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# Mainstreaming Social Sustainability into Infrastructure Delivery Systems: Are There Any Benefits? A Stakeholders' Perspective

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## ABSTRACT

### Purpose of this paper

This study seeks to explore the benefits of incorporating social sustainability into the delivery of infrastructure projects within South Africa, albeit from the stakeholders' worldviews.

### Design/methodology/approach

This phenomenological study relies on semi-structured interviews for data. Interview transcripts were subsequently analyzed, thematically. Pre-set themes were utilized to ensure construct validity- a critical component for enabling credibility in qualitative research.

### Findings

Findings reveal the utility of the social sustainability, when mainstreamed into the delivery of projects, in enabling the successful delivery of projects. However, the costly and time-consuming nature of the consultation processes-an integral part of social sustainability- was highlighted by stakeholders as a shortcoming.

### Research implications

This exploratory study contributes to the development of a common definition for social sustainability within South Africa's infrastructure delivery landscape. Further studies will attempt to attain statistical generalization of its findings through the use of questionnaire surveys for a truly representative sample.

**Original/value of paper**

This study's novelty stems from its bid to explore the benefits accruable from the integration of social sustainability into infrastructure delivery processes.

**Keywords**

Infrastructure delivery, Phenomenology, Social sustainability, Stakeholders

**1. INTRODUCTION**

The adverse effect of the anthropogenic activities inherent in the construction industry on contemporary society's quest to achieve sustainable development (SD) has been elucidated (Kibert, 2007). Such effects are more prevalent within the developing economies context as the need to bridge the glaring infrastructural deficit experienced therein has led to the commissioning of several greenfield infrastructure projects, all of which would have an impact on the attainment of sustainable communities. Considering that the relationship between the availability of sufficient infrastructure stock, improved productivity and local economic growth has been buttressed in relevant literature (Esfahani & Ramirez, 2003), countries within this context are most inclined towards improving on their infrastructure stock, a move which would leave unsustainable footprints on the societal landscape.

Although substantial efforts are being made presently to ensure that processes leading to the delivery of new infrastructure assets or the modification of existing ones are aligned with the SD principles. It appears that these efforts have focused on the environmental and economic dimensions of sustainability to a large extent (Dempsey, Bramley, Power, & Brown, 2011; Valenzuela & Albarosa, 2017). Such efforts have given rise to the new taxonomies like '*sustainable construction*,' '*responsible sourcing*,' '*sustainable procurement*,' '*green construction*' etc. The neglect of the social sustainability (SS) dimension in these attempts has been observed. Scholars have buttressed this notion, attributing it to the misunderstood and indefinable nature of SS (Peterson, 2016).

In South Africa, construction industry stakeholders have made attempts to integrate SD dimensions into their respective projects (Du Plessis, 2002). Going by the plethora of literary sources available on this subject matter, it does appear that the country has fared differently from its peers in the developing world by focusing immensely on the environmental, social and economic dimensions during the procurement and eventual delivery of assets (Bolton, 2006; Watermeyer, 1999; Watermeyer, Gounden, Letchmiah, & Shezi, 1998). However, most of the studies into the implementation of sustainability dimensions in the construction industry seem to lay emphasis on the overt concentration of the implementing stakeholders on the environment and economic aspects of sustainability. Implications is a neglect of SS implementation during various phases of the

project delivery lifecycle in the South African context, its mention in existing legislations and policy guides/charters, notwithstanding.

This study seeks to contribute to the emerging body of knowledge on Social Sustainability (SS) dimensions within the construction industry and developing country context respectively by exploring the benefits of its integration into infrastructure delivery systems in South Africa. It relies on the lived experiences of representatives of certain stakeholder groups in the construction industry. Upon the elucidation of the benefits of this dimension on optimal infrastructure delivery, the expectation is that more stakeholders would have cause to adopt and integrate it into every facet of the delivery activity.

To achieve its objective, the paper is structured into the following sections, namely; a review of the relevant literature regarding the relationship between SD and infrastructure delivery systems (IDS) on the one hand, and the realization and operationalization of SS in infrastructure delivery systems. These will be followed by a discussion of the research methodology applied in this study, a presentation and discussion of the findings as well as the conclusion.

## **2. SUSTAINABLE DEVELOPMENT AND INFRASTRUCTURE DELIVERY SYSTEMS**

Discourse in the 21<sup>st</sup> century. It has been described as connoting the developmental strategies or processes required to attain a desirable utopian state for the present and future society (sustainability) (Boström, 2012). The Bruntland report, published under the auspices of the World Commission for Environment and Development, three decades ago, has been acknowledged as having contributed to the renewed interest in this concept and its tenets. Since then, the uptake of ideals associated with the drive for a sustainable society has intensified.

However, buy-in into this concept in developing economies only grew significantly after the United Nations World Summit on Sustainable Development (WSSD) in 2002 (Rydin, 2012). This summit brought about increased awareness, especially among African nations, concerning the critical nature of SD. Significant frameworks like the millennium development goals (MDG) and its successor, the sustainable development goals (SDGs) were developed and adopted to guide implementation and execution performance measurement, respectively. The latter is expected to govern the actualization of a sustainable society between 2015 and 2030.

Having become a major policy and academic issue, concerns have arisen as to its operationalization within various economic sectors like the construction industry. Such concerns have been premised on the seeming vagueness of the concept. Such vagueness has led to a varied interpretation of what the concept actually means for different stakeholders within different contexts. As part of policy, the desire to achieve SD needs to be premised on the existence of a commonly shared ontology among

various stakeholders. In the absence of this, then its implementation would remain an onerous undertaking.

One area where policy makers believe they can leverage upon to achieve SD is through the delivery of sustainable infrastructure. This implies the procurement, delivery and maintenance of infrastructure assets and services in a sustainable manner. Already, Tawiah and Russell (2005) and Simkoko (1992) have identified project (infrastructure) delivery systems as being pivotal to the success or failure of any policy implementation endeavour. Contributing, Lahdenperä and Koppinen (2009) admit to the significance of effective infrastructure delivery systems in the attainment of a client's objective. They describe a project (infrastructure) delivery system as a type of organizational framework which elaborately sets out the control systems available as well as the relationships between actors and incentives within a particular domain. Expanding on this definition, Awuzie and McDermott (2015) posit that the IDS consists of a representation of all types of interorganisational and multi-layered relationships existing between various stakeholder organisations during the procurement and subsequent delivery of a particular infrastructure asset and the attendant mechanisms for controlling, and coordinating such relationships toward the attainment of project/policy objectives. For a better insight into the relationship between policy and the IDS, see Figure 1. Policy in this case can be the attainment of SD.

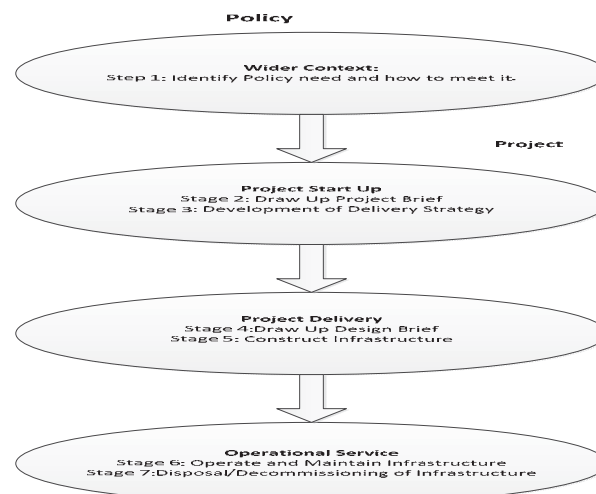


Figure 1: Generic Seven Stage Model for Infrastructure Delivery  
Source: UK National Audit Office

Based on the foregoing, the significance of the IDS in the implementation of policies relating to SD attainment can be deduced. Therefore, there is need for effective integration of SD dimensions into the IDS to engender optimal implementation performance. Presently, a cursory

look at the progress reports on various IDSs across South Africa seems to reiterate the dominant nature of the environment and economic dimensions. The SS dimension seems to be neglected due to factors such as its indefinability and lack of parameters/indicators for assessing its impact on project performance. There is a possibility that stakeholders might have been integrating SS into their respective projects unknowingly, due to this indefinability and context-specific nature. Accordingly, this study shall seek to identify and highlight the numerous benefits accruable from the optimal integration of SS dimension into IDSs in South Africa, from stakeholders.

## **2.1 Integrating Social Sustainability into Infrastructure Delivery Systems**

The SS dimension evolved from the broadly accepted categorization of the sustainability into three pillars to enable the operationalization of the concept (Elkington, 1999). Prior to this categorization, sustainability as a concept had remained vague, being used by politicians and policy makers to score cheap political points (Christen & Schmidt, 2012; Sneddon, Howarth, & Norgaard, 2006). However, whereas the economic and environmental dimensions have been accorded significant attention by society, SS is only starting to get some attention (Boström, 2012; Peterson, 2016). Missimer, Robèrt, and Broman (2017) reiterate the non-integration of SS into the Framework for Strategic Sustainable Development (FSSD), a renowned framework for driving SD.

Defying any commonly accepted definition, SS has been considered context-specific unlike other pillars (Dempsey et al., 2011; Littig & Grießler, 2005; McKenzie, 2004). Besides contributing to the attendant vagueness and interpretative flexibility associated with the concept, this indefinability has adversely affected its realization and operationalization in economic sectors like construction (Boström, 2012). According to Abdel-Raheem and Ramsbottom (2016), practicing green construction (environmental sustainability), results in savings in the operation cost on the long run (economic sustainability), and provide healthy work environment for the workforce (social sustainability). Scholars like Dempsey et al. (2011) allude to the dynamic nature of SS, insisting that what connotes SS within a particular context is likely to change over a particular duration. Boström (2012) categorizes these obstacles which exist in relevant literature into two broad categories namely; theoretical and practice-oriented obstacles. Whereas the theoretical obstacles encompass the notion of how to define and understand the concept of social sustainability, the latter is concerned with how to effectively operationalize and integrate the concept into projects.

Also, scholars have evolved different ways of approaching SS. For instance, whereas Magis and Shinn (2009) view the concept from the human well-being, equity, democratic government and democratic civil society perspective, Murphy (2012) opines that SS rests on four dimensions, namely: equity, awareness, participation and social cohesion.

Boström (2012) categorizes SS aspects into substantive aspects- *aspects dealing with what SS goals to achieve in a particular context*; and procedural aspects- *aspects dealing with SS elements that foster sustainable development*. Accordingly, he reiterates that the challenges confronting the incorporation of SS in projects resulted from the lack of attention by stakeholders to the extant synergy between these aspects. Whitton, Parry, Akiyoshi, and Lawless (2015) posit that SS involves aspects such as community cohesion, human well-being, effective dialogue, and access of citizens to decision making levels within their respective communities. Weingaertner and Moberg (2014) explore SS from urban development, companies and products perspectives and conclude that there seems to be a common understanding of what SS entails across these sectors. They provide, three themes for developing such understanding, namely: social capital, human capital and well-being. Also, Vallance, Perkins, and Dixon (2011) attempt to provide clarity in the description of SS by proposing three paradigms namely, development, bridge, and maintenance sustainability respectively. Development sustainability focuses on the satisfaction of tangible or intangible needs of humans whilst bridge sustainability focuses on transforming negative societal behaviour towards the environment and bringing about stronger environmental ethics. Maintenance sustainability pertains to understanding how the social and cultural preferences and features are maintained over a certain duration in a certain context.

From the foregoing, it is evident that a lack of consensus concerning the SS concept still persists within the extant body of knowledge. No doubt, this has further affected the development of a concise set of indicators for measuring the performance of SS integration in projects and thus, its optimal integration along with its peer pillars.

The construction industry, both globally and locally, is by no means immune from the import of the vagueness associated with SS. Valdes-Vasquez and Klotz (2013) attest to this, decrying the absence of a comprehensive and empirical framework for defining SS within the context of construction projects owing to its indefinability. Herd-Smith and Fewings (2008) propose that SS in construction be used to refer to the engagement among employees, local communities, clients, and the supply chain to ensure meeting the needs of current and future populations and communities. Yet, Valdes-Vasquez and Klotz (2013) observe that an understanding of this definition was contingent on stakeholder type and the project's lifecycle phase. They posit that one perspective of SS entails the estimation of the impact of construction projects in relation to where users habit, work and engage in various activities, a perspective usually catered for during environment impact assessment. Also, the application of corporate social responsibility (CSR) objectives by construction firms and client organizations was identified as another approach to SS. Other perspectives highlighted therein bother on design initiatives for engendering social inclusion for under-represented groups, and elimination of safety hazards from the work site, impact of temporary users like workforce and vendors as well as extant social interactions etc.



Furthermore, they insist that SS was process-oriented, reiterating six key themes for exploring the incorporation of SS processes in the planning and design phase of the construction process. These key themes include stakeholder engagement; user considerations; team formation; management considerations; impact assessment, and; place context. Similarities were observed between the themes provided by Valdes-Vasquez and Klotz (2013) and those espoused by Sourani and Sohail (2005), Abdel-Raheem and Ramsbottom (2016), Herd-Smith and Fewings (2008).

It is pertinent to note that this particular study aligns itself to these views as espoused by Valdes-Vasquez and Klotz (2013) pertaining to SS as consisting of a set of processes required to improve on the construction industry's contribution to the SD agenda. These key themes mentioned in Table 1 are not peculiar to any type of construction project but transverses the entire domain which comprises of infrastructure delivery. Therefore, improved knowledge concerning the aspects of SS integration and their commensurate benefits need to be explored and disseminated to ensure successful integration. South Africa is known for its apartheid struggles in the pre-1990 era. In the post-apartheid era, which also marked the escalation of the SD mantra, efforts have been made to achieve improved levels of social inclusion of hitherto under-represented groups in the country. Cross-sectoral efforts have led to promulgation of policies by government and stakeholders to curb agitations for social inclusion. Such policies have sought to provide economic emancipation for certain groups, provide increased access to employment opportunities, skill development, social housing, education, healthcare, etc. (Bolton, 2006). In the construction industry, the use of preferential procurement practices and the integration of social benefits in the decision making processes for new projects has been noted (Jacquet, 2002; Rogerson, 2012; Watermeyer, 1999). However, it does appear that these efforts have not been operationalized at the project delivery level, especially as it concerns SS, as a paucity of studies has been observed.

### **3. RESEARCH METHODOLOGY**

This study adopted a phenomenological research design. The rationale behind the adoption of this design can be attributed to the desire of the authors to explore the worldviews of representatives of the various stakeholder groups who have a direct influence on the workings of the IDS. A phenomenological research design avails a researcher the opportunity to carry out detailed discussion hence providing the opportunity for the facilitation of the revelation of salient issues which are of importance to the interviewee (Chell, 2004). Furthermore, Creswell (2007) opines that this research design is effectively utilized when there is need to describe the essence of a lived phenomenon based on the narratives of those who have shared such an experience. In the context of this study, interviewees were

sought for based on their having experienced the phenomenon (integration of SS) being understudied.

Based on this, the interviewers decided that phenomenology would serve the purpose of exploring the perceptions of the benefits which certain groups have experienced through the integration of SS into project delivery programmes as depicted by the IDS. Relying on subsystems and stakeholder groups inherent in the IDS as identified in Awuzie and McDermott (2015), the authors purposively selected representatives of various stakeholder groups. These stakeholder groups consist of the regulatory agencies, the project owners, contractors, consultants and end users. However, in this study, the representatives of the regulator were not available to participate in the interview sessions as emails and reminders sent to them were not replied. A total of thirteen interview sessions with an uneven distribution among the four remaining stakeholder groups. Whereas the client stakeholder group was represented by three interviewees, (CLI-3), the contractor group had four representatives (CON1-4) interviewees. Also, two consultants (CONS1-2) and four interviewees (EU 1-4) were selected from the end user community based on a mixture of purposive and convenience sampling. It is necessary to state this study is the first of two studies into this phenomenon. A subsequent study would deploy questionnaires to a wider audience to extrapolate the findings of this preliminary study. It is expected that this would engender the attainment of statistical generalization.

Semi-structured interviews were deployed as a suitable data collection technique. The choice of this type of interviews was predicated on its provenance as a reliable data elicitation technique which provided the interviewer with considerable levels of flexibility in his/her desire to explore the worldviews of interviewees concerning a particular phenomenon (Bernard & Ryan, 2009). Such flexibility was reflected in the use of similar and not identical questions thus enhancing the interviewer's ability to take the interviewer's level of experience into consideration in the choice of questions.

Interview sessions spanned an average of thirty minutes, each. The sessions were recorded with permission of interviewees and subsequently transcribed, verbatim. Questions asked during the interviews were centred on their understanding of the SS concept as applied in infrastructure delivery systems and their perceptions of benefits derived therefrom. Thematic analysis was applied in making sense of the data (Kulatunga, Amaratunga, & Haigh, 2007). The emergent data is presented and discussed in subsequent sections.



## 4. PRESENTATION AND DISCUSSION OF PRELIMINARY FINDINGS

### 4.1 Benefits

Although a plethora of benefits were identified from the data emanating from the interview sessions, only a few of these benefits which resonate among the various stakeholder groups would be highlighted and discussed here as the study is still in its early stages.

### 4.2 Improved job creation opportunities for locals through alignment of contracting strategies to SS objectives

Contracting strategies have been described as enablers of SS integration in construction projects and the construction industry in general (Hawkins & Wells, 2006; Watermeyer et al., 1998). The choice of which contracting strategy to utilize in the realization of a construction project should be aligned to the SS criteria being sought to be achieved by the project owners and end users. Evidence of this abounds within the South African context wherein the use of targeted/preferential procurement policies and work packages such as unbundling has been used in getting hitherto underrepresented communities in the construction industry. Interviewees narrated scenarios where they had applied preferential procurement strategies to assist contractors who were members of a particular community to tender, win and execute work packages in their respective organizations. The interviewees were further inundated by an interviewee (CL1) on how his department had initiated training programmes for a select group of novice contractors from the local area. Such programmes which were referred to as *Vukuphile* (wake up and live) and *Mangaung Community plumbers* respectively were meant to develop technical, administrative and financial management competencies among contractors. In the aftermath of their tutelage, these individuals are availed opportunities on work packages owned by the directorate. It is beyond the scope of this study to ascertain the success of these schemes. However, it is pertinent to note that this instance highlights the nexus between social and economic sustainability from the client's perspective.

### 4.3 Increased societal acceptance of infrastructure projects

The incorporation of the views of stakeholders as well as the ensuring that tenets relating to respect for people is achieved during the early stages and subsequent stages of an infrastructure asset delivery lifecycle has been described as capable of inspiring high levels of societal acceptance by such stakeholders (Raven, Mourik, Feenstra, & Heiskanen, 2009; Suopajarvi et al., 2016; Whitton et al., 2015). They state that such levels of acceptance served as an operating capital for client organizations to

proceed with their delivery exercise without hindrance hence resulting in improved levels of productivity and project performance. Furthermore, they affirm that effective management of social acceptance for new projects prevented the rise of potential problems. During the interview sessions, interviewees shared their experiences regarding how the consultation processes which are an essential part of the environmental impact assessment processes in South Africa for potential infrastructure projects enhanced the relationship between the local community, relevant stakeholders and the project delivery team. According to an interviewee, CON3, community participation in the early stages of their projects culminated in optimal project performance. According to EU2, the consultation process made them feel like they were joint owners of the infrastructure asset being delivered and this propelled them to support such projects. Summarily, interviewees were unanimous on the benefits of effective consultation processes- a significant SS aspect.

#### **4.4 Emerging Issues**

During the course of data analysis, certain realities were thrown up to the authors. One of such realities is highlighted below.

#### **4.5 Lack of awareness and common understanding about the concept of Social Sustainability**

During the course of the interview sessions, it was discovered that a vast majority of the interviewees were oblivious about what the term 'social sustainability' entailed. There was a continued attempt on their part to use it interchangeably with economic dimensions to SD. This was the case with the end-users and contractors who argued that SS benefits were not far-reaching enough based on proposed economic indices such as the percentage of work reserved for local contractors. Such statements obviously resulted from the lack of awareness or understanding of what SS was about. As if to buttress this point, prior to the commencement of the interview sessions, the authors had to explain the concept of SS to a majority of the interviewees. For instance, the interviewees overlooked issues such as respect for persons through non-discrimination of female or migrant workers on construction sites, the provision of safe working environments etc. Rather they seemed to more enthused with the notion that they were not benefiting financially from the siting of projects within their vicinities. Whereas this study understands the need to integrate the three dimensions of SD during implementation within project delivery environments as suggested by (Vallance et al., 2011), it believes that the stakeholders within a particular context should be able to develop a common understanding about the components of each of these pillars to be able to their optimal integration. It must be stated that most of the project owners/ consultants and contractors have actually integrated significant aspects of SS at different stages of their work as explained during the interviews but they did not know that such aspects were actually.

## 5. CONCLUSION

The optimal mainstreaming of sustainability ethos through the SD frameworks continues to be heralded as a viable medium for achieving a sustainable society. The construction industry and the infrastructure delivery subsector, in particular, have been identified as possessing the potentials to undermine this objective. However, it is worthy of note to see that the efforts are being made by policy makers, practitioners and academics in South Africa and beyond towards ameliorating the impact of such systems on the attainment of societal goals.

Yet, it appears that such efforts are focusing mainly on the environmental and economic dimensions of the SD tripod. The neglect of the social dimension has been attributed to several factors including its indefinability and its context-dependent nature. However, the impact of effective integration of SS into projects within extant construction literature appears to have been under-investigated. Proper rendition of SS aspects, their applicability within project delivery systems and the benefits accruing from their integration is necessary to stimulate interest among stakeholders in the infrastructure delivery system. This is what this study set out to do.

Whilst this study should be regarded as a preliminary one to identify the benefits of the mainstreaming of SS into various activities inherent in delivery systems by relying on the views of representatives of various stakeholder groups, it should be noted that data analysis is still on-going and that the views expressed are areas where common ground has been identified amongst the various representatives interviewed. Furthermore, the study does not make any attempt to laying claim to the generalization of its findings as the number of interviewees utilized cannot support that. Yet, a second part of this study will focus on extrapolating the views obtained by the interviewees to a wider respondent base. This will not only enable statistical generalization but engender the development of a common context-dependent definition among all stakeholder groups. Such determination will contribute to the validation of the benefits identified and subsequent prioritization of such benefits through a proper ranking approach.

Summarily, this study contributes to the emerging discourse on the effective integration of SS into the SD framework, especially within the construction industry in South Africa, an area hitherto neglected by policymakers, practitioners and academics alike. Also, it provides a platform to unravel the vagueness associated with the SS concept during the implementation of SD framework.

## 6. REFERENCES

- Abdel-Raheem, M., & Ramsbottom, C., 2016, Factors Affecting Social Sustainability in Highway Projects in Missouri. *Procedia Engineering*, 145, 548-555.

- Awuzie, B., & McDermott, P., 2015, A conceptual model for evaluating infrastructure-based temporary multi-organisations. *Built Environment Project and Asset Management*, 5(1), 103-120.
- Bernard, H. R., & Ryan, G. W., 2009, *Analyzing qualitative data: Systematic approaches*: SAGE publications.
- Bolton, P., 2006, Government procurement as a policy tool in South Africa. *Journal of Public Procurement*, 6(3), 193.
- Boström, M., 2012, A missing pillar? Challenges in theorizing and practicing social sustainability: introduction to the special issue. *Sustainability: Science, Practice, & Policy*, 8(1).
- Chell, E., 2004, Critical Incident Technique. In C. Cassell & G. Symon (Eds.), *Essential Guide to Qualitative methods in Organizational Research*. London: Sage Publications
- Christen, M., & Schmidt, S., 2012, A formal framework for conceptions of sustainability—a theoretical contribution to the discourse in sustainable development. *Sustainable Development*, 20(6), 400-410.
- Creswell, J. W., 2007, *Qualitative enquiry and research design: Choosing among five approaches*. US: Sage publications Ltd.
- Dempsey, N., Bramley, G., Power, S., & Brown, C., 2011, The social dimension of sustainable development: Defining urban social sustainability. *Sustainable Development*, 19(5), 289-300.
- Du Plessis, C., 2002, Agenda 21 for sustainable construction in developing countries. *CSIR Report BOU E*, 204.
- Elkington, J., 1999, Triple bottom-line reporting: Looking for balance. *Australian CPA*, 69, 18-21.
- Esfahani, H. S., & Ramirez, M. a. T., 2003, Institutions, infrastructure, and economic growth. *Journal of development Economics*, 70(2), 443-477.
- Hawkins, J., & Wells, J., 2006, Modifying infrastructure procurement to enhance social development. *African Technology Development Forum*, 4(4), 55.
- Herd-Smith, A., & Fewings, P., 2008, The implementation of social sustainability in regeneration projects: Myth or reality? Retrieved from doi:[http://www.rics.org/site/scripts/download\\_info.aspx?fileID=3178&categoryID=525](http://www.rics.org/site/scripts/download_info.aspx?fileID=3178&categoryID=525) (Accessed 23/03/2017)
- Jacquet, A., 2002, *Sustainable Contractor Development Through Coordinated and Focused Interventions*. Paper presented at the Proceedings, Built Environment Professions Convention.
- Kibert, C. J., 2007, The next generation of sustainable construction. *Building Research & Information*, 35(6), 7.
- Kulatunga, U., Amaratunga, R., & Haigh, R., 2007, Structuring the unstructured data: the use of content analysis.
- Lahdenperä, P., & Koppinen, T., 2009, Financial analysis of road project delivery systems. *Journal of financial management of property and construction*, 14(1), 61-78.
- Lawrence, R. J., Gil, M. P., Flückiger, Y., Lambert, C., & Werna, E., 2008, Promoting decent work in the construction sector: The role of local authorities. *Habitat International*, 32(2), 160-171.

- Littig, B., & Grießler, E., 2005, Social sustainability: a catchword between political pragmatism and social theory. *International journal of sustainable development*, 8(1-2), 65-79.
- Magis, K., & Shinn, C., 2009, Emergent principles of social sustainability. *Understanding the social dimension of sustainability*, 15-44.
- McKenzie, S., 2004, Social sustainability: towards some definitions. Vol. 27. *Hawke Research Institute Working Paper Series*. Magill: Hawke Research Institute
- Missimer, M., Robèrt, K.-H., & Broman, G., 2017, A strategic approach to social sustainability–Part 1: exploring the social system. *Journal of Cleaner Production*, 140, 32-41.
- Murphy, K., 2012, The social pillar of sustainable development: a literature review and framework for policy analysis. *Sustainability: Science, Practice, & Policy*, 8(1).
- Peterson, N., 2016, Introduction to the special issue on social sustainability: integration, context, and governance. *Sustainability: Science, Practice, & Policy*, 12(1).
- Raven, R., Mourik, R., Feenstra, C., & Heiskanen, E., 2009, Modulating societal acceptance in new energy projects: towards a toolkit methodology for project managers. *Energy*, 34(5), 564-574.
- Rogerson, C. M., 2012, *Supplier diversity: A new phenomenon in private sector procurement in South Africa*. Paper presented at the Urban Forum.
- Rydin, Y. (2012). *Governing for sustainable urban development*. Earthscan.
- Simkoko, E., 1992, Managing international construction projects for competence development within local firms. *International Journal of Project Management*, 10(1), 12-22.
- Sneddon, C., Howarth, R. B., & Norgaard, R. B., 2006, Sustainable development in a post-Brundtland world. *Ecological economics*, 57(2), 253-268.
- Sourani, A., & Sohail, M., 2005, Realising social objectives of sustainable construction through procurement strategies.
- Suopajärvi, L., Poelzer, G. A., Ejdemo, T., Klyuchnikova, E., Korchak, E., & Nygaard, V., 2016, Social sustainability in northern mining communities: A study of the European North and Northwest Russia. *Resources policy*, 47, 61-68.
- Tawiah, P., & Russell, A., 2005, *The influence of procurement mode on innovation potential in infrastructure project delivery*. Paper presented at the Proceedings of 33rd CSE Annual Conference, Construction Specialty Conference. June 2<sup>nd</sup> -4<sup>th</sup>, 2005. Toronto, Ontario, Canada.
- Valdes-Vasquez, R., & Klotz, L. E., 2013, Social sustainability considerations during planning and design: Framework of processes for construction projects. *Journal of Construction Engineering and Management*, 139(1), 10.
- Valenzuela, M., Rafael, & Albarosa, F., 2017, Social Sustainability Aspects of Agile Project Management: An Exploratory Study of Social Sustainability Aspects in Agile Project Management.
- Vallance, S., Perkins, H. C., & Dixon, J. E., 2011, What is social sustainability? A clarification of concepts. *Geoforum*, 42(3), 342-348.

- Watermeyer, R., 1999, Socio-economic responsibilities: the challenge facing structural engineers. *The Structural Engineer*, 77(17), 22-28.
- Watermeyer, R., Gounden, S., Letchmiah, D., & Shezi, S., 1998, Targeted procurement: a means by which socio-economic objectives can be realized through engineering and construction works contracts: technical paper. *Journal of the South African Institution of Civil Engineering= Joernaal van die Suid-Afrikaanse Instituut van Siviele Ingenieurswese*, 40(4), 15-25.
- Weingaertner, C., & Moberg, Å., 2014, Exploring social sustainability: learning from perspectives on urban development and companies and products. *Sustainable Development*, 22(2), 122-133.
- Whitton, J., Parry, I. M., Akiyoshi, M., & Lawless, W., 2015, Conceptualizing a social sustainability framework for energy infrastructure decisions. *Energy Research & Social Science*, 8, 127-138.