrounding land space that helps mitigate the environmental, economic, and social impacts of buildings. Emphasis is on site conservation and sustainable planning; water conservation and efficiency; energy efficiency and renewable energy; conservation of materials and resources; and indoor environmental quality and human health."

A Preliminary Certificate (PC) and a Final Certificate (FC) are the certifications issued by the DBO for the Green Building Infrastructure. One can receive a PC upon satisfaction of the mandatory and elective green building requirements. These mandatory requirements for a PC address land/site sustainability, energy efficiency, water efficiency, materials and resources, indoor environmental quality, and sewage treatment plants. An FC will be received after the completion of the project, and once the appropriate evaluation is completed by the Green Building Inspection Unit (GBIU), stating that the building complied with the green building requirements. (Department of Building Official & Quezon City Government, 2011).

Green city building projects are one of the most influential structures in the United States, while the Philippines is successfully continuing its green city building initiatives and projects, such as Quezon City's Green Fund Summit and the continuous implementation of green buildings in the country. Green City Building Programs are very influential in the country because they support the tourism industry, mainly green tourism. Green city building programs are very advisable for all commercial, residential, and industrial areas because they can positively affect public health and sustain the environment. The different cities in the National Capital Region of the Philippines aim to observe the so-called Green City Program. It is already being established in the cities of Makati and Taguig, and some areas in Quezon City.

The Robinsons Magnolia in Aurora Boulevard is the first certified green building in Quezon City, and it is becoming a tourist destination in the area because of its ambience and the scenic green garden at its back. The program's benefit is that it keeps the cleanliness and protection of city properties for tourism purposes. Also, the green building, used as a tourist destination, serves as an income-generating program that helps the city's economic growth and development. The green city building program also aids in improving environmental conditions, which significantly contributes to minimizing pollution in the area and will lessen the occurrence of heavy rains and flooding.

The availability of attractions is not the only reason behind the success of tourism areas. The way every establishment accommodates visitors is one of the ways behind getting returning customers. Strict enforcement of cleanliness and sanitation, establishments, and other accommodations will surely give a good impression to their customers. They should convert their buildings into green buildings to improve the implementation of cleanliness and sanitation. Aside from that, it will help them conserve energy and resources and will make them save money. Owners of green buildings also benefit from lower electricity and water bills and healthier environments, aside from these buildings typically having a higher appraisal value and enjoying tax incentives. Let us work together for the progress of Quezon City while contributing to its overall good health, for our welfare, and for the future generations of Quezon City residents" (Bautista, 2011).

In this study, the researchers intend to explore how the green city building program of Quezon City relates to the Tourism Industry and its impact on society. The researchers want to see if the Quezon City Hall employees agree with the green building projects despite its primarily disadvantage, which is that it is more costly.

## Literature Review

### Green Building Programs in Different Countries

There are different methods used to implement green building programs in various countries in Asia, Europe, the United States, Australia, and other parts of the world, which are as follows: BREEAM, LEED, Green Star, Green Building Index, and Green City Model. These methods have been enumerated and discussed in an article published by Sahamir & Zakaria (2013) and Peng, Chen, Liu, & Wang (2008).



BREEAM (Building Research Establishment's Environmental Assessment Method) is the leading and most widely used environmental assessment method for buildings. Developed in the United Kingdom in 1990, it is the building ecological assessment method with the longest track record (Nguyen, 2011). BREEAM can assess the environmental performance of any type of building, new and existing, anywhere in the world. However, BREEAM for healthcare buildings was commissioned by the Department of Health and Welsh Health Estates, replacing NEAT (NHS Environmental Assessment Tool) as the preferred environmental assessment method and certification scheme for healthcare buildings in the United Kingdom. As part of the Outline of Business Case approval, all health authorities in the United Kingdom (i.e. Department of Health) require that all new builds achieve an Excellent rating and all refurbishments achieve a Very Good rating under BREEAM Healthcare (BREEAM, 2011).

LEED (The Leadership in Energy and Environmental Design) green building rating system, developed by the United States Green Building Council (USGBC) in 1998, provides a suite of standards for environmentally sustainable construction. Since its inception in 1998, LEED has grown to encompass more than 14,000 projects in the US and 30 countries, covering 99 billion m<sup>2</sup> of development area (LEED, 2012). As an internationally recognized mark of excellence, LEED provides building owners and operators with a framework for identifying and implementing practical and measurable green building design, construction, operations, and maintenance solutions. Currently, with 10.1 billion square feet of building space participating in the suite of rating systems and 1.5 million feet certifying per day around the world, LEED is transforming the way built-environments are designed, constructed, and operated (LEED, 2010).

The needs of healthcare facilities are very unique. Healthcare buildings often have strict regulatory requirements, 24/7 operations, and specific programmatic demands that are not covered in LEED for New Construction. Thus, the LEED for Healthcare rating system acknowledges these differences by modifying existing credits and creating new, healthcare-specific credits. The goal is to help promote healthful, durable, affordable, and environmentally sound practices in the projects (Green Star Healthcare, 2011).

The GREEN STAR rating system has built on existing systems and tools in the overseas market, including the British BREEAM system and the North American LEED system, by establishing individual environmental measurement criteria relevant to the Australian marketplace and ecological context. GREEN STAR is a voluntary environmental rating system for buildings in Australia. It was launched in 2002 by the Green Building Council of Australia. The system considers a broad range of sustainable issues while considering occupant health, productivity, and cost savings. The Green Building Council of Australia (GBCA) released the Green Star - Healthcare v1 tool on 15 June 2009 to support sustainable planning, design, and construction of high-performance healthcare facilities (Green Building Council Australia, 2009).

All of the above methods have been proven effective among Western countries; however, due to the Malaysian tropical climate, environmental and developmental context, cultural and social needs, a new method has been developed to suit Malaysia's weather and ecological structure. The GBI is based upon existing rating tools, such as the Singapore Green Mark and the Australian Green Star system, which have been extensively modified for the Malaysian application (Green Building Index, 2013).

Another method has been discussed in the article written by Chen, Liu, Peng, & Wang (2008). The CITYgreen model is an effective tool developed by American Forests for estimating the ecological benefits of green spaces and translating the abstract benefits into concrete economic values. Combined with high-resolution satellite images from which detailed ground data can be extracted, CITYgreen can assess the benefits of green spaces over large areas with reliable results.

As a result, CITYgreen has been widely used in more than 200 cities in the United States to guide public decisions about environmental management, land use, and reforestation. Not until recently did investigators and policy-makers in China draw attention to CITYgreen and apply it to assess the benefits of carbon fixation and tree growth modeling in Shanghai and Shenyang. However, since the design of CITYgreen is based on aspects of hydrology, meteorology, soil conditions, vegetation, and land use in an American natural and cultural context, the fundamental database cannot meet the requirements of green space studies in Chinese cities, and so most of the functions cannot be realized.

Based on a study of the framework and calculation principles of CITY green 5.0 on the assessment of carbon fixation and runoff reduction benefits, we determined appropriate parameters required for model processing, which were then combined with high-resolution images to calculate the ecological values of different land use types in the central city of Nanjing. The study may provide guidelines for urban planning, environmental improvement, and green space conservation. Based on the methods that have been enumerated, it is highly recommended that the



Green Building Index (GBI) be followed, as Malaysia's climate and environmental structures resemble Quezon City's facade.

### Research Objectives

This study aims to determine the potential of the Green City Building Program as a promotional tool to enhance the local tourism industry of Quezon City. Specifically, it seeks to:

1. Determine the attributes of the city's Green Building Program.
2. Identify how the attributes can be used as a promotional tool for establishments or businesses operating in the city.
3. Examine how the Green City Building Program is disseminated to the people of the city.
4. Identify the problems associated with implementing the Green City Building Program.

### METHOD

Using a quantitative descriptive research design, the study selectively sampled 100 knowledgeable employees involved in the Green City Building Program. A survey served as the primary data-gathering instrument to assess the program's potential as a promotional tool for Quezon City's tourism industry. The survey consisted of a self-administered questionnaire distributed among employees of the Department of Building Officials within the local government. The completed survey questionnaires were subsequently tabulated and analyzed by the researchers.

### DISCUSSION

#### Attributes of the city's green building program

All employees in Quezon City are informed about the Green City Building Program, which also reflects their perceptions of its objectives. Leading the list is environmental sustainability, with 77% of respondents emphasizing its importance. Following closely is the desire for a clean and green environment, with 64% of participants prioritizing this aspect. Many respondents, comprising 48%, associate the program with resource efficiency. Additionally, 40% view it as a means to reduce pollution, while 32% consider it a solution to global warming. A smaller percentage, approximately 23%, link the program to promoting tourism and waste reduction. Lastly, a mere 2% attribute the program to beautification efforts and energy conservation. Regarding support for the Green City Building Program, overwhelming agreement is evident among employees, with 98% expressing their support. However, there remains a minority, comprising 1% each, who either disagree or are unsure about their stance on the program.

Furthermore, the survey explores whether employees believe that the attributes of green buildings can serve as promotional tools for businesses operating in the city. The findings reveal that 91% of respondents agree that these attributes can indeed be utilized for promotional purposes. However, 7% of the respondents remain uncertain, and 2% disagree with this notion.

The study also sheds light on employees' perceptions of the attributes associated with Quezon City's green building program. Topping the list is environmental sustainability, with 82% considering it a key attribute. Biodiversity enhancement follows closely, with 54% acknowledging its significance. Energy efficiency and the use of eco-friendly building materials and specifications are both noted by 46% of respondents. Waste reduction is also highlighted, with 38% emphasizing its importance. Additionally, 31% of respondents believe the program contributes to creating "greener" tourist destinations. Finally, a small fraction, 3% or three respondents, include attributes such as environmental compliance, water efficiency, and awareness of globalization in their perception of Quezon City's green building program.

#### Attributes being used as "Promotional Tool" for establishments or businesses operating in the city

Assessing the employees' perceptions regarding the role of the green city building program in promoting Quezon City's tourism industry, an overwhelming majority, comprising 86% of the respondents, believe that the program serves as a promotional tool for the city's tourism industry. However, a minority of 4% do not share this viewpoint.

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Furthermore, the survey explores whether employees believe that Quezon City's tourism industry will benefit from implementing green city-building programs. The majority, 80% of respondents, agree with this notion. Conversely, 9% or eight respondents are uncertain about the program's impact on the city's tourism industry, while 2% do not agree.

Additionally, insights into employees' perceptions of how green city building programs impact public health revealed that providing fresher air to breathe is considered essential by 82% of respondents. Stress reduction follows closely, with 51% of respondents recognizing its significance. Furthermore, 28% of respondents believe green city building programs reduce depression. Another aspect highlighted is the reduction of absenteeism due to health issues such as asthma, respiratory, and skin allergies, which is noted by 21% of respondents. Lastly, 7% of respondents mention additional benefits such as reducing air pollution waste, promoting efficiency, encouraging participation, and preserving water in waterways as ways green city building programs impact public health.

Moreover, insights are provided into the percentage and ranking of how employees perceive green city building programs to affect the environment. According to the findings, the top three ways in which the program is perceived to impact the climate are environmental sustainability (73%), followed by reducing pollution (62%), and addressing global warming (41%). Energy efficiency ranks fourth, followed by water reduction. Some employees also mention the reduction of carbon footprint and negligible environmental effects as additional considerations. Time For Change (2021) defines carbon footprint as the total amount of greenhouse gases produced to support human activities, usually expressed in equivalent tons of carbon dioxide.

### **Dissemination of the Green City Building Program to the people of the city**

The findings indicate that 66% of the employees agree that the Green City Building Program of Quezon City is effectively disseminated to raise awareness among the city's citizens. Conversely, 9% of the employees express disagreement with this assertion, while 18% are uncertain about the adequacy of the program's dissemination. These figures suggest that the Quezon City government has successfully generated awareness among the city's residents.

The top three recommended methods for further disseminating the Green City Building Program of Quezon City are highlighted. The most favored approach is TV advertisement, with 73% of respondents supporting this method. Social network advertisement follows closely, with 61% of respondents endorsing its use. Publishing more Green City Building Program magazines is ranked third, with 33% of respondents advocating for this approach. Radio advertisement ranks fourth, trailed by fliers with 5%, while utilizing the program as part of a tourism initiative garners 17% of support, placing it in sixth position. Some employees also suggest providing seminars and incorporating green building principles into the Building Code as additional strategies for dissemination.

### **Problems associated with the implementation of the green city building program**

The findings reveal that 91% of the employees agree that the Quezon City government is financially capable of implementing the Green City Building Program. Conversely, 2% of the employees express disagreement with this assertion, while 7% are uncertain about the city's financial capability for the program. Furthermore, it is highlighted that 58% of the employees agree that Green City building programs are perceived as too costly, which poses a significant challenge in implementing the program. Conversely, 27% of the employees disagree with this perception, while 15% are uncertain about the costliness of the program. This observation underscores the primary hurdle in implementing the Green City program: its perceived high cost. Among the 90 respondents, 34% explicitly identified various problems and issues in implementing Green City Building Programs. These include political factors, elections, documentary and implementation requirements, lack of knowledge and awareness, compliance with green building ordinances, community involvement, existing old buildings and establishments, and the ongoing maintenance of the program.





positively impacts public health by providing a fresher air quality. Environment sustainability is widely recognized as the primary means by which the program influences the environment.

4. The research affirms that the Quezon City Green Building Program has been effectively disseminated to raise awareness among the city's residents. Additionally, employees believe that further dissemination can be achieved through television and social media advertisements, highlighting the importance of these platforms in reaching the wider populace.

5. While a considerable portion of respondents believe that the Quezon City government is financially capable of implementing the Green City Building Program, concerns about its high cost persist among the majority. Despite this, there are differing opinions regarding whether the program's costliness poses a significant obstacle to its execution.

## Recommendations

Recommendations stemming from these findings include prioritizing the enhancement of clean and green surroundings and increasing employee productivity as key benefits of the Green City Building Program. Furthermore, the majority of employees advocate for the Quezon City government to conduct more seminars or training sessions for employees to enhance their knowledge about the program, thereby empowering them to advocate for the adoption of green building practices.

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