

## **A critical assessment of sustainable development concept in the South African construction small medium enterprises**

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### **Abstract**

Over the past decades, the prime goal of construction sectors was to use fewer resources to sustain the forthcoming generation. Thus sustainable development was introduced in construction sector to meet the needs of the current generation as well as the future generation to come. In this manner, implementations of sustainable development in construction sector was evaluated along with its principles; social, economic and environmental. Consequently, the concept of sustainable development has become a buzz word amid scholars and industry practitioners. Despite the fact that, the concept of sustainable development is attaining higher level of significance in western countries, America, and China due to its ability in ensuring South African particularly in Construction sector. The adoption and integration of sustainability development concept is facing several challenges. To date, over the past decades, too many studies have been conducted to investigate the benefit of implementing sustainable development at the global level in the construction sector. However, few studies have been conducted from South African fast and moving consumer goods perspective, hence the overall goal of this paper is to fill this gap by means of critically analyzing studies that were conducted in the field of sustainable development over the past decade. As a key sector contributing to economic development, the construction industry also has extensive impacts on the environment and society. There are several environmental issues derived from construction activities such as outdoor and indoor environmental pollution, greenhouse gas emission, and impacts on the ecological environment. As a retort to these contests, the shift of the construction industry from the traditional standard towards more balanced development among the economic, social and environmental dimensions, for example; sustainable development, has received global attentions. There is no shortage of studies on the sustainability of the construction industries worldwide. Some studies emphasis on the social facet of sustainability. For instance, proposed there is a deficiency of innovativeness in the Finnish construction sector, hampering the societal change towards sustainability.

### **Keywords**

Construction sector, economic, environmental, social, sustainable development

### **Introduction**

The World Commission on Environment and Development (1987) demarcated sustainable development as “the development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs” [1]. Sustainable development is a procedure, which tries to conserve a dynamic balance state in the long run [2]. It demands the human, financial and environmental disquiets to work together to guarantee ‘unending life for the human race’ in the global ecological system [3]. The term sustainable development should not denote to indefinite production of oil and gas in the oil and gas industry. The term speaks of sustainability of human existence by carefully balancing social, economic and environmental capital in a unceasingly changing world [4]. Historically, supply chain management (SCM) mostly dealt with the receptive and proficient system of production and delivery from raw material state to final state of the component. Nevertheless, these days, environmental issues in a supply chain are assumed of having vast importance [5]. The theory of sustainable development has been considered essential in terms of policy and research [6]. In the next few decades, it will become one of the largest opportunities in the history of commerce [7]. There will be a rise in the environmental standards and people will become more sensitive and concerned towards environmental deterioration as income increases [8]. Unless the society mounts up some amount of wealth to satisfy the basic needs of human, it will not allocate substantial resources towards sustainability. Sustainable practices are more likely to get executed if there are perceptible

welfares such as cost savings or product/market disparity or risks from its inaction like reputational damage and loss of market share [9]. At present, we face two major global threats, which are allied, and both are due to overpopulation. The initial threat is the peaking of the production (tons per year) of fossil fuels [10]. The peak of petroleum production occurred in the year 1971 in the U.S [11]. From the year 1973, oil became pricey and in the same year, October, oil prices increased very rapidly, causing a colossal energy crisis around the globe. It was then that the governments of all the nations took this issue very seriously and a need for identifying and exploring alternate sources was perceived. Vast funds were assigned for the improvement of these resources. As a consequence, this year is considered as the year of the first oil shock. In 1979, in the same decade, one more oil shock quivered the world. The price of crude oil increased 19 times at the end of 1980, in a span of 10 years [12]. Global energy demand will rise by 1.2% a year throughout 2030 and the world will be consuming almost 35% more energy than it used in 2005. Moreover, there is a continuous increase in the prices of crude oil over the years [13]. Supplies are diminishing, but demand is cumulative and industrial society depends almost completely on petroleum. Thus, peak petroleum will speedily cause everything to peak [14]. It may be noted that modern agriculture is totally reliant on petroleum, so the peak of world petroleum production would certainly affect the world food production adversely. At the same time, population of the world will upsurge, creating a tough situation for the society [11]. As Heinberg [14] states, “the passing of the world peak of petroleum production will be a big milestone for the human race on the earth because it means that the tons per year of petroleum being produced all over the world will start to deplete to zero while the world population is expected to increase along with the demand for petroleum.” This process will thrust energy prices higher, until sustainable sources supplant dependency on fossil fuels as the major source of energy [15]. The next threat is the rapidly mutable global climate. In 1950, the world's population has increased from 3 billion to 6 billion today and is projected to reach 9 billion in 2050. The prognoses based on the present report of birth rates indicate that the population will stabilize somewhere around 11 billion by 2100 [16]. Thus, the solution for the two above-mentioned global threats is sustainable practices. New strategies will be implemented in order to gain competitive advantage in the coming years by reducing waste and promoting green design [17]. The main reason for the change of climate is the tremendous growth rate of population, which in turn surges the consumption of the world's resources. The ancient research did not throw much light on the potential benefits of achieving competitive advantage using sustainable supply chain practices [18]. From the literature, it may be noted that the implementation of sustainable practices may solve the ecological, economical and social glitches or condense the same to a larger extent. The research paper focuses on the following objectives: to ascertain the critical success factors (CSFs) to implement sustainability from the industrial perspective; to determine the contextual relations between the CSFs; to propose a hierarchy structural model (ISM) of CSFs to implement sustainability in organizations; and suggest the managerial implications of critical driving forces/criteria for the implementation of sustainable practices. The implementation of sustainable practices directs in the efficient exploration and production, distribution, and reduces the ratio of energy input per unit output of the oil and gas. The venting and flaring get abridged which yields to less atmospheric pollution and saving of precious energy. It will lessen accidents (on shore and off shore), decreases oil spills, upturns production, and profits, and adds an enormous value the oil and gas supply chain.

## **Background**

One of the main accusations levelled against the construction industry is the excessive consumption of global resources (Curwell, 1997; Uher, 1999; Ding, 2008) and this puts accumulating pressure on the industry to find ways of decreasing over reliance on natural resources (raw materials). In order to minimise the detrimental effects on the natural environment, there are concerns about how to improve construction practices (Cole, 1999; Holmes and Hudson, 2000 in Bogner, 2007). These concerns have led to the concept of sustainability in construction (Ding, 2008). To achieve effective and efficient short- and long-term use of natural resources, Sustainable construction management involves the efficient allocation of resources, minimum energy consumption, low embodied energy intensity in building materials, reuse and recycling, and other mechanisms (Demarco, 2008; Ding, 2008). According to (Shen and Tam, 2002), efforts towards practicing environmental management in the construction industry have been growing rapidly embracing all players in the industry pursuing the mission of sustainable development. All these efforts not enduring that it has been difficult to improve the way society uses resources, improve efficiency and diminish the environmental impacts associated with the flow of unwanted materials and energy (Strange, 2002). The construction industry is known to be a major producer of waste although waste generation is a general problem in almost all major industrial sectors.

### **Gap identification**

To begin with the critical assessment review on the sustainable development in construction sectors, the time frame was from 1997 to 2017. The search only focused on peer reviewed article published in English, falling under certain areas. The search resulted in 500 documents that we were critically assessed by means of title and abstract with the purpose of developing additional boundaries and eliminating incorrect entries (screening phase) throughout this phase, groups of inclusion and segregation standards were established, against which individually every single journal article was evaluated. Precisely, article assess are those, which clearly focus on the sustainable development of construction industries. It should be pointed out that studies that did not meet this requirement were not taken into account. This stage produces 367 focusing on sustainable development in construction sectors. These studies were labelled on the basis of a set of standards, for example, in this paper the studies that were assessed were selected based on the citation. To this end, the table 1 below shows the 15 best studies in the field of sustainable development that were critically analyzed.

<b>Company</b>	<b>Size</b>	<b>Methodology</b>	<b>Social</b>	<b>Economic</b>	<b>Environmental</b>	<b>Country</b>
<b>Construction</b>	SME	Scientific approach	X	X	X	Australia
<b>Construction</b>	Large	Quantitative	✓	✓	✓	USA
<b>Construction</b>	Large	Quantitative	X	X	X	Australia
<b>Construction</b>	Large	Quantitative	✓	✓	✓	China
<b>Construction</b>	Large	Quantitative	X	X	X	China
<b>Energy</b>	Large	Quantitative	X	X	X	Belgium
<b>Construction</b>	Large	Quantitative	✓	✓	✓	China
<b>Construction</b>	Large	Qualitative	X	X	✓	South Africa
<b>Construction</b>	Large	Grounded Theory	X	X	X	South Africa
<b>Construction</b>	Large	Quantitative	X	X	X	UK
<b>Construction</b>	Large	Quantitative	X	X	X	UK
<b>Construction</b>	Large	Grounded Theory	X	✓	X	UK
<b>Construction</b>	Large	Mixed methods	✓	✓	✓	Germany
<b>Construction</b>	Large	Mixed methods	X	X	X	Germany
<b>Construction</b>	Large	Qualitative	X	X	X	England

According to Ying Chen et al (2009), the use of prefabrication offers an important advantage, yet appropriate criteria for applicability assessments to a given building have been found to be lacking. Verdicts to use prefabrication are still largely based on anecdotal evidence or cost-based evaluation when associating various construction methods. All-inclusive criteria are needed to succor with the selection of an appropriate construction method in concrete buildings during premature project stages. Following a thorough literature review and comprehensive comparisons between prefabrication and in situ construction method, a total of 33 sustainable performance criteria (SPC) based on the triple bottom line and the requirements of dissimilar project stakeholders were recognized. A survey of U.S. qualified practitioners including clients/developers, engineers, contractors, and a precast concrete manufacturer was conducted to capture their views on the prominence of the criteria. The ranking analysis of survey results displays that social awareness and environmental concerns were measured as progressively important in construction method selections. Factor analysis discloses that these SPCs can be gathered into seven dimensions, namely, economic factors: “long-term cost,” “constructability,” “quality,” and “first cost”; social factors: “impact on health and community,” “architectural impact”; and environmental factor: “environmental impact.” The resultant list of SPCs affords team members a new way to select a construction method, thereby enabling the sustainable development of built environment. This paper speaks of the sustainable performance criteria in construction; it also displays the social and environmental awareness of sustainable performance criteria (SPC) facilitating sustainable development of built environment. However the study failed to speak of all three principles of sustainable development and their importance, thus our study will give a brief view of social, economic and environmental aspects in construction sector.

Zhang et al (2014) investigated that the development of sustainable construction and building materials with abridged environmental footprint in both manufacturing and operational phases of the material lifecycle is enticing increased interest in the housing and construction industry wide-reaching. Current innovations have led to the development of geopolymers, which syndicates the performance benefits and operational energy savings attainable through the use of lightweight foam concrete, with the cradle-to-gate emissions decreases acquired through the use of a geopolymer binder derived from fly ash. To bring a better understanding of the properties and potential large-scale benefits allied with the use of geopolymers, this paper discourses some of the sustainability questions presently facing the cement and concrete industry, in the context of the utilization of foam concretes based either on ordinary Portland cement (OPC) or on geopolymer binders. The budding of geopolymer binders to provide improved fire resistance is also momentous, and the alum inosilicate basis of the geopolymer obligatory phases is imperative in bringing high temperature stability. The standardization (quality control) of feedstocks and the control of efflorescence are two trials facing the development of commercially advanced geopolymer foam concrete technology, needing more detailed study of the chemistry of raw materials and the microstructural development of geopolymers. The study highlights the implementations of sustainable development in the construction sector but still failed to highlight the three methods of sustainable development. So our study will be based on assessing social, economic and environmental methods in construction.

Li-yin Shen et al. (2009) presents a new approach for conducting project feasibility study by embracing the principles of sustainable development. Construction projects, in particular, infrastructures have key effect on the achievement of sustainable development; hence project sustainability needs to be deliberated. This becomes a pressing issue predominantly in those developing countries, such as China where a vast amount of construction works are presently performed and remain to happen in the future. Erstwhile study has addressed slight on the relevance of project feasibility study to project sustainability performance. The significance of incorporating sustainable development principles in conducting project feasibility study is not efficiently understood by project stakeholders. This paper discourses main challenges of undertaking project feasibility study in line with sustainable construction practice with reference to the Chinese construction industry. A case study methodology is the major research method in this study. The research team composed 87 feasibility study reports from several projects. Attributes are used for quantifying project performance, comprising 18 economic performances attributes, nine social performances attributes, and eight environmental performances attributes. Research outcomes show that economic performance is given the most concern in the contemporary practice of project feasibility study, whilst less attention is given to the social and environmental performance. The study divulges the inadequacy of examining the performance of implementing a construction project from the standpoint of sustainable development. The outcomes also suggest the need for shifting the traditional approach of project feasibility study to a new-fangled approach that embraces the principles of sustainable development. The researcher assessed the principles of

sustainable development, but in large construction sectors. As a result, our study will address the same principles but in the Small Medium Enterprises.

Xiaolong Xue et al (2013) describes that the energy preservation has become a considerable issue in construction industry for achieving sustainable development. Therefore it is vital for policy-makers to look for enhanced and flexible tools to extent the total energy consumption efficiency in construction industry. Data envelopment analysis (DEA) can be pragmatic for numerous input and output decision-making units (DMUs) productivity measurement. DEA-based Malmquist productivity index (MPI) can be used as a tool for determining the productivity change longitudinally. In this paper, we use input-oriented model to measure the energy intake productivity change of the construction industry from 2004 to 2009 with data in 26 provinces of China. It is found that only Guangdong validated effective energy improving in the whole reference period. It also recognized the regional groups always lie on the proficiency frontier of energy consumption as benchmarks. Regional analysis shows that energy conservation fissures exist between northeastern, western region and central, eastern region. DEA-based Malmquist productivity index delivers a good way to measure the energy consumption efficiency and can help policy-makers to advance strategies of sustainable development in China. The biographer aimed at achieving energy consumption on construction sectors through sustainable development. Regardless the vital effect of this research, it lacks the major principles of sustainability which our study will address; which are; social, economic and environmental.

Matthias et al (2013), the last decades, lowering the ecological impact of buildings is getting bigger attention by researchers, policy-makers and companies. Mostly the emphasis is on decreasing energy consumption and the use of eco-friendly materials, but the concept to life-cycle thinking is rising in importance. This paper tries to give an overview of the recent situation of Life cycle assessment (LCA) in the construction industry, both of regulatory developments and academic case studies. After a short history of LCA, the emphasis is on LCA methodology, new standards and frameworks and an all-embracing selection of current case studies. Regardless of some essential limitations of LCA as an analytic tool and fundamental variances amid the individual cases, still some common trends can be signposted. In standard buildings, the use phase subsidizes up to 90% of the total environmental burdens, due to heating. Due to regulations, new buildings become extra energy efficient, and there by other phases of the lifecycle gain in prominence e.g., choice of materials, construction, end-of-life and water use. These research topics deserve more courtesy, together with economic issues, the improvement of data quality and implementation of possibility density distributions. The author addresses the Life cycle assessment in the construction industry as a means of diminishing energy consumption. He fails to cover sustainability in the construction sector. Hence, our study will cover all the aspects of sustainable development that the author failed address.

Xia Yang et al (2010) debated that China is encountered with substantial challenges in the energy sector such as energy scarcity, environmental pollution, greenhouse gas emission, and energy supply in rural areas, which severely constrain its sustainable development. The preferment of a sustainable energy system is the crucial solution to tackling those issues. In this paper, the modern status and trends of sustainable energy development in China are elaborated, taking account of renewable energy, nuclear energy, and energy efficiency. The tactics of sustainable energy in China are carried forward accordingly, and the corresponding implementations of sustainable energy development in China are explicated as well. Note that the development of clean coal and nuclear power with innovative technologies can robustly promote China's sustainable development since renewable energy as a whole, with the exclusion of hydro power, is still very small compared with conventional generation. In the end, this paper completes that China must set a step-by-step unified national energy plan to promote the construction of a sustainable energy system, which will be economically, environmentally, and socially feasible, and, thus, China would play an imperative role to promote international sustainable development. This paper elaborates on sustainable development in the energy sector, it assesses the three principles of sustainability in the energy sector, and thus our study will also address the same principles and sustainable development implementations in the construction sector.

Kaatz et al (2006), used sustainability assessment methods for building projects have a main role to play in introducing sustainability standards and principles into majority construction practice. The paper reflects on potential processes that should advance building assessment practice in nurturing sustainable construction and it activists a redefinition of the objectives of building assessment methods. Debatably, the current emphasis in the building process and building assessment on a physical design and functional properties of buildings needs to be supplemented with a concern for the quality of social and technical processes. To upsurge the effectiveness of any building assessment method, it is necessary to describe clearly its desired outputs and results. The paper submits

three significant outcomes of building sustainability assessment: integration; transparency and accessibility; and collaborative learning. These results have arisen from a critical appraisal of the theory of Environmental Assessment and the Process Protocol. Environmental Assessment was observed as it provides cherished insights in terms of addressing sustainability at a project level. Lessons from the Process Protocol tolerate for the potential optimization of building projects using a building sustainability assessment method. Addressing these aftermaths provides the means for preemptive project heightening, in terms of its sustainability and quality, by using a building sustainability assessment method. This study addresses the main role of sustainability standards. It entails social, economic and environmental assessment. Although the author addressed the key aspects of sustainability, our study will also address these aspects but in the Small Medium Enterprises.

Kaatz et al (2005) uses building assessment tools as a means to evaluate and inspire the adoption of sustainability-led thinking and practice in the conveyance of buildings. Though, the established tools concentrate mainly on the aspects of green or sustainable building (i.e. building as an end-product), hardly reconnoitering the contributions towards sustainable product delivery (i.e. the building process). Nonetheless, some ethics of sustainable development are best executed within the process rather than by being entrenched in the product. By addressing the issues of evenhandedness by partaking through stakeholder-oriented sustainability assessment, building assessment tools could be used to boost significantly the overall sustainability of project delivery in the construction sector. A speculative validation is advocated for implementing a participatory tactic that is underpinning the development of a specification for a building sustainability assessment model presently under development. The obstructions to participation in the construction process are well thought-out as well as the need to develop innovative mechanisms to widen membership of the construction project team. The metaphysical approaches and consequential practices drawn from Environmental Assessment and the Process Protocol are offered as examples of potential solutions for integrating stakeholder participation in a modified building assessment process. The study evaluated mainly on the aspects of green building (sustainable building), thereby lacking the main importance of sustainability in the construction sector. As a consequence, our study will bring about the importance of sustainability, the three key principles and the implementation of sustainable development.

Mark Hall and David Purchase (2006) discussed the UK government that has established an agenda for ‘greening’ government activity and, as it accounts for nearly 40% of all UK construction procurement, is energetically inspiring sustainability initiatives in this particular sector. However, there have been denunciations of its approach. The UK government forestalls investing approximately £3 billion in the social housing sector over the next three years and, as a preamble to this, has asked the Housing Corporation to promote a raft of sustainable development initiatives. The paper draws on two tranches of data in order to inspect the impact of the UK government’s sustainability policy on the way the public sector acquires housing construction. The primary of these is the sustainability improvement aims from 143 public sector housing associations. The proof from this first tranche of data proposes that sustainability is presently seen as a low primacy and that government initiatives have yet to make a significant impact. The next tranche of data uses remarks from housing association development managers to scrutinize the reasons for this ostensible lack of impact. This focuses on their views and opinions of sustainability as an issue in social housing development and permits inferences to be made about their approaches to this issue. There has been censure about the lack of progress so far seen and the results in this paper propose that this censure is vindicated. This paper discussed government’s sustainability policy towards housing construction, it also give a brief overview of sustainability’s low impact to the government. Due to the aforementioned, our study will address the significance of sustainability, its implementations in relation to construction and the three principles of sustainability; social, economic and environmental.

According to David Pearce (2006), this paper reflects on the analysis of the UK construction industry in the Pearce Report of 2003. It shapes the economist’s approach to sustainability, which, to date, has been mostly applied at the national economy level. That approach rests on the insight that human well-being is dogged by wealth, or assets. Wealth needs to be construed broadly and reference is made to the mounting literature that measures the asset base of a nation. The paper asks how far the asset-based tactic can be applied to the sectoral level of an industry. Despite the fact that sustainability, and sustainable development, have largely been projected to be ‘good things’, the paper nurtures some challenges to an unquestioning belief in the concepts of sustainability as guides to policy. By and large, however, using the asset-based tactic is seen to provide real acumens into the functioning of the construction sector and its wider role in social and economic development. This study addressed the economic part of sustainability in construction industry, and touched a little on the social method. However, it failed to address the

social method briefly and environmental. This is why our study will discourse widely the social and environmental principles of sustainability in Small Medium Enterprises.

Ranko Bon and Keith Hutchinson (2000) explored that sustainable construction faces economic challenges at diverse levels. On the macroeconomic level, the objectives of sustainable construction are being implemented most enthusiastically in industrial countries in which the share of construction output is diminishing. Nevertheless in both less developed and newly industrialized countries, the share of construction output is accumulative, but the goals of sustainable construction are more challenging to implement. On the mesoeconomic level, the construction sector depends on the implementation of the goals of sustainable development through the national economy as a whole. Supply chains nourishing the construction sector are long and entangled, making it tough to assess the effect of altered materials, components and procedures. On the microeconomic level, buildings are created with squatter time horizons in response to being a demand-derived commodity and increasingly conquered by mechanical, electrical and electronic equipment. Their finance is being attuned to the short and medium term which is in skirmish with sustainable construction, whose goals rely upon the long term. Two broad methods for meeting the economic challenges of sustainable construction are considered: governance through standards, legal and regulatory practices; market-oriented policies which influence the costs of particular forms of construction. Both methods have a role, but it is argued that the market-oriented measures will be more operative at the strategic level. The author identified different challenges that sustainable construction faces but still lacks the most important ethics of sustainable development; be they; social, economic and environmental principles. Hence our study will further address these ethics.

Thomas Lützkendorf and David Lorenz (2005) examined how the property and construction industry meet the modern and future challenges posed by sustainable development. According to Lützkendorf and Lorenz, the acuity of property as an article of trade is changing to emphasize building characteristics and performance as major determinants of a property's worth and market price, thereby necessitating new ways of assessing worth and value. Commercial property valuation exemplifies a key mechanism that could allow environmental and social considerations to be closely aligned with economic return. Precisely, the rationale and initial considerations are reconnoitered for the incorporation of environmental and social issues into valuation theory and practice. A system that allows for the description, measurement and assessment of several aspects of building performance is conceptualized. Possible sustainability key performance indicators are recognized and the basic principles for assessing performance along the life cycle of buildings are clarified. It is debated that the environmental and building research community has a central role in determining a standardization of terminology and improving the interchange of ideas amid financial and environmental research disciplines. Then, the simultaneous consideration of economic, environmental and social issues can provide an additional profound knowledge about property characteristics and associated performance. This will create a more robust assessment approach and lead to better reliability of assessment results. As a final point, the opportunities afforded by the synergies between sustainable design and risk management are identified and implications for property risk assessment for lending and insurance purposes are emphasized. This paper discloses the challenges posed by sustainable development in property and construction industry. However our study will address only sustainable development related to construction sector in the Small Medium Enterprises.

Georg Schiller (2007) argued that sustainable development has classically been framed in relation to the impacts of new buildings without amply considering the road and utility infrastructures. In addition, the pattern of investment and building work in most industrialized countries is altering from new build to alterations to the existing housing stock. And so, any discussion on sustainable development needs to contain both the existing building stock and the urban infrastructure (roads and utilities) to support them. The concentration is on the demand for raw materials in future housing and infrastructure construction, with the premise that the parameter 'consumption of raw materials' embodies a different group of factors detrimental to the environment. Primary, findings from empirical investigations on the material stock of housing and infrastructure networks in building stock are presented and signpost a strong correlation among material consumption and building density. The lower the building density in a selected area, the greater the share of material stock immersed by infrastructure. Next, a material flow model is used to guesstimate future demands for raw materials in the development of stock, using the example of the building stock in Germany. These outcomes indicate that in certain scenarios the material flows for neighborhood roads and supply infrastructure can be much greater than material flow for buildings, underlining the significance that infrastructure should be accorded in the sustainable development of building stock. The issues of urban infrastructure need to be counted in in both upcoming building and urban assessment tools. The impact on the

demand for material from transport and utility networks can only thrive when combined with a long-term and clear-sighted urban policy to repel a further expansion of residential areas. Likewise, insights gained from material flow modelling can help in the efficient deployment, recycling and disposal of mineral raw materials from existing urban developments, thereby profiting the environment. The author focused on sustainable development in existing housing and roads to give support but failed to touch on the key significance of sustainability; which is social, economic and environmental. Thus, our study will cover these lacks.

Katie Williams and Carol Dair (2006) found out that in England there is both top-down and bottom-up pressure to convey a sustainable built environment. Conversely, most new projects parade few sustainability features. This paper grants 12 barriers to attaining sustainability in development schemes, drawn from qualitative research on five lately finished projects in England. The barriers that were acknowledged by the stakeholders in the schemes contain a shortage of consideration of sustainability measures, real and observed costs and insufficient expertise and powers. The paper completes by suggesting some ways in which these barriers might be overwhelmed. This paper introduces the barriers of sustainability and further covered how these barriers can be overcome. However, it did not address the implementations of sustainable development in construction sectors and the three major principles of sustainability; which is what our study will cover.

## **Conclusion**

The term sustainable development can be divided into two words to unpack its meaning. ‘Sustainable’ means that which can be preserved continuously, although ‘development’ means expansion. Sustainable development is therefore the ability to preserve and expand all social, environmental and economic systems of any formation in a way such that each generation accomplishes to fulfil its own needs and does not threaten the capability of upcoming generation to provide for them. As a major sector contributing to economic development, the construction industry also has substantial impacts on the environment and society. There are numerous environmental issues derived from construction activities such as outdoor and indoor environmental pollution, greenhouse gas emission, and influences on the ecological environment. As a response to these contests, the shift of the construction industry from the traditional paradigm towards more balanced development among the economic, social and environmental dimensions, i.e. sustainable development, has received global attentions. Although the existing literature discussed the sustainable development in the construction industries, they failed to emphasize more on the principles of sustainability and the importance of sustainable development implementation in the construction sector. Thus, future studies need to carry on advancing consideration of all stages pertaining sustainability in construction sector.

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