RESEARCH METHODS

TASK 1

SUSTAINABLITY IN CONSTRUCTION CONTRACTS IN UK

B*uilding contracts is very important issue to regulate and adapting the relations between companies and organisations from all sides of the construction industry, and as part of sustainability requirements; it's time to discuss whether additional contractual provisions and guidance would be effective in improving the industry's sustainability, trying to understand the relation between sustainability issues and construction contractors.*

1. Key words:
Construction industry – Construction Contracts – Building Regulation - Sustainability

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1. Table of Contents

2. Tables

3. Figures

2. Rationale:

Construction is one of the UK's largest economic sectors, it's one of only six broad sectors in UK, (the others being Agriculture & Fishing; Production Industries, i.e. Mining plus Manufacturing plus GEW; Distributive Trades and Transport, i.e. Wholesale & Retail Trade, Repair, Hotels & Restaurants, Transport & Communication; Financial & Business Services; and Other Services).

There are three areas of consideration: new construction and major renovations; greening existing properties; and corporate operations. Other areas for considerations are fleet operations (as well as inbound and outbound freight, a large issue for manufacturers and distributors) and food service (a large issue for restaurant operations as well as for universities, colleges and schools.) Within these spheres of continuing activity, multiple options should be considered. Our homes account for around 27% of the UK's carbon emissions, a major cause of climate change. To protecting and enhancing the environment and tackling climate change, the mission in long-term goal is to reduce carbon emissions by 60 per cent by 2050, and to achieve this we need to make sure new housing is much more sustainable. This is all the more important because at the same time we are on the brink of an ambitious building programme to tackle the national housing shortage.

By its very nature, is energy and materials intensive. Increasingly, contractors, architects and suppliers have to meet sustainability standards, and ensure that the materials used are environmentally friendly and energy efficient, it's highly recommended that by using contracts effectively will help and improve sustainability in construction industry, and support direction to maintain its vision in supply and demands towards sustainable achievement, it is generally accepted that there is considerable scope for further improvement.

Achieving high productivity and quality standards are two important issues in the construction industry, and the ability for building is an important concept adopted to help raise productivity and quality standards in the industry. From this point, we have to focus on contracts which already provide the framework for performance of the parties working on a project, and could be adapted to include environmental provisions. Although many leading organisations are responding to the calls for greater corporate social responsibility across the range of their activities, the cost of improving the overall environmental performance of a project is something some employers may be unable or unwilling to bear.

Beyond the thinking of three triangle important issue for any construction processors which are Cost, Quality and Time. In 1996, Babu and Suresh proposed a framework to study the trade-off among time, cost and quality using three inter-related linear programming models. Cost and quality are considered as the two most important elements in all construction activities. However, the quality of products or services does not focus only on their ultimate delivery, but also on the quality of the whole business model.

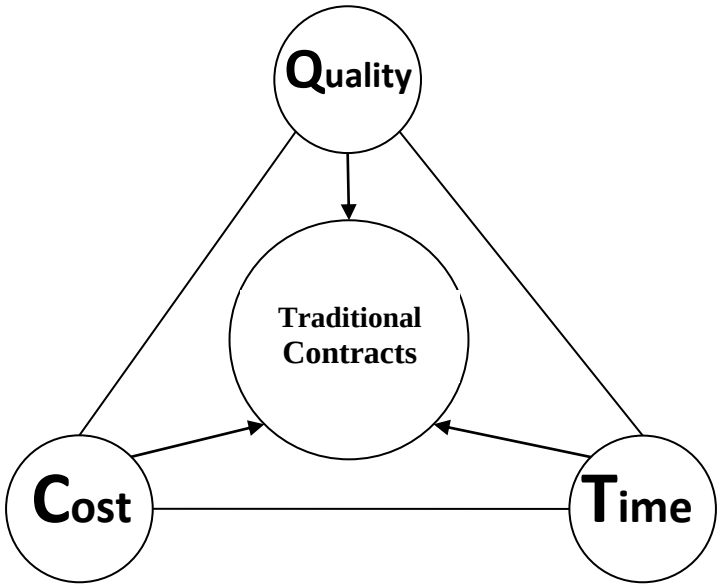

Figure 1: *The traditional 3 aspects for any construction operation*

By determining new edge for the triangle relation and making it rectangular aspect by putting sustainable features as one of them? Great aspects can be determined to ensure particularly high standards of sustainability, of health and safety, and of occupational health, throughout the entire supply chain on any project. According to demands said that; “Many thought that contract conditions should be specific about sustainability performance”, thus, this ideas will lead us to say; any successful sustainability provisions within standard forms of contracts can be undertaken in consideration of its important issue for all construction system.

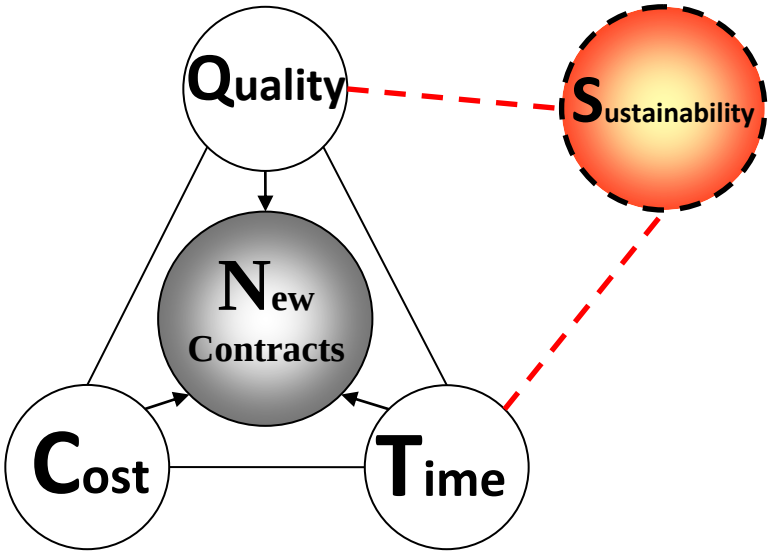

Figure 2: *New entry for sustainability to construction process*

3. Aims, Objectives and Hypotheses

a. Aims:

Trying to:

- Make changes on construction contracts including with sustainability
- Understand how contracts and guidance might help improve sustainability in the construction industry, and whether contractual provisions could be effective or not?
- Find a way for a new relationship between designer, contractors, client and sustainability.
- Involve society and decision makers to deal with this relationship, and how will be affected on?

b. Objective:

- Finding out the facility to include building contracts with sustainability, through acceptable legislations in the topic of building regulations.

c. Hypotheses

- Focusing on building contracts and sustainability.
- Testing and measuring the relationship between designers, contractors, clients and sustainable objectives.
- Within the rolls and lows of building regulations and construction contracts, this will be the boundary of this research.

4. Research Methodology:

a. Overview:

It is important to understand how to manage and to control on writing in construction contracts. According to (Fellows, Liu, 2008), he said: "End users of the research project are engineers who apply the model, so this project is applied research". For this point of view, this research tries to find new solutions for the relationship between construction contracts and sustainability. At some point, choices must be made. All options involve budgetary considerations. Seen as a major strategic initiative, sustainability isn't free. In fact, it may be a costly initiative at the beginning, if major changes are made to new construction; however, at some point, the outside world is going to ask how a firm is expressing its sustainability values in its buildings, both new and existing? Are they certified green by some independent third party? Are they significantly lower in energy use, water use and waste disposal? Are they ENERGY STAR labeled? A firm should be prepared to spend "real money" in this area of sustainability, until the entire system is reworked so that green becomes the norm. For starters, you'll probably have to rewrite specifications for new construction, refurbishments and tenant improvements will probably have to be rewritten. Because green is comprehensive, it needs multiple looks and multiple touches to align aspects of real estate, merchandising, operations, procurement and other functions. It won't happen, however, if there isn't a mandate. In a similar way, retailers need to get suppliers involved early.

Sustainability is about looking beyond, not just the next quarter or the next year, but the next quarter-century. After all, most of the buildings we put in

place today will still be here 25 years from now, whether they're "energy hogs" or lean, low-carbon machines. Zero waste might be a good starting point for a sustainability program, and it is a good ending point for this article. There is no question that zero net energy construction and operations will more prevalent, Sustainable development and operations encompass the future of company operations, the nearest future will show us significant sustainability programs to create a point of sustainable differentiation. Sustainability is a journey of discovery not a destination. The journey toward sustainability promises to provide challenging and rewarding activities.

We would not be as interested in sustainable corporate activities in today's difficult economic climate there were not larger issues facing us; planetary issues of global warming and unpredictable climate change. People could just say, "Well that's a nice idea; we'll get to it when things pick up again." Instead, the push for corporate social and environmental responsibility has picked up steam in the past three years and is likely to continue, regardless of the temporary economic situation. It is clear that sustainability is a matter of importance, and a substantial majority of respondents thought that performance could be improved through industry specific documentation.

Building regulations exist to ensure the health, safety, welfare and convenience of people in and around buildings, and the water and energy efficiency of buildings. The regulations apply to most new buildings and many alterations of existing buildings in England and Wales, whether domestic, commercial or industrial. This regulations are made under powers provided in the Building Act 1984 and apply in England and Wales, are mainly found in The Building Regulations 2000 (as amended) and The

Building (Approved Inspectors) Regulations 2000 (as amended), which can be found in the Legislation section. The legislation covers both the technical standards that need to be met and the procedures that need to be followed.

The main function of Building Control is to ensure compliance with the building regulations, either the local authority building control service or a private sector Approved Inspector (AI). Certain types of building work can be self-certificated as compliant with building regulations, and local authorities have a duty to implement and enforce building regulations within their own areas.

b. Case study:

Using more than one case study as research tool to test the methodology and its hypotheses, therefore usually concerned with investigating how or why events occurred,

Harris and Ogbonna (2002) note that '. . . case studies prove valuable in situations where existing knowledge is limited . . .' and continue '. . . within business research, a case study is a description of a situation which is sensitive to the context in which the research occurs . . .'.

From this point of view, this research depends on experiment of organizations and firms working all over the world with deferent environment and deferent rolls and lows, which mean a various and huge quantity of information effecting on the construction industry to reach sustainable in buildings and projects.

The cases study it will be taken, have to be: Significant; Complete; Consider all perspectives; Display sufficient evidence, and Compelling.

c. Analyzing Data:

It has been noted that the choice of data collected should be determined by the outputs required from the research, given constraints of practicality. "The preferable approach is to consider, evaluate and plan the analysis in a similar way to planning the whole research project". Geddes (1968). To begin analysis by examining the raw data and the identification of major variables; and search for patterns and relationship, all may constitute the total analysis for the research project. It maybe will be differences in the data from what theory and previous findings suggest will occur. Societies are dynamic, so changes over time should be expected and methods of data collection and analysis must be sufficiently rigorous to detect them. However, the purpose of analysis is to provide evidence of relationships and to aid understanding, which will be effective to support the decision makers.

By using data and information coming from sustainable studies and construction industries and try to discover the identification of major variables given by the case study which will be take, establish patterns for the main elements of construction industries covering and modifying the relationship between the main elements for construction issue and the variables effecting to reach the data analysis by using one of statistic methods, hence, the importance of inference, which follows logically from the evidence, and it is important to know how valid those inferences are.

After collecting data, we have to plot this data into diagrams or graph (if it possible) to indicate the nature of distribution of the data and relationships between them.

5. Project bar chart

For expectation to reach the end of this project which will start from Jan. until Aug., it means it will take 8 months, according to consideration of finishing the course at this time of the year, I put this time table as planning to finish it:

No.	Steps of work	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Notes
1	Collecting data for sustainable and construction contracts									
2	Study cases study and obtain the more important to the research									
3	Analyze the data									
4	Managing the data									
5	Plotting the data into charts and graphs									
6	Putting results, inferences and conclusions									

Table 1: *Time table for the project in 8 months*

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