PROCURING SUSTAINABLE PROJECTS: A GROUNDED APPROACH

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The concept of sustainability has widened from its original environmental bias to encompass social and economic factors that need to be taken into account in the delivery of building projects. Understanding what is meant by sustainability at all levels of project delivery is key to its successful implementation. The procurement of sustainable projects must fulfil criteria that will depend not only on the immediate needs of the stakeholders to a project during its design and construction, but for its full life cycle. General consensus on the meanings associated with sustainability is an essential ingredient for project success. There is a need to establish the commonality between the perception of sustainability for all those involved in the development of sustainable projects. The grounded theory approach is being used to inductively derive a better understanding of the phenomenon of sustainability in the context of building projects. As part of a grounded theory approach participants in the procurement process in the Scottish social housing sector are being interviewed. Data generated from these conversations is being analysed following an evaluation of existing models for sustainable development. The results have been used to create an emergent propositional model of sustainable development in practice. This will be used to further ground the common understanding of sustainability amongst stakeholders involved in the procurement of sustainable social housing projects in Scotland.

Keywords: grounded theory, procurement, sustainability.

INTRODUCTION

The concept of sustainability has evolved out of the environmental movement of the 1970s. Since then sustainability has been re-defined to incorporate social and economic factors. Brandon (1999) claims that over the last decade, a more holistic view has been adopted that has in turn shaped the concept of sustainability. It is now more about *"endurance rather than conservation"*. There is general acceptance that sustainable development refers to social, economic and environmental factors (Sustainable Development Commission 2001). Du Plessis (1999) discusses sustainable development as a *value concept* that embodies personal ideals and aspirations. In order to understand what sustainable development means to those operating at project level it is essential to capture these personal ideals and aspirations.

The sustainable development agenda is being promoted in the social housing sector by the government housing agencies. Registered Social Landlords (RSLs) or Housing Associations (HAs) as clients, their consultants and contractors are presented with policy documents that advocate sustainable development. Social and economic sustainability are emphasized, yet the majority of indicators and measurement criteria are based on the ideas of environmental sustainability (Communities Scotland 2003). Addis and Talbot (2001) point out that the words sustainable and environmental are not interchangeable. This poses a problem to anyone interpreting a policy document

entitled *Sustainable Development Policy* that concentrates on environmental factors. Without clear definition of sustainability as a concept or specifically for a project there is little hope that the objectives will be met. Long (2001) discusses the difficulty in finding a workable definition of sustainability which is of operational use to RSLs. Established approaches do not produce a definition that is useful to the social housing sector.

This research sets out to explore the perception of sustainable development held by those involved in the procurement process and compare this with the existing frameworks for sustainable development. There is very little research that has been carried out in this area and the existing models of sustainability tend to be specific to a particular sector of the procurement process. Each approach sets out an agenda from a particular viewpoint. For housing to be considered sustainable it is not sufficient to look at sustainability from the design and construction perspective or the community and occupational use point of view. An integrated approach must be pursued to allow an understanding of sustainability for an individual project to be made explicit and then pursued as the underlying objective of the project.

This paper compares the existing models with the findings from a series of interviews held with individuals involved in the procurement of social housing. The first part of the paper describes the method adopted and its applicability to the area of sustainability. The results of the analysis of the conversations and analysis of existing models of sustainable development are presented and then a comparison made to explore the emerging profile of sustainability in the social housing sector.

GROUNDED THEORY AND EXPLORING SUSTAINABILITY

Sustainability Research

The research agenda for sustainability has changed with the conceptual meaning of the term. There has been a long tradition of sustainability research characterized by the measurement and development of technical solutions to the design of environmentally friendly buildings. Sustainable development research has evolved in a similar way to construction management in general (Carter and Fortune 2002). The majority of sustainability research is from the traditional scientific perspective. Fairclough (2002) argues that traditional research approaches focus too heavily on material processes, not adequately tackling the challenges posed by the acceptance of sustainability as a long-term objective. There is a demand for research to address whole life cycles and construction's impact on the environment as well as fulfilling a "*customer focused approach*". The Sustainable Development Research Network (SDRN) states that research in sustainable development calls on both the natural and social sciences (Sustainable Development Research Network 2001).

Qualitative research is used by researchers concerned with human behaviour and functioning (Strauss and Corbin 1990). This approach is considered best when attempting to elicit meaning from a situation. Qualitative data focuses on *naturally occurring, ordinary events in natural settings* and provides a good understanding of real life situations (Miles and Huberman 1994). It is argued that qualitative data is *rich and holistic* and is useful in revealing complexity and meanings, people place on the social world around them.

Grounded Theory

Grounded Theory (GT) is a qualitative research approach developed by Glaser and Strauss in 1967. A grounded theory is inductively derived from the study of a phenomenon, which is inadequately explained by existing theory. It attempts to discover regularities through the categorization of elements and the exploration of their connections (Strauss and Corbin 1990). It is particularly suited to the study of local interactions and meanings and their relationship to the social context in which they occur. Rather than testing relationships among variables, it involves discovery of relevant categories and the relationship between them.

Grounded theory is a longitudinal research method, capturing streams of research (Leonard and McAdam 2002). This allows processes to be mapped as opposed to the static snapshot achieved by quantitative methods. It is argued that meanings are socially constructed, negotiated and changed over time (Loosemore 1999). Grounded theory method encourages a holistic view of a phenomenon to be mapped, allowing an understanding of its direction to develop.

Use of grounded theory method is an iterative process involving comprehension, synthesis and theorizing. Comprehension is gained through the collection and preliminary analysis of data. Adequate data must be gathered to allow an in-depth understanding of the phenomena. Synthesis is achieved through the inter-relationship of data collection and in-depth analysis. This can be a lengthy process that is both time consuming and requires a high degree of discipline. Additionally creativity plays a key role. Each relevant word, phrase or chunk of data must be coded. Coding is vital in the breaking down of data, conceptualization and development of theory. Conceptualization is the core process of grounded theory. This differs from descriptive analysis common to many qualitative research methods (Glaser 2001). Concepts differ from description in that they are abstract and transcend time, place and people. A grounded theory is gradually developed through the process of theoretical sampling on the *basis of concepts that have proven theoretical relevance to the evolving theory* (Strauss and Corbin 1990: 177). It is a cumulative process that should be well planned but remain flexible enough to respond to the evolving categories and concepts.

Existing literature plays an important and varied role in grounded theory. It forms a considerable background to the researcher and the participants in the research. It can therefore not be discounted. Grounded theory studies explain phenomena in light of evolving frameworks. It is vital that existing theory does not impede discovery by "forcing" the theory to comply with preconceived notions. Therefore, the existing literature is used in a reciprocal way. The original theory can provide concepts and relationships that can be tested against actual data. If the intention is to extend or amend existing theory, then it can be amended to fit real life situations discovered by the grounded theory approach.

Finally grounded theory is useful in investigating processes. When process is built into the analysis of data, a dynamic theory can be built. Process shows the interactions associated with a phenomena, in the form of incidents and their relationships. Analysis of process can explain why change will occur or not in the face of changing conditions and their consequences. This part of grounded theory is especially relevant to the study of sustainability.

ANALYSIS OF INTERVIEWS

Method for study

Grounded theory is considered appropriate to the study of sustainability and the meanings surrounding it. This exploratory study set out to determine the perception and understanding of sustainability at delivery level in the social housing sector. In view of this, a grounded theory approach was adopted for the research, in an attempt to draw meanings and ideas from the participants. This study seeks to engage individual participants in the procurement process to generate a theory of sustainability from a project perspective.

To achieve a balanced view it was considered relevant to include all those directly involved in the procurement process. The first two phases of research have included Housing Associations (3), consultants (3) and a representative from the Scottish housing agency (1). The participants were selected using *discriminate sampling*. This maximizes the opportunity of relevant data collection from a small sample. The housing associations were chosen to represent small, medium and large organizations. The consultants were selected from a social housing database. As this study represents a pilot study it was agreed that the theoretical sensitivity lost by deliberate choice of certain housing associations and consultants could be out weighed by the higher chance of good quality data.

The participants were invited to take part in an interview. The aim of the interview was to establish the meanings and values associated with the term sustainability and further explore the ways in which it is being applied. The interviews were approached with a very loose structure. The agenda was to cover the topics of sustainability in general and specifically in terms of development activity. The interviews lasted about an hour in length and were planned to allow the interviewee the freedom to express their ideas and feelings on their housing associations position within the sustainable development policy framework.

The transcripts of the interviews were analysed using NUD*IST qualitative software. Dainty *et al.* (2000) believe that computer aided analysis can enhance qualitative research, by managing data systematically and allowing handling of large amounts of qualitative data that would be impractical manually. The software enables the results of analysis to be arranged in a hierarchical tree structure. The central phenomena relating to sustainability form the root/s of the tree and sub categories or nodes are generated. The first phase involved open coding the data. Once a large number of nodes were identified, axial coding reveals relationships between nodes and sub nodes. As the analysis continued each category was developed to reflect the content of the conversations and draw out more detailed categories within each of the four areas. In developing this process the conversations were analysed repeatedly.

Emerging results

The initial analysis sought to establish the extent that each housing association considered sustainability within their procurement process. There was a good level of general awareness of sustainability with the full range of housing associations involved in the study. Sustainability is a term that all the housing associations were clearly familiar with. The large housing association, part of a national group has a fully developed and implemented sustainable development policy. The middle-sized housing association was involved in several high profile "sustainable" housing
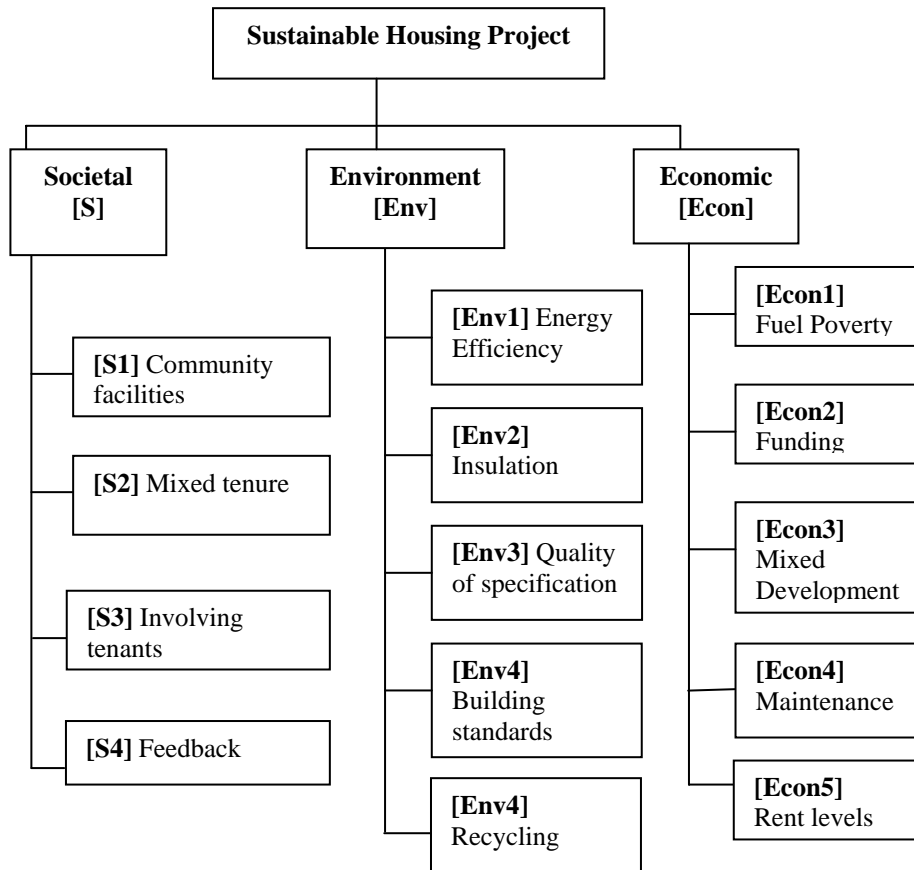
Fig. 1 Emerging issues in sustainable development of social housing

projects. The smallest housing association admitted very little activity in terms of sustainability and hence a poor understanding of the term.

To gain a better understanding of the perception of sustainability for the social housing sector the analysis aimed at identifying the aspects of sustainability that were important to the procurement process. Figure 1 represents the aspects of sustainability considered important grouped into the main nodes of societal, environment and economic sustainability.

The large housing association was heavily concerned with economic and social issues. Technical and environmental aspects did not figure prominently at all. Due to the scale of the organization, they were better able to address higher level issues including community regeneration. They also tended to be involved in larger projects with the additional resources available for tenant participation and involvement and the incorporation of community facilities into developments.

The medium association had a culture of environmental awareness integral to the organization and all its activities. This made the environment and technical issues more prominent in the discussion on sustainability. It was felt that although these projects were important they required a vast amount of time to manage and they were not always financially viable. Sustainability was aligned very closely with the environment and community issues were considered to be less to do with sustainability.

The small association considered that it had carried out very little activity that could be considered sustainable. However it emerged throughout the conversation that a lot of the activity that housing associations carry out in "normal practice" was considered

sustainable and housing associations had been doing this for many years before the funding bodies adopted the term. The perception of sustainability held by the small association was primarily concerned with technical issues and economic issues, particularly fuel poverty. Wider community issues were also clearly important to, although outside the remit of the association.

The interviews revealed three different perspectives from the housing associations involved in the study. However a common theme ran through the conversations held with all of the associations and consultants. There was a belief that social housing endeavours were sustainable by the very nature of housing association activity and purpose.

> *A lot of the **things we're doing** just now, quite frankly Scottish Special **did 30 years ago**.   GC*

There was also a belief that a long term approach was sustainable but also at the core of housing association activity.

> *The only thing we are really doing is we started putting in the design brief that things should be maintenance free. I don't know if that's sustainability, but for us it's the **long term** life of things.   BT*

One of the most important areas to all the interviewees was community involvement in the process. Sustainability was closely aligned with responding to the needs of the tenants and the community, acknowledging the evolving nature of the problem.

> *Because the whole process is made so damn difficult. How many can say they've pulled off more than one. You know, but it gets **easier to engage with the community**. That's what we've got to aim for.   GC*

Further interviews will be carried out with contractors and tenant representatives. These will provide a perspective from the supply and use side of the procurement process. It is envisaged that this will provide more in-depth understanding of the procurement process and the magnitude of factors affecting decision making in the development of sustainable social housing.

ANALYSIS OF FRAMEWORKS

Existing Theory
Amongst the published material relating to the principles of sustainable development and sustainable construction are the following key or seminal works, namely, Hill and Bowen (1997), Long (2001), DETR (1999), DETR (2000), BEQUEST (2001) and Talbot (2002). Each of the key works indicated has made a significant contribution to the debate on how best to deliver sustainable projects. The works of Long (2001) and Talbot (2002) have been adopted by the Housing Corporation and Communities Scotland respectively, as the core of their guidelines or toolkits for the delivery of sustainable housing projects. The BEQUEST network sought to integrate thinking on sustainable development on a pan European basis. Upon analysis, it is apparent that the work by Long (2001) and the work by the DETR has been produced from the wider perspective of sustainable development and as such have adopted a 'top-down' approach. In comparison the work by Talbot (2002) has been approached from a 'bottom-up' perspective of construction project delivery but it has been produced in such an all embracing manner that the detail it has generated means that from a practical level it is a guideline or toolkit that has limited application. This

Table 1: Principal Features – Theoretical Analysis (High/Inter/Low Levels)

Source	Application	High	Inter	Low
Hill & Bowen	Con Man & Economics	4	-	26
Long	Hsg Corporation	-	10	49
DETR	Sust Development Indicators	3	15	-
DETR	Qual Life Indicators	3	16	-
Hamilton & Curwell	BEQUEST Process Protocol	4	15	56
Talbot	Communities Scotland	-	5	73

comparative amount of detail can be seen from the analysis indicated in Table 1. This table takes each of the principal reference material in turn and reveals the differing layers of detail in which it suggests sustainable housing projects need to be delivered. As can be seen the practical guides produced by Long (2001) and Talbot (2002) that have been used as the core of practical toolkits by the Housing Corporation and by Communities Scotland have the most amount of low level detail and the least amount of high level or principal groups of features. It is suspected that such an approach encourages a tick sheet approach to the assessment and delivery of sustainable housing by practitioners on the ground rather than an approach that encourages shared understanding and common ownership.

Table 1 reveals that there are a limited number of high level features or nodes that have been advanced in the principal reference material related to this topic area. Upon analysis the following common principal features were identified.[A] social issues, [B] environmental issues, and [C] economic issues. Other features identified at such
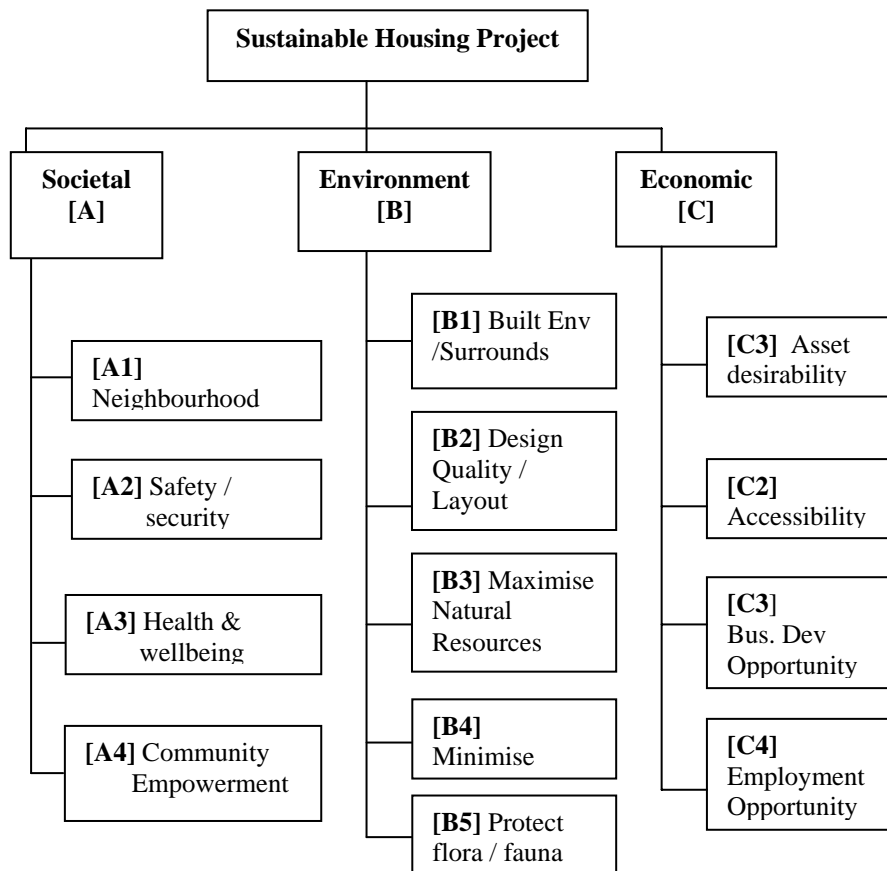

Figure 2: Theoretical Data Analysis Framework [1]

Table 2: Theoretical Nodes (High Level) & Sub-Nodes (Intermediate Level)

Nodes	Housing Corporation	DETR Sust. Indicator	DETR Qual Indicator	BEQUEST Process Protocol	Sub-nodes
[A] Societal	Area – people, reputation Neighbourhood attractiveness				**[A1]** Neighbourhood characteristics
	Social exclusion - matrices (unemployment, claimants, income, death rates	Poverty / social exclusion			**[A1]** as above
	Crime – anti social behaviour	Crime		Safety / security	**[A2]** safety/security
	Social cohesion – community spirit, well being	Education / health	Health / education	Health & well being	**[A3]** health & well being (indiv)
	Community mix – involvement		Empowerment culture, skill levels	Community involvement	**[A4]** community empowerment
[B] Environm ent Node	Quality of environment				**[B1]** Built environment surroundings
	Housing quality/design/layout	Quality of housing			**[B2]** Design quality / layout
		Climate change/air quality	Natural resources	Natural resources	**[B3**] Maximize natural resources
		Land use		Land use	
		Waste	Mimimize waste		**[B4]** Minimize waste
		River quality	Limit pollution		
		Wild life	Protect diverse nature	Biodiversity	**[B5]** Protect / flora / fauna
[C] Economic Node	Current demand		Local needs	Building stock characteristics	**[C1]** Asset desirability
	Long term demand				
	Access / transport	Road traffic	Access	Transport / utilities	**[C2]** Accessibility
		Economic output	Add to local economy	Production	**[C3]** Business Development Opps
		Investm't		Finance	
		Employm ent	Env awareness of business		**[C4]** Employment Opps

high levels were technical and institutional matters and it was resolved to treat these matters as being related to the wider 'context' in which an individual construction project could be delivered. This high level analysis allows the following theoretical proposition to be developed. A sustainable housing project is procured with concern for the continual improvement, development or enhancement of societal, environmental and economic resources within the technical or institutional context in which the project is to be delivered.

An analysis of the intermediate features suggested in the material indicated in Table 2 was then undertaken to establish, in theory, the main sub-nodes that would be relevant to each of the main nodes identified above. Table 2 shows the principal features indicated within each of the seminal works and the development of the related sub-nodes that have been brought together presented as a theoretical data analysis framework in Figure 2. This theoretical data analysis framework can be used with the initial proposition as a means of analysing the first rounds of qualitative data that has been collected from practitioners grounded in the process of delivering sustainable housing projects.

The frameworks present the policy level issues that are considered integral to sustainable development. This part of the research identifies the key aspects of sustainable development from a top down approach.

EMERGING GROUNDED THEORY

Collectively the two components of the study help to clarify the phenomenon of sustainable development and how it relates to the procurement process. The analysis of the qualitative data and the existing frameworks identifies significant gaps in perception and understanding. The conversations with players in the procurement process present issues that are of importance to individuals at project level. It is this aspect of the research that is being used to develop understanding from a bottom up approach. The study has revealed significant differences between the sustainable development frameworks and the areas that are important to sustainable social housing procurement at project level. The first phase of analysis has developed an emergent propositional model of sustainable development in the social housing sector.

Comprehension is achieved when enough perspectives have been gathered to produce a verifiable understanding of a phenomenon. In grounded theory samples are taken from events and incidents that are indicative of theoretically relevant concepts. This process must continue until theoretical saturation of categories is achieved. This occurs when the addition of new information achieves no change in the existing understanding. The pilot study has revealed a diverse range of issues that are significant to the participants. However it represents a small sample.

The definition of sustainability has become a recurrent problem. There have been numerous attempts to find a workable definition. All too often sustainable development is addressed by one group of players in the procurement process. An immediate problem that has been identified by the first phase of research is the difficulty in translating policy into practice.

For achievement of long term sustainable goals it is essential that agreement is reached by all parties as to what sustainability means for a particular project.

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