

# THE GREEN BUILDING INDEX (GBI) ON LANDSCAPE ARCHITECTURE SCOPE OF WORKS

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## ABSTRACT

The Green Building Index (GBI) is a green rating system introduced by the Pertubuhan Arkitek Malaysia (PAM) to evaluate the performance of building across a broad range of environmental considerations. Apart from evaluating the building's performance, the landscape design aspect has become a major part and parcel from the overall GBI assessment through the criteria of open spaces, landscaping and heat island effect. The paper is intend to highlight the review on the relationship of the GBI with the landscape architecture scope of works as well as the important roles played by the landscape architects from the Islamic point of view. It is hoped that this paper may possibly be an added knowledge about the GBI and the landscape architecture field and also as the key indicator towards enhancing the urban environment sustainability in the aspect of technology.

**Keywords:** The GBI, landscape architecture, roles, green technology

## 1.0 INTRODUCTION

Landscape comprises the visible features of an area of land which involve physical elements of landforms and water bodies as well as living elements like human beings and wildlife. Combining both the physical origins and the cultural overlay of human presence, landscape reflects the living interface of people and place which is very vital to shape up local and national identity. Through various, unique and distinctive characters and qualities, landscape helps to define the self-image and speciality of space, structures and region since the ancient civilization epoch (Fruehwirth, 2008). From the base idea on how landscape interacts and works, the field of landscape architecture is progressively evolved all around the world including Asia. It deals with the design of outdoor and public spaces in order to achieve environmental, socio-behavioural as well as aesthetic outcomes (Dzarul Hardy Azwar, 2005). Besides, it involves various scopes of work at varying scales of project such as urban design, site planning, town or urban planning, environmental restoration, parks and recreation planning, green infrastructure planning and lots more. As a multi-disciplinary field in built environment industry, landscape architecture is not just merely dealing with plantings but it incorporates wide range of field such as architecture, ecology, environmental sciences, geology, art and many more (Dzarul Hardy Azwar, 2005).

Furthermore, landscape architecture professionals are prepared to work on all types of structure and external space – be it large or small; urban or rural; hardscape or softscape, but in the same time they are also prepared to integrate ecological sustainability. Many of us may not notice this very well, but the reality of the environmental catastrophes that always occurred in these recent years is caused by the negligence of the ecological sustainability (Noor Fazrina Kamal, 2011). This negligence attitude has caused so many tragedies such as tsunami back in year 2004 which also affected the northern region of Malaysia as well as the latest landslide tragedy which affected the orphanage at Hulu Langat, Selangor. The tragedies rate may be reduced if the natural landscape system is not being disturbed along the coastal line and the hilly area. Therefore, the issue of ecological sustainability is very crucial and the landscape architects are the people who really responsible to cater this issue. If we look into the Islamic perspectives as outlined by the Qur'anic teaching, it is always mentioned that the human as the vicegerent on Earth should care and protect the nature's right from being abused. Meaning to say, the roles of landscape architect are really important as to execute the vicegerency missions. However, if we may look the landscape architecture in global mean, we may refer towards the advanced countries such as United States. The landscape development is always become the top priority before a township can be developed. Meaning to say, landscape architecture field is not just filling up the outdoor space but it is worth more than that. Landscape architecture is always about designing the space for people comfort without neglecting the balance of physical development and ecological sustainability which leads to a better and healthier life (Dzarul Hardy Azwar, 2005; Noor Fazrina Kamal, 2011).

## **2.0 GREEN BUILDING AND LANDSCAPE ARCHITECTURE**

Malaysia nowadays has gone through lots of development phases especially in the urban area. The establishment of new urban centres have gradually degrading the quality of ecology and environment (Ahris Yaakup, et.al., 2000). We are getting to lose our precious green lung as one by one green areas have been turned into buildings and structures development area (Almeida, 2009). Due to the degradation of environmental quality, the government with the assistance of professionals in the built environment industry started to think of the best alternatives to reduce these environmental problems. As the best resort, the idea of green technology or green building has been brought into our country. This technology is the most popular alternative that has been used by the developed countries such as United Kingdom, United States of America, Japan and many more.

Concerning the idea of green building, an organisation known as the Green Building Index (GBI) organisation under the subsidiary of the Pertubuhan Arkitek Malaysia (PAM) and the Association of Consultant Engineers of (ACEM) has introduced the GBI as the local green building rating system to the public. According to Cole (2001), "Green building rating systems are in fact environmental assessment methods applied for buildings that have emerged as a widely adopted way to evaluate the performance of building across a broad range of environmental considerations" (Tuan-Viet Do, 2008). Eventhough the GBI is very much related to the performance of building in the context of architecture field, this paper is intend to reveal a new path or seek the GBI potential as a new technology to the landscape architecture scope of works. As landscape architecture deals with the environmental sustainability, it is hoped that the development of the GBI may add some new positive values in improving landscape architecture education and profession in this new century.

## **3.0 REVIEWS ON THE GBI FRAMEWORK ON LANDSCAPE ARCHITECTURE SCOPE OF WORKS**

As mentioned in the introduction, the GBI emerged to help in evaluating the environmental design and performance of buildings particularly in Malaysia. Besides that, it also provides an opportunity for the architects, designers, and developers to have sustainable buildings that can offer energy savings, water savings, healthier indoor environment, better connectivity to public transport, carbon footprint reduction as well as to suit the locality,

climate, and culture (Chin Mui Yoon, 2009). As stated in the GBI fact sheet, the GBI is developed specifically for the Malaysian-tropical climate, environmental and developmental context and it is created to:

- a) define green buildings by establishing a common language and standard of measurement;
- b) promote an integrated, whole-building design that provides a better environment for all;
- c) recognise and reward environmental leadership;
- d) transform the built environment to reduce its negative environmental impact; and
- e) ensure new buildings remain relevant in the future and existing buildings are refurbished and upgraded to improve the overall quality of our building stock.

Basically, the GBI assess the buildings' performance based on six main criteria which are energy efficiency (EE), indoor environment quality (EQ), sustainable site planning & management (SM), materials & resources (MR), water efficiency (WE) as well as innovation (IN). Apart from evaluating the building's performance based on the mentioned criteria, the GBI has specifically outlined a section that concentrate on the landscape design aspect. Green building design has always to deal with the environmental sustainability. In order to sustain the environment, the natural resources and landscapes should be remained untouched. However, most of the developments nowadays have far astray from the actual sustainable development principles. This is the reason of why landscape architecture is very important in realising the concept of green building. As mentioned by the president of Institute of Landscape Architects Malaysia (ILAM), landscape architecture is a vital field to educate the current generation on the preciousness of the environment. Humans nowadays are greedy and irresponsible by altering the natural land resources for development without noticing their impacts towards the ecology and environment (Noor Fazrina Kamal, 2011). Therefore, landscape architecture been incorporated as a major part and parcel from the overall GBI assessment through the criteria of open spaces, landscaping and heat island effect. This criterion will be further elaborated in 3.1.

### **3.1 Open Spaces, Landscaping and Heat Island Effect**

Referring to the GBI assessment sheets, it has outlined several important aspects that need to be covered in this section such as the intent of the assessment, the description of assessment as well as several requirements to be fulfilled in order to achieve highest points during the assessment. The details of them are shown as follows:

- i. Intent of the assessment - to conserve existing natural area or create larger soft landscaping area to provide habitat, promote biodiversity and reduce Heat Island Effect.
- ii. Descriptions of the assessment - encourage protection or restoration of the habitat and maximise the ecological diversity by introducing native or adaptive vegetation as well as maximise potential for open spaces on grade or on rooftops.
- iii. Specific requirements - maximize open spaces by providing a high ratio of open space to development footprint to promote biodiversity & reduce Heat Island Effect:
  - a. 1 point: Provision of landscaping with indigenous plants is up to 10% of total development area;
  - b. 1 point: Landscaping with indigenous plants is up to 15% of total development area;
  - c. 1 point: Landscaping with indigenous plants is up to 20 % of total development area; and
  - d. 1 point: Landscaping with indigenous plants is up to 25% or more of total development area.

In total, this section holds a cumulative 4 points from the total 39 points outlined in the assessment criteria. Comprehensively, the important input that should be carried out in this assessment will be as follows – the development should have smaller footprints and more landscape, thereby reducing the well known effects of heat islands around hardscaped areas. The provision of landscape with indigenous plants up to 10% of total development

area will be awarded 1 point and the provision of additional similar landscape and plants of every extra 5% will be awarded 1 point each up to a maximum of 3 points.

From the elaboration above, it can be seen that landscape architecture plays very important roles in achieving the objectives of green building design. The intention of conserving natural lands, enhancing biodiversity and reduce the impacts on the earth are the roles that landscape architecture holds since the beginning of the world civilization. All the requirements and details outlined for this section need to be further improved by the help of the professional landscape architects. This is the right platform to implement everything that has been outlined in any official landscape guidelines and standards in improving and detailing the current landscape requirements in the GBI assessment. Indirectly, the development of the GBI has opened a path for the landscape architecture professionals to bring their profession to a better standard and it is a new innovation that could be implemented in landscape architecture. On the other hand, this new innovation also could demolish the sceptical stigma towards the landscape architecture profession which saying that it is only about plants and decoration; but the reality is it has to do with so many things else which may contribute to the betterment of urban environment (Dzul Hardy Azwar, 2005; Noor Fazrina Kamal, 2011).

#### **4.0 ROLES OF LANDSCAPE ARCHITECTS FROM ISLAMIC POINTS OF VIEW**

Venturing into the 21st century, the world is confronted with more and more serious challenges on managing the environment as it forces everyone to see things in a larger perspective especially the landscape architects. They play big roles; not merely as the steward of the earth but more than that. They are prepared and trained to manage and treat the environment in a sustainable manner in order to ensure the better quality of life (Ismail Ngah, 2007). This is in line with the teachings of Islam which educate Muslims to protect and preserve the environment. As mentioned by Sheikh Khalifa Ezzat (2008), Islam is the greatest religion and it is a way of life. Islam teaches human beings to respect the environment by conserving it for several reasons as follows:

- i. The environment is Allah's creation. The creation of this earth and all its natural resources are a sign of His wisdom, mercy, power and His other attributes and therefore serves to develop human awareness and understanding of this creator (Surah Ar-Ra'd: 2-4);
- ii. Muslims should protect and preserve the environment because it is the sign that they protect another Allah's creatures which pray to Him and praise Him. Humankind might not be able to understand how these creatures praise Allah but humankind must believe in it. As Allah says, "The seven heavens and the earth, and all beings therein, declare His glory: There is not a thing but celebrates His praise, and yet ye understand not how they declare His Glory!" (Al-Israa': 44); and
- iii. The environment contains Allah's creatures which the Muslim scholars consider to also deserve protection.

There is obviously a serious need to heal and care for the environment, where the landscape architects in particular, must play proactive role by reviewing their contribution to the environment and society and find ways to address the environmental issues. Indeed, landscape architecture in Malaysia has proven itself today as an essential and indispensable element in the design, planning and implementation for a better quality of life and management of built environment industry. Moreover, it also has a significant contribution in creating conducive habitats for the sustenance of civilization. The landscape architects has so far been successful in greening the Earth by developing greens for the communities, as well as putting efforts to increase people's awareness and perception towards a balanced landscape within the present rapid development scenario (Ismail Ngah, 2007). The landscape architects task is not easy as they are trained to protect the right of nature over human and vice versa. Mohamad Fadly (2009) mentioned that the holy Qur'an has stressing a lot about nature, its damages and the way of protecting its rights. This can be seen from several Qur'anic and Hadith verses as follows:

- i. All the damages on earth are caused by the actions of human themselves. This is proven by the verse in the 30th chapter which says, "Mischievous has appeared on land and sea because of the hands of men has earned, that (Allah) may give them a taste of some of their deeds: in order that they may turn back (from Evil)";
- ii. God created nature in a perfect balance among all its factors, that human must keep that balance. This is proven by the 19th verse in Surah Al-Hijr which says, "And the earth We have spread out (like a carpet); set thereon mountains firm and immovable; and produced therein all kinds of things in due balance";
- iii. Prophet Muhammad encouraging all members of Islamic community to spread the trees and reclaim the desert lands. This is proven by his sayings in Sahih Al-Bukhari, "There is none amongst the Muslims who plants a tree or sows seeds, and then a bird, or a person or an animal eats from it, but is regarded as a charitable gift for him"; On the other hand, the Qur'anic verses sayings of the Prophet also continuously reminding the Muslims to keep the resources of nature and to use them in a balanced way as well as avoid from mischief and extravagance. This can be seen in several verses which are:
  - i. Men should keep the earth resources wisely and not to waste them. This is mentioned in verse 26 and 27, Surah Al-Isra' which says, "But squander not (your wealth) in the manner of a spendthrift. Verily spendthrifts are brothers of the Evil Ones; and the Evil One is to his Lord (himself) ungrateful";
  - ii. Men are inhibited to waste the products of nature. This is proven by the verse 141 in Surah Al-An'am which says, "It is He Who produceth gardens, with trellises and without, and dates, and tilth with produce of all kinds, and olives and pomegranates, similar (in kind) and different (in variety): eat of their fruit in their season, but render the dues that are proper on the day that the harvest is gathered. But waste not by excess: for Allah loveth not the wasters".

Overall, nature and environment can be regarded as a very important component in human lives and the landscape architects are responsible to care and manage them sustainably. Islam also really cares about the idea of protecting the environment by teaching the Muslims on how to respect nature; keep the natural resources wisely away from misuse and extravagance; increase the amount of plants and trees; as well as protect the lands. This is also supported by Zaini Ujang (2010) by saying that the idea of keeping the trees alive should be comprehended by the men as it is closely related to the divine philosophy. He further said that the initiative to protect the environment and the ecosystem in providing a safer living place for the community is a medium for Muslims to increase the iman or faith to Allah SWT.

## 5.0 CONCLUSION

The Green Building Index (GBI) is conceived to be able to aid architects, designers, builders, government bodies, building owners, developers and end users to understand the impact of design towards the environment. It also helps to provide choice and solution in producing a better design with full consideration to the environment in the future. Apart from that, it incorporates the landscape design aspect has become a major part and parcel from its assessment through the criteria of open spaces, landscaping and heat island effect. Therefore, the landscape architecture role has come into the business in which it is vital to conserve natural area, encourage restoration of the habitat as well as maximise the biodiversity through native and adaptive vegetation. The GBI has become a value-adding measure to espouse landscape architecture field as a leading role together with the architecture and other components in built environment industry. Not just that, the roles of landscape architects themselves should be given the utmost priority as they are the people who are accountable to promote the world sustainability. As abovementioned, Islam always educating the people to care about environment and the landscape architects are among the chosen one to execute this noble duty. In a nutshell, it is hoped that this review gives a positive signal in inspiring the needs of respecting our nature as inculcated by the Islamic teaching regarding the rights and relationship between man and environment as well as the strong base in the research analysis and finding stage later.

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## REFERENCES

- Ahris Yaakup, Mansor Ibrahim, Susilawati Sulaiman, Zulherman M.Sosi et.al., (2000). Assessment Of Urban Development And Landuse Changes' Impact On The Environment: A Case Study Of Urban Development In Klang Valley Region, Malaysia, SENVAR.
- Almeida, P., (2009). Goodbye to Another Green Lung, *The Malay Mail*.
- Chin Mui Yoon, (2009). Health Check for Malaysian Architecture, *Starmag, The Star*.
- Cole, R. J., (2001). *A Building Environmental Assessment Method for British Columbia*. Vancouver: University of British Columbia.
- Dzarul Hardy Azwar, (2005). Landskap – Kerjaya Profesional Masa Kini.
- Fruehwirth, S., (2008). Roots and Relationships of Greening Buildings, *WIT Transactions on Ecology and the Environment*, Vol. 113, p.57-68.
- Green Building Index (GBI) Fact Sheet. (2010). Available at:  
<<http://www.greenbuildingindex.org/Resources/GBI%20Documents/GBI%20Fact%20Sheet%20V1.0.pdf>> , 18th July 2010.
- Ismail Ngah,(2007). Teks Ucapan JLN, IFLA World Congress 2007.
- Mohamad Fadly,(2009). Climate Change: An Islamic Perspective. Available at:  
<<http://tounderstand-islam.blogspot.com/2009/10/climate-change-islamic-perspective.html>>
- Noor Fazrina Kamal, (2011). Landskap Tingkatkan Kualiti Hidup Manusia, *Utusan Malaysia*.
- Sheikh Khalifa Ezzat, (2008). Islam and Environment. Available at:  
<[http://www.iccuk.org/media/khutbas/Islam\\_and\\_Environment\\_\(15-08-2008\).pdf](http://www.iccuk.org/media/khutbas/Islam_and_Environment_(15-08-2008).pdf)>, 12th December 2008.
- Ting Kien Hwa, (2009). Promoting Green Building: An Index Is Now In Place In Malaysia To Rate Such Properties, *Starbiz, The Star*.
- Tuan-Viet Do, (2008). Design for Sustainable Cities: The Compact City Debate and The Role of Green Building Rating Systems, *Ecocity World Summit 2008 Proceedings*.
- Zaini Ujang, Kempen Tanam Pokok Bantu Mantapkan Keimanan, *Berita Harian*, 2010.
- Zuhairuse Md Darus, Nor Atikah Hashim, Elias Salleh , Lim Chin Haw, Abdul Khalim Abdul Rashid & Siti Nurhidayah Abdul Manan, (2009). Development of Rating System For Sustainable Building In Malaysia, Vol. 5, in: *Wseas Transactions on Environment and Development*.