

# Development of a Sustainability Framework to Promote Business Competitiveness in Construction SMEs

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**Abstract:** This paper reports on a funded project, which aims to develop a Sustainability Framework that is designed and focused specifically for construction Small and Medium Sized Enterprises (SMEs) to enhance their business competitiveness and promote their innovative capacity. The output of this project will be a Sustainability Framework. The framework will include a set of performance indicators and associated IT-based toolkits to ensure the efficient use of natural resources resulting in increased productivity and sustainable procurement of goods and services resulting in best value for money. The framework will also include comprehensive guidance on environmental good practice within construction processes and social corporate responsibilities of the companies. The project is led by the Sustainability Centre Glasgow at Glasgow Caledonian University, in partnership with Laing O'Rourke, Dearle & Henderson, and the Centre for the Built Environment.

Construction SMEs in the West of Scotland significantly contribute to the local and regional economy. Their economic performance and business competitiveness lags behind other regions in the UK and EU. This project provides free assistance to 30 to 40 existing and new construction SMEs in the West of Scotland, which will include developing tailored assistance for each participating SME to promote their business competitiveness. This may involve establishing a reporting system to evaluate their sustainability performance, exploring knowledge management practices, providing assistance in the use of clean technologies, green design, sustainable procurement, efficient use of ICT, and supporting compliance with sustainability legislations. The project deliverables are expected to result in positive impacts on organisational competitiveness of participating construction SMEs. The identification of key issues and gaps in sustainable business practices and how this will input to the Sustainability Framework will be reported.

**Keywords:** Sustainability Framework, SMEs in Construction Industry, Sustainability Toolkit, Sustainability, Sustainable Construction

## 1. Introduction to the Research Project

This paper reports on a Scottish Executive Expertise, Knowledge and Innovation Transfer Fund (SEEKIT) and the European Regional Development Fund (ERDF) funded project, which aims to develop a Sustainability Framework that is designed and focused specifically for construction Small and Medium Sized Enterprises (SMEs) to enhance their business competitiveness and promote their innovative capacity. The identification of key issues and gaps in sustainable business practices and how this will input to the Sustainability Framework will be reported.

This project aims to enhance business competitiveness and promote the innovative capacity of construction SMEs in the West of Scotland through developing a sustainability framework to improve the performance within the construction industry. This project seeks to assist participating construction SMEs in pursuing sustainable construction practices, which will include efficient use of resources, sustainable procurement of goods and services, sustainable business strategies and incorporation of social and corporate responsibilities. The project will provide a bespoke sustainability strategy and action plan for participating construction SMEs. Overall, this project will develop a prototype sustainability framework that will include a set of performance indicators which could be measured. The core objectives of the project are indicated below:

- Investigate the current sustainability performance of Scottish construction SMEs;
- Identify sustainability knowledge gaps within Scottish construction SMEs;
- Improve sustainability performance of construction SMEs;
- Develop a sustainability framework that includes indicators, which could be used to evaluate the sustainability performance of construction SMEs.

## **2. The Issues and Gaps in Sustainable Business Practices**

Sustainable Development is commonly defined as “Meeting the needs of the present generations without compromising the ability of future generations to meet their own needs” (The Brundtland Commission, 1987). The construction industry can contribute in putting Sustainable Development into practice by being more profitable and more competitive, delivering buildings and structures that provide greater satisfaction, well-being and value to customers and users, respecting and treating its stakeholders more fairly, enhancing and better protecting the natural environment, minimising its impact on the consumption of energy (especially carbon-based energy) and natural resources (DETR, 2000).

SMEs are a very important sector of the Scottish economy, accounting for 99% of the 243,000 businesses active in Scotland and representing 50% of non-government employment (Scottish Executive Social Research, 2003). The data in this survey shows the overall situation of SMEs in Scotland, however, there is not much difference in SMEs in the West of Scotland. In Scotland, construction SMEs account for approximately a sixth of all of its SMEs (Scottish Executive Social Research, 2003). The growth of construction SMEs is continuing in Scotland. For example, in Glasgow, construction investment across a wide range of sectors will expand significantly over the next decade, as a result of the investment programmes associated with: Housing Stock Transfer; M74 extension; school and hospital buildings; and major developments such as Glasgow Harbour, the Financial Services District, private house building and other commercial developments (Scottish Enterprise Glasgow, 2004). Significant contribution to the local and regional economy is one of the key reasons why this project focuses on the sector of construction SMEs.

However, the economic performance and business competitiveness of companies in the West of Scotland, of which vast majorities are SMEs, continues to lag behind many other regions of the UK and the EU. SMEs in the region find it harder to sustain themselves and to handle various pressures as independent firms.

Evidence found in SLIMS (2003) shows that the death rate of companies in the West of Scotland is higher than the UK and Scotland average; and further, the company death rate in the region has now overtaken the company birth rate. In addition, business survival rates in most parts of the region are below the Scottish and UK levels. Moreover, the figures found in SLIMS (2003) also gave an insight into the productivity of businesses (productivity is widely believed to be the principal motor of business success. This can be measured by the calculation of output per worker, represented by gross value added (GVA); business performance and competitiveness in construction SMEs in the West of Scotland are lower than the Scotland and UK average. The West of Scotland has a lower level of GVA per head in its construction SMEs than Scotland as a whole, amounting to £30,700 compared with the Scottish level of £32,200; furthermore, its capital investment per head was only £1,100 in 2001, compared with the Scottish average of £1,500.

In addition, the *Omnibus Survey of Small Businesses in Scotland* carried out in 2002 (Scottish Executive Social Research, 2003) also shows the same concern on the performance of SMEs. The survey identifies a number of obstacles to business competitiveness of SMEs, including difficulty in raising capital, poor awareness of available resources (e.g. Linc Scotland and Business Angels), reluctance of using external advice and low access of ICT. In particular, the survey finds that disappointingly, only 20% of constructions SMEs in Scotland are aware of the importance of the environment; 73% are family owned businesses; 58% of them can access the Internet but only 32% have a website.

In the area of construction skills, Scottish Enterprise Glasgow (2004), in particular, identified a number of market failures, including a high percentage of unskilled employees in construction SMEs, under-representation of women and ethnic minorities in industry, high turnover of trainees, restricted routes for adults into skilled trades, unattractive image of the workplace, limited accreditation, and polarisation of skills within the industry. These factors considerably impede the evolution of business competitiveness of construction SMEs and are explored in this project.

### **3. A Requirement to Enhance Business Competitiveness**

This evidence demonstrates a pressing need to enhance business competitiveness of construction SMEs in the West of Scotland. Promoting best practice of sustainable construction is an effective and efficient way to help construction SMEs enhance their competitiveness and productivity, improve industrial profitability, provide greater satisfaction, well-being and added values to customers, allow them to respect and treat their stakeholders more fairly, and increase opportunities for finance raising (DETR, 2000; Bennett & Crudgington, 2003).

Therefore, in order to promote SMEs' business competitiveness and productivity, this project will collate and synthesise the best practice of sustainable construction not only in the UK but also worldwide into a sustainability framework specifically developed for this project. Subsequently, such a framework will be carefully tailored and embedded into the management structure, organisational culture and decision-making process of construction SMEs.

#### **4. Background on SMEs and their Impact on the Construction Industry**

The EU definition of Small and Medium sized Enterprises (SMEs) are firms/organisations employing up to 250 employees and having an annual turnover of less than £26 million (European Commission, 2005).

The UK construction industry contributes to some 10% of the overall GDP and employs nearly 3 million individuals. Most importantly, the product of the industry, the built environment – affects us all. For example, a material balance study by CIRIA identified that the construction sector receives around 360 million tonnes of raw materials, of which 90 million tonnes reappears as construction and demolition waste, of which only half is recycled. The industry uses 8 million tonnes of oil equivalent energy each year, which is approximately 5% of UK final energy consumption, or some 30% of industrial energy consumption.

Noticeably, SMEs have a particularly important role within the construction industry. In the UK, there were 3.7 million businesses in 1999 which in turn, could be regarded as actively small businesses, accounting for 99% of overall businesses and 58% of all employment. In Scotland, nearly 250,000 SMEs are the backbone of the economy, accounting for nearly half of all private sector employment. It should be noted that 18% of the UK SMEs base is within the construction industry and around a sixth in Scotland, and overall 18.5% of construction sectors are SMEs (Scottish Executive Social Research, 2003). This emphasises the importance of SMEs to the construction industry.

The present government has encouraged sustainable construction in Building a Better Quality of Life (DETR, 2000). This was further strengthened in a string of publications, e.g. Accelerating Change by Sir John Egan of the Strategic Forum for Construction (2003) and The Social and Economic Value of Construction (Pearce, 2003). The UK government state that the construction industry should contribute to the achievement of sustainable development by the following:

- being more profitable and competitive;
- delivering buildings and structures that provide greater satisfaction, well-being and value to customers and users;
- respecting and treating its stakeholders more fairly;
- enhancing and better protecting the natural environment; and
- minimising its consumption of energy (especially carbon-based energy) and natural resources.

Therefore, there is a pressing need for a sustainability toolkit that could assist construction firms in an effective and efficient way in order to enhance their competitiveness and improve their business performance. The study shows that such a need could be successfully fulfilled by promoting best practice of sustainable construction within the industry and embedding these practices into the corporate routine, management structure, organisational culture and decision-making process (DETR, 2000; CIEF, 2001; Fairclough, 2002; Bennett & Crudgington, 2003; CIRIA, 2003).

#### **5. The Research Programme and Methods Employed**

This research project has a two-year duration and its implementation is divided into five distinct phases. The project is currently at phase three.

**Phase one involved the project preparation...** This phase included developing a marketing strategy for the project which included undertaking a SWOT analysis within construction SMEs to identify opportunities and gaps within the construction industry. This phase also involved identifying criteria for the participating companies involved in the project; publicising the project in appropriate medias; collecting materials/information; conducting site visits to ensure each participating SME satisfied the criteria; and organising seminars/workshops to help SMEs understand the project background, concepts, methodology, and commitments.

This phase also investigated knowledge gaps and good practices of the participating companies in terms of sustainable business practices. This investigation was based on the following criteria; resource efficiency, compliance with environmental legislation, social and corporate responsibilities and the use of ICT.

At a later phase, a sustainability framework will be developed after working with a number of construction SMEs and incorporate other available studies and tools. The framework will be evaluated by individual participating companies in assistance with the supply chain of private industrial partners; Laing O'Rourke and Dearle and Henderson.

The deliverables for phase one are:

- Development of a marketing strategy for the project
- The recruitment of construction companies
- A workshop/seminar for construction SMEs
- A questionnaire study targeted at construction SMEs
- Guidelines for the development of a Sustainability Framework

**Phase two involved the development of action plans for companies...** A sustainability action plan will be developed for participating companies. This plan will be specially designed for construction SMEs to promote business competitiveness through sustainability good practices, including a set of performance indicators and associated toolkit, as well as comprehensive guidance on best practice of sustainable construction. The action plan will identify the barriers existing in the organisational culture and corporate structure against business competitiveness, and provide a comprehensive and operational scheme for improving their profitability and sustainability performance. This phase will additionally identify the services required to be delivered by the project team to achieve the SMEs action plan. Discussion will take place between the project team and individual SMEs on what and how these services will be effectively carried out and delivered to the firm.

The deliverables for phase two are:

- The construction of action plans for the participating companies
- Setting performance indicators for the participating companies to benchmark

**Phase three involves delivering bespoke assistance to SMEs...** This phase represents the major part of the project. It will provide assistance on actions identified during Phase two. Bespoke services will be provided through this project to help the firm promote business competitiveness and enhance profitability, based on their specific needs identified in light of improving their profitability and competitiveness. Those services could include; staff training, introduction of clean technologies, sustainable procurement, innovative management skills, and knowledge transferring skills, environmental reviews of site operations, database

designing, compliance with environmental legislation and supporting and providing information for locally available service providers for the use of ICT, E-commerce and E-business. This will be delivered through in-house professional advice and knowledge transfer. The project team will ensure sufficient professional support is available in order to provide assistance.

The deliverables for phase three are:

- Introduction of new processes within companies
- Introduction of new products within companies
- A workshop/seminar for construction industry stakeholders
- In-house assistance to the companies to incorporate new technologies and products
- A report on change management within construction SMEs

**Phase four will involve monitoring sustainability performance...** The project team will work with individual participating SMEs and design a mutually agreed monitoring scheme to gauge the performance against an agreed action plan. In addition, the experiences and lessons demonstrated from monitoring results will enable the participating SMEs to develop performance indicators for their company. This information will then be collated for Phase five to re-adjust the sustainability framework designed for construction SMEs.

The deliverables for phase four are:

- Development of a monitoring protocol
- A report on construction SMEs after receiving assistance from the project

**Phase five will involve evaluating and disseminating the sustainability framework...** The sustainability framework developed will be evaluated by individual participating companies and disseminated through a number of workshops. Private industrial partners will assist in evaluating the framework through their supply chain.

The deliverables for phase five are:

- Evaluation criteria for the sustainability framework
- Dissemination workshop

## **6. The Sustainability Framework**

### ***6.1 What is the Proposed Sustainability Framework for Scottish Construction SMEs?***

A sustainability framework will be developed and specifically designed for construction SMEs to promote their business competitiveness, including a set of performance indicators and associated IT-based toolkits, as well as comprehensive guidance on best practice of sustainable construction. To develop this framework, a wide range of good practices, which have helped construction firms to achieve sustainable successes, will be incorporated in this framework. This framework will incorporate relevant strategies, policies and instruments, e.g. the 24 Scottish sustainability performance indicators, Local Agenda 21, and private performance indicator (PPI). The development of the sustainability framework will also be supported through advice and expertise from consultancies, industries, government bodies, professional units and academia to ensure its comprehensiveness and practicability.

The above framework will be carefully tailored, based on the nature, size, legal status and financial situation of the participating SME. As a result, individual participating SMEs will develop their own sustainability strategy and action plan with the help of the project team. Services required by individual SMEs will be identified in their sustainability strategy.

The long-term ambition of this project is to apply the experiences and results obtained from this project to those SMEs in other sectors, e.g. manufacturing, retail and tourism.

It is, within this context that the Sustainability Centre in Glasgow (SCG) based within Glasgow Caledonian University has developed this project and incorporated a multidisciplinary approach for construction businesses to be sustainable. This includes combining economic growth, managerial issues, knowledge gaps, environmental issues and social aspects in construction SME businesses in an integrated sustainability framework.

## ***6.2 Development of the Sustainability Framework***

The sustainability framework will be developed for construction SMEs in a Scottish context for the targeted region; the West of Scotland. The framework will be prepared in conjunction with participating SMEs and the project partners; Centre for the Built Environment, Laing O'Rourke and Dearle and Henderson, as well as other relevant experts from the School of the Built and Natural Environment at Glasgow Caledonian University. The framework will be developed through introducing a number of initiatives such as:

- Providing bespoke assistance in the use of clean technologies, green design, sustainable procurement, effective business management, auditing and monitoring;
- Supporting construction SMEs to comply with different governing / environmental / sustainability legislations to improve business opportunities;
- Developing a reporting system for participating SMEs to evaluate their sustainability performance and identify key issues and gaps which need to be addressed;
- Assisting SMEs in incorporating best practice of sustainable construction in their environmental, social and corporate responsibility; and
- Supporting in modernising Scottish construction SMEs through the effective use of ICT, E-commerce and E-business.

It is proposed the 'Sustainability Framework' will be a benchmarking tool for businesses to measure, evaluate and improve their performance against 'three standard' dimensions of sustainability, i.e. economic, environment and social. However, the proposed framework will include a fourth dimension - 'processes'. The identification of 'processes' as a fourth dimension will assist companies to bring about change in terms of economic, social and environmental sustainability within their businesses.

The four dimensions of the proposed 'Sustainability Framework' will be divided into 16 further components as shown in Table 1.

Table 1 – Dimensions of the Sustainability Framework

<b>Economic</b>	<b>Social</b>	<b>Environment</b>	<b>Processes</b>
Investment	Corporate Social Responsibility (CSR)	Raw material consumption	Change Management
Profitability	Environmental and Social justice	Climate Change	Generic skills required to bring about change
Productivity	Green jobs	Waste generation	Policies and Regulations
Resourcing	Inclusiveness	Energy and water efficiency	
		Land use	

For all participating companies, each of the 16 components will be assessed to determine their benchmark performance. Each benchmark can be used thereafter as a measuring tool for the business.

This investigation will involve all components in terms of a) introducing best practice b) providing assistance to incorporate best practices c) setting targets for the companies according to their capability and capacity, and d) measuring performance.

This tool will give a ‘one stop’ approach to tackle the sustainability agenda and also covers the 24 Scottish Indicators of sustainability. It must be noted that the 16 proposed components might be subject to modification following industry feedback.

### ***6.3 Purpose of the Sustainability Framework***

The purpose of sustainability indicators is to help measure a company’s economic, environmental, and social performance and to provide information on how it contributes to sustainable development (Azapagic et al., 2000). Sustainability reports are emerging as a new trend in corporate reporting, integrating into one report; the elements of financial, environmental and social performance (GRI, 2002).

The ‘sustainability framework’ aims to assist decision makers within the construction industry to explore and record the processes and critical success factors that will be associated with the sustainability agenda. In addition, the framework will assist companies to incorporate associated processes which are crucial to their business competitiveness and assist the mainstream sustainability agenda into their business environment.

### ***6.4 Testing and Piloting the Framework***

The framework will be tested and piloted with all participating companies to ensure that the functionality of each key performance indicator matches the industrial specification. The testing will be carried out by the project team, in addition to questionnaires and interviews with both decision makers within companies and their supply chain. The functionality of the framework will be comprehensively tested and validated through a series of case studies.



## 7. Summary and Conclusions

The project aims to enhance productivity and business competitiveness of construction SMEs through promoting sustainable construction practices within the industry. This is identified as a pressing need for the construction SMEs in West of Scotland, because it has been shown that construction SMEs are an important sector of the Scottish economy and its economic performance and business competitiveness continues to lag behind many other regions of the UK and EU.

This project will contribute to the local economy as well as improving quality of life via social progress and environmental protection. In summary, this project clearly reflects and complements both area-based strategies and sector-based strategies in general as well as in particular for the construction industry.

## 8. Acknowledgements

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