

Theoretical Explanations of Environmental Motivations and Expectations of Clients on Green Building Demand and Investment

Onuoha Iheanyichukwu Joachim¹, Norhaya Kamarudin¹, Godwin Uche Aliagha¹ and Kalu Joseph Ufere¹

¹Department of Real Estate Faculty of Geoinformation and Real Estate Universiti Teknologi Malaysia, 81310 Skudai, Johor, Malaysia

Email: onuoha4lord@gmail.com

Abstract

In building industry, green demand and investment creates a positive footprint on the environment. However, these environmental opportunities have not been adequately harnessed and explored by Clients of green building apparently because of poor understanding of the motivating drivers and benefits accruing from green building demand and investment. The decision to demand for or invest in green building is influenced by certain environmental motivating drivers and expectations which have not been fully examined by researchers and not well understood by stakeholders. Based on the Theory of Planned Behaviour (TPB) and Theory of Value Belief Norm (VBN) explanations, this study focused on the Clients, purchasers and users' motivations and intentions to go for green building. Based on the reviewed theories, we hypothesized that environmental motivations and expectations for green building demand and investment are embedded in the environmental quest for protection of eco-system and bio-diversity, improvement of water and air quality, reduction of solid waste, conservation of natural resources, reduction of societal costs of landfill creation and maintenance, minimization of site impact and reduction emission to air and enhanced energy efficiency. However, the predictive validity of these propositions depends on the client's beliefs, values, social pressure, and perceived behavioural control.

Keywords: Green building, Green building demand and investment, Environmental motivations and expectations, Theory of planned behaviour, Theory of value belief norm, Environmental sustainability.

1. Introduction

Green demand and investment is a term that comprises any property investment that gives the opportunity for investment that is environmentally responsive and takes into account of its effect on the environment. [1] referred green investment as an investment necessary to reduce greenhouse gas and air pollutant emission without significantly reducing the production and consumption of non-energy goods. For green investment in building to be meaningful, it should incorporate sustainable consideration and meet the demands of environmentally conscious buyer based on known driving benefits. The decision to demand and invest in green buildings are influenced by certain motivating drivers and expectations rooted on environmental behaviour and concern.



Environmental behaviour has been described to be a socially-conscious behaviour which is based on social responsibility and involves individual and social aims that one wants to achieve by behaving in a particular way [2, 3]. This suggests that for a person to accomplish what he intends to achieve, his or her actions are influenced by intentions and motivations with hope of expectations. Therefore to explain specific environmental consumer behaviour and concern, theories of Planned Behaviour (TPB) and Value Belief Norms (VBN) are considered. The unique attribute of both theories is behavioural intentions and motivations, values and norms which are recognized as the building block in predicting actual behaviour. Behavioural intentions have been viewed as an indication of individual's readiness to carry out a given behaviour [3]. In their study, [4] found that behaviour changes could come about through one's personal commitment and motivations. Behavioural motivation could therefore be seen as an inducement by internal or external factors to stimulate desire and energy in individuals to be continually interested and committed to perform a given behaviour. It is a psychological process that initiates, guides and maintains goal-oriented behaviours. Behavioural motivations involves emotional, social and cognitive forces that activate behaviour and which could be described as "Whys" of behaviour - the needs or wants that drive behaviour and explain what one does.

The Theory of Planned Behaviour (TPB) which is an extension of theory of Reasoned Action (TRA) differentiates two determinants that predict behavioural intentions and motivations. They include; personal attitudes towards behaviour and subjective norms which is an element of VBN. The first could be positive or negative assessment of a particular behaviour which is formed by people behavioural beliefs while the second reflects person's perception of social pressure regarding the performance of behaviour. [5] observed that this subjective norm is a function of individual's belief that referent others coupled with the individual's motivation to comply with these referent others. However this assertion starts from values which forms the basis for belief, which in turn underline norms which dictate behaviour as posited by [6] in the Value-belief norm theory(VBN).

The application of the two behavioural theories could induce pro-environmental habits, attitudes, and knowledge and arouse expectations and beneficial factors that could motivate clients and prospective users to go for green building or indulge in green practices. It could also guide their environmental actions and activities in prospect of future benefits. This study therefore explores those environmental motivating drivers and benefits, and grounds of expectations that could inform the understanding of the motivating factors of green building through the Theory of Planned Behaviour (TPB) and the Value-Belief Norm Theory (VBN).

2. Literature Review

2.1 *Environmental Behaviour, Attitudes and Knowledge*

Several studies on environmental behaviour have been carried out to define environmental behaviour but oftentimes environmental behaviour has been assumed to be an undifferentiated class of behaviour [7]. This simply means that various types of environmental behaviours are dependent on similar factors, which is not usually the case. Studies indicate that many psychological studies cantered on behaviours that are not very interesting from environmental perspectives.

To [7]; [8] and [9] the concentration is on individual behaviour that has only little effect on environmental qualities. Such behaviours in the views of [10] include refusing plastic bags in stores or purchasing recycled paper. According to a proposal by [7] environmentally

significant behaviour could be classified from an "intent-oriented" or an "impact-oriented" perspectives. Intent-oriented classification means that environmentally significant behaviour is defined by motivation of the actor. This is based on whether a particular behaviour is being taken by the actor with the intention to benefit the environment.

Although [9] posited that some behaviour is performed because they are perceived to be environmentally beneficial, therefore they do not necessarily result in a reduction of the actual impact on the environment. For impact-oriented induced behaviour, they do not focus on the motivation of the actor to perform certain behaviour but rather defines behaviour by its actual impact on the environment. Examples for measure of impact-defined behaviour are energy use, water use, or waste production [10]. This means that certain behaviours may oftentimes performed due to individual characteristics. As observed by [11] through the theory of Planned Behaviour, attitude makes the most impact on person's behaviour only when the existing conditions are favourable. What this suggests is that despite individuals being influenced by attitudes, still certain behaviour may not sometimes be performed because of personal characteristics. However, attitudes stimulate behaviour, influenced by personal, social or informational factors which help evaluate behaviour positively or negatively. For instance, if someone does have knowledge of or perceive conservation behaviour such as recycling as too difficult, it is less likely that such behaviour will be carried out.

In the case of environmental knowledge, reasonable documented evidence have however shown that variance in behaviour has been explained by environmental knowledge from 6% to 8% [12, 13, 3] indicating that environmental knowledge could have considerable explanations on the relational differences between the conservation behaviour and environmental attitudes. However, [3] noted that contentious statistics have not yet reconciled the impact direct or indirect environmental knowledge has on conservation behaviour while [12] posited that most of the studies on environmental knowledge have only investigated or at most two forms of environmental knowledge and as such it does not give a detailed analysis of the relative effects of various knowledge on behaviour. Therefore in a bid to reduce the over concentration on general knowledge of behaviour, Kaiser et al as cited by [3] articulated the following three forms of knowledge which operate together in promoting environmental behaviour. They include: (a) System Knowledge (b) Behaviour-related Knowledge (c) Effectiveness Knowledge.

The understanding of the above forms explains that system knowledge is generally linked to knowledge about the ecosystems and its processes and can be ascribed to be vital aspect of environmental knowledge. The behaviour-related knowledge which could be described as action-related knowledge is described as the ability to know what to about any existing environmental problem. This form of environmental knowledge is associated to a superior level of knowledge. Finally, the knowledge about the benefits of environmentally dependable actions is considered as where consumers have to choose from various probable actions to achieve the maximum environmental benefits.

This study believes that this form of knowledge (Effectiveness) is not against the doctrine of environmental motivations that brings about environmental benefits. This form of knowledge has been considered by [12] as most effective environmental knowledge. In his illustration to support this, [3] noted that to start recycling at home, an individual should have some understanding about the material streams. Moreover, a person must be familiar with nature in order to know effective way to overcome any environmental challenge. Having knowledge and understanding of what he or she wants to do or the understanding of nature could motivate him or her into being environmental friendly.

3. Review of Theories

3.1 Theory of Planned Behaviour (TPB)

The theory of reasoned action (TRA) and its subsequent developed version theory of planned behaviour (TPB) as articulated by [14] in 1991 is based on the perceived behavioural control component to account for behaviours that occurs without a person's volitional control and norms [15,16]. The proponents of this theory had argued that subjective norms refer to the strength of normative beliefs so also the motivation to comply with these beliefs, social and moral values. As observed earlier, the theory of planned behaviour is an extension of theory of reasoned action (TRA) by its addition of influences on behaviour beyond people's control. TPB theorists believed that for these influences to be measured by means of the perception of one's control, two assumptions have to be made (1) the predicted behaviour must be at least partially beyond volitional control (2) perception of control must reflect actual control upon behaviour with some accuracy [17].

The first assumption here has been claimed to be domiciled in the environmental and ecological domain while the second has been noted to be a possible imperfection of the planned behaviour approach [18]. Against this backdrop, the theorists of TPB have argued that actions contribute towards environmental preservation and/or conservation. Hence environmental attitude is singled out as one of the promising concept [19, 20]. Therefore this study is of optimistic view that the usefulness of attitude could be a better predictor of environmental and ecological behaviours. Attitude towards the environment and attitude towards ecological behaviour rooted in the framework of Fishbein & Ajzen tradition of attitudinal research signifies that is either the object of one's attitude is the natural environment itself or some aspects of it such as air quality or the attitude object is environmental or ecological behaviour such as recycling. Hence attitude towards the environment could be described as an environmental concern [21]

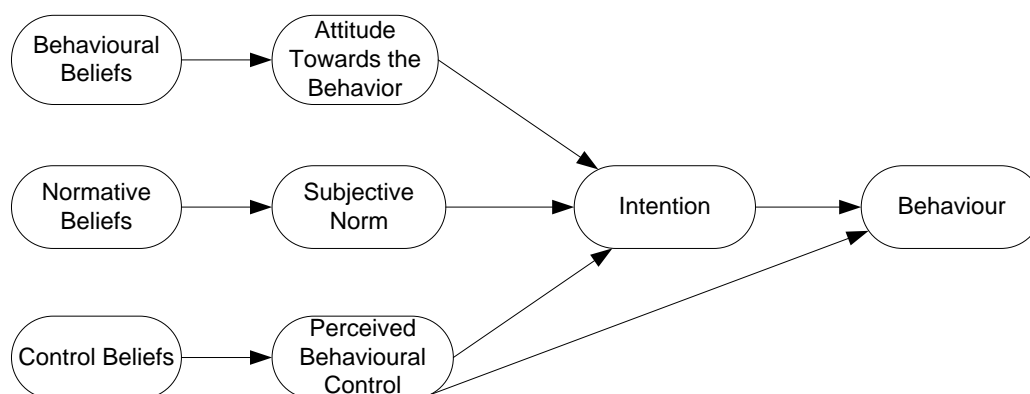


Figure 1. Theory of Planned Behaviour [14]

3.2 Theory of Value-Belief Norm (VBN): The premise of value-belief-norm theory (VBN) is that pro-social attitudes and personal moral norms are significant predictors of pro-environmental behaviour [6]. What this suggests is that, people who undertake environmental action have at least some altruistic or moral reason for doing so, or they are

moved by self-serving interests [22]. The theory of VBN according to Stern in his model starts from values, which form the basis for belief, which reciprocally underlies norms which dictate behaviour. This shows that depending on values (altruistic, biospheric, egoistic) one may more or less likely to accept that his or her behaviour impacts on the environment.

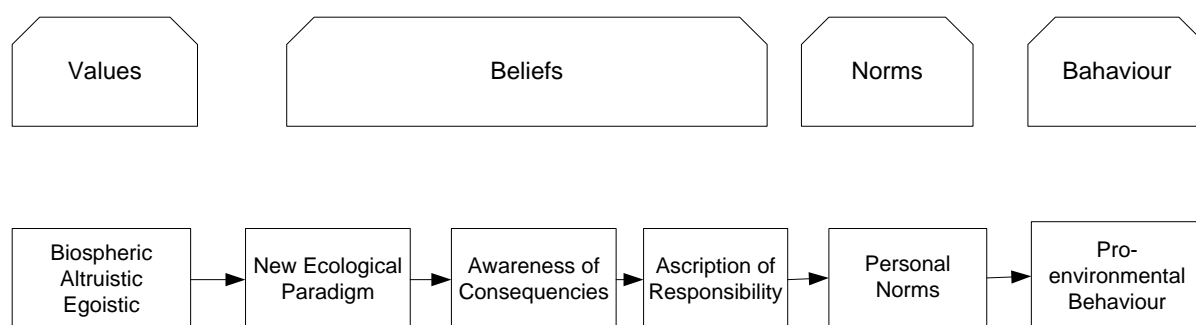


Figure 2. Value-Belief Norm Theory [7]

Each of the above theories has relatively high strength on environmental behaviour and as such they share similar explanatory features and characteristics that complement each other, hence this study found them very useful and attractive.

4. Environmental Motivations of Clients for Green Building Demand and Investment: A Personal and Altruistic Motivation Values

4.1 Quest for Enhancement and Protection of Eco-system and Bio-diversity: Theories of pro-environmental behaviour especially those related to protection and enhancement of eco-system and bio-diversity of environment and resources conservation in building such as the Value-belief Norm (VBN) theory assumes that the effect of values on behaviour is mediated through basic belief and pro-environmental personal norms. VBN acknowledges that both general altruistic norms centered self-transcendent values that convey feelings of collective ownership of environmental welfare and personal moral norm based on self-enhancement or individual self-serving interests play significant role in green consumption and demand [23]. For example, as the growing sustainability and environmental awareness and consciousness continues to grow prospective home buyers, workers, tenants and investors will develop pro-environmental beliefs that could be attributed to altruistic or personal moral norms and values [23]. This means that some consumers may be demanding and investing in green properties not only because of its environmental, social and economic benefits such as energy saving and profit making but because of their altruistic belief that climate change and its effects on man and environment are real and could be detrimental, so they have to go green to mitigate the impending effects.

The theoretical concept of Value-belief Norm (VBN) theory as postulated by the theorists explain that if altruistic norms and personal moral norms rooted on the desire for value permeate deeply in consumers and clients, green consumerism, investment and sustainability will be a cardinal issue not only for those looking for new housing or office space but also for those renovating and retrofitting their building [23]. This will equally

increase the demand for green properties. This is consistent with view that a little increase in environmental consciousness as articulated by VBN theorists could make home owners, office workers, tenants and prospective home buyers develop pro-environmental beliefs that are based on altruistic or personal norms and values. Proponents of this theory are of the view that one's subjective norms and normative beliefs regarding environment influence his or her intention to behave ecologically. What this suggests is that one's environmental value could make him or her go for green building. However, the result of this move could have weak or fair relationship as they could be presumably mediated by some economic, social and environmental variables [24, 25, 26, 27].

4.2 Quest for Conservation of Natural Resources: Motivations and intentions as recognized by the theory of environmental behaviour and concern such as the Theory of Planned Behaviour (TPB) are important determinants of consumer behaviour towards green building. For example, consumer's positive environmental concern, behaviour or perspective of green building may be influenced by a predicted destruction of natural resources or global warming as a condition for green consumption [28, 29]. While TPB recognizes intentions and motivations as environmental determining factor for green demand, this study however believes that environmental behavioural concerns could also be motivated by altruistic beliefs, personal norms and beliefs which lead to the development of attitudinal and habitual conservation of natural resources. Hence, the behavioural, attitudinal and intentional attributes of green consumers tend to evaluate the likely environmental consequences and benefits associated with the demand and purchase of green building before its consumption.

Therefore TPB theorists believe that such appraisal or evaluation could make the consumers pro or anti conservation of natural resources. For example, consumer's perceived level of self-involvement towards the protection of the environment may prevent them from engaging in environmentally friendly activities to conserve the natural resources sustainability components such as piedmont's earth, water, air and biologic resources as well as matters such as creek fortification, hillside ranking and management of the city urban forest etc. Since the methods of construction in green buildings are carried out to reduce and mitigate the impact on the environment, then many green building design principles help to condense impacts on natural resources and ecosystems. Some of the key examples identified by [30] include; sustainable sitting approaches which consider substitute to Greenfield construction, including using existing facilities(for example, urban redevelopment) and Brownfield sites, and avoid building on prime agricultural land, floodplains, and habitats for threatened species or near wetlands, parklands, and cultural or scenic areas. The philosophical quest also include designing to shrink potentially detrimental conditions, such as slope that can erode; avoiding adverse impacts on neighbouring properties; and carefully considering the building placement amid existing trees on site.

4.3 Quest for Reduction of Solid Waste: The broader literature of value belief norm theory on pro-environmental behaviour highlights the diversity of environmental and ecological factors that influence different environmentally significant behaviours which environmental values or concern could play a role. Consumption behaviour and adoption of new green products has been for example linked to identity [31, 32, and 33]. Self-identity has been found to be a significant predictor of behaviour over VBN variables. There exist two levels at which identity could operate in the context of pro-environmental behaviour [33]. They include: behaviour-specific and behaviour-generic. Behaviour specific include for example identity as a typical

recycler [34] while behaviour generic encompass a sub-set of environmental actions such as green consumption and demand [35, 33]. Green architectural demand and consumption seeks to cut solid waste and materials used during construction. [36] observed that one simple way that green architecture creates less waste is by using renewable materials, such as plant matter and sustainable lumber, or reusing traditional materials, such as recycled stone or metal. Ecologically dependable green building can also help the occupants of the building waste fewer resources when going about their daily lives. Several green building design standards cut waste, which in turn minimizes the strain on landfills. In addition, using recycled materials in building construction encourages development of new industries that manufacture recycled products, further waste disposal needs and the use of virgin materials.

According to [30] the main sustainable design principles that decrease waste include the following (1) Storage and collection of recyclables: The building design it is hoped should offer space for collecting and storing materials such as paper, glass, plastic, and metals that will be recycled. (2) Construction waste management: At construction stage, the contractor can recycle or divert demolition and land-clearing waste from landfill disposal. (3) Recycled content: Designers can decide on environmentally favourable materials that comprise recycled materials. (4) Waste prevention: Designers can do away with needless finishes and make choices that use standard-sized or modular materials. In addition, designers consider product resilience in the design procedure. When products need to be changed less often, less demolition waste is created and fewer virgin resources are needed for substitution.

4.4 Quest for Enhanced Energy Efficiency and Improvement in Water and Air Quality: [29] had traced the research tradition of environmental attitude to two studies [37, 38] in consonance with TPB where factual knowledge about the environmental measures, the cognitive aspect, and verbal commitment measures the behaviour intention component of environmental attitude. This is why [39, 40] admitted that environmental and ecological behaviour appears to be susceptible to a wide range of influences beyond one's control. Using outside temperature and home characteristics as an example, the proponents of TPB theory noted that could affect energy consumption while cost of water affects water conservation and the number of people in a given household and house ownership [41, 42, 43, 44, 45]. Reduction in water utilization and protecting water quality are key objectives in green homes. Consumption of green building efficiently eases air pollution through condensed energy use, use of appropriate refrigerants, and use of materials with low off-gassing and other steps. The reduction in use of fossil fuel at the building site result in lower air pollution contributions at the site, while cut in electricity use results in lesser air pollution associated with power plants [46]. According to [46] energy efficiency is the keystone of every green home. In addition to saving homeowners money through lesser utility bills, an energy-efficient home may save some costs during construction.

4.5 Quest for Reduction of Societal Costs of Landfill Creation and Maintenance: Linked to the opinion of theorists of reasoned action and planned behaviour which proposes that attitude influences behaviour, mediated by intention, factual knowledge is seen as a precondition of any attitude, thus the relationship between factual knowledge and behaviour is mediated by intention [29]. However subjective norms and values are also mediated by intention and therefore could predict behaviour indirectly. Given these inter-related assumptions, motivation for green building by clients include a number of environmental safety and control rudiments in conformity with appropriate local, and state rules. The

societal cost of landfill formation and maintenance could be guarded through the design and construction of green building. Cautious construction methods experts say can lessen the quantity of construction waste that get to landfills by 95% or more. The environmental issues of prime concern to the clients and to the community relative to land filling operation according to US EPA [47] include; water pollution, air pollution; land management and conservation and hazards and loss of amenity.

(1) *Water Pollution*: Ground and surface water can be contaminated by organic leachate from landfill sites. (2) *Air Pollution*: unrestrained landfill gas emissions are not a sustainable landfill practice. Landfills mostly produce methane and carbon dioxide which if not restricted can add to the greenhouse effect. (3) *Land Management and Conservation*: All land is precious and the impact of its use as landfill needs to be sustainable. Hence the motivational and appropriate care of a landfill through green building development as a valuable asset should end in resourceful remediation, allowing land to be used for other purpose following closure. (4) *Hazard and Loss of Amenity*: The possible risk and amenity impacts from landfills include fire, birds, dust, odour, pests, vermin and litter. Each of these probable impacts may happen on-site or off-site.

4.6 Quest for Minimization of Site Impact: One's subjective norms and normative belief regarding the environment as proposed by theory of planned behaviour influence his or her intention to adopt pro-environmental behaviour and attitude which could spur the desire to minimize site impact. These influence scholars believe ranges from weak to fairly large relationship to environmental beliefs and values [26, 27]. The relationship could reduce if ecological behaviour instead of ecological behaviour intention is considered [27, 21]. Theorists acknowledge that one's environmental values are related to ecological behaviour intention and could be mediated by other environmental behavioural intentions [24, 25, 29].

Therefore this could suggest that the intention to demand for site of a building influence a broad array of environmental issues as well as other factors such as security, accessibility, and energy consumption, energy used for transportation needs of tenants for commuting, the impact on local ecosystems, and the use/reuse of existing structures and infrastructures [48]. Green building construction and operations can have wide direct and indirect impacts on the environment, society, and economy, which seek to put in equilibrium the needs of above areas by using an incorporated approach to complement needs and generate design solution. All materials carry embodied environmental effects, in that there are environmental and ecological cost as an effect of their creation and use through their life circle. Green building demand promotes the use of materials with lower embodied environmental and ecological load. Green building also naturally uses fewer materials, through efficient design and removal of needless finish materials (for example, many green buildings utilize uncovered structural materials, rather than casing these materials with a wall finish). Green building processes in boosting impact on the environment also support recycling in their operation. Experts have observed that buildings use resources (energy, water, raw materials etc), generate waste (occupant, construction and demolition), and release probably injurious atmospheric emissions.

5. Corporate Conscience Environmental Responsibility Motivations: A Subjective Norm

Social pressure or informational factors could help assess behaviour in a positive or negative perspective or either to give in or defy social pressure. As observed by [11], the same factors could also have an effect on individual's perceptions to perform behaviour or resist it. Consequently, social and personal factors have an undeviating influence on the behavioural motivations and intentions that aid to predict behaviour. Subjective norms in the green building demand and investment context reflects individual's perception of social pressure regarding his or her ability to perform behaviour. For example, green lifestyle which has turned out to be fashionable and socially desirable and attractive these days has formed belief about sustainable demand which have influenced not only behavioural intentions and motivations but also behaviour [49, 50, 51, 52, 3].

Researches in the behavioural sciences according to [53, 54, 55] suggests that a green building sustains: relationship to nature; sense of community and belonging; behavioural choice and control; opportunity for habitual exercise; significant change and sensory variability and privacy when needed. Social sustainability is stood on the social facets such as feelings of well-being, aesthetics, health and comfort, security and user contentment, suitable living environment and social integration [56]. Behavioural choice and control as articulated in the VBN theory and TPB has been found to support the features and attributes of buildings linked to well being of individuals such as ensuring ventilation, temperature, and having the ability to modify and adapt environments to suit personal needs and preferences; multiple behaviour settings to support different activities; technology to support mobility; ability to move easily between solitude and social engagement and spaces to support both [54].

Again, by the principles of theory of planned behaviour (TPB) and Value belief norm theory (VBN), the society motivational social attitude towards the impact of environment has been interpreted into demand conditions that affect corporate behaviour. TPB and VBN acknowledgment of the intentional and motivational factors of green building demand such as social responsibility is a panacea towards avoiding harmful activities towards the environment. This is because it is principally based on ecological footprints and addresses the social, economic and ecological issues of green building in the community context [57]. Green demand completes all the social and community responsibilities of consumers while projecting the Client's image in the society [4, 58].

6. Environmental Skills and Proficiency Motivations: A Perceived Environmental Behaviour

The theory of planned behaviour has by extension added another determinant to behaviour - the Perceived Behavioural Control (PBC). According [14] this refers to person's perception of ease or difficulty to perform behaviour. PBC affects both behavioural intentions, motivations and behaviour and explains how person perceives his ability to perform such behaviour, which is dependent not only on his or her attitudes and societal limitations, but also on personal beliefs about contributing to environmental problem solving [3]. However, most behaviour has been found to be a continuum that extends from total control to a complete lack of control [59]. The individual has total control when there are no restrictions of any type to the adoption of a given behaviour. Contrarily, there is complete lack of control if adoption of the behaviour requires opportunities, resources, or skills which may be lacking.

However, beliefs about skills, resources and opportunities have been viewed as the underlying perceived behavioural control. The notion of PBC according to [59] and [17] is similar to [60] concept of self-efficacy belief and to Triandis's 1977 concept of "facilitating conditions" in his model of inter-personal behaviour [61]. It tends to reflect personal beliefs as to how trouble-free or hard adoption of the behaviour is likely to be. According to [61] PBC should be an important mediator of effect of habit upon the behaviour because those individuals who have performed a given behaviour in the past should have developed a feeling of control over performance of this behaviour. Therefore green building demand and investment as rooted in the TPB and VBN involves the motivational beliefs and potential capacity to determine how resources, skills and opportunities could be used in achieving the environmental expectations and acknowledgement of responsibilities by individuals. For instance, if clients and consumers have static expectations anchored on established motivating drivers such as skills, resources and opportunities, green consumerism and demand will be a lifestyle.

Table 1: Environmentally Theoretically Based Motivations and Expectations of Green Building Demand and Investment

S/N	Motivating Drivers	Expectations	Related Theory
1	Personal & Altruistic Environmental Motivations. (Values & Beliefs)	Ecologically induced green building demand is a claim to (1) protection of eco-system & bio-diversity (2) improved water & air quality (3) reduction of solid waste (4) conservation of natural resource (5) reduction of costs of landfill creation and maintenance (6) minimization of site impact (7) reduction to emission to air and energy efficiency enhancement	Theory of Planned Behaviour (TPB) Theory of Value Belief Norm (VBN)
2	Corporate Conscience Environmental Responsibility Motivations. Social Pressure Effect (Subjective Norms)	Green Building demand and investment by clients is seen as a social responsibility of caring for the environment while it stands as a response towards avoiding harmful activity towards environment rooted in environmental behaviour and principles.	Theory of Value Belief Norm (VBN) Theory of Planned Behaviour (TPB)
3	Environmental Skills and Proficiency Motivations. (Perceived Behavioural Control)	Green building requires investment capacity and green skills, resources and opportunities which are the underlying perceived behavioural controls.	Theory of Planned Behaviour (TPB)

7. General Framework and Theoretical contributions

A study of theory of reasoned action (TRA) and its subsequent developed version, the theory of planned behaviour (TPB) revealed that behaviour intention to perform is an immediate precursor of obvious behaviour while intention in turn is viewed as a function of one's attitude towards performing a particular act and perception of the expectations of relevant others (ie one's subjective norms). Again because attitude involves not just the evaluation of certain outcome but also the estimation of the likelihood of this outcome (expectations), hence factual knowledge is imperative and a pre-condition for any attitude [62, 29]. Apparently, as subjective norms demote the strength of normative beliefs and the motivation to fulfil these beliefs, social and moral values. What this means is that for one's subjective norms to be regarded as one, his or her normative stance, social expectations as well as moral values are considered approximately in relation to subjective norms. In the Value Belief Norm Theory (VBN) values are expected to exert a motivating influence on the perception, norms and actions of individuals, hence self-transcendent values could therefore mediate through pro-environmental norms. The moral character of pro-environmental norms and the environmentally beneficial behaviour has effect on the individual, society and organization. This gives credence to the assumption that the concepts related to organizational culture and the concept of theory of value belief norm are correlated [63].

The theory of Planned Behaviour (TPB) and the Theory Value Belief Norm (VBN) have received wide support in literature recently. For instance, the subjective norms was found to motivate a person to undertake socially desirable actions by [64] while [65] observed that consistent with the TRA as modified by TPB, green purchase and consumerism are significant predictors of green demand behaviour. Again [66] through the adoption of the above theory predicted the consumer purchase of organic foods usage among Malaysian consumers. Therefore since these theories assume that intentions and motivations are functions of attitudes and subjective norms, and they are the immediate antecedents of behaviour. It however extends TPB and VBN to recognize that environmental factors and perceived behavioural control such as skills, abilities, resources and opportunities can moderate and mediate the intention/motivation-behaviour relationship. This further underscores the focus of this study on the use of TPB and VBN to validate environmental motivations of green demand and investment. Hence the graphical presentation of framework for environmental motivations and expectations of green building demand and investment is depicted below for further explanations.

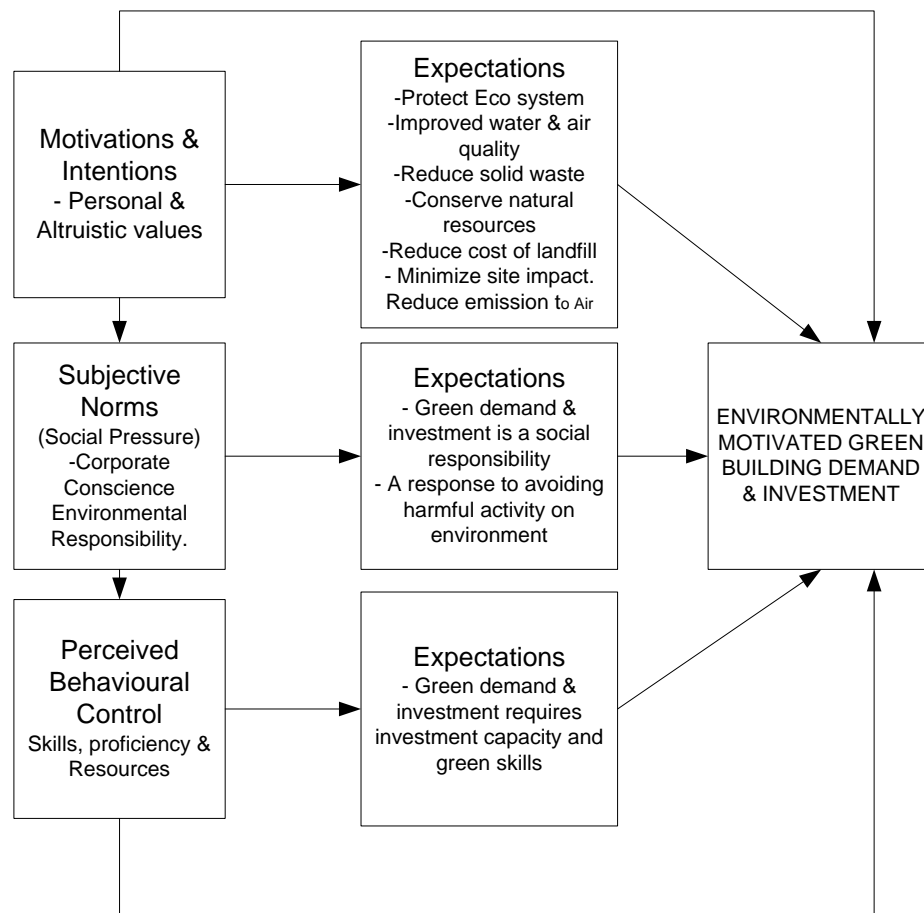


Figure 3. Framework for Environmental Motivations and Expectations of Green Building Demand and Investment

8. Barriers to Environmental Green Building Demand and Investment

The environmental and ecological desire to be green compliance in the building industry is often characterized and bedevilled with some challenges and barriers. Sometimes these problems are regulatory and non-regulatory, real and perceived. One of the major barriers to the growth of environmental sustainable building is lack of interest and awareness of green dividends and motivations on the part of the client. Awareness refers to clients' knowledge of the potential benefits of green buildings to him and his environment. Lack of knowledge, education and training in sustainable design, construction and demand underscores the failure of properties to account for the recovery of long-term savings, and the higher costs of sustainable building options [67]. Other barriers that could hinder the motivational ability of clients to go for green is lack of understanding of the sustainable property development [68]. [28] & [69] argued the common problems confronting the performance of green building industry to include: low level of education, people's resistance to change, limited post occupancy evaluation, greening existing buildings, lack of transit oriented development, separate capital and operating budgets, split incentive for owner-tenant and above all lack of integrated design. Additionally, laziness or inconveniences have been identified as the most

common reason some clients are not acting in more sustainable way [70]. Lack of availability and poor current technology to satisfactorily meet the desired green and environmental building compliance standard is a major challenge. This limits the availability of higher performance green building components because certain green products are designed to meet the environmental conditions of a place. For example, the absence of high efficiency hot water tanks in some buildings could derail green construction. This means that builders and developers cannot use the most energy efficient or environmentally low impact products for their specific region or climate. Local capacity to design and construct certain environmental compliance green products such as photovoltaic system is lacking in some countries [71]. Hence developers' knowledge of the relevant green building technologies, products and practices is very critical to meeting the environmental demand of green building.

Others barriers are ineffective environmental laws and rules, lack of functional building codes to accelerate green construction and development. Most environmental laws in some countries are not ecologically friendly and this has increased both individual and organizational disinterest in environmental sustainability while project cost escalation has remained constant. Poor and lack of incentives to drive green building construction has remained a source of concern to developers. In some countries there exist little or no financial incentives such as tax credit/abatement, fee reduction/waiver, grants and loans as a means of encouraging developers. In some cases, most government offers monetary incentives with high interest rates and stringent conditions attached. According to [71] and [23] lack of incentive from government towards developers, increase of the maintenance cost, old age of existing building, weak affordability of extensive roof to withstand wind load, weak structural loading for applying extensive green roof system to resist environmental pressure, poor utilities arrangement, and lack of awareness on extensive green roof system in public and private sectors are some of the existing challenges. Hence effective allocation of resources as well as monitoring and controlling and understanding of green building objectives and possessing the ability to solving the problems will aid in the growth of sustainable green building.

9. Conclusion

Through the adoption of theoretical concept of Theory of Planned Behaviour (TPB) and Theory of Value Belief Norm (VBN), this study has examined the environmental behavioural motivations, intentions and beliefs, values and norms that could influence demand for green building investment with particular focus on the environmental motivating drivers and expectations. The study concludes that conservational behaviour of clients to demand green building is influenced by behavioural motivations and intentions. Behavioural motivations and intentions exhibited by clients and consumers of green building often reflect in their behavioural differences.

The study also found out that in consistency with perceived behavioural control (PBC), social pressure arising from institutions, family, friends and the society at large impacts on the behavioural motivations and intentions of green consumers. The study is therefore of the view that consumers who experience high social pressure are likely to be environmentally friendly than those with frail pressure. This underscores that perceived behavioural control as articulated in TPB influence not only behavioural intentions and motivations of green building consumers but affects their actual behaviour. Again, environmentally friendly attitudes were found out to play a significant role in behavioural intention and motivations which in turn is

also influenced by perceived behavioural control. Therefore the society, the family and institutions can together effectively harness the expectations of the perceived behavioural motivations and intentions clients as grounds towards playing a role in the evolution of green consumerism and the behaviour around it.

References

- [1] IMF Working Paper 2011 Who's Going Green and Why? Trends and Determinants of Green Investment. **38 - 40**
- [2] Juraite K 2002 *Environmental Consciousness and Mass Communication: Construction of Public Opinion on the Environment in the Mass Media*. (Vytautas Magnus University Kaunas)
- [3] Andrius N 2013 Using the Theory of Planned Behavior to Investigate the Determinants of Environmental Behavior among Youth. *Environmental Research, Engineering and Management*, **1-63** 74 - 81
- [4] Nurul A D and Zainul N A 2013 Motivation and Expectation of Developers on Green Construction: A Conceptual View. *World Academy of Science, Engineering and Technology* **76** 4 - 27
- [5] Linda C J, Nisreen B, Mayuresh K and Nicole C 2011 Walking the Walk: How the Theory of Reasoned Action Explains Adult and Student Intentions to Go Green. *Applied Business Research* **27** 3
- [6] Stern C P, Thomas D, Abel T, Guagnano A G, and Kalof L 1999 A value-belief-norm theory of support for social movements: The case of environmentalism. *Human Ecology Review* **6** 81 - 97
- [7] Stern P C 2000 Towards a Coherent Theory of Environmentally Significant Behaviour. *Social Issues* **56** 407 - 424
- [8] Stern P C, Dietz T, Ruttan W V, Socolow H R, and Sweeney L J 1997 *Environmentally Significant Consumption*. (Washington, DC: National Academy Press)
- [9] Wouter P, Linda S, and Charles, V 2004 Values, Environmental Concern, and Environmental Behavior : A Study Into Household Energy Use. *Environment and Behavior* **36** 70 - 93
- [10] Gatersleben B, Steg L, and Vlek C. 2002 The Measurement and Determinants of Environmentally Significant Consumer Behaviour. *Environment and Behavior* **34** 335 - 362.
- [11] Ajzen I, and Fishbein M 2005 *The Influence of Attitudes on Behavior*. In D Albarracin, B. T. Johnson, and M. P. Zanna (Eds). *The handbook of attitudes*.
- [12] Kaizer F G, Frick J and Wilson M 2004 Environmental Knowledge and Conservation Behavior: Exploring Prevalence and Structure in a Representative Sample. *Personality and Individual Differences* **37** 1597 - 1613
- [13] Hwang Y H, Kim I S, and Jeng J M 2000 Examining the Causal Relationships Among Selected Antecedents of Responsible Environmental Behavior. *Environmental Education* **31** 19 - 25.
- [14] Ajzen I 1991 The Theory of Planned Behavior: Organisational Behavior and Human Decision Processes **50** 179 - 211
- [15] Ajzen I and Fishbein M 1980 *Understanding Attitudes and Predicting Social Behavior*. (Englewood Cliffs NJ: Prentice Hall)
- [16] Ajzen I, and Madden J T 1986 Prediction of Goal-Directed Behaviour: Attitude, Intentions, and Perceived Behavioural Control. *Journal of Experimental Social Psychology* **22** 453-474
- [17] Kalafatis P S, Pollard M and Tsogas H M 1999 Green marketing and Ajzen's theory of planned behavior: A cross-market examination. *Consumer Marketing* **16** 441- 460.
- [18] Newhouse N 1990 Implications of Attitude and Behavior Research for Environmental Conservation. *Journal of Environmental Education* **22** 26 - 32
- [19] Axelrod J L, and Lehman R D 1993 Responding to Environmental Concern: What Factors Guide Individual Action? *Journal of Environmental Psychology*, **13** 149 -159.
- [20] Vining J and Ebreo A 1992 Predicting Recycling Behavior from Global and Specific Environmental Attitudes and Changes in Recycling Opportunities *Journal of Applied Social Psychology* **22** 1580 -1607
- [21] Katrin P 2012 Understanding Behaviour Change: How to apply theories of behaviour change to SEWeb and related public engagement activities. *Scotland's Environment* **4**
- [22] Aliagha U G, Maizon H, Afeez S O, and Ali K N 2013 Review of Green Building Demand Factors for Malaysia. *Journal of Energy Technologies and Policy* **3** 11
- [23] Dunlap E R and Liere D K V 1978 The New Environmental Paradigm: A Proposed Instrument and Preliminary Results *Journal of Environmental Education*, **9** 10 -19
- [24] Axelrod J L 1994 Balancing Personal Needs with Environmental Preservation: Identifying the Values that Guide Decisions in Ecological Dilemmas. *Journal of Social Issues* **50** 85 -104
- [25] Midden H J C and Ritsema M S B 1983 The Meaning of Normative Processes for Energy Conservation. *Journal of Economic Psychology* **4** 37- 55

- [26] McGuinness J, Jones P A and Cole G S 1977 Attitudinal Correlates of Recycling Behavior. *Journal of Applied Psychology* **62** 376 - 384
- [27] Aliagha U G and Yin N C 2013 Perceptions of Malaysia Office Workers on Adoption of Japanese Cool Biz Concept of Energy Conservation *Journal of Asian and African Studies* **48** 427- 446
- [28] Kaiser F G, Wolfing S and Fuhrer U 1999 Environmental Attitude and Ecological Behaviour. *Journal of Environmental Psychology* **19** 1-19
- [29] William B 2003 *The Environmental Benefits of Sustainable Design* (Building Green Inc)
- [30] Cook J A, Kerr N G, and Moore K 2002 Attitudes and Intentions Towards Purchasing GM Food *Journal of Economic Psychology* **23** 557- 572
- [31] Grewal R, Mehta R and Kardes R F 2000 The Role of the Social-identity Function of Attitudes in Consumer Innovativeness and Opinion Leadership. *Journal of Economic Psychology* **21** 233 - 252
- [32] Lorraine W and Saffron O 2010 Green Identity, Green Living? The Role of Pro-environmental Self-Identity in Determining Consistency Across Diverse Pro-environmental Behaviours *Journal of Environmental Psychology* **30** 305 - 314
- [33] Mannetti L, Pierro A and Livi S 2004 Recycling: Planned and Self-expressive Behaviour *Journal of Environmental Psychology* **24** 227- 236
- [34] Sparks P and Shepherd R 1992 Self-identity and the Theory of Planned Behaviour: Assessing the Role of identification with Green Consumerism *Social Psychology Quarterly* **55** 4 388 - 399.
- [35] Jason K 2011 The Human Benefits of Green Building. Retrieved from <http://sustainablecitiescollective.com/jasonking/20484/guest-post-h..>
- [36] Maloney P M and Ward P M 1973 Ecology: Let's hear from the people. An objective scale for the measurement of ecological attitudes and knowledge *Journal of American Psychologist* **28** 583 - 589
- [37] Maloney P M Ward, P M and Braucht N G 1975 Psychology in Action: A Revised Scale for the Measurement of Ecological Attitudes and Knowledge *Journal of American Psychologist* **30** 787- 790
- [38] Smythe C P and Brook C R 1980 Environmental Concerns and Actions: A Social-Psychological Investigation. *Canadian Journal of Behavioural Science* **12** 175 -186
- [39] Hines M J, Hungerford R H and Tomera N A 1986/87. Analysis and Synthesis of Research on Responsible Environmental Behavior: A Meta-Analysis *Journal of Environmental Education* **18** 1 - 8
- [40] Olsen E M 1981 Consumers' Attitudes Towards Energy Conservation. *Journal of Social Issues* **37** 108 -131
- [41] Verhallen M M T and Raaij F W V 1981 Household Behavior and the use of Natural Gas for Home Heating. *Journal of Consumer Research* **8** 253 - 257
- [42] Moore S, Murphy M, and Watson R. 1994 A Longitudinal Study of Domestic Water Conservation Behavior. Population and Environment *Jouranal of Interdisciplinary Studies* **16** 175 -189
- [43] Gamba J R and Oskamp S 1994 Factors Influencing Community Residents' Participation in Commingled Curbside Recycling Programs *Environment and Behavior* **26** 587- 612
- [44] Lansana M F 1992 Distinguishing Potential Recyclers from Nonrecyclers: A Basis for Developing Recycling Strategies. *Journal of Environmental Education* **23** 16 - 23
- [45] Green-Homes 2013 A Green Building Overview: Minimizing The Residential Sector's Toll on The Environment with 10 Practices Retrieved from <http://www.hgtvremodels.com/interiors/a-green-building-overview/i>.
- [46] EPA 1996 *Environmental Guidelines: Solid Waste Landfills* (US Environmental Protection Agency)
- [47] NIBS 2013 *Optimize Site Potential*. Retrieved December, 10th, 2013
- [48] Riethmuller S H and Buttriss G J 2008 *Closing the gap between Pro-environmental Attitudes and Behaviour in Australia*. Paper presented at the Proceedings of the Australian and New Zealand Marketing Academy ANZMAC.
- [49] Kaizer F G and Gutscher H 2003 The Proposition of a General Version of the Theory of Planned Behavior: Predicting Ecological Behavior *Applied Social Psychology* **33** 3 586 - 603.
- [50] Kaizer F G and Scheutle H 2003 Two Challenges to a Moral Extension of the Theory of Planned Behavior: Moral Norms and Just World Beliefs in Conservationism. *Personality and Individual Differences* **35** 1033 - 1048.
- [51] Valle P, Rebelo E, Reis E and Menezes J 2005 Combining Behavioral Theories to Predict Recycling Involvement *Environment and Behavior* **37** 3 364 - 396
- [52] Boyden S 2004 *The Biology of Civilization: Understanding Human Culture as a Force in Nature* (New South Wales, University of New South Wales Press)
- [53] Orians G H and Heerwagen J H 1992 *Evolved Responses to Landscapes. In The Adapted Mind: Evolutionary Psychology and the Generation of Culture* (Oxford and New York: Oxford University Press)
- [54] Heerwagen J H and Orians H G 1993 *Human, habitats and aesthetics. In S R Kellert and E O Wilson(Eds) The Biophilia Hypothesis* Washington DC Island Press Shearwater Books.
- [55] Berit S 2010 *Impact of Sustainability on Property Values* (University of Regensburg Germany)
- [56] Kibert C J 2007 *Sustainable Construction; Green Building Design and Delivery* (New York John Wiley and Sons)

- [57] Chan E H W, Qian Q K and Lam P T I 2009 The Market for Green Building in Developed Asian Cities - The Perspectives of Building Designers *Journal of Energy Policy* **37** 8 3061- 3070.
- [58] Gaston G, Pierre V and Linda L 1993 The Pattern of Influence of Percieved Behavioral Control Upon Excercising Behavior: An Application of Ajzen's Theory of Planned Behavior *Behavioral Medicine* **16** 1
- [59] Bandura A 1977 Self-efficacy Mechanism in Human Agency *Psychol* **37** 122 - 147.
- [60] Ajzen I 1985 *From Intentions to Actions: A Theory of Planned Behavior*. . (Heidelberg, Germany Springer)
- [61] Stutzman M T and Green B S 1982 Factors Affecting Energy Consumption: Two Field Tests of the Fishbein-Ajzen Model *Journal of Social Psychology* **117** 183 - 201
- [62] Anders B and John T 2007 *The Interaction of Values and Norms to Promote Sustainable Consumption and Production*. Paper presented at the 1st International Workshop on Life Cycle Approaches to Sustainable Consumption Tokyo Japan.
- [63] Golan J G and Banning A S 2008 Exploring a link between the Third-Person Effect and the Theory of Reasoned Action: Beneficial Aids and Social Expectations. *American Behavior Science* **52** 2 208 - 224
- [64] Chan R K Y 2001 Determinants of Chinese Consumers' Green Purchase Behavior. *Psychology and Marketing* **18** 4 389 - 413.
- [65] Shaharudin R M, Pani J J, Mansor W S and Elias J S 2010 Factors Affecting Purchase Intention of the Organic Food in Malaysia's Kedah State. *Cross-Cultural Communication* **6** 2 105 - 116.
- [66] Landman M 1999 *Breaking Through the Barriers to Sustainable Building: Insights from Building Professionals on Government Initiatives to Promote Environmentally Sound Practices* (TUFTS University US)
- [67] Perrett A G 2011 *The Key Drivers and Barriers to the Sustainable Development of Commercial Property in New Zealand* (Lincoln University)
- [68] Bilau G 2008 *Eight Challenges Facing the Green Building Industry* Official
- [69] Bond S 2011 Barriers and Drivers to Green Buildings in Australia and New Zealand. *Property Investment and Finance* **29** 4/5 494 - 509.
- [70] Sheltair-Group-Innes-Hood 2013 *Green Residential Building in North America: The Benefits of a North American Strategy; A Perspective from Canada* (The Sheltair Group Innes Hood)
- [71] Zhang X, Shen L, Tam Y W V and Lee L Y W W 2012 Barriers to Implement extensive Green Roof Systems: A Hong Kong Study *Renewable and Sustainable Energy Reviews* **16** 314-319