

# Motivation and Expectation of Developers on Green Construction: A Conceptual View

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**Abstract**—Social cognitive theory explains the power to inaugurate change is determined by the mutual influence of personal proclivity and social factors which will shape ones' motivations and expectations. In construction industry, green concept offers an opportunity to leave a lighter footprint on the environment. This opportunity, however, has not been fully grasped by many countries. As such, venturing into green construction for many practitioners would be their maiden experience. Decision to venture into new practice such as green construction will be influenced by certain drivers. This paper explores these drivers which is further expanded into motivational factors and later becomes the platform upon which expectation for green construction stands. This theoretical concept of motivation and expectations, which is adapted from social cognitive theory, focus on developers' view because of their crucial role in green application. This conceptual framework, which serves as the basis for further research, will benefit the industry as it elucidate cognitive angles to attract more new entrants to green business.

**Keywords**—Developers, Green Construction, Motivation, Expectation, Social Cognitive Theory.

## I. INTRODUCTION

**G**REEN construction is an opportunity to use our resources more efficiently, while creating healthier and more ecological-balanced buildings. For a building to become 'green', every phase of the building process (design, construction and operation) must incorporate sustainable considerations. Lighter footprint on the environment through green action, strategy, materials and technology is our contribution to the future. It is an idealism that challenges the industry to deliver better buildings and infrastructure.

The conventional way of construction has standing firm for decades. The transition from conventional to sustainable approach will consume time as it requires changes from different facets in the industry ranging from individual and organisational to industry level and the transformation process will not be barrier-free. Worldwide, many local governments are adopting green building standard, introducing various regulations or providing permits for sustainable construction [1, 2]. Nevertheless, many more, especially from developing countries, are still unprepared to make the changes [3]. As such, venturing into green construction for many practitioners would be their maiden experience.

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Among the crucial challenges of green construction are lacks of commitment from the clients and developers and behavioural factors which lead to change resistance. These two are inter-related. Behaviour changes will only come about through personal commitment for it [4]. To encourage a person or organisation to commit to something, their personal values must be satisfied. Bandura [5] stressed that intention and forethought will lead to prospective actions. Through the exercise of forethought, people will motivate themselves and create rational grounds of expectations that will guide their actions in anticipation of future benefits [6]. The motivational factors and grounds of expectations derived during forethought process will influence a person or organisation commitment and decision to venture into new practice such as green construction.

This paper explores these motivational values and grounds of expectation for green construction. This theoretical concept of motivation and expectations, which is adapted from social cognitive theory, focus on developers' view because of their crucial role in green application. This conceptual framework, which serves as the basis for further research, will benefit the industry as it elucidate cognitive angles to attract more new entrants to green business. Further research will be conducted in Malaysia. As one of the fast growing economic countries, Malaysia has both enjoys the benefits of rapid urbanisation and suffers certain level of environmental impact due to uncontrollable development. Although green construction is making their mark in the country, many developers are still wary to make their first move. Understanding of what can initiate the commitment of 'first-time' developers or to maintain the interest of 'experience' developers for green construction can generate further recommendations to create a viable environment to induce wider acceptance on the practice.

## II. LITERATURE REVIEW

### A. Green Construction and Role of Developers

There are many terms used to describe the movement of green in built environment. Apart from green construction, common terms used include sustainable construction, sustainable architecture, ecological architecture and ecologically sustainable design [7]. Despite of various term used, it is basically represents a movement to change the way we understand building architecture, design, construction, use and decommission [2]. Green construction refers to tailoring a building and its placement on the site to the local climate, site conditions, culture and community to reduce resource consumption, augment resource supply and enhance the quality and diversity of life [8].

Green or sustainable buildings offer numerous benefits including energy efficiency, improved indoor environment quality, increase health and occupant productivity and minimization of resource usage during the construction and operation of the building. Consequently, these buildings achieve superior long term performance making them attractive investments for facility owners and developers in both public and commercial sectors [9]. Some of the benefits of green building for developers are increase income due to savings in capital and operational costs; improve marketability and public profile [10].

Each construction player has an influential power to enhance sustainability outcome. Some are regarded as having greater influence than others and would lead to greater impact on the final outcome. Developers provide opportunity to advancing green development through various aspects and should take leadership role in transforming the construction industry towards sustainability [11]. In many construction projects, developer's role is equivalent to project client, where they dictate the course of the projects and are regarded as key decision makers. They are ranked as the most important agent to determine the extent of sustainable approach for a particular project [12]. Their positions are strategic to ensure green practices are effectively applied [3].

#### B. Social Cognitive Theory

Commitment is an important driver for change. Commitment is directly influenced by certain motivational factors and expectations that their action will be beneficial either in short or long run. Social cognitive theory explains that the power to inaugurate change is determined by the mutual influence of personal proclivity and social factors. As illustrated in Fig. 1, what begins with an intention, can be developed into personal motivations and through observations, one can create expectations of valued outcome with certain course of action.

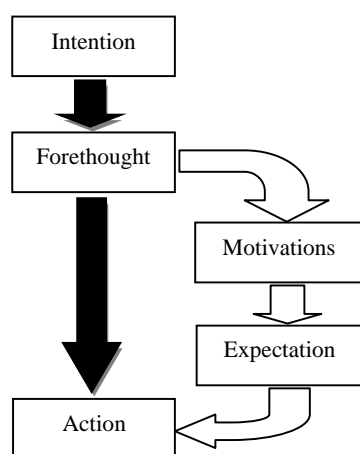


Fig. 1 Social Cognitive Theory  
 Adapted from Bandura [6], Feather [13].

People are capable of forethought and prediction and assumed to possess cognitive structures that concern with the

implication of their action [14]. They are capable of developing mental images of possible future events and states goals to be either attained or avoided and plan strategies for achieving or avoiding those future events. Intention is the starting point of any plan for future action. An intention grounded in self-motivation affects the likelihood of actions at a future point in time. It is a representation of a future course of action to be performed. Intentions will guide all activities, thoughts, attitudes, and choices toward what is intended. Intention is not simply an expectation or prediction of future actions but a proactive commitment to bring them about [6]. It is an act of mental determination upon a perceived outcome that one would want to experience. Presently-directed intentions guide the actions to turn visualized futurities into reality.

Forethought comes after having the intention. It is a preparation or thought of future. During this phase, the likely consequences of prospective actions are anticipated and considered to create courses of actions that will likely to produce the desired outcomes and avoid detrimental ones [6], [13]. It involves deliberation and planning before an action. Through the exercise of forethought, people motivate themselves and guide their actions in anticipation of future events [6]. Motivation and expectation are two sub-phases that lie between forethought and action phases

Motivation involves factors which incite and direct an individual's action [15]. Motivation is something that someone uses as a motive for doing things. Gorman, [16] identified three types of motives: (1) instinctive desire to satisfy a specific physiological need or drive; (2) decision to act in a particular way in order to gain satisfaction or reward; and (3) desire to increase one's level of arousal. These motives or values have the ability to motivate goal-directed-behavior [13].

Expectation is about the effects of certain behavior under certain conditions and the ability to perform that behavior competently [14]. Expectation involves prediction of how likely an event will occur. However, they may not always be well-defined and error-free as expectation is largely based on observations and experiences of previous success and failures, which may vary in their details and may be affected by different circumstances. An action will follow when sufficient stimulation is received [13].

Construction performance and project outcome will be affected by the lack of its decision makers Commitment ensures continuous focus on maintaining the initial goal in the action process [17]. Social Cognitive Theory highlight that before one enters into construction project, one must have a strong commitment. To commit or to take an action will depend on the intention and the implications identified through the forethought process. Similarly, before one enters into green construction, commitment is of vital important especially when the concept of green is still considers as something new in the industry.

### III. MOTIVATION AND EXPECTATION OF CONSTRUCTION DEVELOPERS

There is a raising awareness among the developers on green construction which drives their involvement towards green construction [2]. However, the implementation is different matter. From previous studies it was found that many developers stated that the greatest obstacle to green construction is the higher investment cost that may incur and the risk of unforeseen cost [2], [18], [3], [19], [20]. Thus, some of the factors that hindering the implementation is related to future expectation i.e. may incur or unforeseeable aspects

The right motivation will push the developers to enter into green construction. These motivations will serve as the platform upon which expectation is created. Table I summarizes the motivations and expectations to enter into green construction. There are 4 main drivers for green construction: financial, image, business strategy and ethical.

#### A. Financial

There are 2 motivational factors under financial category: maximize profitability and monetary incentives. The purpose of all business strategies is to ensure how a business can persistently create more value [21]. While the main focus on green building is its positive impacts to the environment, research shows that developer's decision to go green remains rooted in its financial viability [2]. Developers are profit driven and for many of them the priority of their business is the survival in the industry by ensuring that each unit constructed is sellable [3]. It is expected that green construction will face higher initial cost than the conventional construction because of the increase of the consultant's fees, the unfamiliarity of the design team, and the cost of building assessment tools documentation [18], [19], [22]. However, the cost is recoverable over the life cycle of operations and maintenance of the buildings [18],[20]. The special features in green building will enhance the value of the building therefore green building can be sold at a higher price, thus more profit potential [10].

Most government offers monetary incentives to attract green construction [18]. Financial incentives are direct incentives in the form of tax credits or grants to developers who propose or build green buildings. Financial incentives including tax credits/abatement, fee reduction/waiver, grants and revolving loan funds are a highly successful means of encouraging developers to follow green building practices, [23]. Rewarding developer will be the drive force in adopting sustainable in construction and spurs innovation and demands for green building technologies.

#### B. Image

There are 2 motivational factors under Image category: green certification and award/recognition. Developer's implementing green construction would enhance their public image and competitiveness in the industry. To obtain the status of green building, one must obtain certification from recognised green building certifier such as LEED, BREEAM,

Green Mark, Green Star and Green Building Index. Green building accreditation schemes provide buyers, investors, tenants as well as general public and official with the same proof that developers have integrated environmental requirements in their buildings [24].

As part of strategy to improve the project and developer's reputation, the green certification can be accompanied with awards or recognition from respectable organizations to mark their achievement. Apart from providing a strong evident of the developers commitment on green development, the awards built-up more reputation, create excellent advantage to compete for future project at local or global level. There are many recognition program and awards that recognise the green efforts worldwide, some of the example are the European Green Capital Award in Europe and Green Flag Award in UK.

#### C. Business Strategy

Market niche and operational advantage are the motivations under Business Strategy category. Other benefits associated with green building for the occupiers include gains in employee productivity, reduced absenteeism and building-related health problems lead to reduction in health and safety costs, improved morale, and better employee retention [20], [25]. There is a strong positive correlation between the work performance of employees and the building in which the process takes place. Studies have proven that the increase in productivity gains is related to the improvements of the indoor environments [25].

Market influence refers to the market value which is affected by the clients' demands and affordability. In housing industry for example, the final product is usually sold to the buyers and not operated by the developers. Without the need to consider the operating cost, most developers tend to ignore the need for sustainable construction. In the case of property industry, commercial viability, which is affected by the demand of the buyers, is crucial to push the developers to produce green housing. The benefit of operational savings will be attractive to developers who will be operating and leasing their building. The society's attitude towards the impact of environment can be translated into demand conditions, which influences corporate behavior. The booming green building demand will compel developer to join the market to produce more products, which will therefore bring down prices for consumers [26].

Green construction is not meant for large budget only. The cost of constructing green buildings vary in the same way as they do for conventional ones, that is, that green buildings can be achieved on both small and large budgets [27]. Thus, this is the opportunity for developer to create a niche of affordable green housing.

#### D. Ethical

There are 3 motivational factors under Ethical category: social responsibility, environmental responsibilities and risk of non-compliance. Social aspects concerns with the responsibility of corporations to conduct business ethically

[28]. Society begins to realize their power in the industry. Their mutual voice can affect the development projects and as such, it is wise for the developers to take heed of their needs to ensure the project is smoothly undertaken. Citizens are increasingly demanding that corporations address their needs in their investment decisions [21]. Green construction is the answer toward avoiding harmful activity toward environment as it based on ecologically sound principles and it most comprehensively addresses the ecological, social and economic issues of a building in the context of its community [29].

TABLE I  
 MOTIVATIONS AND EXPECTATIONS OF GREEN CONSTRUCTION

Driver	Motivation	Expectation
1. Financial	Maximize profitability	Green building has high potential in terms of cost-saving in long term
		An increase in capital cost is marginal when the concept is being introduced early in the project life
Special features of green building will attract more buyers		
	Green is new way of life, thus, can tap into new market and increasing demand	
	Monetary incentives	Financial incentives can be obtained through tax exemption, fee waiver and loans.
2. Image	Green certification	Enhance public image and competitiveness in the industry
		As proof that developers have meet environmental standards and performance
	Award / recognition	Enhance competitiveness in the industry and to mark achievement as part of company performance
3. Business strategy	Market niche	Demand for green building is increasing
		Venturing into green construction ensures more opportunities for future projects
	Operational advantage	Developers/ occupiers can enjoy cost savings during operational and maintenance.
		Improvement in employee productivity, reduce absenteeism and building-related health problems due to good indoor environment
4. Ethical	Social responsibilities	Green construction fulfils the social needs by concerning on community needs and social risk, thus projecting developers who cares on its society
	Environmental responsibilities	Green construction is the answer toward avoiding harmful activity toward environment as it based on ecologically sound principles
	Risk of non-compliance	Green construction as a safe way to avoid any risk of non-compliance in development.

One of the essential and effective driving forces in promoting green building is the government's involvement. To meet these objectives, each country has its own concern and establishes the corresponding policy instruments for the building industry [26]. Regulations and rules ensure a minimum standard of quality to be safeguarded. Regulations concerning green construction exceed the minimum requirements set for conventional construction. As such, by targeting for green construction, developers are assured that all requirements are met and thus, eliminating the risk of non-compliance in their projects.

#### IV. MALAYSIA SCENARIO

The adoption of sustainable in construction and green building has become an important issue in Malaysia. In 2006, the Construction Industry Master Plan 2006-2015 (CIMP) has been published to chart the way forward for Malaysian construction. The CIMP has identified that the demand on environmental sustainability is necessary to achieve and sustain economic growth and social development [30]. In the quest to transform the building industry into one that respect the environment, Malaysia has introduced its own building assessment called Green Building Index (GBI) Malaysia in 2009. GBI serves the same function as BREEAM in UK, LEED in USA, Green Star in Australia and Green Mark in Singapore, but tailor made to Malaysian needs. For financial initiative, the Malaysian government had announced the establishment of Green Technology Financing Scheme (GTFS) in 2010 as an effort to improve the supply and utilization of Green Technology. GTFS is a soft loan incentive launched to create a policy environment that will attract innovators and users of green technology [31]. The current incentives to promote green movement are the "SURIA 1000 for Developer", which provides 30 – 35% subsidy to developers for the use of Building Integrated Photovoltaic (BIPV) in residential projects [32], construction levy exemption for the use of 50% Industrialized Building System (IBS) components and tax incentives for GBI certified buildings [33].

As the results of the encouragement from the government plus the growing awareness of sustainable construction, there has been an increasing trend of companies developing green building. GBI reported 256 applications for GBI certification had been submitted over these three years since the index was introduced in April 2009. In 2012, there are 18 buildings under non-residential category and another 20 residential buildings have received GBI certifications [34]. Nonetheless, the ones seeking the certifications are largely from well-established developers. The response from larger population of developers, mainly consist or small and medium size companies, is still low [3].

Many developers are still reluctant to initiate the changes because green construction in Malaysia is based on voluntary concept. The developer feels there is no urgency for them to venture into it. Developer will be satisfied enough by getting the revenue from the sellable units they have constructed. Moreover, fear of the unknown, lack of understanding and

lack of demand for green buildings are among the identified culprits of wider application of green construction [35].

#### V. FURTHER RESEARCH

The paper discusses the theoretical framework of the motivations and expectation of developers before venturing into green construction. Following this framework, research will be conducted in Malaysia. This research is an exploratory in nature, which is used optimally for situations which will increase understanding, expand knowledge and explore phenomenon that has little research done on it [36]. A two-part investigation will be conducted consisting of survey and interview. In the survey, a comparison will be made between the motivation and expectation of developers with and without green construction experience. In the interview, the aim is to explore the developers experience and how it may affect their future actions.

Data gather from the survey and interviews will be analyzed qualitatively as the information will be in the form of opinion, comments and statements.

#### ACKNOWLEDGMENT

The authors acknowledge the financial support provided by ERGS grant and Universiti Sains Malaysia (USM) for this research.

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