

Town Planners' Involvement in the Planning and Design Process of Green Building Projects in Malaysia

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ABSTRACT

Green building is a holistic project that requires integrated planning and design approaches through the involvement of multidisciplinary professions. Green building projects in Malaysia usually involve developers, architects, engineers and energy consultants to make decisions in planning and design. The role of town planners in the project is limited especially when it comes to getting the approval for planning from the local authorities. This study aimed to identify the level of town planners' involvement in the planning and design process of green building projects in Malaysia. It also offered recommendations on how the green building projects could be supported by the town planners. The data were collected in two tiers of interviews. A first series of interviews was conducted among 22 town planners who represented town planning organizations from the private and public sectors in Malaysia. The data were analyzed qualitatively using the content analysis technique. Then, a second series of interviews were conducted among the town planners who had been involved with the planning and design process of three selected green building projects in Malaysia. The data obtained from this in-depth case study interviews were analyzed using the cross-case analysis. Findings indicate that the involvement of town planners and the input given to the green building projects were very limited which had led to disagreement throughout the planning and design process. The early contribution of town planners to the projects in the planning and design process will enhance the opportunity of the project to become 'green' in the true sense of the word.

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INTRODUCTION

Buildings contribute up to 30% of greenhouse gas (GHG) emissions and use up to 40% of energy each year (Isa et al., 2019; United Nations Environment Programme [UNEP], 2009). UNEP (2009) reported that if this condition prolonged, the GHG emissions would increase by double in 2029. Green Buildings are referred to as buildings that exhibit energy and resource efficiency and are capable of reducing the negative effects of the development on the environment and human health with the aim of promoting sustainable life (Isa et al., 2014, 2019). Studies have revealed that enhanced green building demand and supply could contribute up to 35% reduction of carbon dioxide (CO₂) emissions; 30-50% reduction of total energy use; 70% savings on waste generation; and 40% reduction of water usage (CBRE, 2010). Malaysia has set a target to become an advanced economy by 2020, achievable through a resilient, low-carbon, resource-efficient, and socially-inclusive manner. The Ministry of Energy, Green Technology, and Water (MEGTW) (currently known as the Ministry of Energy, Science, Technology, Environment and Climate Change) through their 'Low Carbon City Framework and Assessment System' (LCCF) reported that the development of a city is the main contributor to the CO₂ emissions, where it releases up to 50% (MEGTW, 2011). Thus, sustainability achievement in the development, specifically the building construction sector is the biggest chance for a city to reduce carbon emission.

Malaysia has developed its own Green Building Assessment Systems (GBAS) known as Green Building Index (GBI Malaysia) to evaluate the green design and performance of Malaysian buildings. Thus far, as of October 2016, the GBI had certified over 170 millions square feet of green buildings. On annual average, this translates to a total of CO₂ emission reduction of 758,000 tons (GBI, 2016). In 2012, the government had established a GBAS called Green Performance Assessment System in Construction (Green PASS) which aimed to encourage a sustainable construction by focusing on the construction and operation stages through the reduction of CO₂. *Penilaian Penarafan Hijau, Jabatan Kerja Raya* (PH JKR) was established in the same year, followed by Green Real Estate (GreenRe) in 2013.

Urban planning and the green building construction sectors are mutually necessary and complementary which need to be addressed in an integrated manner. This is because green buildings are not just independent individuals, but the scope extends to the community in which residents' social and humanistic needs should be met in a better manner under rational planning and construction (Li et al., 2014). Based on their research in China, Li et al (2014) had compiled a list of social and humanistic needs for green buildings' planning and design such as to achieve the integration of regional features and historic culture, the style of buildings that reflected geographical features and concerns with house layout and functions. The findings show that the

involvement of town planners in green building projects is very significant as most of those needs are very much relevant to the roles and responsibilities of town planners.

Local planning departments are best suited to implement policies that promote green buildings because they have the mandate and the organizational capacity to create and adopt development plans and regulations, and they are familiar with local conditions, politics, and community and planning goals. They also serve an important integrating role among the government agencies and the communities. Town planners constitute a unique group of professionals, who is responsible for preparing and executing a beneficial plan for the community (Isa, 2015; Safee et al., 2015). With the help of a planner throughout the project planning and design process of a green building, it will lead to a more integrated outcome and make ease the approval process of the project (Retzlaff, 2008). Singapore is a good example of an Asian country that promotes green building development. The success of the certification program and the Green Building Master plan of the country are achieved through the collaborative work of various stakeholders and institutions ranging from government agencies, non-profit organizations, to corporate industry players and educational institutions including the local authorities and planners (Building and Construction Authority, n.d). In a short span of 8 years, the number of green buildings in Singapore had increased a hundred times from 17 buildings in 2005 to almost 1700 in 2013.

Green building development has been suggested to provide multiple benefits to achieve sustainability through urban planning (Bohne & Solli, 2011; Høyer & Næss, 2008). Yet, in the rapid development of the green building initiatives in Malaysia, the green building developments often involve developers, architects, engineers and energy consultants to make decisions in both the planning and design (Isa, 2015). Meanwhile, the role of town planners seems ambiguous and isolated (Isa, 2015). Consequently, land use planning and development regulation often fail to consider many of the impacts of buildings. The current urban planning process, policies and guidelines in Malaysia are not fully engaged with the green building development of the country (Isa, 2015).

Construction and development projects involve the co-ordinated actions of many different professionals to achieve defined objectives. Projects begin with the inception stage which starts with business decisions made by the client and the feasibility stage in which various professionals and specialists are required to give inputs to a broad ranging evaluation of feasibility. The next stage is the strategy stage followed by the pre-construction stage after the completion of the strategy stage and then, the onsite construction will begin. During the pre-construction stage, the design is determined, also the planning and the principal decisions are made concerning time, quality and cost management. This stage also includes statutory approvals and consents, considering utility provisions such as water and electricity, monitoring

the environmental performance targets and bringing manufacturers, contractors and their supply chains into the project team working in a creative and highly interactive way (The Chartered Institute of Building [CIOB], 2010). The involvement of town planners during this stage is very crucial especially in a green development context as it will provide multiple benefits to achieve the green targets through urban planning (Bohne & Solli, 2011; Høyer & Næss, 2008; Li et al., 2014).

Unfortunately, the traditional planning and design process in Malaysia do not provide a very easy path towards the development of the green building projects. Land use planning, layout plan preparation and the building regulations that are being implemented do not include the techniques, the design and the materials used in developing a building. Due to the limitation of knowledge and a norm to the conventional system, town planners are usually required for the purpose of preparing the layout plan and qualifying the relevant planning requirements (Isa, 2015). Bearing this in mind, this article discusses the level of town planners' involvement in the planning and design process of green building projects in Malaysia and suggests how the green building projects can be supported by the town planners through the project planning and design process towards green growth.

MATERIALS AND METHODS

This study applied the qualitative method in two stages. In the first stage, interviews

were conducted among 10 professional town planners who had at least one town planning consulting firm. In addition, 11 town planners of the Department of Town Planning at the local authority level were also selected to contribute in the interview sessions.

They were selected on the basis that they were established in the profession, that they had the knowledge or experiences on the green building project, they were well known and recognized by the industry to represent the profession of town planners in the public and private sectors as a whole. The data obtained from this stage were analyzed using the content analysis method. The findings were then brought to the second stage, which were case study qualitative approaches for the in depth study. At the second stage, interviews were conducted among the town planners who were responsible for three selected green building projects. The buildings had been selected as the case studies for this research, considering the literal replication logic on the grounds that the buildings were recognized as the recipient of ASEAN Energy Award, certified by GBI Malaysia and which were already fully occupied. The involvement of planners in the planning and design process of the projects was measured by using the theory developed by Neumann in 2000, known as 'Neumann's Continuum of Degrees or Range of Participation in Decision Making'. The content analysis and cross case analysis techniques were used to analyze the qualitative data obtained from the case studies.

RESULTS AND DISCUSSIONS

Town Planners' Involvement in the Planning and Design Process of Green Building Projects

The result as depicted in Table 1 reveals that the majority of the town planners, whether from the consulting firms or local authorities, which are a total of 15 out of 21 interviewees, had never been involved in the planning and design process of green building projects in Malaysia. Interviewees had the knowledge of the green project and even underwent training regarding the project development, but they did not have the opportunity to get involved in the project. Meanwhile, 5 out of 21 interviewees were involved in 1 to 5 green building projects and only one interviewee, which was from the local authority, was involved in the planning and design process of 11 to 15 green buildings. However, all those 6 interviewees stated that they had only been involved in the process of seeking for the planning approval from the local authority. Unfortunately, the submission made for local planners' approval at this stage was not clarified properly in terms of the details of the design and the green technologies proposed for the development. Town planners at local level have to ensure that the applications for planning permission followed the requirements of the development plans, guidelines, and other related needs. Interviewees also revealed that there were certain local authorities who ruled out that the report for the planning permission application of a green building project should be submitted together with

the compliance reports of GBI Malaysia. However, the GBI report submission was only a condition of the application and it did not require planners' involvement to give input throughout the project planning and design process directly.

The green building development requires integrated planning and design process, which involve the key stakeholders from various professions including planners (Isa, et al., 2014; Li et al., 2014). However, based on interviews, taking into consideration the input of various key professions starting from the early planning and design process of a building was very rare or never happens in Malaysia. At local level, preliminary discussion normally takes place between the town planning consultants and the planning department during the layout plan, building plan or planning permission submission process. A registered town planner is engaged by the developer or land owner to prepare the layout plan and will act as the principal submitting party for the planning approval process at the planning permission stage. Architects responsible for overseeing the entire projects development will influence the issuance of quality building through the Certificate of Completion and Compliance. Meanwhile, contractors will only get involved during the construction process at the project site. Input from building operators and other outside stakeholders is given very little consideration during the planning and design process of the buildings in Malaysia. These findings on what is happening within the pre-construction stage

of green building development in Malaysia contradict to the idea of the green building development that requires the professions involved since the early planning and design stage generates a holistic building construction and minimizes conflicts in a green building project as suggested by Isa (2015) and Isa et al. (2014).

Based on the interviews at the second stage conducted among the town planners who were responsible for the certified green buildings (see Table 2), it was found that the level of involvement of the town planners in all those three projects was little. They were only involved with the process of preparing the documents and related

Table 1
Involvement of town planners in the planning and design process of green building project

Type of organization		Involvement in the planning and design process of the green building project				Total	
		None	1-5 project	6-10 project	11-15 project		
Town planning firms	Involved in the green building project	None	8	-	-	8	
		1-5	-	2	-	2	
	Sub Total		8	2	-	10	
Local Authority	Involved in the green building project	None	7	-	-	7	
		1-5	-	3	-	3	
		11-15	-	-	-	1	1
	Sub Total		7	3	-	11	
Total involvement in green building project			15	5	-	1	21

materials to obtain the planning permission from the local authorities. Town planners had not been working together to exchange ideas and provide input during the detailed design process of the green buildings in every building plot. Neglected input from the perspective of the town planners in the planning and design process of the green projects was more obvious when they were not actively involved during the detailed design of the building. This process had only involved developers, owners, architects, engineers and energy consultants. In terms of the degree of involvement of the town planners, it was revealed that they were

just informed about every decision made by others instead of actively being involved to generate ideas throughout the planning and design process.

Result shows that all those green building projects are still practicing some amount of conventional planning and design process. Apart from not being involved in the town planners actively in the early planning and design process, contractors were not appointed at the time of preparing the building design in Project A and B. Project B had carried out the traditional procurement system, which was the design-bid-build that prevented them from appointing a

contractor earlier. However, the owner of building B clarified that they always made the effort to get input and feedback from the contractors throughout the planning and design process. In terms of the planning and design, project C seems to be much more exclusive compared to Project A and B. Project C learnt and utilized all the lessons and experiences obtained from the delivery of Project A and B. Considering that the main contractor of all those projects was from the same organization and was elected as the project manager for Project C, the outcome of Project C was more integrated and structured. Inputs from contractors were obtained since the earliest planning stage of this project. The involvement of the contractor since the early planning process, gave an opportunity to the contractor to share their experiences and ideas with the design team to smoothen the design process and prevent major changes during construction.

However, inputs from town planners in those three projects were still vague. Although Project C carried out a much more

integrated process compared to Project A and B, the involvement of town planners in this project remained unchanged. Town planning consultants concentrated on preparing the layout plan, while their involvement in the designing process was very minor. In other words, the town planners' input did not seem to be appreciated throughout the planning and design process of all those three projects. Based on the interviews, the town planners measured the performance of those three green buildings to be at 'fair' level of achievement especially on the planning aspects as a whole, as their input was not considered.

Supporting the Development of Green Building through the Planning and Design Process

The role of town planners in supporting the construction of green building needs to be more active and efficient. Urban planning and green building construction sectors are something that should not be separated. Looking at LCCF, there are four elements that have to be taken into account by the key professions including the town planners

Table 2
Town planners' involvement in the planning and design process of the green building project

Stakeholders	Projects	Involvement	Planning and Design Process		
			Conceptual Planning	Preliminary Design	Detail Design and Development
Town Planners	PROJECT A, B and C	Extents of involvement	Little	Little	Little
		Degree of involvement	Being informed	Being informed	Being informed

Note: Based on the Neumann's continuum of degrees or range of participation in decision making (Neumann, 2000, p. 267)

to create a low-carbon city, namely the urban environment, urban transport, urban infrastructure and buildings. Environment, transport and urban infrastructure are aspects regarded as synonymous with urban planners in the planning process and preparation of layout plans. However, in terms of the building, town planners sometimes overlook the importance of their input in its design, as the aspects of building construction have long been placed under the jurisdiction and the responsibility of the architects, engineers or designers. Among those mentioned in LCCF is planning the ideal orientation of buildings in its plot to reduce heat. In that case, town planners should take into account these requirements during the process of preparing the layout plans. A layout plan that does not consider the building's orientation will result in the difficulty of preparing the buildings; for instance, buildings that are placed in the plot are rather difficult to be prepared according to the criteria of green building. There is also compliance with a number of other green building principles, which requires input and sharing from the town planners such as site planning including facilities and infrastructures provision for the community, accessibility, green spaces and so on. This indicates that their involvement in providing input regarding the compliance with the green principles throughout the planning and design process of a green building is indispensable.

CONCLUSION

Urban planners are a profession that is very important to support the development of green buildings in Malaysia. This is because this profession caters to the welfare needs of the community as a whole. Unfortunately, the involvement of town planners of the country to the green projects was very limited which led to the weaknesses of several design aspects of the development. With the planner's active involvement in the early planning and design process of a green building, there are a lot of design inputs that can be given, such as the aspects of accessibility, and layout planning that meet the requirements of the green building development and so on. Town planners and other professionals need to be more open where they can sit down together to share the expertise in planning and designing a green building. As early as the planning and design process, with good cooperation, major changes throughout the development process of the projects could be reduced. This will indirectly decrease the overall cost of the project and encourage the completion of the project within the stipulated time frame. There are many green building projects abroad that have been proven successful in terms of practicing the integrated planning process. Malaysia, as a young country in the green development should be open minded to learn from the experience of foreign countries in order to achieve a low carbon, sustainable and green growth.

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REFERENCES

- Bohne, R. A., & Solli C. (2011). *How to measure environmental impact in the planning phase of a settlement - The case of Brøset, Trondheim (Norway)*. Retrieved January 1, 2016, from http://www.irbnet.de/daten/iconda/CIB_DC22945.pdf
- Building and Construction Authority. (n.d.). *Singapore: Leading the way for green buildings in the tropics*. Retrieved June 17, 2016, from <https://www.bca.gov.sg/Publications/BuildGreen/BuildGreen.html>.
- CBRE. (2010). *CB Richard Ellis Malaysia special report: Going green Malaysia*. Retrieved January 1, 2016, from <https://www.scribd.com/document/91128790/Going-Green-Malaysia>
- Green Building Index. (2016). *GBI executive summary*. Retrieved November 17, 2016, from http://new.greenbuildingindex.org/Files/Resources/e_summary/2016/summary%2010.pdf
- Høyer, K. G., & Naess, P. (2008). Interdisciplinarity, ecology and scientific theory: The case of sustainable urban development. *Journal of Critical Realism*, 7(2), 179-207.
- Isa, N. K. M. (2015). *A framework for integrating sustainability into the project planning process for buildings: The case of Malaysia* (Doctoral thesis), University of Malaya, Malaysia.
- Isa, N. K. M., Albahori, A. S., Alias, A., & Ismail, K. (2019). The execution of the green building project in Klang Valley, Malaysia: A pilot study. *Pertanika Journal of Sciences and Technology*, 27(2), 911-919.
- Isa, N. K. M., Alias, A., & Samad, Z. A. (2014). Towards developing a sustainability integration framework for building project. *Journal of Building Performance*, 5(1), 22-33.
- Li, F., Yan, T., Liu, J., Lai, Y., Uthes, S., Lu, Y., & Long, Y. (2014). Research on social and humanistic needs in planning and construction of green buildings. *Sustainable Cities and Society*, 12, 102-109.
- Ministry of Energy, Science, Technology, Environment and Climate Change. (2011). *Low carbon cities framework and assessment system*. Putrajaya: Author.
- Neumann, J. E. (2000). Managerial and employee involvement in design processes. In D. Clements-Croome (Ed.) *Creating the productive workplace* (pp. 259-271). London: E. & F. N. Spon.
- Retzlaff, R. C. (2008). Green building assessment systems: A framework and comparison for planners. *Journal of the American Planning Association*, 74(4), 505-519.
- Safee, F. A., Yunos, M. Y. M., Ismail, S., Ariffin, N. F. M., & Isa, N. K. M. (2015). Establishing elements of a good city planning: An analysis of city planning theories. *Jurnal Teknologi*, 75(9), 101-105.
- The Chartered Institute of Building. (2010). *Code of practice for project management for construction and development* (4th ed.). Oxford, United Kingdom: Wiley-Blackwell.
- United Nations Environment Programme. (2009). *Buildings and climate change: summary for decision makers*. Retrieved March 10, 2016, from <http://www.unep.org/sbci/pdfs/SBCI-BCCSummary.pdf>.

