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RESEARCH ARTICLE

# Evaluating Social Sustainability Factor Prioritisation in Sustainable Urban Regeneration Projects: The Case of UK Construction Industry

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## Abstract

Social sustainability has been acknowledged as an essential component for delivering sustainable development objectives. While the importance of social sustainability has been well recognised by many construction industry practitioners, its core requirements have remained undefined. Many such social sustainability concepts have remained implicit and undefined. In some cases, they have been concealed behind a seemingly random choice of common socio-political indicators, hence making social sustainability requirements very difficult for practitioners to clearly specify and prioritise in an explicit manner and deliver them in practical terms. This study investigates the degree of consideration given to the promotion of social sustainability factors by practitioners engaged in the delivery of sustainable regeneration projects in the UK. It draws data from 15 interviewees and 122 respondents who participated in the study through semi-structured interviews and questionnaire surveys, respectively. The results reveal that health and safety issues were the most promoted among the other six key social sustainability issues considered by the majority of practitioners. The findings indicate that various efforts and legislations initiated by the UK government to improve health and safety practices within the construction industry have played a key role in practitioners' attitudes towards the promotion of health and safety issues in their practices.

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## Keywords

**Degree of Consideration; Regeneration Practitioners; Regeneration Projects; Social Sustainability Factors**

## Introduction

There are numerous definitions and criteria for sustainability principles in literature and practice ([Martek, et al., 2018](#); [Purvis, Mao and Robinson, 2019](#)). Various practitioners “derive their own definition according to discipline-specific criteria or study perspective, making a generalised definition difficult to achieve” in practical terms ([Colantonio, 2007](#), p. 4). Several studies have claimed that many practitioners in the public and private sectors have only demonstrated a relatively limited understanding of sustainability issues, resulting in undesirable practices and the poor performance of sustainability projects ([Lombardi et al., 2011](#); [Akotia et al., 2016](#); [Yoo and Lee, 2016](#); [Goh, Ting and Bajracharya, 2023](#)). The lack of understanding and poor sustainability performance issues are worsened when they relate to regeneration projects due to the “multi-dimensional and complex nature” of the projects ([Boyle, et al., 2018](#), p. 4).

As social sustainability principles are crucial in developing and building a vibrant society ([Rivai, Rohman and Sumantri, 2023](#)), it is therefore imperative that their requirements are clearly set out to drive the social processes and systems towards achieving their intended objectives. It has generally been suggested that social sustainability is an essential component of regeneration, which can bring about the desired social sustainability benefits of regeneration projects ([Turcu, 2012](#)). The level of sustainability impacts how a regeneration project can deliver for the present and future generations, “from a social sustainability orientated perspective ultimately sets the foundations in determining a development’s success in creating a socially sustainable development” ([Mak and Peacock, 2011](#), p. 13). Evidence has shown that the absence of such socially oriented requirements that adequately place emphasis on creating value and empowerment of society can lead to the deprivation and worklessness of residents in a community ([Rivai, Rohman and Sumantri, 2023](#); [SDC, 2003](#)). This can also adversely affect the overall life quality of individuals living within such a community ([SDC, 2003](#); [Abdel-Raheem and Ramsbottom, 2016](#)). Sustainable regeneration projects are likely to fail to materialise their sustainability benefits if the social sustainability principles are not accorded adequate attention by practitioners. For example, it is believed that “communities, or certain sectors of the community, can fail to benefit from otherwise successful regeneration when gentrification occurs and housing becomes too expensive for the original residents” ([SDC, 2003](#), p. 27). Social sustainability principles in [Colantonio’s \(2008, p. 17\)](#) view “are fundamental instruments to measure the progress towards sustainability”. For sustainable projects to be socially sustainable, it means that such projects must deliver healthy living conditions and ultimately improve the quality of life for society ([Mak and Peacock, 2011](#)). Construction projects, in particular, the sustainability ones, create new synergies and social interactions between the built environment and communities; hence, the creation of social processes calls for the need for such sustainability projects to be carefully planned and delivered in line with the sustainable development goals for the communities ([Almahmoud and Doloi, 2015](#)).

According to [Edum-Fotwe and Price \(2009, p. 314\)](#), the social sustainability principles reflect the societal realities that are created through the “dynamic interaction of individual values and notions for any particular society”. Addressing such dynamic interactions calls for a more precise application of sustainability practices. It is reasonable to expect communities to be socially sustainable when adequate consideration is given to the application of socially oriented sustainability practices during regeneration projects. According to [Lynch and Mosbah \(2017, p. 301\)](#), “Targets that provide guidance on meeting the Sustainable Development Goals clearly show how local built environment actions connect to global sustainability goals”. In this regard, practitioners have key roles to play in ensuring that they adopt practices that enable sustainable regeneration projects to deliver long-term socially oriented benefits for society. Various players have also recognised the

role of the built environment organisations in the achievement of social sustainability goals ([Yoo and Lee, 2016](#); [Goh, Ting and Bajracharya, 2023](#)).

There have been numerous studies relating to social sustainability issues on built environment projects over the last decade. For instance, the works of authors such as [Akhtar, et al. \(2024\)](#), [Woodcraft \(2015\)](#) and [Åhman \(2013\)](#) have identified the lack of understanding of the social sustainability deliverables in the planning, design and delivery of sustainable construction projects in general; however, to date, none has focused on the extent to which consideration is given to the promotion of social sustainability factors by practitioners in the context of the delivery of sustainable regeneration projects. In light of the above, this paper aims to contribute to the sustainability discourse by focusing on the social sustainability factors that are often neglected ([Darchen and Ladouceur 2013](#); [Munzel, Meyer-Waarden and Galan, 2018](#)), misunderstood ([Gould, Missimer and Mesquita, 2017](#)) and not considered adequately ([Corsini and Moultrie, 2019](#)) in planning and design in the context of the delivering of social sustainability benefits of regeneration projects. It is our firm belief that the findings from this study would assist regeneration practitioners to better understand social sustainability deliverables in the planning, design and delivery of social sustainability benefits through their regeneration projects for all stakeholders concerned. To do so, the key question the paper seeks to address is as follows: what degree of consideration do regeneration practitioners give towards the prioritisation and promotion of the key social sustainability factors on their projects? In order to address this question, the study adopted a mixed methods research methodology to collect both qualitative and quantitative data through in-depth semi-structured interviews and questionnaire surveys, respectively, from practitioners involved in the delivery of regeneration projects. The interview data are presented and analysed, which is followed by the presentation and analysis of the questionnaire survey data.

## Literature review

### SOCIAL SUSTAINABILITY PRINCIPLES OF SUSTAINABLE REGENERATION

The social dimension of sustainability has been recognised as an essential aspect of delivering sustainable development ([Colantonio, 2008](#); [Mak and Peacock, 2011](#); [Munzel, Meyer-Waarden and Galan, 2018](#); [Goh, Ting and Bajracharya, 2023](#)) and a major requirement for evaluating the viability of built environment sustainable regeneration projects ([Edum-Fotwe and Price, 2009](#); [Yoo and Lee, 2016](#)). It has also been seen as an essential aspect that has formed part of the political discourse and agenda of many government agencies and institution's policy systems ([Colantonio, 2007](#)). According to [Liu, et al. \(2017\)](#) and [Edum-Fotwe and Price \(2009\)](#), the social dimension of sustainability is an essential component towards the attainment of long-term sustainable development goals of humanity. A prerequisite to social sustainability requirements is the way and manner people and communities live together and set out to achieve their individual and collective developmental goals ([Colantonio, 2008](#)).

In more practical terms, social sustainability refers to peoples' values and empowerment in a manner that effectively engages them on a long-term basis in activities that have impacts on their social aspirations and liveability ([Colantonio, 2007](#); [Yoo and Lee, 2016](#)). According to [Munzel, Meyer-Waarden and Galan \(2018, p. 15\)](#), "social sustainability is often linked to urban development" and—as a result—focuses on the development of physical spaces that enhance the wellbeing of individuals. These principles underpin the social sustainability requirements and seek to provide collaboration between individuals' social progress and economic prosperity, which are in tune with sustainable regeneration goals. These unique social sustainability principles form part of the broader agenda of the built environment practices ([Goh, Ting, and Bajracharya, 2023](#)). Social sustainability rests on the assumption that the provision of social services in the form of capacity building, such as education and skills development and ensuring equality and the participation of

society, will largely help to enhance the quality of life for such a society ([Colantonio, 2008](#); [Almahmoud, and Doloi, 2015](#); [Munzel, Meyer-Waarden and Galan, 2018](#); [Masocha, 2019](#); [Battisti, Barnocchi and Iorio, 2019](#)). A study by [Masocha \(2019\)](#) found social sustainability factors to be significantly related to the economic performance of society. As social requirements are crucial in developing and building a vibrant society, it is therefore imperative that the requirements for such social issues are clearly set out to drive the social values, processes and systems towards achieving their intended objectives. It is argued that, for any community to meet its social aspirations, it is important that the residents living in such a community have access to social services and facilities ([Littig and Griebler, 2005](#); [Almahmoud and Doloi, 2015](#)). In this regard, the built environment has been recognised as the one with the potential and expertise to drive that process. Such linkages between the delivery of social sustainability benefits and the built environment have long been acknowledged by many authors ([Yoo and Lee, 2016](#); [Lynch and Mosbah, 2017](#)).

It is widely argued that among the sustainability factors, the social elements are the most ignored ([Littig and Griebler, 2005](#); [Munzel, Meyer-Waarden and Galan, 2018](#); [Goh, Ting and Bajracharya, 2023](#)) and the most difficult to deal with in terms of composition, implication and evaluation, notably because of the multifaceted and dynamic nature of society and its requirements ([Abdel-Raheem and Ramsbottom, 2016](#); [Rivai, Rohman and Sumantri, 2023](#)). This presents a major challenge that makes it very difficult to specify and prioritise the social sustainability requirements in a more explicit manner ([Edum-Fotwe and Price, 2009](#)). Although the social sustainability aspect has been well acknowledged by many government agencies and construction industry practitioners, its core components still remain undefined ([Littig and Griebler, 2005](#); [Yoo and Lee, 2016](#)). The reality is that, to date, a well-defined theoretical concept regarding social sustainability requirements is still absent ([Littig and Griebler, 2005](#); [Liu, et al., 2017](#); [Purvis, Mao and Robinson, 2019](#); [Rivai, Rohman and Sumantri, 2023](#)). The social ontology framework developed by [Edum-Fotwe and Price \(2009\)](#) advocated the need for the identification and prioritisation of the specific social sustainability requirements existing within communities to allow for effective monitoring and evaluation. Without such a well-defined framework, assigning priorities to social processes and planning systems may seem very difficult, if not impossible, to achieve in practice ([Littig and Griebler, 2005](#); [Purvis, Mao and Robinson, 2019](#)). The lack of consensus on the main composition of social sustainability requirements has resulted in the misinterpretation and misapplication of its criteria by many industry practitioners and policymakers ([Colantonio, 2008](#); [Yoo and Lee, 2016](#); [Liu, et al., 2017](#)). It is argued that social sustainability policy systems and interventions targeted at particular communities have been too ambitious, making such policies very difficult to implement in practice ([Hofstad, 2012](#)). This, [Hofstad \(2012\)](#) said, has been the case when such policies were designed to achieve political objectives. Many such social sustainability concepts have remained implicit and, in some cases, have been “concealed behind a seemingly random choice of common socio-political indicators” ([Littig and Griebler, 2005](#), p. 68).

However, a more practical approach to social sustainability issues will require that the practitioners, particularly within the construction industry, adopt a more holistic approach towards the integration and prioritisation of tangible and non-tangible measures, which [Colantonio \(2008\)](#) referred to as soft and hard requirements, respectively. Such an approach calls for the construction industry to provide a range of social sustainability services, such as apprenticeship and skills training opportunities both in the form of a resource and also as a resource in itself, as an industry ([Hill and Bowen, 1997](#); [Communities and Local Government \(CLG\), 2007](#); [Colantonio, 2007, 2008](#); [Pitt, et al., 2009](#); [Carpenter, 2011](#); [Nwokoro and Onukwube, 2011](#); [Almahmoud and Doloi, 2015](#); [Armeanu, Vintila and Gherghina, 2018](#); [Maqbool, Arula and Ashfaq, 2023](#)). Education and training have the potential to drive “more healthy and sustainable lives, support employability and lessens poverty” ([Armeanu, Vintila and Gherghina, 2018](#), p. 1).

The provision of skills training opportunities to meet individual needs is also seen as a prerequisite and a major driving force behind the formation of a productive and healthy society ([Littig and Griebler, 2005](#); [Maqbool, Arula and Ashfaq, 2023](#)) towards the attainment of sustainable development goals (SDGs)

agenda ([Kioupi and Voulvoulis, 2019](#)). Individuals are more likely to become economically sustainable if they are able to acquire skills. Similarly, the provision of social facilities such as affordable housing ([Smith, 2006](#); [CLG, 2007, 2008, 2010](#); [Winston, 2009](#); [Bailey, 2010](#); [Abidin, Yusof and Othman, 2013](#); [Almahmoud and Doloi, 2015](#)) and improvement of physical outlook ([HM Treasury, 2008](#); [CLG, 2008, 2010](#); [SERCS, 2011](#)) are crucial sustainability requirements required to attain a socially viable community and also attract local investment. Evidence has shown that the absence of such opportunities can lead to the deprivation and worklessness of residents in the communities, which can adversely affect the residents' overall life quality and chances of living within such communities ([CLG, 2008](#); [Armeanu, Vintila and Gherghina, 2018](#); [Hernández-Calzada, et al., 2019](#); [Maqbool, Arula and Ashfaq, 2023](#)). CLG went on to indicate that individuals with less education and training opportunities and facilities were more likely to face problems of low self-esteem and aspirations, which as a consequence can result in a lack of social and economic power.

[Littig and Griebler \(2005\)](#) identified three major categories of factors for prioritising and evaluating the social aspects of sustainability. Factors such as security and wellbeing, and achievement of societal basic needs were identified in their first-order group of factors. In a wider sense, education and training, affordable housing, and health and safety issues were closely linked to the first-order set of factors. Social justice and social participation were identified as the second- and third-order factors, respectively. Since the built environment is a major provider of social facilities and services on which society depends, it is therefore fair to draw a parallel between the social sustainability factors identified by [Littig and Griebler \(2005\)](#) and the built environment. For instance, the construction of a new hospital facility will require services in the form of active participation ([Littig and Griebler, 2005](#); [Colantonio, 2008](#); [Pitt, et al., 2009](#); [Häkkinen and Belloni, 2011](#); [Zheng, Shen and Wang, 2014](#); [Battisti, Barnocchi and Iorio, 2019](#)) of the residents in the community to seek their views and wellbeing while at the same time providing apprenticeships and ensuring the health and safety of the workforce and the local residents ([Nwokoro and Onukwube, 2011](#); [Akadiri, Chinyio and Olomolaiye, 2012](#); [Reyes, et al., 2014](#); [Eizenberg and Jabareen, 2017](#); [Goh, Ting and Bajracharya, 2023](#)). In this sense, there is a strong theoretical and practical relationship and also a direct and indirect correlation between the social requirements and the built environment facilities and services. The social-related principles of a sustainable built environment require that regeneration practitioners deliver the facilities and services in a manner that

- provides for and improves the quality of human life and wellbeing by ensuring adequate achievement of societal basic needs,
- protects and promotes human health through a healthy and safe working environment,
- provides empowerment through the development of skills training, capacity enhancement and participation in the projects, and
- provides reasonable delivery of social-related benefits during the various stages of the projects ([Hill and Bowen, 1997](#); [SDC, 2003](#); [Department for Environment, Food and Rural Affairs \(DEFRA\), 2005](#); [Boyle, et al., 2018](#)).

Any attempt meant to address these social sustainability requirements will require a comprehensive approach from practitioners and the application of a suitable evaluation mechanism. Such an approach should also involve the combination of both the qualitative and quantitative measurable targets of socially related sustainability factors. It suggested that “the multi-dimensional and complex reality of urban development and their associated issues requires integrated strategies involving a wide range of actors” ([Boyle, et al., 2018](#), p. 4).

[Table 1](#) shows the most cited social sustainability factors for sustainable regeneration and the literature sources.



Table 1. Social sustainability factors for sustainable regeneration.

Social sustainability factors of sustainable regeneration	Literature source
Health and safety for workforce and local community/residents	<a href="#">Hill and Bowen, 1997</a> ; <a href="#">SDC, 2003</a> ; <a href="#">DEFRA, 2005</a> ; <a href="#">Littig and Griebler, 2005</a> ; <a href="#">Nwokoro and Onukwube, 2011</a> ; <a href="#">Akadiri, Chinyio and Olomolaiye, 2012</a> ; <a href="#">Turcu, 2012</a> ; <a href="#">Reyes, et al., 2014</a> ; <a href="#">Eizenberg and Jabareen, 2017</a> ; <a href="#">Martek, et al., 2018</a> ; <a href="#">Dogu and Aras, 2019</a> ; <a href="#">Goh, Ting and Bajracharya, 2023</a>
Education and training/apprenticeship opportunities	<a href="#">Hill and Bowen, 1997</a> ; <a href="#">Littig and Griebler, 2005</a> ; <a href="#">CLG, 2007</a> ; <a href="#">Colantonio, 2007, 2008</a> ; <a href="#">Pitt, et al., 2009</a> ; <a href="#">Carpenter, 2011</a> ; <a href="#">Häkkinen and Belloni, 2011</a> ; <a href="#">Nwokoro and Onukwube, 2011</a> ; <a href="#">Turcu, 2012</a> ; <a href="#">Clapham, 2014</a> ; <a href="#">Abdel-Raheem and Ramsbottom, 2016</a> ; <a href="#">Armeanu, Vintila and Gherghina, 2018</a> ; <a href="#">Kioupi and Voulvoulis, 2019</a> ; <a href="#">Maqbool, Arula and Ashfaq, 2023</a>
Affordable housing	<a href="#">Littig and Griebler, 2005</a> ; <a href="#">Smith, 2006</a> ; <a href="#">CLG, 2007, 2008, 2010</a> ; <a href="#">Winston, 2009</a> ; <a href="#">Bailey, 2010</a> ; <a href="#">Turcu, 2012</a> ; <a href="#">Abidin, Yusof and Othman, 2013</a> ; <a href="#">Clapham, 2014</a> ; <a href="#">Martek, et al., 2018</a> ; <a href="#">Dogu and Aras, 2019</a>
Stakeholder participation (including local community)	<a href="#">Littig and Griebler, 2005</a> ; <a href="#">Colantonio, 2008</a> ; <a href="#">Pitt, et al., 2009</a> ; <a href="#">Häkkinen and Belloni, 2011</a> ; <a href="#">Turcu, 2012</a> ; <a href="#">Zheng, Shen and Wang, 2014</a> ; <a href="#">Eizenberg and Jabareen, 2017</a> ; <a href="#">Battisti, Barnocchi and Iorio, 2019</a> ; <a href="#">Goh, Ting and Bajracharya, 2023</a>
Community security/wellbeing	<a href="#">Hill and Bowen, 1997</a> ; <a href="#">SDC, 2003</a> ; <a href="#">DEFRA, 2005</a> ; <a href="#">Littig and Griebler, 2005</a> ; <a href="#">Häkkinen and Belloni, 2011</a> ; <a href="#">Clapham, 2014</a> ; <a href="#">Abdel-Raheem and Ramsbottom, 2016</a> ; <a href="#">Eizenberg and Jabareen, 2017</a> ; <a href="#">Durdyev, et al., 2018</a> ; <a href="#">Goh, Ting and Bajracharya, 2023</a>
Physical appearance/positive image of local environment	<a href="#">HM Treasury, 2008</a> ; <a href="#">CLG, 2008, 2010</a> ; <a href="#">SERCS, 2011</a> ; <a href="#">Turcu, 2012</a> ; <a href="#">Park and Sohn, 2013</a> ; <a href="#">Ploegmakers and Beckers, 2015</a> ; <a href="#">Ragozino, 2016</a> ; <a href="#">Boussaa, 2018</a> ; <a href="#">Perovic and Šestovic, 2019</a>

## Research method

A mixed methods research approach (qualitative and quantitative methods) was adopted for the study. The built environment researchers have long recognised the importance of using both qualitative and quantitative research methodologies for their studies. [Panas and Pantouvakis \(2010, p. 79\)](#) suggested that the mixed methods concept “seems to be gaining ground, especially given the industry’s change towards intensifying the exploration of productivity’s soft aspects as well as behavioural and managerial factors and cultural diversions of the project actors”. According to [Creswell and Garrett \(2008\)](#), the recent demand for a mixed methods approach arises from concerns about the inability of the individual qualitative and quantitative research paradigms to offer workable solutions to ever-complex and dynamic problems confronting humanity. One significant proposition of the mixed methods technique is the diversification of ideas it offers as a concept, coupled with its potential to broaden the understanding of human experiences in developing policies and practices ([Tashakkori and Teddlie, 2010](#)). The diversity inherent in its design indicates that the mixed methods technique has become critical and synonymous with good research practice. [Saunders, Lewis and Thornhill \(2009\)](#) argued that by adopting a mixed methods research approach

within the same research framework, practical questions can be addressed simultaneously from different perspectives, leading to greater confidence in the findings and conclusions.

To begin the data collection process, practitioners were presented with the six most cited social sustainability factors obtained through the review of the literature ([Table 1](#)). Hence, to investigate the extent to which consideration is/was given to the promotion of these social sustainability factors, semi-structured interviews were conducted with 15 practitioners from three construction organisations selected through purposive sampling from the 2018 editions of the *Building Magazine* and *New Civil Engineer* magazine. The selection was based on their experience and knowledge in the involvement and delivery of sustainable regeneration projects in the UK. Formal letters and proposals were issued to these three construction organisations seeking their permission to participate in the study. Follow-up telephone calls were also made to these construction organisations to further explain the purpose and the context of the study. Subsequently, face-to-face in-depth semi-structured interviews were then conducted with the 15 practitioners, made up of five practitioners from each of these construction organisations, with each interview lasting for approximately 1 hour.

Subsequently, the questionnaire survey was designed with closed questions using the 5-point Likert scale ([Table 2](#)) (where 1 represents the most and 5 the least) and administered through the internet, together with a cover letter explaining the objectives of the research to the selected respondents. A total of 200 hyperlinks were sent out to the selected respondents. Follow-up emails and telephone calls were sent out to remind those who were yet to respond to the questionnaire survey. This was done to further emphasise the importance of completing the questionnaire on time and to increase the response rate. A total of 122 responses were received, representing an overall response rate of 61.0%. The results obtained from the semi-structured interviews and questionnaire survey are shown in [Tables 3](#) and [4](#), respectively.

Table 2. Likert scale of intensity judgment of relative importance.

Scale/intensity judgment of relative importance	Quantitative scale (1–5 point)
Very high degree of consideration	1
High degree of consideration	2
Moderate degree of consideration	3
Limited degree of consideration	4
No degree of consideration	5

## DATA ANALYSIS

To determine whether the questionnaire survey instrument used was reliable in measuring what it was intended for, and also to check the internal reliability ([Sarantakos, 2013](#)) of the data, Cronbach's alpha test was conducted (on a selected sample of six items (factors)). The "reliability" test conducted on the questionnaire survey shows Cronbach's alpha value of 0.943, indicating a very good internal consistency reliability of the questionnaire data obtained. According to [Pallant \(2016\)](#), achieving an alpha coefficient value of 0.7 is generally considered to be acceptable, while values above 0.89 provide more acceptable results and a greater internal reliability of the results.

The analysis and discussion of the semi-structured interviews and questionnaire survey findings are subsequently presented in the order of consideration/priority given to the social sustainability factors by practitioners. From the analysis of the semi-structured interviews, it became clear that there were basically

two main categories of responses or degree of consideration/priority (very high/high or moderate/limited) given by practitioners as presented in [Table 3](#).

Table 3. Semi-structured interview results of social sustainability factors.

Social sustainability factors	Practitioners Total N = 15	
	a*: Very high/high degree of consideration	b*: Moderate/limited degree of consideration
Promoting health and safety of workforce and local community/residents (PHSFLC)	15 (100%)	-
Promoting education and training/apprenticeship opportunities (PETO)	13 (86.7%)	2 (13.3%)
Promoting affordable housing (PAH)	12 (80.0%)	3 (20.0%)
Promoting stakeholders' participation (including local community) (PSP)	10 (66.7%)	4 (26.7%)
Promoting community security/wellbeing (PCS)	9 (60.0%)	5 (33.3%)
Promoting physical appearance/positive image of local environment (PPA/PILE)	7 (46.7%)	5 (33.3%)

a\*: Number and percentages (%) of practitioners (interviewees) who responded either very high or high degree of consideration. b\*: Number and percentages (%) of practitioners (interviewees) who responded either moderate or limited degree of consideration.

For the questionnaire survey data, the initial analysis was carried out using the SPSS software to obtain the descriptive information ([Table 4](#)) and Pearson's pairwise correlation matrix ([Table 5](#)) for the six social sustainability factors. This was further subjected to analysis using the analytic hierarchy process (AHP). The use of Pearson's pairwise correlations matrix as an input for the AHP to determine the relative importance of alternative attributes is in line with the works of [Song and Kang \(2016\)](#). The AHP-based analysis methods have been utilised extensively in various studies to prioritised decisions in a wide range of fields ([Saaty and Vargas, 2012](#); [Song and Kang, 2016](#)), including sustainability-related areas. In recent times, authors such as [Kalutara, \*et al.\* \(2018\)](#) and [Hatefi and Tamošaitien \(2018\)](#) have applied the AHP approach in evaluating and prioritising sustainability factors of construction projects. Fundamentally, it adopts a general concept of measurement, which is largely based on ratio scales derived from pairwise comparisons of attributes in "multilevel hierarchic structures", obtained from "actual measurements or from a fundamental scale that reflects the relative strength of preferences and feelings" ([Saaty and Vargas, 2012](#), p. 3). The proponent of the AHP ([Saaty, 1980](#)) argued that the use of the AHP analytical method provides a useful tool to determine the priorities and the level of importance among different variables. Similarly, its nonlinear approach makes it possible to undertake "both deductive and inductive thinking without use of the syllogism" ([Saaty and Vargas, 2012](#), p. 2). [Saaty and Vargas \(2012\)](#) went on to add that the adoption of an "absolute measurement" tool such as the Likert scale enables alternative attributes to be ranked or scored in terms of the intensity or level of importance that is attached to the attributes. In light of the aforementioned, since the primary aim of the study was to ascertain (rank) the importance practitioners were according to the social sustainability factors on their projects, a 5-point Likert scale ([Table 2](#)) was deemed the most suitable data collection tool and, hence, adopted for the collection of quantitative data.



The adopted Likert scale for the study is in line with the ones proposed and adopted by [Saaty \(1980\)](#) and [Hossain, Adnan and Hasin \(2014\)](#) in their works.

**Table 4.** Questionnaire survey results of social sustainability factors.

Social sustainability factors (percentage)	Ranking	Very high degree of consideration	High degree of consideration	Moderate degree of consideration	Limited degree of consideration	No consideration at all
Promoting health and safety of workforce and local community/ residents (PHSFLC)	1	42.0%	46.1%	10.4%	1.5%	0.0%
		= 88.1%		= 11.9%		
Promoting education and training/ apprenticeship opportunities (PETO)	2	34.7%	45.6%	10.8%	8.8%	0.1%
		= 80.3%		= 19.6%		
Promoting affordable housing (PAH)	3	32.8%	41.9%	14.8%	10.4%	0.1%
		= 74.7%		= 25.2%		
Promoting stakeholders' participation (including local community) (PSP)	4	30.2%	38.9%	16.9%	13.8%	0.2%
		= 69.1%		= 30.7%		
Promoting community security/ wellbeing (PCS)	5	28.8%	37.6%	17.4%	16.1%	0.1%
		= 66.4%		= 33.5%		
Promoting physical appearance/positive image of local environment (PPA/ PILE)	6	27.6%	35.9%	19.5%	16.8%	0.2%
		= 63.5%		= 36.3%		

To obtain the overall ranking of the social sustainability factors by practitioners in order to ascertain the degree of importance ([Table 6](#)), further analysis was undertaken. This was done by computing the normalised principal/maximum eigenvector, priority vector ( $W$ ), by applying Equations 1 and 2, as follows:

$$A1_{ij}/\Sigma A1_{ij} \quad \text{Equation 1}$$

where  $A1_{ij}$  is social sustainability factors in the column of the comparison matrix and  $\Sigma A1_{ij}$  is the sum of each column.

$$W = \sum_{i=1}^{j=1} a_{ij} = (w1 \dots w6) \quad \text{Equation 2}$$

where  $a_{ij}$  represents the row of social sustainability factors ( $A1$ – $A6$ ) and the column of social sustainability factors ( $A1$ – $A6$ ) in the matrix.

Table 5. Pearson's correlation matrix of comparison data for social sustainability factors.

		A1 HSWLC	A2 ETA0	A3 AH	A4 SPC	A5 (CS)	A6 (PAP)
Correlation	A1 (HSWLC)	1	0.497	0.392	0.395	0.291	0.178
	A2 (ETA0)	0.497	1	0.460	0.181	0.226	0.183
	A3 (AH)	0.392	0.460	1	0.283	0.138	0.175
	A4 (SPC)	0.395	0.181	0.283	1	0.227	0.235
	A5 (CS)	0.291	0.226	0.138	0.227	1	0.280
	A6 (PAP)	0.178	0.183	0.175	0.235	0.28	1
	$\Sigma$	2.753	2.547	2.448	2.321	2.162	2.051

A1–A6 represent the six social sustainability factors explored with respondents.

[Table 6](#) shows the priority vector (W) of the relative weights of all the six social sustainability factors that were compared.

Table 6. The normalised principal eigenvector or normalised priority vector (W).

		A1 HSWLC	A2 ETA0	A3 AH	A4 SPC	A5 (CS)	A6 (PAP)	Normalised priority vector (W)	Ranking
Correlation matrix	A1 (HSWLC)	0.363	0.195	0.160	0.170	0.135	0.087	0.185	1
	A2 (ETA0)	0.181	0.393	0.188	0.078	0.105	0.089	0.172	2
	A3 (AH)	0.142	0.181	0.408	0.122	0.064	0.085	0.167	3
	A4 (SPC)	0.143	0.071	0.116	0.431	0.105	0.115	0.163	4
	A5 (CS)	0.106	0.089	0.056	0.098	0.463	0.137	0.158	5
	A6 (PAP)	0.065	0.072	0.071	0.101	0.130	0.488	0.154	6

### CONSISTENCY RATIO

The consistency ratio (CR) was also computed to determine whether the judgement obtained from Pearson's pairwise comparison matrix was consistent by applying Equation 3. The "degree of consistency is vital in pairwise comparison data as it reflects on the validity of the final decision" ([Kalutara, et al., 2018](#), p. 40).

[Saaty \(1980\)](#) opined that to ensure good consistency of the data, the CR obtained should be less or equal to 10%.

$$CR = CI/RI = [(\lambda_{\max} - n)/n - 1]/RI \leq 0.1 \quad \text{Equation 3}$$

where RI is the average of the random consistency index of a sample size of 500 matrices as recommended by [Saaty \(1980\)](#) as shown in [Table 7](#). RI is the situation where the judgments of respondents have been made randomly and, hence, likely expected to be highly inconsistent ([Saaty, 1980](#)); CI is the consistency index, which is calculated by the following equation:

$$CI = (\lambda_{\max} - n)/(n - 1) \quad \text{Equation 4}$$

where  $n$  is the size/dimension of the matrix and  $\lambda_{\max}$  is the maximum eigenvalue of the matrix formulated by Equation 5 ([Saaty, 1990](#)).

$$\lambda_{\max} = \sum_{j=1}^n a_{ij}W_j / W_i \quad \text{Equation 5}$$

where  $W_j$  is the weight of the  $j^{\text{th}}$  factor and  $W_i$  is the weight of the  $i^{\text{th}}$  factor.

Consequently, by applying Equation 3, the CR value obtained from the pairwise comparison matrix of the six social sustainability factors was  $0.058 \leq 0.1$  or 10%. This clearly indicates that Pearson's pairwise correlation matrix of the social sustainability factors is consistent ([Ahmed, et al., 2016](#)), hence validating the results of the AHP ([Saaty, 1980](#)).

Table 7. Random index values according to the size of matrix ([Saaty, 1990](#)).

Size of matrix (n)	1	2	3	4	5	6	7	8	9	10
RI	0.00	0.00	0.58	0.90	1.12	1.24	1.32	1.41	1.45	1.49

$n$  is the size of the random matrix, and RI is the corresponding index of consistency for random judgments.

## Discussion of findings

### PROMOTING HEALTH AND SAFETY OF WORKFORCE AND LOCAL COMMUNITY/RESIDENTS

A critical examination of the semi-structured interviews ([Table 3](#)) revealed that the health and safety of the workforce and local community/residents was the most considered among all the social sustainability factors promoted by practitioners. This was evident, as all of the 15 (100%) practitioners who participated in the semi-structured interviews indicated that they gave high/high degree of consideration to promoting the health and safety issues of their workforce and the community of their work locations. When a question was put to them during the interview about the extent to which consideration was given to the promotion of social sustainability factors on their regeneration projects, one of the practitioners, for example, commented by saying:

We give very high consideration to health and safety issues on our regeneration project, and we do that from start to finish. ...We are very mindful of health and safety of our workforce as well as the community we work in. ...We place a massive importance on promoting health and safety

issues pretty much on our projects. I think we have the responsibility to ensure that our people and residents are safe and healthy to continue to do the kind of things we are doing.

In an attempt to validate the above findings, the questionnaire survey results obtained when practitioners were asked to rank the degree of consideration that was being given to the promotion of these social sustainability factors show that health and safety was the most prioritised social sustainability factor of the six factors with 88.1% ([Table 4](#)) of very high/high degree of consideration. This was further complemented by the normalised priority vector (W) result obtained in [Table 6](#), showing a relative weight of 0.185. These findings obtained from the questionnaire survey validated the 100% very high/high result obtained from the interviews.

These findings provide a good indication that practitioners are taking the health and safety issue seriously and, hence, promoting its factors in their projects. In the earlier work of [Littig and Griebler \(2005\)](#), health and safety issues were classified among the first-order group of social sustainability factors, which, in their view, should be given adequate consideration by practitioners in order to achieve a productive and sustainable society. Many other authors like [Goh, Ting and Bajracharya \(2023\)](#), [Armeanu, Vintila and Gherghina \(2018\)](#), [Eizenberg and Jabareen \(2017\)](#), [Reyes, et al. \(2014\)](#), [Department for Business, Innovation and Skills \(DBIS\) \(2013\)](#), [Akadiri, Chinyio and Olomolaiye \(2012\)](#), [Colantonio \(2008\)](#), and [Hill and Bowen \(1997\)](#) have also acknowledged the importance of meeting such social sustainability factor.

While the finding provides a good indication, it can also be said that the introduction of health and safety legislations by the UK government to regulate health and safety practices within the UK's construction industry ([DBIS, 2013](#)) has played a major role in ensuring that good health and safety regulations are/were being adhered to by practitioners. Similarly, the emergence of the considerate contractor scheme and the establishment of the Health and Safety Executive (HSE) may have also contributed to practitioners' quests to promote good health and safety practices on their projects. The considerate contractor scheme and HSE, for instance, set standards and performance targets on which practitioners' health and safety performances are measured. Since practitioners are aware of the potential consequences and the various sanctions in cases of any violation of such legislation and non-performance, they are more likely to promote health and safety practices than the other social sustainability factors on their projects.

Again, various other efforts initiated by the UK government to improve health and safety practices within the construction industry can also be said to have contributed to these findings. Notable among them are the [Rethinking Construction Committee Egan Report \(1988\)](#) and the [DETR \(2000\)](#) report, which raised various concerns about poor health and safety practices and the potential dangers that such poor practices were posing to the entire construction industry towards the delivery of sustainable construction objectives. In recognition of such poor practices, the reports admonished construction industry practitioners to make a serious effort to promote good health and safety practices on their projects. Consequently, this has led to numerous discourses among practitioners, culminating in the creation of greater awareness among construction industry practitioners. The authors opine that this may have been reflected in these findings. It is believed that by promoting good health and safety practices adequately and by ensuring an enabling working environment for the workforce and society, sustainable regeneration projects will be more likely to deliver other associated social sustainability factors.

## PROMOTING EDUCATION AND TRAINING/APPRENTICESHIP OPPORTUNITIES

A further analysis of the semi-structured interviews reveals that a good number of practitioners were promoting education and training/apprenticeship schemes on their regeneration projects. This social sustainability factor was considered the second most important factor by practitioners. The results in [Table 3](#) show that 13 (86.7%) of the 15 practitioners who participated in the interviews had given "very

high/high degree of” consideration to the promotion of education and training/apprenticeships on their regeneration projects. The principles underpinning the sustainable regeneration concept require that practitioners focus their sustainability practices on the development of education and skills requirements for society. Social sustainability rests on the proposition that the development of education and training/skills requirements of individuals will provide opportunities for such individuals to acquire employability skills, which will then place them in a better position to secure employment and improve their standard of living ([Colantonio, 2008](#); [Turcu, 2012](#); [Abdel-Raheem and Ramsbottom, 2016](#); [Kioupi and Voulvoulis, 2019](#); [Maqbool, Arula and Ashfaq, 2023](#)). This position was echoed by one of the practitioners during our interview discussion by saying:

...We give very high consideration to education and training opportunities on our projects. Opportunities for education and training for young guys are in the fore front of what we do as practitioners and we always consider these things pretty much. We know, that’s the best way to give these guys employability skills for future jobs and obviously give them a better quality of life. We reckon that providing education and training for these guys has a lot of social benefits for themselves and our own industry as well.

This assertion concurs with the views of [Masocha \(2019\)](#), [DBIS \(2013\)](#), [Nwokoro and Onukwube \(2011\)](#) and [CLG \(2007\)](#), who indicated that the promotion of education and skills training programmes will potentially help to build the capacity of the current and future workforce and also enhance the skills requirements for the construction industry and society at large. Furthermore, the questionnaire survey results ([Table 6](#)) indicate that with a normalised priority vector of a relative weight (W) of 0.172, the promotion of education and training opportunities was the second most prioritised social sustainability factor by practitioners. Again, the questionnaire findings can be seen to agree with the interview findings.

However, one major issue that can have a serious implication on the quality of education and training schemes provided by practitioners when it involves construction projects is the duration of the delivery (start-finish) of the projects. Since such education and training schemes are often tied to the duration of the projects, it is important that practitioners take cognisance of this when planning their education and training schemes to ensure that they are well planned to match a project’s duration as well as an individual’s training requirements. For this reason, the authors are of the view that a trainee transfer scheme could be the best option for trainees who may be unable to complete their training due to the limited duration of a regeneration project. The introduction of such a trainee transfer scheme will enable trainees to be transferred to another project (which may not necessarily be with the same practitioner they began their training with) to complete their training.

## PROMOTING AFFORDABLE HOUSING

Following the education and training, affordable housing was the next most prioritised social sustainability factor by practitioners who participated in the study. Of the 15 practitioners interviewed ([Table 3](#)), 12 (80.0%) were of the view that the provision of affordable housing-led regeneration for communities was an important social sustainability issue for them. When the authors sought to enquire from practitioners as to why the provision of affordable housing regeneration was such a priority issue for them, a narrative given by one of the practitioners was that:

... We give high consideration to housing generation because we think communities can only be made sustainable if people have good houses and can also afford to live in them. ...I think, when we talk about delivering sustainable regeneration, it is ultimately about the provision of affordable housing.



From the questionnaire survey results ([Table 6](#)), it was further observed that the promotion of affordable housing-led regeneration projects was seen as the third most prioritised social sustainability factor, obtaining a normalised priority vector of a relative weight ( $w$ ) of 0.167. A plethora of literature has revealed that the provision of housing has been one of the dominant social issues of regeneration projects in which a lot of investment has been concentrated over the years in the UK ([HM Treasury, 2007](#); [CLG, 2008](#); [CLG, 2010](#)). This can be said to explain and justify why the practitioners may be giving consideration to the promotion of housing-led regeneration projects as revealed in the findings of the study. [Martek, et al. \(2018, p. 14\)](#) noted that to achieve a sustainable and just society, “housing should be affordable”. Authors like [Martek, et al. \(2018\)](#), [Clapham \(2014\)](#), [Abidin, Yusof and Othman \(2013\)](#), [Bailey \(2010\)](#), [Winston \(2009\)](#) and [Smith \(2006\)](#) are of the view that focusing on the provision of affordable housing can provide the means through which practitioners can deliver the sustainable development objectives for communities.

### PROMOTING STAKEHOLDERS’ PARTICIPATION (INCLUDING LOCAL COMMUNITY)

The principles underlying the delivery of social sustainability also require the full participation of all the stakeholders who have interests or stakes in the project. Stakeholder participation was the next most considered social sustainability factor by practitioners who participated in the semi-structured interview phase of the study. From the stakeholders’ perspective, the promotion of stakeholders’ interests is one major consideration in ensuring that regeneration meets the social sustainability needs of all the concerned parties. This is because inputs from a wide range of stakeholder groups can largely help practitioners to ensure that regeneration projects deliver more appropriate and distinctive social sustainability benefits for all the stakeholders ([CLG, 2008](#)). From the semi-structured interviews ([Table 3](#)), it was observed that out of the 15 practitioners, 10 (66.7%) were very highly/highly promoting stakeholders’ participation in their projects. In highlighting the importance of promoting stakeholders’ participation during the interviews, one of the practitioners noted their stakeholder participation approach in delivering their regeneration projects by saying:

We give high priority to stakeholder views and participation on our projects. We consider that as an important part of our work. Because we believe that stakeholders’ views matter, so we adequately engaged with various groups of people whenever we win a bid to deliver a regeneration project to seek their views. ...The participation of the local community groups and all the right people is very important for us and we try to engage with them, even before we start any regeneration development on site.

Similarly, the above finding was largely reinforced by the questionnaire survey result that obtained a normalised priority vector of a relative weight ( $W$ ) of 0.163 ([Table 6](#)). [Darchen and Ladouceur \(2013, p. 343\)](#) argued that the creation of “socially sustainable communities through the urban renewal process should theoretically involve active public engagement of the community”. Studies carried out by [Goh, Ting and Bajracharya \(2023\)](#), [Battisti, Barnocchi and Iorio \(2019\)](#), [Eizenberg and Jabareen \(2017\)](#), [Carpenter \(2011\)](#) and [Colantonio \(2008\)](#) have acknowledged the importance of stakeholder participation towards the successful delivery of sustainable regeneration projects. Their works emphasised the need for adequate consultations and participation of all the key stakeholders in the projects. The [CLG \(2008\)](#) and [SDC \(2003\)](#) reports on sustainable regeneration, for instance, noted that sustainable regeneration objectives were more likely to be realised when key stakeholders, such as the local community groups, were placed at the centre of the regeneration delivery process. Other authors like [Häkkinen and Belloni \(2011\)](#), [Colantonio \(2007\)](#), and [Littig and Griebler \(2005\)](#) were of the view that emphasising the promotion of practices that ensure the adequate participation of stakeholders in regeneration delivery processes was the surest means that practitioners could make sure that regeneration was delivering its sustainability objectives for all the stakeholders concerned. Again, it is encouraging to observe that a good number of practitioners are aware

of the importance of stakeholders' views and hence promote their participation in their projects. It can be suggested that practitioners who are effectively promoting the participation of all their stakeholders are less likely to encounter opposition or vandalism (which may result in loss of property and delays of their projects) in communities where they may be operating. Equally, community groups that are fully participating in the delivery of the projects could also be useful resources for practitioners and policymakers to tap their knowledge for future regeneration projects in their communities.

### PROMOTING COMMUNITY SECURITY/WEELLBEING

Promoting community security/wellbeing was the fifth most important social sustainability factor for practitioners. From interview results ([Table 3](#)), 9 (60.0%) of the 15 practitioners noted that security/wellbeing was an important social sustainability factor for them. During the interview discussions, some of the practitioners emphasised that promoting security issues was a way of ensuring the wellbeing of the residents and community. One of the design principles they highlighted as means of promoting the security/wellbeing of residents and communities on their projects was the "secure by design" concept, as one of the practitioners indicated by saying:

...One of the biggest social issues we consider on our sustainable regeneration projects is how we can help to reduce the rate of crime and security and anti-social behaviours in those areas that we are working. So, we take security issues very seriously and give high consideration to it on our projects because we think that's how we can ensure the wellbeing of residents in the area. We make sure that all our projects are based on secure by design principles. We tend to promote the social sustainability from the concept design stages, we try to consider the overall impact of our projects in terms of how they ensure safety and wellbeing of the residents...

Furthermore, with a priority vector of a relative weight ( $W$ ) of 0.158 ([Table 6](#)), the results obtained from 122 practitioners who participated in the questionnaire survey ranked security and wellbeing in line with the interview finding as the fifth most important social sustainability factor. These findings agree with the earlier work of [Pitt, et al. \(2009\)](#), who linked the security and wellbeing of society to the quality and layout of sustainable regeneration projects. It has been documented that places that have benefited from regeneration initiatives have been seen to be less prone to crime and insecurity ([HM Treasury, 2007](#); [CLG, 2008](#)). Insecurity in society poses a threat to the attainment of wellbeing and quality of life of society, and these are the concerns that sustainable regeneration projects are also meant to address. The wellbeing of society largely depends on the performance of security and safety deliverables of sustainability projects ([Pitt, et al., 2009](#)). This is in line with the SDGs "goal three" of ensuring wellbeing as the basic social sustainability needs of society. It is argued that society can potentially thrive and achieve its sustainable development goals in an environment where there are fewer crimes and people are free to go about their duties without fear. It is also suggested that social sustainability objectives can be achieved when practitioners focus their regeneration practices on addressing the underlying conditions that lead to the creation of insecurity and crime within the communities ([CLG, 2008](#); [Clapham, 2014](#)).

### PROMOTING PHYSICAL APPEARANCE/POSITIVE IMAGE OF LOCAL ENVIRONMENT

This physical appearance of the local environment was considered the least of the six social sustainability factors considered by practitioners. From [Table 3](#), 7 (46.7%) of the 15 practitioners who took part in the interviews were committed to "a very highly/highly" ranking for promoting the physical appearance of the local environment with their regeneration projects. Sampling their views further, it became obvious that the majority of practitioners who were promoting the physical appearance of the local environment opined that doing so was very important for their projects to make the community more attractive. Focusing on

promoting the physical environment for one of the practitioners was an opportunity for them to win awards, as he indicated by saying:

...I think the way an area looks needs to be a focus. We recognise the local physical environment as an important part of regeneration. We try to make our projects' environment and areas attractive for the long term. So, we give very high consideration to the physical environment and we get recognition and awards on the back of it as some of the social sustainability benefits, we provide for our regeneration projects which is good for us...

However, some interviewees also noted that focusing on the physical environment was an additional cost to the overall cost of the project, which they believe was not financially sustainable for them and the clients. As one indicated:

...of course, thinking about improvement the physical environment of the project then we are talking about additional cost of the projects which in my opinion is too much of a financial burden to us and the client. ...with limited funding stream I don't think in my view it is sustainable in the long term...

It can further be observed that practitioners who took part in the questionnaire survey phase of the study also ranked the physical appearance of the local environment as the least considered social sustainability factor, obtaining a normalised priority vector of a relative weight ( $W$ ) of 0.154 ([Table 6](#)). This finding is not surprising, as it reinforced the view expressed particularly by practitioners who reiterated that promoting the physical appearance of the local environment bore an additional cost for their projects. From these findings, it can be observed that the majority of the practitioners who participated in the questionnaire survey largely share the same views as those who took in the semi-structured interviews.

The least priority accorded to this social sustainability factor can be said to be a result of a lack of understanding of the importance of this social sustainability factor. Efforts aimed at enhancing the physical local image, altering external perceptions and re-branding the place in a more positive way are considered an essential component of a broader regeneration strategy that is aimed at developing a new socio-economic structure of the locality ([CLG, 2008](#)). Spatial Economics Research Centre Strategies ([SERCS, 2011](#)) and [HM Treasury \(2008\)](#) identified an improvement of the physical environment as one of the key social sustainability objectives that sustainable regeneration also seeks to achieve for the communities. A good-looking physical environment can help to attract people, investment and business opportunities in the area ([CLG, 2008](#); [Turcu, 2012](#)). It is suggested that an improvement of "the physical environment, social fabric and urban spaces can increase their adoption as places for social interaction and gatherings" ([Boussaa, 2018](#), p. 5). This is because the way and manner regeneration projects are delivered has a significant impact on the quality of the physical environment and the social sustainability relationships within the community as well as individual wellbeing within an area.

## Conclusion

The paper has explored how the six social sustainability factors obtained from the literature have been prioritised by regeneration practitioners in the planning, design and delivery of their sustainable regeneration projects. The study adopted a mixed methods research approach, using semi-structured interviews (qualitative) and questionnaire surveys (quantitative) to collect data to investigate the issues with practitioners to achieve the aim of the study. From both the interview and questionnaire survey findings, it is apparent that, among the six social sustainability factors, health and safety was the most prioritised social sustainability factor by practitioners on their regeneration projects. From this finding, it was obvious that the introduction of health and safety legislations by the UK government to regulate health and safety

practices within the UK construction industry has played a key role in ensuring that health and safety regulations and procedures are well prioritised by practitioners on their projects. Similarly, the emergence of the considerate contractor scheme (CCS) can also be said to have contributed to practitioners' quest to prioritise health and safety practices on their projects. The considerate contractor scheme and HSE both set standards and performance targets on which practitioners' health and safety performances are measured. Since practitioners are/were aware of the potential consequences and the various sanctions in the case of any violation of such legislations, it is obvious that they are/were more likely to promote health and safety practices than other social sustainability factors that are not regulated on their projects. Various other efforts initiated by the UK government to improve health and safety practices within the construction industry can also be said to be contributing to these findings. Notable among them are the [Rethinking Construction Committee Egan \(1988\)](#) and [DETR \(2000\)](#) reports, which have raised a number of concerns about the poor health and safety practices within the construction industry and recommended ways to address them. A response to these reports has been the introduction of regulation and the emergence of CCS to help regulate the activities of practitioners. These findings from the study highlight the important role that regulation can play in the achievement of the sustainable development agenda. Consequently, it is very crucial that policymakers become aware of the potential benefits of regulating the social sustainability deliverables for sustainable regeneration projects. Doing so will undoubtedly ensure that practitioners pay adequate attention to other key social factors such as social housing, community participation and improvement of physical environment, which are equally important components in making the projects truly sustainable for communities.

## References

- Abdel-Raheem, M. and Ramsbottom, C., 2016. Factors affecting social sustainability in highway projects in Missouri. *Procedia Engineering*, [e-journal] 145, pp.548-55. <https://doi.org/10.1016/j.proeng.2016.04.043>
- Abidin, N.Z., Yusof, N.A. and Othman, A.A.E., 2013. Enablers and challenges of a sustainable housing industry in Malaysia. *Construction Innovation*, 13(1), pp.10-25. <https://doi.org/10.1108/14714171311296039>
- Ahmed, S., Shumon, M.R.H., Falatoonitoosi, E. and Quader, M.A., 2016. A comparative decision-making model for sustainable end-of-life vehicle management alternative selection using AHP and extent analysis method on fuzzy AHP. *International Journal of Sustainable Development & World Ecology*, [e-journal] 23(1), pp.83-97. <https://doi.org/10.1080/13504509.2015.1062814>
- Åhman, H., 2013. Social sustainability – society at the intersection of development and maintenance. *Local Environment*, [e-journal] 18(10), pp.1153-66. <https://doi.org/10.1080/13549839.2013.788480>
- Akadir, P.O., Chinyio, E.A and Olomolaiye, P.O., 2012. Design of a Sustainable Building: A Conceptual Framework for Implementing Sustainability in the Building Sector. *Buildings*, 2(2), pp.126-52. <https://doi.org/10.3390/buildings2020126>
- Akhtar, J., Khan, K.I.A., Tahir, M.B., Ullah, F. and Waheed, A., 2024. Decoding Social Sustainability in Construction Projects Analysis of Project Dynamics and Impact. *Buildings*, 14, 682. <https://doi.org/10.3390/buildings14030682>
- Akotia, J., Opoku, A., Egbu, C. and Fortune, C., 2016. Exploring the knowledge 'base' of practitioners in the delivery of sustainable regeneration projects. *Construction Economics and Building*, 16(2), pp.13-25. <https://doi.org/10.5130/AJCEB.v16i2.4892>
- Almahmoud, E. and Doloi, H.K., 2015. Assessment of social sustainability in construction projects using social network analysis. *Facilities*, [e-journal] 33(3/4), pp.152-76. <https://doi.org/10.1108/F-05-2013-0042>

- Armeanu, D.S., Vintila, G. and Gherghina, S.C., 2018. Empirical study towards the drivers of sustainable economic growth in EU-28 countries. *Sustainability*, 10(4), pp.1-22. <https://doi.org/10.3390/su10010004>
- Bailey, N., -2010.- Understanding Community Empowerment in Urban Regeneration and Planning in England: Putting Policy and Practice in Context. *Planning Practice and Research*, 25(3), pp.317-32. <https://doi.org/10.1080/02697459.2010.503425>
- Battisti, A., Barnocchi, A., Iorio, S., 2019. Urban Regeneration Process: The Case of a Residential Complex in a Suburb of Rome, Italy. *Sustainability*, 11(6122), pp.1-20. <https://doi.org/10.3390/su11216122>
- Boyle, L., Michell, K., Viruly, F., 2018. A Critique of the Application of Neighborhood Sustainability Assessment Tools in Urban Regeneration. *Sustainability*, 10 (1005), pp.1-18. <https://doi.org/10.3390/su10041005>
- Boussaa, D., 2018. Urban Regeneration and the Search for Identity in Historic Cities. *Sustainability*, 10(48), pp.1-16. <https://doi.org/10.3390/su10010048>
- Carpenter, J., 2011. 'Money's too tight to mention'? Urban regeneration in a recession and beyond: The case of Oxford. *Journal of Urban Regeneration and Renewal*, 4 (3), pp.228-39. <https://doi.org/10.69554/QQZV9501>
- Clapham, D., 2014. Regeneration and poverty in Wales: Evidence and policy review report: *Centre for Regional Economic and Social Research*. Joseph Rowntree Foundation.
- Colantonio, A., 2008. Measuring Social Sustainability: Best Practice from Urban Renewal in the EU, 2008/02. *EIBURS Working Paper Series*.
- Colantonio, A., 2007. Social Sustainability: An Exploratory Analysis of its Definition, Assessment Methods, Metrics and Tools, 2007/01. *EIBURS Working Paper Series*.
- Communities and Local Government, 2010. *Valuing the Benefits of Regeneration: Economics paper 7 (I)* ,Final Report. London. Her Majesty's Stationery Office.
- Communities and Local Government, 2008. *Transforming places; changing lives: a framework for regeneration*. London. Her Majesty's Stationery Office.
- Communities and Local Government, 2007. *Homes for the future: more affordable, more sustainable*. London. Her Majesty's Stationery Office.
- Corsini, L. and Moultrie, J., 2019. Design for Social Sustainability: Using Digital Fabrication in the Humanitarian and Development Sector. *Sustainability*, 11(3562), pp. 1-20. <https://doi.org/10.3390/su11133562>
- Creswell, J.W. and Garrett, A.L., 2008. The 'movement' of mixed methods research and the role of educators. *South African Journal of Education*, 28, pp.321-33. <https://doi.org/10.15700/saje.v28n3a176>
- Darchen, S. and Ladouceur, E., 2013. Social sustainability in urban regeneration practice: a case study of the Fortitude Valley Renewal Plan in Brisbane. *Australian Planner*, 50, (4), pp.340-50, <https://doi.org/10.1080/07293682.2013.764909>
- Department for Business, Innovation and Skills, DBIS, 2013. Industrial Strategy: government and industry in partnership, Construction Strategy 2025. HM Government, London.
- Department for Environment, Food and Rural Affairs, DEFRA, 2005. *Securing the future: delivering the UK sustainable development strategy*. HM Government, London.
- Department of the Environment, Transport and the Regions, DETR, 2000. *London, Building a Better Quality of Life: A Strategy for more Sustainable Construction*.
- Dogu, F.U. and Aras, L., 2019. Measuring Social Sustainability with the Developed MCSA Model: Güzelyurt Case. *Sustainability*, 11 (2503), pp.1-20. <https://doi.org/10.3390/su11092503>



- Durdyev, S., Zavadskas, E.K., Thurnell, D., Banaitis, A. and Ihtiyar, A., 2018. Sustainable Construction Industry in Cambodia: Awareness, Drivers and Barriers. *Sustainability*, 10 (392), pp.1-19. <https://doi.org/10.3390/su10020392>
- Edum-Fotwe, F.T. and Price, A.D.F., 2009. A social ontology for appraising sustainability of construction projects and developments. *International Journal of Project Management*, 27, pp.313-22. <https://doi.org/10.1016/j.ijproman.2008.04.003>
- Egan Committee Report, 1988. *Rethinking Construction: The report of the construction task force*. HM Government, London.
- Eizenberg, E. and Jabareen, Y., 2017. Social Sustainability: A New Conceptual Framework. *Sustainability*, 9(68), pp.1-16. <https://doi.org/10.3390/su9010068>
- Goh, C., Ting, J.N and Bajracharya, A., 2023. Exploring Social Sustainability in the Built Environment. *Advances in Environmental and Engineering Research*, 4(1). 10. <https://doi.org/10.21926/aeer.2301010>
- Gould, R., Missimer, M., and Mesquita, P. L. 2017. Using social sustainability principles to analyse activities of the extraction lifecycle phase: Learnings from designing support for concept selection. *Journal of Cleaner Production*, 140, 267-276. <https://doi.org/10.1016/j.jclepro.2016.08.004>
- Hatefi, S.M. and Tamošaitien, J., 2018. Construction Projects Assessment Based on the Sustainable Development Criteria by an Integrated Fuzzy AHP and Improved GRA Model. *Sustainability*, 10(991), pp.1-14. <https://doi.org/10.3390/su10040991>
- Häkkinen, T. and Belloni, K., 2011. Barriers and drivers for sustainable building. *Building Research and Information*, 39(3), pp.239-55. <https://doi.org/10.1080/09613218.2011.561948>
- Hernández-Calzada, M.A., Pérez-Hernández, C.C., Ferreiro-Seoane, F.J., 2019. Diversification in Tourism-Related Activities and Social Sustainability in the State of Hidalgo, Mexico. *Sustainability*, 11(6429), pp.1-17. <https://doi.org/10.3390/su11226429>
- Hill, R.C. and Bowen, P., 1997. Sustainable construction: principles and a framework for attainment. *Construction Management and Economics*, 15(3), pp.223 - 39. <https://doi.org/10.1080/014461997372971>
- HM Treasury, 2008. *The Green Book. Appraisal and Evaluation in Central Government*. Treasury Guidance. Her Majesty's Treasury, London.
- HM Treasury, 2007. Review of sub-national economic development and regeneration. Her Majesty's Treasury, London.
- Hofstad, H., 2012. Compact city development: High ideals and emerging practices, Refereed article, 49, *European Journal of Spatial Development*.
- Hossain, F., Adnan, Z.H., Hasin, M.A.A., 2014. Improvement in Weighting Assignment Process in Analytic Hierarchy Process by Introducing Suggestion Matrix and Likert Scale. *International Journal of Supply Chain Management*, 3 (4).
- Kalutara, P., Zhang, G., Setunge, S., Wakefield, R., 2018. Prioritising sustainability factors for Australian community buildings' management using analytical hierarchy process (AHP). *International Journal of Strategic Property Management*, 22 (1), pp. 37-50. <https://doi.org/10.3846/ijspm.2018.318>
- Kioui, V. and Voulvoulis, N., 2019. Education for Sustainable Development: A Systemic Framework for Connecting the SDGs to Educational Outcomes. *Sustainability*, 11(6104), pp.1-18. <https://doi.org/10.3390/su11216104>
- Littig, B. and Griebler, E., 2005. 'Social sustainability: a catchword between political pragmatism and social theory'. *Int. J Sustainable Development*, 8, (1/2), pp.65-79. <https://doi.org/10.1504/IJSD.2005.007375>
- Liu, Y., Dijst, M., Geertma, S., Cui, C., 2017. Social Sustainability in an Ageing Chinese Society: Towards an Integrative Conceptual Framework. *Sustainability*, 9(658), pp.1-15. <https://doi.org/10.3390/su9040658>

- Lombardi, D.R., Porter, L., Austin Barber, A., Rogers, C.D.F., 2011. Conceptualising Sustainability in UK Urban Regeneration: A Discursive Formation. *Urban Studies*, 48(2), pp. 273–96. <https://doi.org/10.1177/0042098009360690>
- Lynch, A.J. and Mosbah, S.M., 2017. Improving local measures of sustainability: A study of built-environment indicators in the United States. *Cities*, 60, pp.301–13. <https://doi.org/10.1016/j.cities.2016.09.011>
- Mak, M.Y. and Peacock, C.J., 2011. Social Sustainability: A Comparison of Case Studies in UK, US and Australia. *17th Pacific Rim Real Estate Society Conference, Gold Coast, 16–19 January 2011*.
- Maqbool, R., Arula, T. and Ashfaq, S., 2023. A mixed-methods study of sustainable construction practices in the UK. *Journal of Cleaner Production*, 430, 139087. <https://doi.org/10.1016/j.jclepro.2023.139087>
- Martek, I., Hosseini, M.R., Shrestha, A., Zavadskas, E.K., Seaton, S., 2018. The Sustainability Narrative in Contemporary Architecture: Falling Short of Building a Sustainable Future. *Sustainability*, 10(981), pp.1–18. <https://doi.org/10.3390/su10040981>
- Masocha, R., 2019. Social Sustainability Practices on Small Businesses in Developing Economies: A Case of South Africa. *Sustainability*, 11(3257), pp.1–13. <https://doi.org/10.3390/su11123257>
- Munzel, A., Meyer-Waarden, L., Galan, J.P., 2018. The social side of sustainability: Well-being as a driver and an outcome of social relationships and interactions on social networking sites. *Technological Forecasting & Social Change*, 130, pp.14–27. <https://doi.org/10.1016/j.techfore.2017.06.031>
- Nwokoro, I. and Onukwube, H., 2011. Sustainable or Green Construction in Lagos, Nigeria: Principles, Attributes and Framework. *Journal of Sustainable Development*, 4 (4). <https://doi.org/10.5539/jsd.v4n4p166>
- Pallant, J., 2016. *SPSS Survival Manual: A step-by-step guide to data analysis using IBM SPSS*, 6th ed. Mc Graw Hill Education, England.
- Panas, A. and Pantouvakis, J.P., 2010. Evaluating Research Methodology in Construction Productivity Studies. *The Built & Human Environment Review*, 3 (1).
- Park, S. and Sohn, D., 2013. The roles of urban design in urban regeneration: case studies of the Housing Market Renewal Pathfinder area in Newcastle, UK. *International Journal of Urban Sciences*, 17(3), pp.316–30. <https://doi.org/10.1080/12265934.2013.822627>
- Perovic', S.K. and Šestovic', J.B., 2019. Creative Street Regeneration in the Context of Socio-Spatial Sustainability: A Case Study of a Traditional City Centre in Podgorica, Montenegro. *Sustainability*, 11 (5989), pp.1–25. <https://doi.org/10.3390/su11215989>
- Pitt, M., Tucker, M., Riley, M., Longden, J., 2009. Towards sustainable construction: promotion and best practices. *Construction Innovation*, 9(2), pp. 201–24. <https://doi.org/10.1108/14714170910950830>
- Ploegmakers, H. and Beckers, P., 2015. Evaluating urban regeneration: An assessment of the effectiveness of physical regeneration initiatives on run-down industrial sites in the Netherlands. *Urban Studies*, 52(12), pp. 2151–69. <https://doi.org/10.1177/0042098014542134>
- Purvis, B., Mao, Y., Robinson, D., 2019. Three pillars of sustainability: in search of conceptual origins. *Sustainability Science*, 14 pp.681–95. <https://doi.org/10.1007/s11625-018-0627-5>
- Reyes, J.P., San-José, J.T., Cuadrado, J., Sancibrian, R., 2014. Health & Safety criteria for determining the sustainable value of construction projects. *Safety Science*, 62, pp.221–32. <https://doi.org/10.1016/j.ssci.2013.08.023>
- Ragozino, S., 2016. Tools for Regeneration of Urban Landscape Social Enterprise as a Link between People and Landscape. *Procedia – Social and Behavioral Sciences*, 223, pp.201–8. <https://doi.org/10.1016/j.sbspro.2016.05.349>
- Rivai, F.R., Rohman, M.A. and Sumantri, B., 2023. Assessment of social sustainability performance for residential building. *Sustainability: Science, Practice and Policy*, 19(1). <https://doi.org/10.1080/15487733.2022.2153575>

- Saaty, T.L. and Vargas, L.G., 2012. *Models, Methods, Concepts & Applications of the Analytic Hierarchy Process*. International Series in Operations Research & Management Science, 175, Springer. New York. <https://doi.org/10.1007/978-1-4614-3597-6>
- Saaty, T.L., 1990. How to make a decision: analytical hierarchy process. *European Journal of Operational Research*, 48 (1), pp. 9–26. [https://doi.org/10.1016/0377-2217\(90\)90057-I](https://doi.org/10.1016/0377-2217(90)90057-I)
- Saaty, T.L., 1980. *The Analytic Hierarchy Process*. McGraw Hill, New York. <https://doi.org/10.21236/ADA214804>
- Sarantakos, S., 2013. *Social research*. 4th ed. Macmillan Publishers Limited, London. <https://doi.org/10.1007/978-1-137-29247-6>
- Saunders, M., Lewis P., Thornhill A., 2009. *Research methods for business students*. 5th ed. Prentice Hall, England
- Smith, R., 2006. Housing Stock Transfer: Investing in Renewal as a Tool for Sustainable Regeneration. *Housing Studies*, 21(2), pp.269–82. <https://doi.org/10.1080/02673030500484885>
- Song, B. and Kang, S., 2016. A Method of Assigning Weights Using a Ranking and Nonhierarchy Comparison. *Advances in Decision Sciences*, 9. <https://doi.org/10.1155/2016/8963214>
- Spatial Economics Research Center, SERCS, 2011. Strategies for underperforming places. Policy Paper 6. Economic and Social Research Council. England.
- Sustainable Development Commission, SDC 2003. Mainstreaming sustainable regeneration: a call to action. A report by the UK Sustainable Development Commission. Sustainable Development Commission. London.
- Tashakkori, A. and Teddlie C., 2010. Putting the human back in ‘Human Research Methodology’: the researcher in mixed methods research. *Journal of Mixed Methods Research*, 4(4), pp.271–77. <https://doi.org/10.1177/1558689810382532>
- Turcu, C., 2012. Local experiences of urban sustainability: Researching Housing Market Renewal interventions in three English neighbourhoods. *Progress in Planning*, 78, pp.101–50. <https://doi.org/10.1016/j.progress.2012.04.002>
- Winston, N., 2009. Urban Regeneration for Sustainable Development: The Role of Sustainable Housing? *European Planning Studies*, 17(12), pp.1781–96. <https://doi.org/10.1080/09654310903322306>
- Woodcraft, S., 2015. Understanding and measuring social sustainability. *Journal of Urban Regeneration and Renewal*, 8(2), pp.133–44. <https://doi.org/10.69554/VRWG6415>
- Yoo, C. and Lee, S., 2016. Neighborhood Built Environments Affecting Social Capital and Social Sustainability in Seoul, Korea. *Sustainability*, 8 (1346), pp.1–22. <https://doi.org/10.3390/su8121346>
- Zheng, H.W., Shen, G.Q., Wang, H., 2014. A review of recent studies on sustainable urban renewal. *Habitat International*, 41, pp.272–79. <https://doi.org/10.1016/j.habitatint.2013.08.006>