Understanding Sustainability: A View from Intra-organizational Leadership within UK Construction Organizations

Alex Opoku¹*, Vian Ahmed²

¹Centre for Sustainable Development, Department of Engineering, University of Cambridge, Cambridge CB2 1PZ, United Kingdom
²School of Built Environment, University of Salford, Salford M5 4WT, United Kingdom

Abstract: There is an increasing demand from UK construction industry stakeholders to address the issue of sustainable construction. As a key sector in the delivery of a sustainable built environment, the construction industry needs to have a clear understanding of the sustainability concept in order to fully play such an important role. However, intra-organizational leadership within construction organizations charged with the promotion of sustainability practices in the construction industry often describes the sustainability concept as an environmental issue only. The study presents the results of a mixed method research approach involving semi-structured interviews followed by an industry-wide survey of 200 intra-organizational leaders in UK contractor and consultant organizations. The analysis of the results showed that, despite the understanding that sustainability incorporates environmental, social and economic issues; the environmental dimension dominates in the UK construction industry. This study provides the empirical evidence that links intra-organizational leadership and their understanding of sustainability.

Keywords: Construction organizations, leadership, sustainability, understanding, United Kingdom

DOI: 10.7492/IJAEC.2013.012

1 INTRODUCTION

Sustainable development that balances social, environmental and economic objectives has been firmly on the agenda for the UK construction industry for some time (Raynsford 2000). Sustainable development balances environmental resource protection, social progress and economic growth and stability now and for the future. Construction organizations are under enormous amount of pressure to react to the sustainability phenomenon sweeping through the industry. The integration of sustainability practices into operations and processes has become a must for organizations if they wish to remain competitive in the market and become leaders in their industry while adding value to the firm (Hannon and Callaghan 2011).

Edum-Fotwe and Price (2009) argue that, sustainability is a concurrent representation of the environment, economic and social dimensions of development. It is therefore important that the primary misconception that sustainability and environmental are the same issues should be addressed (Halliday 2008). Organizations that are committed to the adoption of sustainability are required to simultaneously consider the economic, environmental, and social impacts of their business decisions (Hannon and Callaghan 2011). Despite the disagreement about the concept of sustainability due to different and contrary interpretations, there is a common understanding that sustainability must include economic, social and environmental factors (Velazquez et al. 2011). Mohrman and Worley (2010) agree by saying that, sustainability has recently been connected with a wider set of multiple outcomes with social, economic, and environmental dimensions, or the "triple bottom line" of people, planet and profit. Another general consensus about sustainability according to Schaltegger and Burritt (2005) is that, pursuing sustainable development will promote the best possible

*Corresponding author. Email: Alex.opoku@eng.cam.ac.uk
quality of life for mankind. Pursuing sustainability will ensure economic viability for the long term, maintaining an environmental balance on our planet whilst committing to socially desirable practices (Miller 2010).

This paper critically examines intra-organizational leadership understanding of sustainability in attempt to promote sustainable construction practices in construction organizations in United Kingdom (UK). Section 2 of the paper reviews literature on sustainable development and sustainability in the construction industry while section 3 describes the adopted research approach. Section 4 discusses the data collection and analysis process. Section 5 presents the analysis of qualitative data and section 6 is on quantitative data analysis. The final section of the paper presents conclusions findings from a survey and semi-structured interviews with intra-organizational leadership in UK construction organizations charged with the promotion and implementation of sustainable construction practices.

2 SUSTAINABLE DEVELOPMENT AND THE CONSTRUCTION INDUSTRY

2.1 Sustainable Development

Sustainable development focuses on improving the quality of life for all without increasing the use of natural resources further than the environment’s ability to supply them for the foreseeable future. Sustainable development has been defined in many ways; Parkin (2000) pointed out that, there are well over 200 rumored definitions of sustainable development in circulation. Even though Riedy (2003) believes that the meaning of sustainable development is still strongly contested, the most commonly accepted definition for sustainable development is the one in Brundtland’s commission report, which defines sustainable development as:

“Meeting the needs of the present without compromising the ability of future generations to meet their own needs… A process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations” (Brundtland 1987).

However, Brandon and Lombardi (2011) in their book “Evaluating sustainable development in the built environment” define sustainable development as:

“A process that aims to provide a physical, social and psychological environment in which the behavior of human beings is harmoniously adjusted to address the integration with, and dependency on nature in order to improve, and not to impact adversely on present or future generations”.

This lack of a common definition for sustainability has become a real challenge for business organizations in understanding and implementing sustainability strategies (Renukappa et al. 2012). The definition of Brundtland (1987) aims to be more comprehensive and addresses the key concept of needs while Brandon and Lombardi (2011) put emphasis on human behavior in an attempt to meet our needs. It is believed that, organizations that adopt sustainable practices can maintain their competitiveness in their respective industries (Zairi and Liburd 2001). The benefits of committing to sustainability is enormous and includes: money saving by reducing waste and increasing efficiencies, risks mitigation, winning more customers or clients and attracting and retaining talented graduates (Miller 2010). Sustainable development involves balancing and integrating the economic, social and environmental considerations in all business decisions to enable humanity to satisfy their basic needs and enjoy a better quality of life, without compromising the quality of life of future generations (DTI 2006). This study however defines sustainable development as “the adjustment of human behavior to address the needs of the present without compromising the ability of future generations to meet their own needs”.

2.2 Sustainability in the Construction Industry

The construction industry has been under severe pressure in recent times to adopt environmentally friendly practices in order to gain competitive advantage (Baloi 2003). Over the last twenty years, the concept of sustainability has been growing in importance and it has currently become the basis of most socio-economic activities and developments in the built environment (Edum-Fotwe and Price 2009). The construction industry has a major role to play towards the achievement of sustainable development, because the industry affects water, resources, land use, greenhouse gas emissions (Pitt et al. 2009) as well as communities and the health of the general public (Sev 2009; Holton et al. 2008). It is believed that, implementing sustainability in the built environment should be supported by a mix of policy measures; focusing on all stakeholders in the industries (UNDESA 2010). In order to fully implement sustainable construction practices, organizations should attempt to integrate and strike a balance between the three dimensions of environmental, economic and social in their overall strategies (Bansal 2005; Manoliadis et al. 2006). It is argued that, there is no universal definition of sustainable construction because it is continuously developing as the concept
of sustainability is been understood more clearly (UNDESA 2010). Parkin (2000) describes sustainable construction as a construction process that incorporates the basic themes of sustainable development. Sustainable construction aims at reducing the environmental impact of a building over its entire lifespan; providing safety and comfort to its occupants and at the same time enhancing its economic viability (Addis and Talbot 2001). However, the Marrakech Task Force on Sustainable Buildings and Construction set up by the UN Department of Economic and Social Affairs (DESA) define sustainable construction as:

"The construction that brings about the required performance with the least unfavorable ecological impacts while encouraging economic, social and cultural improvement at local, regional and global level" (UNDESA 2010).

In a research by Carter and Fortune (2003), using grounded theory approach to explore the perception of sustainable development held by those involved in the procurement process, they argue that understanding what is meant by sustainability in the construction industry at all levels of project delivery is key to its successful implementation. Sustainability is all about improving economic growth (economy), social progress (equity), and environmental protection (ecology) concurrently. This can be achieved through energy efficient buildings that have little or no harm on our environment; reducing the consumption of resources; increasing the use of recycled materials and generally reducing CO₂ emissions from our buildings (Williams and Sutrisna 2010). Kibert (2007) argue that, the construction industry will be judged on how its activities contribute to the world’s sustainable development agenda. It is therefore important that sustainability is introduced and managed throughout the construction process life cycle; from design to demolition.

Shafii et al. (2006) describe sustainable construction as the appropriate management of all aspects of building design, construction, operations and use in order to significantly reduce the overall cost of a building throughout its life. Reffat (2004) argues that, the concept of sustainable construction now goes beyond environmental issues to include economic and social sustainability issues with the view of adding value to the quality of life of individuals and communities. The environmental dimension of sustainability focuses on issues such as reducing energy and water consumption, using renewable resources and minimizing pollution (Sourani and Sohail 2011). The economic dimension of sustainability refers to the implementation of construction practices that provide for positive economic growth (Beheiry et al. 2006; Jones et al. 2010), through job creation, competitive advantage, and reduction in operating and maintenance costs (Baloi 2003). Socially, sustainability is about conducting business ethically to enhance the quality of life of people (Jones et al. 2010). The construction industry has a significant social responsibility to minimize the damage its projects do to the social environment. However, this can only be achieved if leaders implementing sustainability practices in the construction industry fully understand the concept of sustainability.

![Figure 1. Mixed method research design approach (Adopted from Creswell 2012)](image)
3 RESEARCH APPROACH

This study adopts a mixed method approach which combines elements of qualitative and quantitative research approaches. A mixed method uses both qualitative and quantitative viewpoints, data collection and analysis techniques in a single study concurrently or sequentially as illustrated in Figure 1 (Creswell and Plano Clark 2007; Johnson et al. 2007; Creswell 2012).

Mixed methods research aims at drawing from the strengths and minimizing the weaknesses of both methods in a single research study (Johnson and Onwuegbuzie 2004).

Whilst the use of qualitative studies provide an eloquent in-depth insights through subjective interpretations of experiences, adopting mixed methods allow researchers to minimize and reduce the overdependence on statistical data to explain a social occurrence and experiences which are mostly subjective in nature (Jogulu and Pansiri 2011). Creswell (2003) identified that, using mixed methods research provides strengths that offset the weaknesses of both quantitative and qualitative research. It also provides more comprehensive evidence for studying a research problem than either using quantitative or qualitative research alone. The motive for using questionnaire in addition to interviews in this study was its ability to reach a large target group in a practical and efficient way and it’s a relatively high validity of result due to its wide geographical coverage (Naoum 2003).

4 DATA COLLECTION AND ANALYSIS

A mixed method data collection approach using both interview and questionnaire research techniques was adopted to achieve the research aim. The interviews were aim at obtaining detailed information, perceptions and opinions from leaders within UK construction organizations charged with the promotion of sustainability practices on how their organizations are actively engage in sustainability practices in the delivery of construction projects. This was achieved through purposeful sampling of the interview participants from leading sustainable construction organization from the top 150 list of consultants and contractor organizations operating in UK as published in the September 2010 edition of the Building Magazine. Questionnaires were used to eliminate bias associated with interviews and also to obtain a wider view of respondents from the UK construction industry (Yin 2003).

5 QUALITATIVE DATA COLLECTION AND ANALYSIS

The interview sample were selected from both contractor and consulting organizations through purposeful sampling. This process was to ensure that the interview participants cover a wide range of intra-organizational leadership with direct experience and knowledge in sustainable construction. In all 15 leaders were interviewed because it is argued that, where the aim of a research is to understand common perceptions and experiences among a group of relatively homogeneous individuals, twelve interviews should be sufficient (Guest et al. 2006). This was the result of a study which conducted an experiment on a corpus of transcripts from interviews with women in two West African countries in which the researchers carried out a systematic analysis of transcripts of sixty interviews and found that 94% of the coded topics that appeared were identified within six interviews whilst saturation was attained after twelve interviews.

All interviews were held in confidentiality and record ed with participant permission. The interviews lasted between 45 and 60 minutes. The interview data were coded after preparing the transcripts and identifying the key concepts and themes. The process of coding involves recoding the number of responses associated

<table>
<thead>
<tr>
<th>Interviewee</th>
<th>Job Title</th>
<th>Type of Construction organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Sustainable Construction Manager</td>
<td>Consultant organization</td>
</tr>
<tr>
<td>B</td>
<td>Head of Sustainability</td>
<td>Consultant organization</td>
</tr>
<tr>
<td>C</td>
<td>Senior Sustainability Consultant</td>
<td>Consultant organization</td>
</tr>
<tr>
<td>D</td>
<td>Corporate Sustainability Manager</td>
<td>Consultant organization</td>
</tr>
<tr>
<td>E</td>
<td>Principal Sustainability Engineer</td>
<td>Consultant organization</td>
</tr>
<tr>
<td>F</td>
<td>Associate Head of sustainability</td>
<td>Consultant organization</td>
</tr>
<tr>
<td>G</td>
<td>Associate: Sustainability Manager</td>
<td>Consultant organization</td>
</tr>
<tr>
<td>H</td>
<td>Sustainability Consultant</td>
<td>Consultant organization</td>
</tr>
<tr>
<td>I</td>
<td>Senior Sustainability Manager</td>
<td>Contractor organization</td>
</tr>
<tr>
<td>J</td>
<td>Environmental Manager</td>
<td>Contractor organization</td>
</tr>
<tr>
<td>K</td>
<td>Head of Sustainable Development</td>
<td>Contractor organization</td>
</tr>
<tr>
<td>L</td>
<td>Sustainability Manager</td>
<td>Contractor organization</td>
</tr>
<tr>
<td>M</td>
<td>Director of Environment</td>
<td>Contractor organization</td>
</tr>
<tr>
<td>N</td>
<td>Principal sustainability Consultant</td>
<td>Contractor organization</td>
</tr>
<tr>
<td>O</td>
<td>Environmental Manager/Advisor</td>
<td>Contractor organization</td>
</tr>
</tbody>
</table>
with each interviewee for a particular question. The version 9 of the Nvivo data management software was used to code the themes from the interviews into nodes.

5.1 Profile of Intra-organizational Leaders Interviewed

Qualitative data were collected through in-depth semi-structured interviews carried out with 8 intra-organizational leaders from consultant organization and 7 intra-organizational leaders from contracting organizations charged with the promotion of sustainability practices. These leaders were responsible for promoting and implementing environmental, social and economic sustainability issues in their respective organizations. Even though there are variations in the job titles of the interviewees, all were responsible for driving forward the agenda relating to sustainable practices in construction. The profile of leaders within UK construction organizations who were interviewed are shown in Table 1.

5.2 Analysis of Interviews

The aim of this study was to explore intra-organizational leaders understanding of sustainable development in the context of the construction industry. It is important that, leaders have a clear understanding of what sustainability means to them and their organizations. Even though most interviewees understand sustainability to comprise of the three dimensions of social, environmental and economic impacts of their activities, some simply refer to environmental issues as their understanding of sustainability. The understanding of sustainability was expressed by interviewee ‘M’ as:

“The understanding of sustainability is very difficult but is growing now; people first, climate change, responsible behavior, environment/energy, carbon, biodiversity, climate change, finance and performance”.

Interviewee ‘B’, who is Head of Sustainability, explained his/her understanding of sustainability by saying that:

“I believe in the Brundtland’s report definition of sustainability through help for people to contribute to life now and the future but our strategies are more on environment, focused because of client demand”.

Moreover, interviewee ‘O’ noted that, sustainability means,

“Economic, social and environmental well-being within the communities in which we operate”.

The above discussions illustrate intra-organizational leaders’ level of understanding of sustainability or sustainable development in the UK construction industry. Even though, there are variations in leaders understanding of sustainability in the construction industry, the three core sustainability dimensions of social, environmental and economic has been a re-occurring concepts in almost all the definitions given by the interviewees. It is also however important to note that, there is a strong commitment towards environmental rather than the economic and social issues. It is accepted that construction organizations can more easily measure their environmental performance at project level. Notwithstanding the above, the environmental, social and economic elements of sustainability became recurrent theme in the responses from all interviewees.

6 QUANTITATIVE DATA COLLECTION AND ANALYSIS

A web-based questionnaire with a link to the survey was sent to intra-organizational leaders in the selected organization with the role of leading the sustainability agenda. A total of 200 questionnaires were sent; consisting of 100 each from the list of top 150 consultant and contractor organization as described above. These participating construction organizations range from small size (50 or less employees) to large size (above 250 employees) organizations.

An analysis of the survey data shows that a response rate of 63% was achieved representing 126 responses out of 200 questionnaires sent. However, 10% of responses were discarded as not being fully completed. Archer (2008) argued that, the response rate for a web-based survey varies based on the survey type.
The overall average response rate for a web-based survey is 48.3% as evidenced by the results of a research involving the calculated response rates of 84 web-based surveys deployed over 33 months.

6.1 Profile of Survey Respondents

The results of the survey show that, 49% of respondents are from contractor organizations while, 51% of respondents are from consultant organizations in UK. The respondents to the questionnaire were asked to classify their construction organizations in terms of the size of employees. The respondents ranged from small to large construction organizations. However, most respondents were situated in large sized organizations; having over 250 employees. This equated to almost 54% of overall respondents. Small size organizations employing up to 50 people form 17% of the respondents. The result also shows that, 29% of respondents belong to construction organizations employing 50 to 250 people. The survey respondents were also asked to describe their current job title in order to establish if they have leadership roles in leading the sustainable development agenda in their respective construction organizations. Respondents who describe their current job title as “Sustainability Consultants” represent 31% of respondents while 24% of respondents also describe their job title as either “Sustainability Manager or sustainability Director”. Details of all the statistical results of contractor to consultant ratio in terms of respondents current job title is presented graphically in Figure 2.

<table>
<thead>
<tr>
<th>Statement</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus on environmental issues such as low carbon and waste</td>
<td>106</td>
<td>2.31</td>
<td>1.341</td>
</tr>
<tr>
<td>Corporate Social responsibility issues</td>
<td>106</td>
<td>2.81</td>
<td>1.212</td>
</tr>
<tr>
<td>Addressing issues from the long-term perspective</td>
<td>106</td>
<td>2.65</td>
<td>1.242</td>
</tr>
<tr>
<td>Sustainability incorporates environmental, social and economic issues</td>
<td>106</td>
<td>2.08</td>
<td>1.367</td>
</tr>
<tr>
<td>Other understanding</td>
<td>21</td>
<td>2.52</td>
<td>1.834</td>
</tr>
</tbody>
</table>

Note: 1 = Best description; 2 = Better description; 3 = Good description; 4 = Fair description; and 5 = Worst description.
Table 3. Mann-Whitney U test of intra-organizational leadership understanding of sustainability and type of construction organization

<table>
<thead>
<tr>
<th></th>
<th>Sustainability incorporates environmental, social and economic issues</th>
<th>Focus on Environmental issues such as low carbon, waste etc.</th>
<th>Addressing issues from the long-term perspective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U</td>
<td>1401</td>
<td>1178.5</td>
<td>1267.5</td>
</tr>
<tr>
<td>Wilcoxon W</td>
<td>2779</td>
<td>2663.5</td>
<td>2752.5</td>
</tr>
<tr>
<td>Z</td>
<td>-0.02</td>
<td>-1.482</td>
<td>-0.891</td>
</tr>
<tr>
<td>Asymptotic Significance (2-tailed)</td>
<td>0.984</td>
<td>0.138</td>
<td>0.373</td>
</tr>
</tbody>
</table>

Note: Grouping Variable: Company’s Principal Business Activity/Type of organization.

Figure 3. Intra-organizational leadership understanding of sustainability

Figure 4. Intra-organizational leadership understanding of sustainability
Table 4. Kruskal-Wallis ANOVA test of intra-organizational leadership understanding of sustainability and size of construction organization

<table>
<thead>
<tr>
<th></th>
<th>Sustainability incorporates environmental, social and economic issues</th>
<th>Focus on Environmental issues such as low carbon, waste etc.</th>
<th>Addressing issues from the long-term perspective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-Square</td>
<td>1.805</td>
<td>3.084</td>
<td>15.675</td>
</tr>
<tr>
<td>Degrees of Freedom</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Asymptotic Significance</td>
<td>0.406</td>
<td>0.214</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: Grouping Variable: Organizational Size.

6.2 Statistical Analysis of Survey Results

The literature review and data from the interviews established that there are numerous definitions of sustainability and this study examine how construction professionals leading the sustainability agenda within the respondent organizations understand sustainability. Respondents were asked to score a number of sustainable development definitions or statements for their applicability on a “likert” scale of 1-5; where 1 is the “best description” and 5 is the “worst description”. The results are presented in Table 2 and illustrated graphically in Figure 3.

The best description of sustainability is the one that “incorporates environmental, social and economic issues”. Respondents score this description high with a mean value of 2.08, followed by the description “focus on environmental issue such as low carbon and waste” with a mean value of 2.31. The above results confirms the findings from literature review and interviews that sustainability is understood by the construction industry as involving the three main dimensions of environmental, social and economic issues. However, “corporate social responsibility issues” was the description with the lowest score with a mean value of 2.81. Surprisingly, respondents score “other” description in third place with a mean value of 2.52. This shows the level of variation in respondents understanding of sustainability in the UK construction industry. Figure 4 however graphically illustrates intra-organizational leadership description of sustainability among contractor and consultant organizations.

6.3 Type of Construction Organization and Leadership Understanding of Sustainability (Statistical Difference)

The collected data was not normally distributed and therefore a Mann-Whitney U test was carried out to compare if there was any significant differences in the understanding of sustainability from either contractor or consultant organizations in the UK construction industry. The result of the statistical test is presented in Table 3.

The Table 3 above shows data on the calculated Z-values and the approximately calculated statistical significance of differences between the crossed variables (top three sustainability statements as rated in the survey). The amount of its probability that something happened by accident is not equal to or less than 0.05. The results showed a measure of standard deviation (Z-value) of -0.020 for the statement “Sustainability incorporates environmental, social and economic issues”, -1.482 for “Focus on Environmental issues such as low carbon, waste etc.” and -0.891 for “Addressing issues from the long-term perspective”. The Asymptotic significant values were (Z-value) of -0.020 for the statement “Sustainability incorporates environmental, social and economic issues”, -1.482 for “Focus on Environmental issues such as low carbon, waste etc.” and (Z-value) of -0.891 for “Addressing issues from the long-term perspective”. The U refers to the Mann-Whitney test statistic value whiles the p is the probability value. The above analysis concludes that there are no significant differences in intra-organizational leadership understanding of sustainability irrespective of the type of construction organization (contractor or consultant organization).

6.4 Size of Construction Organization and Leadership Understanding of Sustainability (Statistical Difference)

Kruskal-Wallis one way ANOVA test was used to test if there are any differences in the three organizations based on the three top three statements that best describe sustainability. The results shown in Table 4 indicate that, there was a statistically significant difference between the size of construction organization and intra-organizational leadership understanding of sustainability. With Kruskal-Wallis test of (H(2) = 1.805, P = 0.406) for the statement “Sustainability incorporates environmental, social and economic issues”, (H(2) = 3.084, P = 0.214) for “Focus on Environmental issues such as low carbon, waste etc.” and (H(2) = 15.675, P = 0.000) for “Addressing issues from the long-term perspective”. At the significant level of (α = 0.05), there exists enough evidence to conclude that there is difference among the three organizational sizes classified in the survey based on the test scores when it comes to their understanding of the description “Addressing issues from the long-term perspective”. There was therefore statistical difference in how sustainability is understood or described across the three different sizes of construction organizations identified in the UK construction industry.
The survey respondents were also given the opportunity to set out their own understanding of sustainability in the construction industry. The sustainability descriptions or statements given in the survey were identified through literature review and data from the interviews. It was therefore important that respondents who did not agree with the given description and had additional definitions of sustainability had the opportunity to provide such description of their understanding of sustainability. A total of 21 respondents representing almost 20% of the total respondents scored “other” in their response to the survey. Some of the common descriptions cited by respondents who scored “other” in the survey are: “Responsible sourcing, ethical procurement, community development”, “Saving Resources, driving efficiency and reducing cost”, “Affordable, robust buildings with minimal impact and great places for people”, “Affordable, robust buildings with minimal impact and great places for people” etc.

Despite the different descriptions provided by respondents, it was clear that, intra-organizational leaders in respondent construction organizations understand what sustainability really means; reducing the negative impacts of construction activities on the environment. Even though, the respondents made clear that their understanding of sustainability included the social, environmental and economic issues in the delivery of construction projects, it was evident that environmental issues seems to be the dominant issue in these descriptions. This confirms the findings in literature which identified environmental issues as being the dominant dimension of sustainability related to construction projects because construction organizations can easily measure their environmental performance.

7 CONCLUSION

The study investigated intra-organizational leadership understanding of sustainable development in attempts to promote sustainability practices in the delivery of construction projects. A mixed method research approach involving literature review, interviews and questionnaire survey with intra-organizational leaders charged with the promotions of sustainable construction practices was adopted for the study.

The research provides a more concise and convincing definition of sustainable development as: “the adjustment of human behavior to address the needs of the present without compromising the ability of future generations to meet their own needs”. The findings from the study shows that sustainability (sustainable development) is understood differently by each intra-organizational leader charged with the promotion of sustainability practices in construction industry; however, there was a consensus that, sustainability involves the economic, social and environmental impacts of their business activities on society. The survey respondents also scored “sustainability incorporates environmental, social and economic issues” as the best description for sustainability. Statistical analysis of the results show that, there is statistical difference in how sustainability is understood or described across the three different sizes of construction organizations identified in the study. However, the results showed no significant differences in intra-organizational leadership understanding of sustainability in terms of organization type; either being contractor or consultant organization.

Even though, the respondents made clear that their understanding of sustainability included the social, environmental and economic issues in the delivery of construction projects, it was evident that the environmental dimension seems to be the dominant issue in the construction industry because construction organizations can easily measure their environmental performance. The construction industry therefore needs to establish a common sustainable construction framework that clearly defines sustainable development in the context of construction project delivery in order to facilitate its goal of achieving sustainable construction. Little or no study has been done in construction management research that link leadership and sustainability and this study provides the empirical evidence linking intra-organizational leadership within construction organizations and the understanding of sustainability. This will help fill the gap in literature and serving as a source of reference material for higher education programs in the built environment. The study will guide construction organizations in their quest to promote sustainable construction project delivery.

REFERENCES


UNDESA (2010). “Buildings and construction as


