

Sustainable Development At Malaysian Local Governments : Staff's Awareness & Constraints

Sulzakimin Mohamed¹, Seow Ta Wee²

¹(Construction Management, Fac.Tech.Mgmt & Bisness,Univ.Tun Hussein Onn Malaysia)

²(Construction Mgmt, Fac.Tech.Mgmt & Bisness,Univ.Tun Hussein Onn Malaysia)

Abstract :- Sustainable development is for the economical, societal and environmental sustainability for humankind to develop built environment. There are a lots of ways sustainability elements can be incorporated in services at local governments. Hence, capable staffs at local government are much needed. Importantly sustainability represents the link between society and built environment professionals. However, those links still unclear where built environment are still being developed in an unsustainable way and staff at local governments as well as society still unaware with the concept of sustainability. This gives huge impact to our environment and also human health. This paper focuses at the role of the Local Governments and how the staff play their roles towards sustainable development. This study involved interviews with 14 officers from 14 different Local Governments offices. The result shows that Local Governments' staffs need better understanding and awareness in acquiring and disseminating knowledge on sustainability. This study is to contribute to the enrichment of the role of Local Governments in the planning approval for sustainable development.

Keywords: *awareness, constraints, local governments, sustainable development*

I. INTRODUCTION

Local Governments are now experiencing continuous challenges in materialising sustainable development as in the environmental, economical and social aspect. Over the past decade, those aspects are discussed comprehensively and nowadays, as a result of this development, the interests in sustainable development are increasing. The issues are local governments' function involves large resources and variety of mechanisms [1],[2]&[3]. As a result, implementation and enforcement are not under great obligation to optimise society investments as well as sustainability deliverables. Therefore staffing is a challenge to be effectively functioning. While the sustainability concept is being emphasised, effective management is crucial as all levels of local government continues to fall short of knowledge and experience [4]&[5]. The lack of knowledge in staff leads to problems in ensuring effective implementation and this can be seen in the failing of managing the waste in construction site, river management, public participation in ensuring safety and health of housing area and public sanitation. The implementation of sustainable development in local government need to be given serious thought in tackling the issues of environmental, social and economical aspect.

II. BACKGROUND STUDY

The concept of sustainable development was first proposed by the Brundtland Commission in 1972. This definition has evolved since the United Nations Earth Summit held by the United Nations Environment Programme (UNEP) in Rio de Janeiro (1992) [6]&[7]. Accordingly, those aspects are a major concern in local governments globally when dealing with development of a country. Essentially, the sustainability in local government's practices needs to be shown in providing the services to the public. Sustainable development, in the broadest sense, is the ability to sustain a certain process or state at a certain rate or level, hence the term; sustainability. The concept of sustainability applies to all aspects of built environment and is commonly defined within ecological, social and economic contexts. Sustainable development has three important components which are economic, social development and environmental protection [8],[9]&[10]. The Johannesburg Plan of Implementation, agreed at the Earth Summit 2002, affirmed UN commitment to 'full implementation' of Agenda 21. It functions as a fundamental guideline to define sustainability in many areas, including the housing and building development for development project. Following the United Nations World Summit for sustainable development in Johannesburg in 2002, organizations are more aware of their responsibilities toward society and the necessity for considering and paying attention to their social and environmental roles.

Nowadays, there is an increasing demand for a clean environment, preservation of nature, and concern for the welfare of future generations [11]&[12]. These desires have to be accommodated by the policy makers in order to balance the positive and negative impacts of construction activities. Sustainability in construction is all about following suitable practices in terms of choice of materials, their sources, construction methodologies as

well as design philosophy so as to be able to improve performance, decrease the environmental burden of the project, minimize waste and be ecologically friendlier [13]&[14]. However, a crystal clear definition of sustainable development has still not been formulated even though the Brundtland Report's definition is widely-quoted. When looking at the definition "sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs", there are two issues here namely needs and generation. The challenge is to solve matter regarding the needs of citizen in a sustainable manner, so as to generate continuing development and activities that meet the needs of the organisations and its stakeholders today while protecting, sustaining and enhancing the human and natural resources that will be needed in the future. The developed countries paid a high price when growing their economies and only realized it when the damage is already been done [15],[16]&[17]. In addition, public and local governments should be able to understand this and the awareness is important to minimize the hazardous environment to earth. Therefore, local governments should not view sustainability as a luxury addition to normal practice or a necessity to drive business and development decisions. It should motivate local governments as well as stakeholders to equip its staff member with adequate knowledge of sustainable development..

III. METHODOLOGY

The data is collected through interview for this study. Interviewing has been approached and provide an in-depth account of literature concerns. There are three types of interview, namely, unstructured, semi-structured and structured types [18],[19]&[20]. The semi-structured interview was selected and aimed to achieve the following purpose; to study the awareness on sustainable development in Malaysian local governments. Interviewees were encouraged to propose possible solutions and considerations to deal with these sustainability-related matters. Semi-structured interviews can be conducted in many situations, such as face-to-face, telephone, internet and intranet mediated interviews [21],[22]&[23]. The face-to-face interview approach was employed in this study. In this case, the interviewer managed to control the pace of the interview approaches and record any data that was forthcoming. Each interview began with the author explaining to the interviewees the specific objectives of the interview, and the overall research objective. To ensure that they understood the intended meanings, any queries were clarified. Each interviewee was then asked to confirm that they truly understood each of the interview questions and the interview objectives. Ample time was given to all interviewees to elaborate their answers to the questions. All of the verbal answers were recorded in hand writing. This interview is to get an insight from local governments namely the City or Municipal Council. The selected City or Municipal Council are from each state and represent more than 50% from the total of City or Municipal Council and Modified local authority in Malaysia. It was not necessary to interview all the staff since the simple random sampling strategy would be sufficient to represent the data required for the study. These interviews are to satisfy the research objective. In TABLE 1, it shows the selected organization as a subject and the respondents are selected from it. The respondents are selected based on their unit/division and their post.

Table 1: Respondent of local governments

| No. | Respondents | No of Respondent |
|-----|--------------|------------------|
| 1. | R1 | 1 |
| 2. | R2 | 1 |
| 3. | R3 | 1 |
| 4. | R4 | 1 |
| 5. | R5 | 1 |
| 6. | R6 | 1 |
| 7. | R7 | 1 |
| 8. | R8 | 1 |
| 9. | R9 | 1 |
| 10. | R10 | 1 |
| 11. | R11 | 1 |
| 12. | R12 | 1 |
| 13. | R13 | 1 |
| 14. | R14 | 1 |
| | TOTAL | 14 |

IV. ANALYSES OF DATA

In interview's analysis, [24],[25]&[26] suggested the following:

- Putting information into different arrays
- Making a matrix category and placing the evidence within such categories
- Creating data displays, flowcharts and other devices, for examining the data and the tabulating the frequency of different events
- Examining the complexity of such tabulations and their relationships by calculating second-order numbers such as means and variances
- Putting information in chronological order or using some other temporal scheme

The responses will be analysed and then categorised into distinct groupings. After that, frequency counts will then be conducted. All the data from either the open ended or closed questions will be coded and frequency counts will be calculated and then converted into percentages, tables and other formats. Moreover, the discussion are then link with the previous studies to generate ideas and come out with analytical arguments of the subject involved.

AWARENESS

In this view of awareness, it is to disclose the awareness of sustainable development at local governments and how it relates to the awareness of the respondents. Based on the interview, the respondents are still unaware of the importance of all three components of sustainability which are in environment, social and economy aspects. Accordingly, in Malaysia there are lack of information and an effective method for providing information [27],[28],[29]&[30]. Moreover, the awareness from education and training are essential in gauging and providing information. Hence, City Hall/Municipal/Modified Local Government must be able to understand sustainable development. Therefore, education, training, expert advice and participation in various seminar are important as suggested by the respondents.

Table 2: Sustainable development according to respondents' understanding

| Statement from Respondent | Key Themes | | |
|---------------------------|------------|--------|-------------|
| | Economy | Social | Environment |
| R1,R4,R6,R7,R9 & R12 | | √ | √ |
| R2,R3 & R10 | √ | √ | √ |
| R5,R8,R11,R13&R14 | | | √ |

In TABLE 2, collectively all respondents give variety of views on sustainable development. However, a clear definition of sustainable development among staff still not been evident when only 3 out of 14 respondents give views with consideration of social, economic and environmental goals. In contrast to that 3 respondents, all key themes of economy, social and environment must be considered for sustainable development. 6 out of 14 replied that sustainable development is to pursue sustainability in terms of social and environment. They view sustainable development is the functions of local governments in handling issues such as waste management, crime prevention, traffic congestion, river pollution, landscaping and drainage. Respondent R1 replies "...sustainable development is about development that care for community...it involves social values and not forgetting environmental issues...environment issues must be solved...people need a clean environment to live....". Respondent R10 views "...when sustainable development is being put into place at local governments, it is the policy of economy, social environment....deals with management that have proper resources...".

The views on sustainable development are varies and this can give impact on the services provided by the local government when comes to implement sustainable development. R1 even highlight the concern on the heritage building. The views "...heritage buildings are sometimes being left behind...how to restore or manage the heritage building when sustainable development is being put into place...is the policy being embedded...the management should have adequate knowledge...". Apart from that, respondents argue that only environment issues are being highlighted and the economical aspects are the least discussed. Respondent 1 gives view "...training for local governments staff is mainly on environment.....sustainable development seems like taking care of natures first...". In contrast, sustainable development covers all three elements as in economy, social and environment [31]&[32]. Similarly, 5 out of 14 respondents gave views that only environment is the major concern in sustainable development. However, in view of the responses of R7, "...sustainable development is on social agenda and environmental awareness".

Respondent R10 concluded "...when sustainable development is being put into place at local governments, it is the policy of economy, social and environment are being discussed with great depth....deals

with management that have proper resources... “. R10 seems to have the same view on sustainable development's concept. Sustainability is not a new concept and the issues relating to sustainable development as in environment, social and economy have started to be widely noticed, when the United Nations declared the Brundtland's report [33],[34]&[35]. Correspondingly, the knowledge of sustainable development must be appropriately acknowledged in order for the sustainability deliverables.

Table 3: Acquiring and Disseminate Knowledge of Sustainable Development

| Response from: | Key Themes | | | | |
|---------------------|---------------------------|--------------------------------------|------------------|------------------|-----------------------|
| | Network with stakeholders | Activities such as recycling program | Seminar on Green | On-line training | Expert advice/counsel |
| R4,R7&R9 | √ | | | | √ |
| R3,R10 & R12 | √ | √ | √ | √ | |
| R1,R2,R5,R6, R8&R13 | √ | √ | | √ | √ |
| R11&R14 | √ | √ | | √ | |

A total of 7 out of 14 respondents considered that local governments have the staff that equipped with necessary skill with respect to sustainable development to manage the process of planning development. Respondents responded that skill involved in terms of education background, working experience and technological know-how. However, only all agree that even though they have the necessary skills, it cannot reflect the sustainable development because the documentation or policy does not specifying the sustainability elements. All respondents gave views that local governments have played some role in imparting awareness in sustainable development to the private sectors. Since sustainable development issues are not new and local governments should already impart awareness with sustainable development principles [36]&[37]. From the interview, three respondents mentioned there were network with stakeholders and expert advice involved in local governments to acquire and disseminate awareness of sustainable development. Six respondents believed that the acquiring & disseminating come from network with stakeholders, activities on sustainable development, seminar, training and expert advice. Another eight respondents believed that expert advice and training are major aspect in disseminating awareness of sustainable development. They argued that these are necessary in ensuring the transfer of knowledge in sustainable development. Respondent R4 views “..it is very important to have the staff involvement and that they must have adequate in sustainable developmentto inform correctly and precisely regarding the needs of sustainable development...”. The knowledge of sustainable development is to be disseminated by the capacity of local governments with adequate [38],[39],[40]&[41].

In TABLE 3, the respondents gave various views on how local governments acquire and disseminate knowledge of sustainable development. They argue that local governments gave various training and activities in sustainable development even though it might not specifically incline towards sustainability elements. 3 out of 14 respondents mentioned that training in sustainable development and expert advice involved. Four respondents mentioned that the training came in terms of activities such as usage of technology, recycling program, seminar on Green and on-line training. However, all respondents mentioned that networking with the stakeholders is important aspect and exist in the acquiring and disseminating knowledge at local governments. Only two respondents mentioned the involvement of training such as in the usage of technology, recycling program and on-line training. Respondent R3 concluded that “...sustainable development is being introduced at local governments, education is the key....policy must be addressed so it can be a guide... “. [42] agreed that issues relating to training is valuable for the emergence of sustainable development. Moreover, [43] suggested that expert advice in sharing the knowledge is important. From Table 3, the initiatives for training in sustainable development taken by Malaysia are in response to the needs identified in Agenda 21 as well as those identified through the five-yearly Malaysia Development Plans and the longer-term Outline Perspective Plans [44],[45]&[46]. Thus knowledge transfer practices as in training, on line learning, on job training, mentoring and expert advice are essential part for the dissemination and acquiring knowledge at local governments.

Table 4: Constraints to staff in order to be aware of issues that relate to sustainable development

| Response from: | Key Themes | | | | | | |
|--------------------------|------------------|---------------------------------|-----------------|-----------------------------|--------------------|---|-------------------------------|
| | Lack of Training | Inadequate education background | Lack of seminar | expensive expert consultant | Lack of motivation | Unclear definition of sustainable development | Unclear vision from top mgent |
| R1,R2, R3, R9&R14 | √ | √ | √ | √ | √ | √ | √ |
| R4,R5 & R10 | | | | | √ | √ | √ |
| R6,R7, R8, R11,R12 & R13 | √ | | | | √ | | √ |

TABLE 4 demonstrates multiples answers regarding the constraints for staff to be aware in sustainable development. The responses are in terms of lacking in training, inadequate education background, lack of seminar, expensive expert consultation, lack of motivation, unclear definition of sustainable development, unclear direction from top management and no continuous efforts from appropriate agencies. 5 out of 14 respondents gave views that the constraints are lack of training, inadequate education background, lack of seminar, expensive expert consultation, lack of motivation, unclear definition of sustainable development, unclear direction from top management and no continuous efforts from appropriate agencies. 3 out of 14 replies that lack of motivation, unclear definition of sustainable development, unclear direction from top management and no continuous efforts from appropriate agencies are the constraints. 6 out of 14 respondents give views that lacks of training, lack of motivation and unclear direction from top management are the major constraints. These constraints are reflected on the awareness of the staff on sustainable development, where due to lack in awareness of sustainable development, sustainability deliverable in local governments could not be achieved. Thus, awareness and training are important [47],[48]&[49].

In response to what changes do local governments experienced due to the introduction of sustainable development, the responses are that they still do the same practices. However, issues on environment are taken more seriously. All respondents agrees that sustainable development have changed how they look on matters regarding sustainability. Respondent 3 gives view "...sustainable development have changed staff from being ignorant towards environment to being concern.....staff is concern with environmental issues surrounding their lives and others...". Respondent 12 concluded that "...sustainable development changed people lives especially staff that can relate their job with sustainability elements....the changes can be seen through work they have done the office as the get the valuable information on sustainable development through policy or related resources.....". Relatively, these changes should spur local governments' staff in understanding and acknowledging sustainable development.

V. CONCLUSION

Important issues such as the factors that influence the sustainable development should be addressed accordingly. Over the past decade in particular, sustainable development has become an important aspect and local government must equipped them with the know-how approach in handling the issues of implementing and so forth actions. In essence, sustainability is about meeting the needs of today, without adversely impacting on the needs of tomorrow. However, this can only be done when they have competences regarding the knowledge of sustainable development. The most important aspects are namely, becoming knowledgeable on sustainability, developing sustainable competences, clear and unambiguous communication about the sustainable development.

Thus, when it is cross reference and triangulates with the preliminary interviews as well as the initial literature reviews and from the pilot surveys, there are evidences of the constraints and therefore the awareness is still being upgraded. There are many ways in which sustainability issues can be integrated into the practice of local government where it can influence the staff's motivation to implement sustainable development agenda.

VI. ACKNOWLEDGEMENTS

The author would like to thank Ministry of Education (MOE), Office of Research, Innovation, Commercialisation and Consultancy (ORICC), UTHM, for supporting this research under the Research Acculturation Collaborative Effort (RACE: No.1517) Grant Scheme Universiti Tun Hussein Onn Malaysia.

REFERENCES

- [1] Hawkins, C. V., & Wang, X. (2012). Sustainable Development Governance: Citizen Participation and Support Networks in Local Sustainability Initiatives. *Public Works Management & Policy*. doi:10.1177/1087724X11429045
- [2] Mohamed, S., Seow, T. W., & Goh, K. C. (2013). The management of sustainable development: Malaysian local government's role. *MATRA* (pp. 1–3). USM.
- [3] Zimmermann, M. (2007). Local Governments and Sustainable Development. *Environmental Policy Law*, 37, 504–506.
- [4] Li-yin, S, Vivian, T, Leona Y. T, Ying-bo, J, 2010. Project Feasibility study: the key to successful implementation of sustainable and socially responsible construction management practice.
- [5] Mohamed, S., Hilmi, M. A. I., Wee, S. T., & Chen, G. K. (2015). Preliminary Concept of Knowledge Transfer Practices towards Sustainable Development for Local Governments, 1–10
- [6] Chrisna D P, 2007. A strategic framework for sustainable construction in developing countries.
- [7] Cristopher, V.H. & Xiao, H.W., (2011). Sustainable Development Governance: Citizen Participation and Support Networks in Local Sustainability Regulations 2002.
- [8] Adams, W. M. (2012). The Future of Sustainability: Re-thinking Environment and Development in the Twenty-First Century. *In Sustainability* (pp. 71–78).
- [9] Murphy, K. (2012). The social pillar of sustainable development : a literature review and framework for policy analysis. *Sustainability: Science, Practice, & Policy*, 8, 15–29.
- [10] Sneddon, C., Howarth, R. B., & Norgaard, R. B. (2006). Sustainable development in a post-Brundtland world. *Ecological Economics*, 57, 253–268. doi:10.1016/j.ecolecon.2005.04.013
- [11] Wim, B, 2010. Sustainable Development and the Future of Construction-A comparison of visions from various countries.
- [12] Klodiana, G, K, & Dorina Engjellushe, Z (2012). The Role of Local Government in Sustainable Development.
- [13] Ayres, R. U., Turton, H., & Casten, T. (2007). Energy efficiency, sustainability and economic growth. *Energy*, 32, 634–648. doi:10.1016/j.energy.2006.06.005
- [14] Mohamed, S., Seow, T. W., & Goh, K. C. (2014). Participation in Acquiring Knowledge towards Sustainable Development at Malaysian Local Government, 1329–1337.
- [15] Merz, B., Thieken, A. H., & Gocht, M. (2007). Flood Risk Mapping at The Local Scale : Concepts and Challenges. *In Flood Risk Management in Europe* (Vol. 25, pp. 231–251). doi:10.1007/978-1-4020-4200-3_13
- [16] Weng, C. N. (2010). Impacts of Human Habitat Development on the Environment – Challenges and the Way Forward still inhabit the wild or live in the natural habitats of rainforests . A good example is the Orang survive in natural habitats . Historically , human habitats have m. *Malaysian Journal of Environmental Management*, 11(2), 3–20.
- [17] Seow, T. W. (2012). New perspective of integrated solid waste management in Malaysia. *In International Conference on Human Habitat and Environmental in Malay World*. UKM, Bangi.
- [18] Bryman, A. (2006). Qualitative Research. *Qualitative Research*, 15, 66–66. doi:10.1177/1468794106058877
- [19] Chua, L. C. (2006). Sample Size Estimation Using Krejcie And Morgan And Cohen Statistical Power Analysis: A Comparison. *Jurnal Penyelidikan IPBL*, 7, 78–86.
- [20] Syahrul, I, R, M., Fukami, N., & Ahmad, Y. (2014). Cultural heritage, incentives system and the sustainable community: Lessons from Ogimachi Village, Japan. *GEOGRAFIA Online TM Malaysian Journal of Society and Space*, 10, 130–146
- [21] Yates, S. J. (2004). Doing Social Science Research. *Social Science* (Vol. 1, p. 293).
- [22] Doyle, A. (2012). Behavioral Interviews. Aboutcom Job Searching.
- [23] Yates, S. J. (2004). Doing Social Science Research. *Social Science* (Vol. 1, p. 293).
- [24] Omar, R., Takim, R., & Nawawi, A. H. (2012). Measuring of technological capabilities in technology transfer (TT) projects. *Asian Social Science*, 8, 211–221. doi:10.5539/ass.v8n15p211
- [25] Ridder, H.-G. (2012). Yin , Robert K .: Case Study Research . Design and Methods. *Zeitschrift Für Personalforschung*, 26, 93–96.
- [26] Yates, S. J. (2004). Doing Social Science Research. *Social Science* (Vol. 1, p. 293).

- [27] Maidin, A. J. (1997). Access to Public Participation in the Land Planning and Environmental Decision Making Process in Malaysia, 148–164.
- [28] OECD. (2011). State of Penang , Malaysia.
- [29] Shafii, F., Arman Ali, Z., & Othman, M. Z. (2006). Achieving sustainable construction in the developing countries of southeast Asia.
- [30] Zainul Abidin, N. (2010). Investigating the awareness and application of sustainable construction concept by Malaysian developers. *Habitat International*, 34, 421–426. doi:10.1016/j.habitatint.2009.11.011
- [31] Adams, W. M. (2012). The Future of Sustainability: Re-thinking Environment and Development in the Twenty-First Century. In *Sustainability* (pp. 71–78).
- [32] Mohamed, S., Seow, T. W., & Goh, K. C. (2013). The management of sustainable development: Malaysian local government's role. In *MATRA* (pp. 1–3). USM.
- [33] Adams, W. M. (2012). The Future of Sustainability: Re-thinking Environment and Development in the Twenty-First Century. In *Sustainability* (pp. 71–78).
- [34] Endut, A. F., Mustapa, S. I., & Peng, L. Y. (2011). Role of knowledge institution in achieving sustainable development: UNITEN experience. In *15th International Conference on ISO & TQM (15-ICIT)*, 26--28 July.
- [35] Nathan, H. S. ., & Sudhakara, R. B. (2012). Towards a conceptual framework for development of sustainable development indicators for an urban setup. *International Journal of Sustainable Development*, 15, 187–205. doi:10.1504/12.47753
- [36] OECD. (2011). State of Penang , Malaysia.
- [37] Rashid, Y. R., Sulaiman, M. S., Aziz, A., Selamat, H., Yani, A. H. M., & Kandar, M. Z. (2011). Greening government's office buildings: PWD Malaysia experiences. *Procedia Engineering 2011 International Conference on Green Buildings and Sustainable Cities*, 21, 1056–1060. doi:10.1016/j.proeng.2011.11.2111
- [38] Alipour, F., Idris, K., & Karimi, R. (2011). Knowledge Creation and Transfer: Role of Learning Organization. *International Journal of Business Administration*, 2, 61–67.
- [39] Ec. (1996). European sustainable cities. *Nuclear Safety* (p. 303).
- [40] Evans, B. O. B., & Theobald, K. (2003). Policy and Practice LASALA : Evaluating Local Agenda 21 in Europe. *Journal of Environmental Planning and Management*, 46(September), 781–794. doi:10.1080/0964056032000138481
- [41] Rashman, L., Downe, J., & Hartley, J. (2005). Knowledge creation and transfer in the beacon scheme: Improving services through sharing good practice. *Local Government Studies*, 31, 683–700. doi:10.1080/03003930500293732
- [42] Yahya, S., & Goh, W.-K. (2002). Managing human resources toward achieving knowledge management. *Journal of Knowledge Management*, 6, 457–468. doi:10.1108/13673270210450414
- [43] Ndlela, M. N. (2010). Knowledge Management in the Public Sector: Communication Issues and Challenges at Local Government Level. *Proceedings of the 11th European Conference on Knowledge Management* Vols 1 and 2, 711–716.
- [44] Mohamed, S., Seow, T. W., & Goh, K. C. (2014). Participation in Acquiring Knowledge towards Sustainable Development at Malaysian Local Government, 1329–1337.
- [45] Sahamir, S. R., & Zakaria, R. (2014). Green Assessment Criteria for Public Hospital Building Development in Malaysia. *Procedia Environmental Sciences*, 20, 106–115. doi:10.1016/j.proenv.2014.03.015
- [46] Zainul Abidin, N. (2009). Sustainable Construction in Malaysia – Developers ' Awareness, 807–814.
- [47] Norhaidah, S., & Idros, S. (2005). Exploring Environmental Behaviours , Attitudes and Knowledge Among University Students : Positioning The Concept of Sustainable Development Within. *Journal of Science And Mathematics Education In Se Asia* Vol, 29, 79–97.
- [48] Shafii, F., & Othman, M. Z. (2007). Sustainable Building in the Malaysian Context. *Building*, 601–606.
- [49] Zainul Abidin, N. (2010). Investigating the awareness and application of sustainable construction concept by Malaysian developers. *Habitat International*, 34, 421–426. doi:10.1016/j.habitatint.2009.11.011