

Environmental Benchmarking of Suppliers in the UK Food Sector

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Abstract

This paper aims to develop an audit toolkit that enables companies in the food sector to benchmark their suppliers in terms of environmental management. The paper reviews environmental practices and performance metrics in the food value chain by developing a custom-designed survey to gather results, allow auditing and enable benchmarking of the best practice, common practice and areas for improvement among the suppliers.

Some of the key areas in which the suppliers represented best practice include the separation and recycling of their waste streams and efforts to reduce the use of raw materials, energy, water, pesticides, herbicides and fertilisers. Some suppliers were actively engaging with stakeholders in their value chain to collaborate on products and processes that reduced environmental impacts. Notably the supplier with the best environmental performance had both developed an Environmental Management Policy and also implemented it systematically.

The areas that the study showed needed improvement included the need for all suppliers to implement an Environmental Management System, the need for more renewable sourcing for materials and energy, the need for systematic measurement of the food miles of products, and the carbon and water footprints of their business processes.

Both the approach taken and the results of this study have already proved beneficial for the collaborating partner, Reynolds Catering Supplies Ltd. as they anticipate its use for promoting improved environmental management among their suppliers.

Introduction

The food industry is a major user of resources in the UK including energy, (approx.

14% of business consumption) and a major contributor to carbon emissions (approx. 20% of all industrial activity), as well as being a major user of water (about 10% of all industrial use), plus a significant source of waste (approx. 10% of the industrial and commercial waste stream) and finally being responsible for 25% of all HGV vehicle kilometres in the UK (DEFRA2006, 2009, 2010; Audsley et al. 2009; Barrett et al. 2011).

Garnett (2011) found that negative environmental impacts occur in all stages of the food value chain and that finite resources such as land and water need to be managed more efficiently and themselves protected from negative environmental impacts such as soil erosion (Van Oost et al. 2006) and water pollution (Almasri & Kaluarachchi 2007; Powers 2007).

Although organic and local production may reduce the environmental impacts of the food value chain to some extent (Seyfang 2006; Brown 2009), organic production is not necessarily always sustainable (Edwards-Jones & Howells 2001; Edwards-Jones 2010). Additionally, local production provides no generalizable or systematic benefits to the environment, and can even be counterproductive, as trade-offs can occur in other stages in the food chain (Garnett 2011).

Sustainable management throughout the food value chain is therefore essential to help mitigate some of the environmental impacts (Dresner 2008; Brown 2009; Sonnino and McWilliam 2011), as well as to drive the need to develop sustainability indicators (Milman and Short 2008; Atkisson 2011), to derive metrics to inform business and public policy decisions and to allow their impacts to be evaluated (Hezri & Dovers 2006; Wiedmann, Lenzen and Barrett 2009). This concept has already been adopted by large food producers such as Unilever. Other stakeholders in the food value chain are looking at how they can engage and develop similar initiatives (Wognum et al. 2011).

The three key areas of sustainable impact are recognised as being social, economic and environmental (Wognum *et al.* 2011). This review will concentrate on the final of these, developing indicators for environmental sustainability and will focus on a specific range of food products in order to study in more depth the opportunities to identify environmental best practices and efficiencies within production and supply processes.

Methodology

This project collaborated with Reynolds Catering Supplies Limited as a key partner

and worked with a number of their fresh produce suppliers, determining their current best environmental practices and identifying opportunities to improve their environmental performance further in achievable cost-effective ways.

Reynolds is a leading independent UK supplier of fresh fruit, vegetables, dairy and cheese, and works with approximately 140 suppliers. They are already working on reducing the environmental impacts of the company throughout the foodservice value chain and are currently developing further stakeholder engagement initiatives on environmental issues.

The key tasks in the first phase of the benchmarking process were:

- Identify six of the key suppliers for Reynolds in the UK and those willing to share details of their environmental practices with this project
- Create a custom-designed questionnaire as a tool to assist identification and analysis of environmental practices
- Investigate public and private sector environmental management strategy options currently available to assist the food sector to reduce negative environmental impacts
- Investigate how the use of environmental indicators can help the suppliers to improve environmental performance and add value to Reynolds' products

Result Evaluation

The six suppliers were selected using the following criteria:

- Location: they should be UK based suppliers as the study initially wanted to focus solely on the environmental performance of UK suppliers – partly to allow comparability in terms of business environment and resource inputs and partly for ease of communication
- Availability: they needed to be able to answer the questionnaire in the two month timescale of the project
- Products: they should supply a variety of products to obtain a wide range of information and practices
- Focus: they should have a primary focus on fresh produce as this is the main activity of Reynolds
- Relationship: they should have a good working relationship with Reynolds to obtain a better response rate

The main activities and products of the chosen suppliers were:

- (A) Oranges – Importer of hard and soft citrus, salads, soft fruits and exotics
- (B) Potatoes – Supplier of fresh potatoes to UK supermarkets and food service sectors
- (C) Prepared vegetables – Producer of prepared vegetables
- (D) Leaf products – Processors and packers of ready to eat salads and vegetables
- (E) Lettuces – Grower and packer of conventional and organic fresh produce
- (F) Apples – Importer and packer of UK and imported apples and pears.

With the exception of supplier A, where produce is sourced globally throughout the year, produce was grown in the UK or was imported from Spain, depending on the season.

The starting point for the design of the questionnaire was the ‘EcoVate Environmental Performance Checklist’. This questionnaire was developed to give environmental support to Small and Medium Enterprises (SMEs) in London on environmental impacts such as waste, water, energy and transport and is part of a project at Middlesex University with other delivery partners, including the Environment Agency (EcoVate 2011).

In addition, other material perceived as best practice was reviewed, including US food retailer Wal-Mart’s Supplier Sustainability Assessment (Wal-Mart 2011), UK food retailer Marks & Spencer’s Plan A (Marks & Spencer 2011) and UK/US food service provider Sodexo’s Supplier Code of Conduct (Sodexo 2011) to identify further aspects that should be added to the questionnaire.

The environmental impact areas considered in the questionnaire were environmental management, waste, materials, energy, emissions, transport, water, packaging, purchasing and onward sustainability. The questionnaire was sent out at the beginning of March 2011. Each of the different areas of impact were weighted equally and each question within each impact area had the same weight. Table 1 shows the scoring methodology used in the analysis.

Level of Practice	Definition	Range of Scoring
<i>Best / Next</i>	Strategy developed and being put into practice	76-100
<i>Good</i>	Under development, doing something	51-75
<i>OK</i>	Planning to, interested in, looking at ways of	26-50
<i>Poor</i>	Doing nothing, not currently	0-25

Table 1 Scoring methodology used to score environmental practices

Results

A radar graph was plotted to highlight the differences and similarities between the results of the six suppliers. Figure 1 shows the best and average scores achieved by the six suppliers for each of the impact areas.

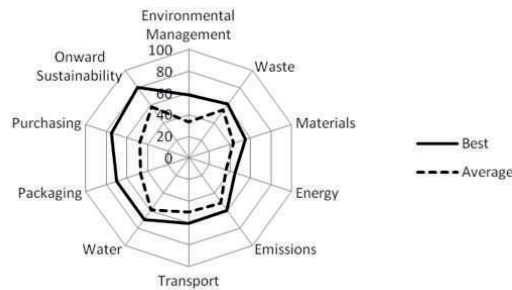


Figure 1 Radar graph shows the best and average scores for each area of impact.

Discussion

The review of the different practices amongst suppliers has helped identify which suppliers have the best environmental management and performance and which areas of practice need to be improved. Within the scope of this study, the questionnaire and the analysis have proved to be a useful tool to compare supplier performance, both individually and relative to each other.

Best Practices Identified

Best practices identified among suppliers include:

Supplier A:

- Environmental Management – has Environment Policy;
- Waste – waste streams monitored and managed;
- Materials and Energy – working with suppliers to reduce use of raw materials;
- Purchasing – Ethical Trading Initiative (ETI) standards already implemented to consider impacts on labour conditions and land contamination;
- Onward Sustainability – working with suppliers to reduce their packaging and energy use.

Supplier B:

- Environmental Management – has Environment Policy and EMS and a dedicated Sustainability Manager, also provides Environmental training and ISO 14001 accreditation is planned for late 2011/early 2012;

- Waste – waste streams monitored and managed, eliminates waste sludge by separating soil and sand from the water using filtration producing saleable products and clean effluent;
- Materials and Energy – developed an award winning patent-pending water recycling system which has reduced process water used by 80% since September 2009 and saves 8000 kWh per week on water cooling in summer, using LED lights;
- Emissions – measured organisational carbon footprint;
- Packaging – uses Forest Stewardship Council (FSC) approved box supplier;
- Onward Sustainability – the development of new product varieties requiring less resource input in the field and a sustainability survey with suppliers.

Supplier C:

- Environmental Management – has Environment Policy;
- Emissions – Organisational Carbon Footprint measured and verified by the Carbon Trust;
- Packaging – developing use of plastic returnable pallets;
- Onward Sustainability – developing sustainability plan with their growers.

Supplier D:

- Environmental Management – has Environment Policy;
- Waste – waste streams monitored and managed, landfill waste diverted to Energy from Waste plant;
- Materials and Energy – recycled water system;
- Packaging – using plastic returnable crates and cardboard outers are reused when possible;
- Purchasing – growers accredited to Assured Produce Scheme and Global GAP.

Supplier E:

- Environmental Management – has Environment Policy and EMS; ISO 14001 under development;
- Waste – organic waste used for composting;
- Materials and Energy – using water recycling system;
- Transport – backhauling of packaging waste.

Supplier F:

- Waste – waste streams monitored and managed, achieves zero waste to landfill, ‘Just in Time’ purchasing to reduce waste, anaerobic digester for fruit waste under development;
- Materials and Energy – reduction of energy consumption by more regular maintenance of cold storage refrigeration units;
- Purchasing – growers accredited to ETI; BRC and Global GAP.

Common Practices Identified

The research identified some common environmental practices. In the area of Environmental Management, all but one of the suppliers (F) have an Environment Policy. Two are currently working on the accreditation of their EMS to ISO 14001 (B and E).

In the area of Waste, four of the suppliers measure some of their waste streams (A, B, D and F) and all recycle and separate their waste streams, including organic materials, paper, plastic and wood.

In Materials, all are trying to reduce the use of raw materials, working co-operatively with suppliers (A) or using ‘Just in Time’ purchasing to reduce waste (F).

In the area of Energy, all are working on reducing energy consumption but none are sourcing from renewable sources. One of the challenges suppliers face with measurement of utility activity data is that operational sites often have only one meter giving aggregated information for all processes. Although sub-meters can be fitted they are expensive and may still not provide a sufficient level of accuracy to usefully inform a cost/benefit analysis.

In the area of Emissions, all suppliers are reducing the use of the pesticides, herbicides and fertilisers where possible. Two of the suppliers have measured their Organisational Carbon Footprint (B and C); the others expressed an interest to have it measured.

In Transport, all suppliers used diesel in their transport operations. None have examined the possibility of using newer alternative fuels, such as bio-ethanol, natural gas, electric or liquid petroleum gas, fuel additives like biodiesel, or exhaust treatments like AdBlue. Some suppliers (C, E and F) have started to measure the food miles of their products.

In the area of Water management, suppliers have adopted different procedures to reduce their water usage and are achieving varying results to date. The supplier

representing best practice in this area (B) has implemented a system which has reduced processed water used by 80% since 2009. Significantly, the amount of water consumed and management of water consumption varied greatly between the six suppliers.

In the area of Packaging, practices for packaging varied greatly and are affected by the suppliers' different business operations and the consequent demands made by customers. Most already reuse and/or recycle packaging materials to some extent, and some are actively working to improve this further within their own companies and additionally are promoting the efficient use of packaging upstream in the supply chain. Two of the suppliers (D and F) also encourage their downstream clients to recycle. Although the others do not currently report being active in this, some of these actually use very little packaging for their products because they supply to restaurants rather than final consumers and therefore the packaging can be less elaborate.

In terms of Purchasing, although some of the suppliers purchase their packaging with recycling considerations in mind, three of them (A, E and F) are working to ethical codes of purchasing practice, e.g. ETI and FSC. Interestingly, sustainable purchasing activities currently appear to be more focused on social impacts than environmental impacts.

As far as Onward Sustainability, two of the suppliers (B and C) are developing sustainability surveys in conjunction with their suppliers and customers and are already working on customer awareness. This has been done via the communication of sustainable product alternatives to their customers, including the development of new product varieties requiring less resource input in the field.

Key Challenges Identified

The key challenges that were identified by the study in individual impact areas were as follows. The area of Environmental Management had the lowest average score among the ten indicators assessed. Lack of information, money or time was described as the main challenge. ISO 14001 compliant Environmental Management Systems were being developed by two suppliers (B and E).

Although four of the suppliers measure some of their waste streams (A, B, D and F) and all recycle and separate their waste streams, a more strategic approach would provide a significant additional income stream with the high prices currently being paid for sorted waste, especially plastic.

Materials and Energy had lower average scores than most of the other areas of impact, indicating some level of difficulty faced by most suppliers in these areas. None

of the suppliers had on-site renewable energy sources or used utility energy sourced from a renewable source, however three of the suppliers (B, D and F) are actively working on the reduction of energy inputs and gave details of their projects. Two of the suppliers mentioned the challenge of using energy more efficiently when having large refrigeration systems (E and F). One monitored the utility bills and activity data to help control the energy usage and had instigated more frequent maintenance of cold storage refrigeration units to increase efficiency (F).

In terms of Emissions, only two of the suppliers have measured their Organisational Carbon Footprint (B and C). One of the main challenges for the others was lack of funding for sub-meters to gain baseline data.

In regards to Transport, none of the suppliers used alternative fuels, fuel additives or exhaust treatments. The food miles of products were not measured comprehensively across their product range by any of the suppliers. However, three suppliers (C, E and F) had completed work on some of their products. Two suppliers (A and B) mentioned the challenge of supermarkets' demand for all year supply of produce and the direct effect on transport impacts. Only one supplier (E) highlighted improved backhauling as a way to reduce transport impacts.

In the area of Packaging, only one supplier (B) used a FSC approved packaging supplier. Another supplier (A) highlighted the issue that supermarkets specify which packaging suppliers and products are acceptable, leaving no opportunity to explore alternatives.

Conclusion

This study has shown the potential value of using a questionnaire and the subsequent analysis of environmental performance indicators to help develop an audit tool to benchmark environmental management and working practices in the food value chain.

Environmental indicators can vary between businesses and cannot therefore be widely generalised. However, the metrics developed in this project have shown to be robust across the differing practices of the suppliers consulted and are a useful starting point for analysis and evaluation.

All six suppliers are working to improve their environmental performance but time, money and information have been the main challenges identified by the suppliers. Although none of the suppliers were shown to have reached near perfect environmental practice, the research has identified some very good practice, with

projects underway to reach best and next practice.

The research has helped Reynolds to benchmark their suppliers and work with them to identify strengths and improve any areas of weakness to achieve enhanced overall environmental management and performance and reduced environmental impacts throughout the Reynolds value chain.

Biography

Marta Salvà Cifuentes is a graduate of Food Science, with MSc from London Metropolitan University and BSc from Universitat Autònoma Barcelona. Her recently completed Master's dissertation researched opportunities to measure and benchmark environmental performance of fresh produce suppliers. Drawing additionally on recent collaborations with Sustain and Food Service Forum, and building on her background of professional practice in quality assurance, she is now exploring channels for sustainability and environmental factors to be better integrated into quality and technical practices within the food industry. She is currently working as a Quality Control supervisor at a leading organic groceries delivery firm.

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