

‘GREENING’ THE PROVISIONS OF CONSTRUCTION CONTRACTS: AN APPRAISAL OF THE PWD, PAM AND CIDB STANDARD FORMS

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Submitted final draft: 22 February 2022 Accepted: 4 June 2022

<http://doi.org/10.46754/jssm.2022.08.005>

Abstract: Green building and sustainable design and construction practices (SDC) are at the centre of the Malaysian construction industry’s move towards sustainable development and green growth. One of the most vital aspects of this shift to accommodate the new challenges and innovations in green building with the implementation of the SDC is the contract. However, despite the widespread use of standard forms of contract in Malaysia, both in public and private projects, there is currently no standard form of contract specifically designed for green construction projects. Hence, the impetus of this study is to assess the adequacy of commonly used standard forms of contracts in Malaysia in addressing the specific requirements of the SDC vis-à-vis green building and their associated risks. Towards this end, the study adopts doctrinal legal research methodology to investigate and evaluate the adequacy of the standard forms of contracts under review (Standard Forms) in addressing the requirements peculiar to the SDC vis-a-via green buildings. Within the parameters of this methodology, the study employs ex post facto or descriptive analysis and analytical analysis approaches. The analysis mainly focused on the relevant terms and conditions of the Standard Forms comparatively with the documented requirements of the SDC to highlight the gaps. From the analysis, the inadequacies are apparent. The terms and conditions of the Standard Forms do not adequately provide for the approaches and innovations in green building and the SDC and the legal challenges these approaches and innovations pose to the industry players’ rights and liabilities. This paper provides an analysis of these shortcomings and highlights the areas that require reform.

Keywords: Green building, risks allocation, sustainable design and construction practices, standard form of contract.

Introduction

Economic growth and its link to climate change, natural capital depletion, environmental degradation and social inequality have been the subject of much discussion both at home and abroad. The concept of sustainable development (World Commission on Environment and Development (WCED), 1987) and the later concept of green growth (Statistics Netherlands, 2013; Armand & Kasztelan, 2017) came about because of these concerns.

The Malaysian government had taken steps in the efforts to decoupling economic growth from natural capital depletion. One of the key sectors identified for reform is the construction sector (Nazirah Zainul Abidin, 2010; Raza Ali Khan *et al.*, 2014).

Under the 11th Malaysia Plan, the Malaysian government came up with the Green Technology Master Plan 2017 - 2030 (GTMP 2017-2030), focusing on six key sectors, one of which is the building sector (Energy, Green Technology and Water Ministry, 2017). This is supported by the Construction Industry Transformation Programme 2016-2020 (CITP) as a national construction industry transformation agenda (Ministry of Works (MoW) & Construction Industry Development Board (CIDB) Malaysia, 2015). The CITP identified, among other things, the ubiquity of inefficient construction practices that threaten the environment and compromise quality, safety and productivity, necessitating a paradigm shift in how construction methods and processes are carried out.

The initiatives under the GTMP 2017-2030 are threefold: (i) Green building design, (ii) Sustainable construction practices and (iii) Green building materials (KeTTHA, 2017, p. 89). In Malaysia's Biennial Update Report (BUR) to the United Nations Framework Convention on Climate Change (UNFCCC) 2015, the Malaysian government has committed to several initiatives, including the promotion of 'green buildings' (Ministry of Natural Resources and Environment, 2015). The commitment was again reiterated in Malaysia's Third Biennial Update Report submitted to the UNFCCC in December 2020 (Ministry of Environment and Water, 2020). These construction sector transformation agendas and targets are currently continued and reinforced in the 12th Malaysia Plan (Economic Planning Unit (EPU), 2021), the National Construction Policy (NCP) 2030 (Works Ministry, 2021) and the Shared Prosperity Vision 2030 (Ministry of Economic Affairs, 2019).

However, from the GTMP 2017-2030 report, one pressing issue was highlighted which may become a hurdle towards realising the national agenda, i.e., the lack of a holistic approach "that brings together all the actors in the building and construction industry to establish and agree on green building goals for the future" (KeTTHA, 2017, p. 91). The report further adds that "agreement on a future green building goal will consequently require these actors to work together to develop the whole ecosystem that can deliver green buildings" (KeTTHA, 2017, p. 91).

This study proposes that intended green building ecosystem can be supported by a properly drafted standard form of contract that caters to the specific needs of green building requirements. It is common knowledge that the use of the standard forms of contract is prevalent in the construction industry. A successful standard form of contract would facilitate the management on the construction site and offer parties, professionals and site staff a clear and definite understanding of their respective roles and obligations (Rajoo, 2014).

Thus, in so far as the green building and the SDC are concerned, it would be beneficial to describe the parties' obligations and define the project's scope with reasonable clarity. The accuracy with which a contract is drafted is crucial to avoiding disputes.

In Malaysia, the standard forms available to be adopted by the industry players, since the Malaysian Form of Building Contract PAM/ISM 1969 Form (PAM/ISM 1969 Form) have grown in numbers (Rajoo *et al.*, 2010).

However, this study's analysis is limited to three standard forms and confined to traditional general contracting (TGC) also known as the 'design-bid-build' procurement method. As pointed out by Andriaanse (2016), understanding the problems and complexities of construction contracts requires a solid understanding of the TGC contract form and format. This method would allow a thorough analysis of all the relevant stakeholders' rights and obligations (Adriaanse, 2016). The forms are:

- (i) The P.W.D Form 203 (Rev.1/2010) (PWD Form) (Government of Malaysia, 2010).
- (ii) The PAM Contract 2018 (Without Quantities) (PAM Form) (Pertubuhan Akitek Malaysia (PAM), 2018).
- (iii) The CIDB Standard Form of Contract for Building Works 2000 Edition (CIDB Form) (CIDB Malaysia, 2000).

The PWD standard forms of contract are used for government projects. Meanwhile, the PAM standard forms of contract are used for private sector projects. It is approximated that 90% of private-sector construction contracts are based on the PAM standard forms of contract (Rajoo *et al.*, 2010). The CIDB Form entered the market in the year 2000. However, it is not as popular as the PWD and PAM standard forms of contract in terms of use and adoption (Rajoo, 2014). Nevertheless, for completeness of the analysis in this research paper, the CIDB Form has been included. The standard forms under review, as enumerated earlier, shall collectively be referred to as the 'Standard Forms'.

A construction project involves foreseeable and unforeseeable risks and the contract that governs the rights and obligations of the contracting parties ought to manage and allocate these risks. On top of the ordinary construction risks, green building projects are exposed to “additional risks and uncertainties resulting from the many objectives it carries and associated conflicts arising” (Ismaeel, 2017, p. 438). There are risks related to achieving the targeted building performance levels, timing and funding for green materials, products and technologies, their substitutes when the need arises (Ismaeel, 2017) and risks associated with “innovative design that does not work or proves impossible to construct” (Adriaanse, 2016, p. 6).

In conventional building construction, it had been observed that the project's size, the number of participants and parties involved and the length of the contractual chain all contribute to their own set of challenges (Mills, 2001; Malek *et al.*, 2011; Adriaanse, 2016). What more in green building design and construction, which envisages an integrated design process involving a multidisciplinary design team and new strategies in design and construction implementation. These may lead to new and never before considered risks (Perkins, 2009; Prum & Del Percio, 2010; Maura K. *et al.*, 2010; Tollin, 2011; Prum, 2012).

Against this backdrop, this study attempts to analyse the provisions of the Standard Forms. The aim is to examine the adequacy of the terms and conditions of the respective Standard Forms in their current structure in addressing the specific requirements of green building and sustainable design and construction (SDC).

Research Problem

Green building that follow the implementation of the SDC, which promotes “land reuse, water conservation, energy efficiency and resource preservation” (Perkins, 2009, p. 1) aim to create an equilibrium and maintain a balance between rapid economic expansion that caters to the growing population and its demand for products and services and the hazards such rapid

growth and increased demand pose towards the environment. New challenges and legal issues are inevitable as a result of these advancements, which industry players must be aware of and familiarise themselves with.

When it comes to construction contracts, “one size does not fit all”. The project must be evaluated and the contract must be drafted to fit the project's purpose (Apanian, 2016). A contract document is one of the most crucial documents capable of binding all the parties to their obligations and ensuring the protection of rights as agreed between them (Hibberd, 2017). However, in formulating sustainability agendas in the construction industry vis-à-vis green building in Malaysia, it is observed that little or no emphasis seems to be placed on the role of contracts, in particular the standard form contract, albeit their prevalent use in the Malaysian construction industry (Shafii & Othman, 2007; Rostami *et al.*, 2008; Nazirah Zainul Abidin, 2010; Hamid *et al.*, 2011; Shari & Soebarto, 2012; MoW Malaysia & CIDB Malaysia, 2015; Mohd Fateh *et al.*, 2016; KeTTHA, 2017; Badriyah Ab. Malek, 2018; EPU, 2021). This is evidenced by the absence of a standard form of contract specifically developed for green building and the SDC in Malaysia.

This lack of emphasis is what became the catalyst for this study. It is with a recognition that everyone involved in the construction, be it the employer, the consultant or the contractor has a role to play and there are risks associated with it. The literature further pointed out that among the matters that the current standard forms of contract generally fail to address include: (i) Ambiguity as to the ‘green’ objectives or sustainability goals, (ii) A lack of proper delegation of duties and responsibilities between party/parties towards achieving the desired green objectives or sustainability goals, (iii) The lack of proper guidance as to the implementation of the SDC throughout the building life-cycle in particular at the design and construction stage which include the implications of decertification, (iv) Responsibility for conducting due diligence

on green products and technologies are not allocated and addressed, (v) Consequential damages connected with green building (such as lost tax benefits and property depreciation) may go unaddressed, (vi) Appropriate insurance plans for green building risks may be unavailable, not required or not offered, (vii) The consequence of the delayed process of obtaining a green certification may go unaddressed or may be addressed in a damaging manner (D'Arelli, 2008; Perkins, 2009; Maura K. *et al.*, 2010; Prum & Del Percio, 2010; Tollin, 2011; Zou & Couani, 2012; Nutter, 2012; Mohammadi & Birgonul, 2016; Ismaeel, 2017; Polat *et al.*, 2017; Abdul-Malak & Khalife, 2020; Gurgun *et al.*, 2020).

These respective roles, the risks and the objectives of the project could only be defined by the terms of the contract. Hence, if the objective of the project is to have a green and sustainable building as the outcome, the contract must be tailored to address the specific issues and risks associated with such a project. A contract should be capable of: (i) Defining and clarifying the green design objectives, specifications and goals of a project, (ii) Defining each party's roles, responsibilities and expectations regarding the green elements of a project, (iii) Allocating inherent risks (foreseen and unforeseen) to the party best positioned to control or mitigate those risks, (iv) Determining the outcomes or consequences of delays, failure to achieve certification and other associated problems (Brooklyn Legal Services, 2013).

Research Methodology

This study adopts doctrinal legal research methodology to investigate and assess the sufficiency of the Standard Forms in addressing the requirements peculiar to the SDC vis-a-vis green building (Yaqin, 2007; Hutchinson, 2016; Bhat, 2020). Within the parameters of this methodology, the study employs *ex post facto* or descriptive analysis and analytical analysis approaches in analysing the data, both primary and secondary, integral to the overall analysis (Yaqin, 2007; Nuraisyah Chua Abdullah, 2018).

The analysis mainly focuses on the relevant terms and conditions of the Standard Forms comparatively with the relevant documentary requirements of green buildings and the SDCs to highlight the gaps. The sources of data are library-based and rely on both primary and secondary sources of law. The *ex post facto* or descriptive analysis approach (Yaqin, 2007; Nuraisyah Chua Abdullah, 2018) is applied towards understanding the current national agendas towards 'greening' the construction industry, which relies on the official reports and statistics by the relevant government ministries, departments and agencies as the main sources of data (which constitute the secondary sources of law in the context of legal research).

A similar approach is applied to understanding the development of the sustainability rating tools in Malaysia, with specific references made to the published rating tools by the respective rating tool developers.

The study proceeded with an analytical analysis approach (Nuraisyah Chua Abdullah, 2018) to analyse the legal position by reference to the relevant case laws and statutory provisions (the primary sources of law). Using a similar research approach, the provisions of the respective Standard Forms are analysed comparatively with the relevant documented requirements of green building and the SDC from the rating tools and other literature and the associated legal issues arising from such requirements to identify and highlight the gaps. Four general taxonomy of potential legal issues are developed from these analysis.

Results and Discussion

Green Building and Sustainability Rating Tools in Malaysia - An Overview

Since the Rio Summit in 1992, followed by the Kyoto Summit in 1997, governments across the globe have had undertaken initiatives to implement national sustainable development agendas. Malaysian is one of the earliest nations in the world to have adopted a serious concern towards the environment by enacting the

Environmental Quality Act way back in 1974 (Kamar & Hamid, 2011; Zuhairi Abd Hamid *et al.*, 2011). The global values for nature and the environment emerged in the early 1970s, marked by the First Earth Summit held in Stockholm, Sweden in 1972 (Hák *et al.*, 2016; Opoku, 2019).

Sustainability is a main feature of the Malaysian national agenda. As highlighted earlier, the GTMP 2017-2030 has set a goal for green buildings and SDC. It has earmarked the increase from 550 total targeted green buildings in 2020 to a total of 1,750 green buildings in 2030 with substantial targeted emission reductions in both government and private buildings among other things (KeTTHA, 2017, p. 89).

A significant milestone towards meeting its UNSDGs is the introduction of sustainability rating tools into the Malaysian construction market to promote sustainability and raise awareness among industry players about the importance of long-term sustainability in the built environment (Nurul Mohd Annuar *et al.*, 2014; Zuhairi Abd Hamid *et al.*, 2014; CIDB Malaysia, 2018). The first voluntary sustainability rating tool was developed by the Green Building Index Sdn. Bhd. (GBI) and introduced in 2009, known as the GBI rating tool. The GBI rating tool was developed under the initiatives of the *Pertubuhan Arkitek Malaysia* (PAM) together with the Association of Consulting Engineers Malaysia (ACEM) (Green Building Index Sdn. Bhd., n.d., *Pertubuhan Arkitek Malaysia* (PAM) & Association of Consulting Engineers Malaysia (ACEM), 2009).

A building would be awarded the GBI rating based on six criteria, i.e., energy efficiency, indoor environmental quality, sustainable site planning and management, materials and resources, water efficiency and innovation (PAM & ACEM, 2009). Since the introduction of the GBI rating tool, other organisations and government agencies have jumped on the bandwagon (Chee H. F & Fuhairah Ahmad Fuad, 2018). Table 1 describes these rating tools.

The rating tools can be further classified into three categories of application, i.e., (i) building,

(ii) township and (iii) infrastructure as shown in Figure 1. Some rating tools are applicable solely to buildings and some are applicable to both buildings and townships. MyGHI is the only available infrastructure rating tool (Construction Research Institute of Malaysia (CREAM), 2017).

The Standard Forms - An Analysis

Absence of Specialised Definition and Scope on Green Requirements

It has been observed that a mere affirmative statement in either a construction contract or a consultancy agreement that a project as constructed or designed would be a 'green building' would not be adequate. This statement is "ambiguous and insufficient unless the contract provides its specialised definition of that term" (Augustine, 2009, p. 8).

This issue was highlighted in the case of *Southern Builders, Inc. v. Shaw Development, LLC* (2007). It is a much-discussed case on this topic, being the first suit in the United States (US) involving green building issues after the institutionalisation of the US Green Building Council in 1993 and the publication of the US LEED Rating System in 1999. This case involved a contract's specifications that provided for a project that was to be designed to meet the LEED Silver Certification. However, the main conditions of the contract were silent on the contractor's obligation to secure any formal green building certification.

The conditions of the contract (COC) in this case also failed to streamline the delivery date for the project's certificate of occupancy to the regulatory scheme that would have provided tax credits for being a green project. The construction contract used in the project was the AIA Document A101 (1997 version), a standard form developed by the American Institute of Architects (AIA).

The situation is unquestionably comparable to that of Malaysian law. It is trite law that when a contract is in writing, it is presumed to contain all material terms and conditions. No extrinsic

Table 1: List of sustainability rating tools in Malaysia

Year	Rating Tools	Developers
2009	GBI	Green Building Index Sdn. Bhd.
2010	Township Sustainability Assessment Index (SUSDEX)	Sime Darby Property Berhad
2011	Low Carbon City Framework (LCCF)	Ministry of Science, Technology and Innovation
2012	Green Performance Assessment System (Green PASS)	CIDB Malaysia
2012	<i>Skim Penilaian Penarafan Hijau JKR (pHJKR)</i>	Public Works Department (PWD) or <i>Jabatan Kerja Raya (JKR)</i>
2013	Green Real Estate (GreenRE)	GreenRE Sdn. Bhd., a wholly-owned subsidiary of the Real Estate and Housing Development Association (REHDA)
2014	Melaka Green Seal or <i>Meterai Hijau Melaka</i>	Melaka Green Development Organization and Green Earth Design Solution
2014	My Green Highway Index (MyGHI)	UTM Flagship Project and Malaysian Highway Authority
2016	Malaysian Carbon Reduction and Environmental Sustainability Tool (MyCrest)	PWD and CIDB
2016	CASBEE Iskandar	Iskandar Malaysia

Note: Adapted from “Built it Green: An Overview of Sustainability Green Building Rating Tools in Malaysia” by the Construction Industry Development Board (CIDB) Malaysia, 2018 (<https://www.cidb.gov.my/sites/default/files/2020-12/13.2018-built-it-green.pdf>)

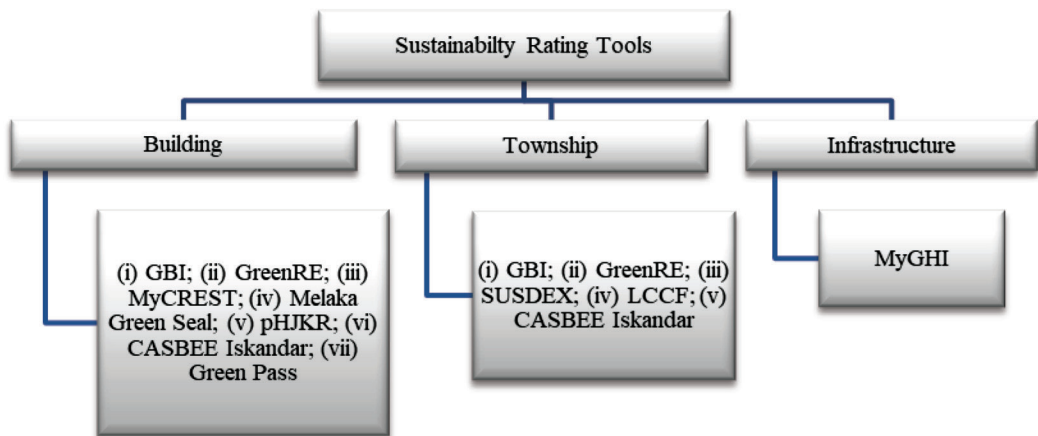


Figure 1: Categories of application of the respective sustainability rating tools (CREAM, 2017)

evidence will be permitted to contradict, add to, vary or subtract from the written terms save in limited circumstances permitted by the law (Evidence Act, 1950; Contracts Act, 1950; Tindok Besar Estate v. Tinjar Co., 1977;

Foo Sam Ming v. Archi Environ Partnership, 2004; Sinnadurai, 2015; Menta Construction Sdn. Bhd. v. Lestari Puchong Sdn. Bhd., 2015; Poratha Corp. Sdn. Bhd. v. Technofit Sdn. Bhd.,

2020; Catajaya Sdn. Bhd. v. Shoppoint Sdn. Bhd. & Ors., 2021).

Hence, a contract document must be clearly and adequately drafted to avoid ambiguities and discrepancies that could compromise its intent and purpose. In other words, the contract must adequately describe the parties' respective rights and obligations regarding the implementation of the SDC if such an objective is desired and intended.

In Malaysia, as part of the department's Sustainability and Green Mission 2.0, the PWD has outlined the use of pHJKR or MyCREST green rating tools and the incorporation of green procurement practices in the PWD's procurement (Gopal, 2017). However, no reference to any of these items or green building objectives is made in the PWD Form.

Apart from the COC, the form of tender, letter of acceptance of tender, contract drawings, bills of quantities, specifications and treasury's instructions have been made part and parcel of the 'Contract Documents' in the PWD Form (Clause 1.1 (b) of the PWD Form). There will be a potential issue if for example, the reference to pHJKR or MyCREST is made in one contract document and not the other as illustrated by Shaw Development's case.

There will be a possibility of conflict between the requirements of the rating tool mentioned in these other documents in the event the requirements do not correspond with the 'Scope of Contract' in the COC (Clause 6.0 of the PWD Form) and other terms governing the parties' rights and obligations in the COC to state as an example.

Similarly, for the PAM Form and the CIDB Form, no reference was made to any of the rating tools in the respective Forms' COC. The same issue may arise as the PAM Form and the CIDB Form also provide for the letter of award, articles of agreement, contract drawings, contract bills and other documents so specified to be incorporated to form and be read and construed as part of the 'Contract Documents' apart from the COC (Clause 7 (q) of the PAM

Form, Article 3 and Clause 4.1 of the CIDB Form).

Moreover, the CIDB Form placed the COC to rank higher in priority than the drawings, specifications, bills of quantities or schedule of works in the event of conflict or inconsistency between these documents (Article 3 and Clause 4.1 of the CIDB Form). This is an apparent potential conflict if the conditions of the contract in the CIDB Form fails to address duties, responsibilities and risks unique to and associated with the SDC inconsistent with the other contract documents (Gold v. Patman & Fotheringham, 1958; North-West Metropolitan Health Board v. T.A. Bickerton & Sons Ltd., 1970; English Industrial Estates Corp. v. George Wimpey & Co. Ltd., 1973; Henry Boot v. Central Lancashire New Town DC, 1980; Moody v. Ellis & Gleasons v. Hillingdon, 1983).

All in all, there is no mention of any green terminology in any of these Standard Forms. The closest element that could be associated with 'green' or sustainable construction is in relation to the 'Environmental Matters' in Clause 11 of the CIDB Form.

This clause obliges the contractor to comply with the statutory requirements of the Environmental Quality Act 1974 (EQA 1974) and for the contractor to give due consideration to the preservation of water and air quality, soil, flora and fauna as well as the social ramifications within site during the execution of the works. It is thus, confined to the preservation of the site and not "greening" the design and/or the construction process.

The EQA 1974 is one of the many statutory requirements that must be complied with by the contractor (as provided for under Clause 4.0 of the PAM Form, Clause 9.2 (a) of the PWD Form and Clause 10.1 (a) of the CIDB Form) and on certain other aspects to be complied by the employer for example the planning permission and development order. The non-compliance of any of these statutory provisions would become an offence under the relevant legislation and may have a corresponding effect on the progress of the works.

However, it remains to be settled between the parties on how the specific requirements of a green building and the SDC are to be satisfied and what are the specific obligations of the respective parties towards either the design or the construction processes which the Standard Forms in their current structure have yet to address.

No Contractual Guidance on Green Building and the SDC Principles and Procedures

Streamlining the SDC requirements into a standard form contract would guide the relevant stakeholders on the green building principles and the procedures involved. This issue was raised by Augustine (2009) when discussing the General Conditions of the AIA Document A101-2007 with the accompanying AIA Document A201-2007.

This research paper observes that these two documents in the AIA framework define the contractual relationship between the owner and the contractor. However, both the documents are silent on the issue of the SDC requirements. As a result, although the implementation of green building principles and procedures is intended during the construction phase, these documents provide no guidance on how to achieve the “green” aspects of the project (Augustine, 2009, p.p. 6-7).

To illustrate this concern and apply it to the Malaysian context, reference is made to the GBI Assessment Criteria for Non-Residential New Constructions (GBI NRNC) document (PAM & ACEM, 2009). One of the criteria that would be assessed and rated is sustainable site planning and management (SM).

Item SM6 of the GBI NRNC provides that the project should “subscribe to independent method to assess and evaluate the quality of workmanship of building project based on CIDB’s CIS 7: Quality Assessment System for Building Construction Work (QLASSIC) or equivalent systems recognised by GBI”. The project should achieve a minimum score of 70% (PAM & ACEM, 2009, p. 13). A similar

requirement concerning QLASSIC can also be found in GreenRE’s NRB 3-4 Environmental Management Practice (GreenRE Sdn. Bhd., 2018, p.p. 83-84).

In complying with this requirement, the parties to the contract must also understand the requirements and processes involved in obtaining the desired QLASSIC score. QLASSIC has its assessment flow that ought to be tied back to the contractual provisions to address its potential risks associated with non-compliance (CIDB Malaysia, 2014).

Similarly, when it comes to the process involved in obtaining the required green certification. There is a need to integrate these processes into the main structure of the Standard Forms. Every rating tool provides for an assessment process that must be followed. The GBI assessment process for example involves three stages. Stage one is the application and registration, stage two for design assessment and stage three for completion and verification assessment (Green Building Index Sdn. Bhd., 2020). Likewise, for MyCREST and other rating tools.

There are specific requirements and stages of assessment that must be followed for the purposes of certification. For MyCREST, there are four stages of assessment involving three stages of the building life-cycle, i.e., (i) provisional design certification, (ii) design and construction certification, (iii) design, construction and operation and maintenance (O&M) certification and (iv) O&M certification (CIDB Malaysia, 2020).

The project’s activities and timelines, it is considered must be coordinated and streamlined with the specific requirements under the relevant rating tool system of choice. Apart from assigning the responsible party, the contract must adequately cater for any potential failure and/or non-conformity arising from and/or as a result of these certification assessments and procedures.

This lack of contractual guidance on the green building and the SDC principles and procedures resulted in disputes in the case of

Kesuma Murni Sdn. Bhd. v. Perbadanan Negeri Selangor (2016). In this case, the incorporation of the requirement for GBI Platinum was made during the tender clarification meeting. However, such a requirement was not incorporated into the project's contract documents.

Procurement of Green Materials, Goods and Workmanship

Under the Standard Forms, one of the fundamental obligations of a contractor in a project is to 'carry out and complete the works in accordance with the contract document' (Clause 1.1 of the PAM Form, Clause 10 (a) of the PWD Form and Clause 7.1 (a) of the CIDB Form). Under Clause 6.1 (Scope of Contract) of the PWD Form, the contractor is under the obligation to "construct and complete the works using materials, goods and workmanship of the quality and standards therein specified in accordance with best industry practice".

As previously illustrated, the clause did not refer to any specific requirements under the rating tools. Even the term best industry practice is subjective and uncertain. It may create problems in practice particularly if in the case of PWD Form, the superintending officer or the S.O, in reliance on this provision requires a better product than that expressly specified in the contract documents (Lim, 2011; 2013).

This requirement of conformity with the best industry practice, in so far as green materials are concerned could be argued to refer to materials approved and listed in the *MyHijau Malaysia* or the Works Ministry's Green Product Directory (which contains the 'approved lists' of materials for architectural, civil and structural, road and geotechnical, mechanical and electrical) ("JKR Green Product Directory - Site", n.d.). However, albeit approved, these materials must reconcile with requirements under the Construction Industry Development Board Malaysia (Amendment) Act 2011. Section 21 of the amendment to the Act introduces a new Part VIIA to the principal Act of 1994. Under Part VIIA of the Construction Industry Development Board Malaysia Act 1994 (Act 520), there is

a requirement for the contractor only to use statutory materials as specified therein (Lim, 2013).

Under the rating tools, there is a long list of criteria to be met when it comes to 'green' materials, products and technology. Generally, the materials and resources specified under the rating tools can be classified into four categories. They are: (i) Reused and recycled materials, (ii) Sustainable resources, (iii) Locally sourced or 'regional' materials and (iv) Green and sustainable products which are all intended towards lowering the embodied carbon (PAM & ACEM, 2009; CIDB Malaysia, 2016a; GreenRE Sdn. Bhd., 2018; Malacca Green Tech, 2019; JKR/SIRIM 2:2020, 2020). As part of the fundamental obligation of the contractor under the TGC method, the obligation to secure and provide among other things, the required materials for the execution and completion of the works fall on the contractor (Clauses 7 and 34 of the CIDB Form, Clauses 6 and 14 of the PAM Form and Clauses 35, 36 and 37 of the PWD Form). It is further contemplated under the TGC method that the contractor warrants good workmanship i.e., that the project will be built according to the plans and specifications and other contract documents specified (Clause 10 of the PWD Form, Clause 15 of the CIDB Form, Clause 1 of the PAM Form).

However, the Standard Forms have not explicitly dealt with how the contract should address liability on the failure of a specified green product or technology. This issue is significant when experimental materials and technologies are specified (Perkins, 2009). In other words, it is a question as to how far the obligation on the part of the contractor to construct in accordance with the plans and specifications would not land themselves in the tangle of any technology or materials failure.

The other related issues include: (i) Which party is to ensure that specified green construction materials and systems are available? (ii) Which party is responsible for ensuring that the green products or systems are adequately tested? (iii)

How to deal with delay when additional lead time is necessary? (iv) What the requirements are for storing the materials? (Perkins, 2009; Brooklyn Legal Services, 2013).

These issues and other issues peculiar to the SDC requirements need to be adequately addressed in the contract to alleviate disputes and ensure the successful completion of a green building.

Green Design Responsibility

Another essential matter that needs to be addressed is design responsibility. Essentially, under the TGC method, the design responsibility lies with the employer and the contractor is responsible for the construction and bringing it to completion (Lim, 2011; Singh, 2012). However, Clause 22 of the PWD Form and Clause 7.1 of the CIDB Form provide for the enabling clause to impart some design responsibilities to the extent required by the contract onto the contractor.

The issue of design responsibility in green construction has been a subject matter of deliberations. It is observed that any contractual provision which necessitates a warranty that a design would meet a specific level of certification or guarantee a specific result, e.g., the achievement of 20% energy cost savings etc. may not be well received by both the architect and the contractors (Augustine, 2009). It must be noted that energy efficiency is only one of the parameters assessed in so far as the SDC is concerned under the respective rating tools (CIDB Malaysia, 2018).

From the architect's perspective, the question revolves around the degree of standard of care expected to be discharged. Giving a design a warranty to achieve the required certification was considered onerous and feared raising the legal standard of care above the traditional negligence standard normally covered by professional liability insurance (Augustine, 2009).

On the other hand, the contractors are concerned that typically under the TGC method,

they have no input into this process. The architect would typically play a critical role in developing the drawings and specifications that establish the requirement for a green building (Augustine, 2009).

Conclusion

The discussion concludes that the provisions of the Standard Forms in their current structure are not sufficient to cater to all the novel issues and approaches of the SDC in the context of the Malaysian construction industry. Necessary changes must therefore be made to have a well-drafted standard green construction contract.

Standard contractual provisions could play a role in moulding behaviour, modifying processes and providing the necessary guidelines to promote and improve sustainability. The advent of building rating systems to assess a building's sustainability and other measurement tools to assess quality and safety (QLASSIC for example) and the introduction of new methods and technology in terms of design and materials may require each and every contracting party to take a different approach to risks mitigation.

An analysis of the loopholes and potential legal issues under the four general taxonomies i.e., (i) the absence of specialised definition and scope on green requirements, (ii) the absence of contractual guidance on green building principles and procedures, (iii) legal issues surrounding the procurement of green materials, goods and workmanship and (iv) legal issues affecting green design responsibility, point to a further in-depth research to be carried out in every respect. The diagram in Figure 2 synthesises the parameters of potential legal issues based on these four general taxonomies.

It is worth noting that the terms and conditions of the standard forms, in particular the PWD Form and PAM Form had been made subject to judicial scrutiny over the years of adoption and had undergone a series of revisions. The industry players are familiar with the structure, scope and coverage of the terms and their legal rights and duties enshrined under

the terms. Such familiarity and clarity should also be achieved when dealing with issues peculiar to green buildings and the SDC. To this end, it is considered that a standard form vis-à-vis standard terms and conditions addressing every particular aspect of green requirement plays a pivotal role in realising such familiarity and clarity.

Accordingly, a systematic analysis of the SDC parameters must be carried out with

a comparative analysis of the requirements under the rating tools and the overall main structure of the Standard Forms. The study must also consider the advent of technological advancement in contract planning and scheduling for example the Building Information Modeling (BIM) system (BIM Services, 2020; MYBIM Malaysia, 2021) to have an overall picture of the SDC ecosystem. This would allow a holistic understanding of

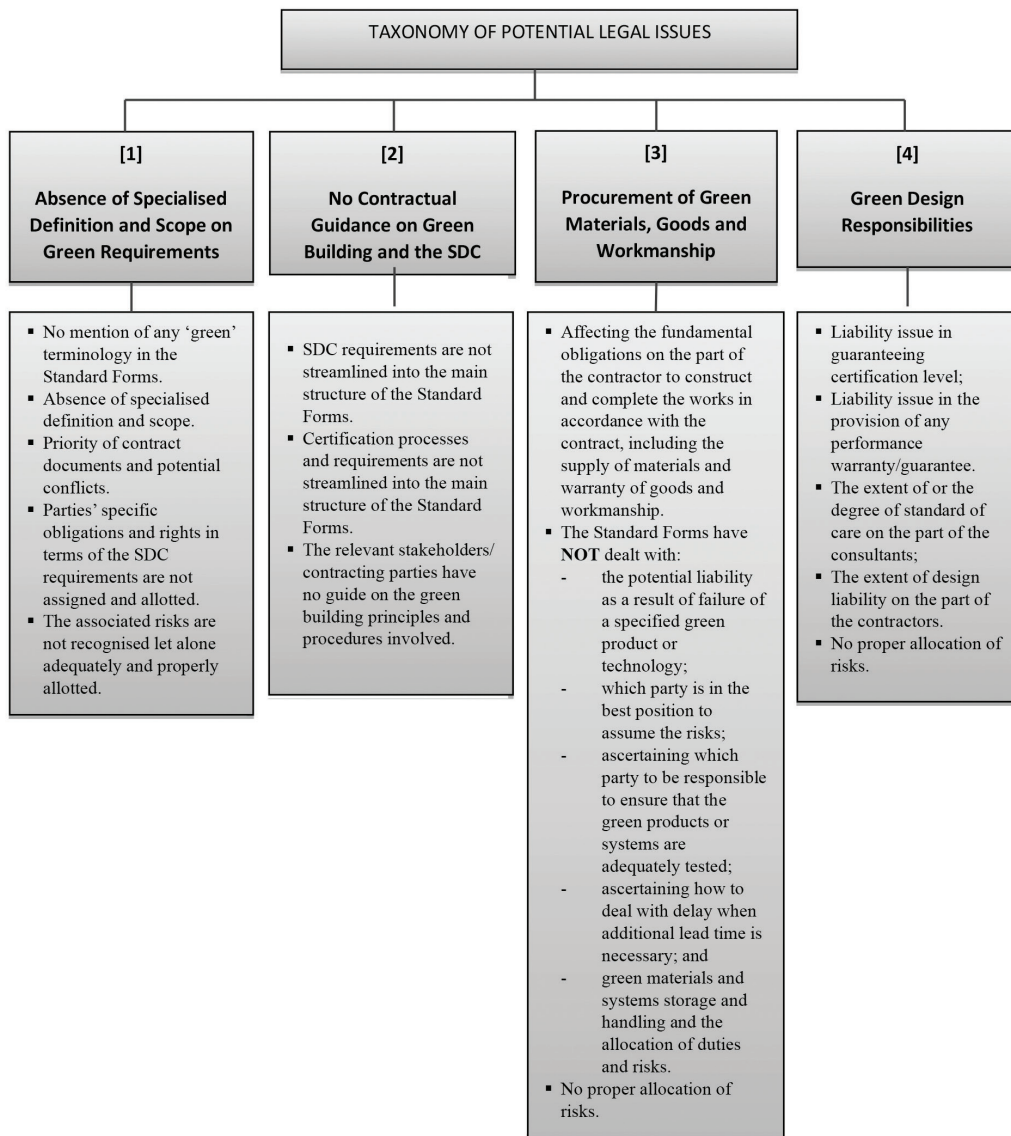


Figure 2: Synthesis on taxonomy of potential legal issues

the SDC approaches and deliverables and how a standard 'green' construction contract should be approached and drafted.

Acknowledgements

This research is part of a dissertation to be submitted as partial fulfilment to meet the requirements for the degree of Doctor of Philosophy at Universiti Sultan Zainal Abidin (UniSZA).

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