CRANFIELD UNIVERSITY

MICHAELA SKODOVA

PERCEPTIONS OF BARRIERS AND OPPORTUNITIES FOR A SUSTAINABLE DIET IN THE LONDON BOROUGH OF SUTTON

SCHOOL OF APPLIED SCIENCES
Economics for Natural Resource and Environmental Management

MSc THESIS
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This thesis is submitted in partial fulfilment of the requirements for the degree of Master of Science

ABSTRACT

In the UK, current diets have resulted in the country being ranked the highest in the EU for obesity. Approximately 48% of the saturated fat in the UK diet comes from meat and dairy products. The consumption of high levels of both products categories is associated with environmental burdens (e.g. GHG emissions) that can damage the atmosphere, land, and water and biodiversity. A shift in consumption patterns towards a lower-meat and dairy diet is considered by many organisations to be beneficial for both the environment and public health.

The aim of this study is to determine what is the public perception of “a sustainable diet” and what might be the barriers and opportunities for such diet in the London Borough of Sutton; while using the definition of the environmental charity BioRegional: “to eat less meat and dairy, to have a vegetable based diet and food from local and chemical free production”. The research is achieved through a qualitative and quantitative analysis of a questionnaire survey, carried out in two different ways: web-based and face-to-face in the streets of Sutton in July 2012.

Results, found in the two types of surveys, showed a difference in familiarity and understanding of the concept of sustainable diet. Price and availability of products are the main barriers identified. Further results showed that the barrier may not be the price itself, but the perception of organic vegetables is automatically assumed to be very expensive. The motivation to eat sustainably was high in both web-based and face-to-face samples. Three statements were provided by BioRegional to determine the motivation of respondents to participate in a sustainable diet irrespective of the price. The results suggest that the main motivation to eat more sustainably in the future is due to the benefits that they would positively affect both community and local economy.

In the future, the concept of sustainable diet in the UK needs to be properly defined and specific dietary guidance needs to be developed in order to reduce the impact of people’s diet on the environment. Further funding and support of project with a similar concept in different areas in the UK is suggested. This could develop a definition of sustainable diet which can be easily understood; as well as guidance for the government to implement changes in behaviour.

Keywords: food, UK, consumption, perception, barriers, local, community

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LIST OF ABBREVIATIONS

FAO	Food and Agriculture Organisation
WHO	World Health Organisation
DEFRA	Department of Environment, Food and Rural Affairs
NAO	National Audit Office
NHS	National Health Service
SACN	Scientific Advisory Committee on Nutrition
DOH	Department of Health
FSA	Food Standards Agency
SDC	Sustainable Development Commission
EUFIC	European Food Information Council

This thesis has been prepared in the format used for scientific papers appearing in the journal ‘Ecological Economics’. The paper includes an extended literature review.

1 Introduction

Food and Agriculture Organisation (FAO) (FAO, 2006) has predicted that the demand for food is expected to increase by 50% of 2006 levels as global population rise to 8.3 billion by the year 2030 and to population rise to 9 billion by the year 2050. This increased demand brings serious concerns about future food security. Feeding this increase in population will require higher food production levels and better use of natural resources.

Two different impacts linked to food consumption are also of concern: malnutrition and obesity[1]. Obesity is most frequently caused by surplus in calorific intake and lack of physical activity while malnutrition may be caused by insufficient amount of nutrients to maintain healthy issues and organ function. Current estimate suggest 925 million people in the world are undernourished. Considering there are more than 1.4 billion overweight adults globally, both of these extremes reflect disparity in the distribution of food (Macdiarmid *et al.*, 2011; FAO, 2012; FAO, 2007; Benton, 2012; UNICEF, 2012; Medical Dictionary, 2012).

It is clear that with both inequities several challenges rise. Health-costs, food sources and consumption are influenced. There is a need for more food to be produced to feed the increasing population and above all, this food should be produced sustainably. Furthermore, waste in the food chain needs to be minimised and the demand for the most polluting types of food reduced because of their negative environmental impacts (Foresight, 2011; Barber, 2000; Benton, 2012).

The changes in consumption, society and behavioural patterns of communities has dramatically increased obesity rates since the 1980s in North America, the UK, Eastern Europe, the Middle East, the Pacific Islands, Australasia and China. There has been a large increase in the intake of dietary fats everywhere in the world except Africa. The highest consumption of fat occurs in North America and Europe (WHO, 2003a; Macdiarmid *et al.*, 2011; WHO, 2012).

[1] Being overweight currently causes globally more death than being underweight (BBC, 2011).

The UK, being one of the European countries, also has its share in increase of quantity and quality of the fats consumed in the diet. Recent statistics show that the UK is the highest ranked country in the EU for obesity, with the percentage (of 23%[2]) of the population classified as obese. Several factors cause obesity (further identified in the literature review) but the main factor is probably current intake of calories by the UK population, which is nearly 3,500 kcal (1,000 kcal more than the recommended amount[3]) per person (Macdiarmid *et al.*, 2011; FAOSTAT, 2009; NHS, 2010a; Defra, 2011a; Hope and Gardener, 2010; DOH, 2011; EuroSTAT, 2011; Gallagher, 2011).

According to statistical data, obesity has more than tripled in the last 25 years and scenarios can be found predicting that around 40% of the population will be obese by 2025 and 60% by 2050. Being obese or overweight increases the possibility of suffering from chronic illnesses, such as cardiovascular disease, respiratory difficulties, and diabetes and is estimated to cause approximately 30,000 premature deaths a year (NAO, 2001 cited in Foresight, 2007a and 2007b; WHO 2012; FAO 2004; Bearder *et al.,* 2012; Defra, 2011a; SACN, 2011; Edwards, Engstrom and Gustafsson, 2008; Foresight, 2007b; FAO, 2010).

It is not only the high intake of calories that is damaging to the environment, but also the type of food consumed. In the UK, WWF-UK has since 2009 led on a project that aims to help reduce the environmental and social impacts of food consumption in the UK - 'One Planet Food' (Macdiarmid *et al.*, 2011; One Planet Sutton, 2012).

In the London Borough of Sutton, 'One Planet Food' is a key programme run by the environmental charities BioRegional and EcoLocal. The main activities in Sutton are through EcoLocal's environmental services focused on local food and health and BioRegional's practical demonstrations of how the community can move towards more sustainable living (e.g. One Planet Living). "Local and

[2] It has been stated that 26% per cent of adults is classified as obese with Body Mass Index 30kg/m2 or over in year 2010 (The Health and Social Care Information Centre, 2012).
[3] Taking into consideration average guidelines for man to maintain his weight (2,500 kcal a day) (NHS, 2010a).

sustainable food" is one of the ten pillars of sustainability proposed by BioRegional (Figure 1-1) and BioRegional's aim is for Sutton's residents to have access to 'affordable, delicious and nutritious local food'. For this reason, BioRegional has purchased land to provide local organic food to Sutton residents through the Sutton Community Farm, which is now an independent non-profit organisation providing fresh local vegetables for its community.

Figure 1-1 The 10 Principles of One Planet Living Framework, adapted from BioRegional (2002)

Both environmental charities are playing a key role in reducing the impact of food consumption in Sutton's community (EcoLocal, 2012; Macdiarmid *et al.*, 2011; One Planet Sutton, 2012; BioRegional, 2012a and 2012b; Sutton Community Farm, 2012).

In order for residents to alter their behaviour and start buying more sustainable food, they need first to be aware of the concept of "a sustainable diet" and second to be willing to alter their food consumption to act in accordance with the principles of "a sustainable diet". In agreement with BioRegional, this study was undertaken to elucidate on the factors leading to obesity in the UK and to determine what the response of Sutton residents would be to "a sustainable diet".

In order to achieve this aim, the following objectives were identified:

(1) to assess the concept of a “sustainable diet” in the literature
(2) to investigate awareness and perception of Sutton’s residents towards a sustainable diet
(3) to identify the barriers to a sustainable diet in Sutton
(4) to identify what would motivate Sutton residents to move towards a sustainable diet.

2 Literature review

2.1 Food and obesity in the UK

Health related problems associated with obesity and excessive weight in the UK cause additional costs to the National Health Service (NHS) which are projected to double to £10 billion by the year 2050. Due to radical changes in food production, food sales, work patterns, transport over the past five decades and to lifestyles in general (e.g. poor diet and lack of physical activity), the UK population has experienced a doubling of obesity rates in the last 25 years. Although there have been some positive changes in the diet of British adults over the last 15 years, according to the Scientific Advisory Committee on Nutrition (SACN) (SACN, 2008) the consumption of fruit and vegetables is still too low whilst excessively high intakes of sugar, salt, fat and saturated fat (from animal products) prevail (Foresight, 2007b; NHS, 2010b; SACN, 2008; Scarborough *et al.,* 2012).

The literature identifies several behavioural risk factors as determinants of obesity such as: eating patterns, diet with high energy density (and poor nutrition), high consumption of sugar sweetened beverages, large portion sizes and low level of physical activity (WHO, 2003a; Rennie *et al.,* 2005).

Approaches to eliminate the risks of obesity are prevention and treatment. However, treatment is costly to the NHS, and therefore prevention is increasingly seen as the key. The key to the prevention is behavioural changes

in groups, families, and individuals. To make the changes for better eating patterns, there are many barriers, for example, levels of knowledge, and ingrained buying & eating habits (NHS, 2010b; Foresight, 2007a and 2007b).

For the UK, the "Eatwell plate" shows the recommended distribution of "ideal" proportions of different foods for a healthy balanced diet (see Appendix B.1). This diet division includes high intake of 'fruit and vegetables' and 'bread, rice and other starchy food' (33% each), moderate amounts of 'meat, fish and other sources of protein' and 'milk and dairy' (12% and 15%) and small amounts of 'food and drinks high in fat or sugar' (8%). Current intake in the UK diet contains higher levels of saturated fat and sugar (from the recommended 8% to 15%), salt, fibre and meat, fish and other sources of protein (from 12% to 22%). Meat and dairy products, although providing a range of essential nutrients that are necessary for a healthy diet, are the most greenhouse gas intensive food commodities. Livestock farming alone is considered to contribute to 57% of agriculture's emission and meat and dairy account for 24% of the environmental impact of European Union's consumption patterns (Bearder *et al.,* 2012; Garnett, 2008 cited from Macdiarmid *et al.*, 2011; WWF-UK, 2011; Thomas, P., 2010; Millward and Garnett, 2010; Westland and Crawley, 2012; WWF-UK, 2012; EUFIC, 2005; SDC; 2011).

2.2 Concept of the "sustainable diet" in the UK

In the UK, at least 48% of saturated fat comes from meat and dairy products. The UK's National Diet and Nutrition Survey of adults have stated that 95% eat meat and 99% consume milk and dairy foods. Both meat and dairy product create high pressure on the environment (greenhouse gas emissions) and on the world's resource (land, water, biodiversity). A lower meat and dairy diet is considered beneficial for both the environment and the health of the public (WWF-UK, 2011; Thomas, P., 2010; Westland and Crawley, 2012; Henderson, Gregory and Irving *et al*., 2003, cited in Millward and Garnett, 2010; WWF-UK, 2011).

There are several ways to reduce the impact of food consumption. These include the reduction of consumption of high impact food itself, promotion of local food systems, and the promotion of consumption of food produced with farming techniques that are less harmful to the environment (BioRegional, 2005; WWF-UK, 2011; Westland and Crawley, 2012).

Specific nutrient and energy requirements for a healthy balanced diet exist and also several recommendations for sustainable eating are available. In 2008, the UK Government's Sustainable Development Strategy set out a framework for behaviour change that was recognising the change towards sustainability by encouraging, enabling and engaging people and communities. However it was not until 2009 when the Food Standards Agency (FSA) failed to acknowledge sustainability as a dietary issue that the UK's Sustainable Development Commission (SDC) identified the need for better understanding of the impact of diet on the environment (Driscoll, 2009 cited in Montague-Jones, 2009; SDC, 2009; Cabinet Office, 2008; Defra, 2010c).

After the FAO (2010) symposium, the "sustainable diet" was defined. This enabled WWF in early 2011 to launch a second UK report on a diet that is both healthy and sustainable, using the Livewell plate modelled on FSA's Eatwell plate (Cooper, 2011).

The concept of a sustainable diet has therefore been available for only short period of time and lacks rigorous definition. It can only be agreed that there is evidence of what a healthy diet would constitute. However, there is no universally agreed definition of a 'sustainable diet', although there is already evidence on what can be done in order to reduce the impact of people's diets (Defra, 2010a; Stockley, 2011; SDC, 2009).

The key to understanding a sustainable diet is in understanding that long-term eating patterns, that are both beneficial for human health and the environment, need to be developed. But because the dietary needs are not all the same and the UK population has different preferences for food, it is unrealistic to expect the same list of healthy, balanced and sustainable food to be valid for everyone. It appears to be more realistic to create a set of rules for a sustainable diet that

can be adjusted according to preferences and that is not harmful to either human health or the environment (Westland and Crawley, 2012; Macdiarmid *et al.*, 2011).

2.3 Sustainability in the future

Satisfying the growth in demand for meat and dairy products in global diets as global populations expand and food preferences change, would require a degree of intensification in production from agricultural land and livestock production which would be neither sustainable nor humane. Recommendation for diets are that effective measures should be taken to reduce the level of consumption of animal products (including milk). This reduction would be beneficial for health and would also reduce the environmental burden of food production (Erb *et al.*, 2009; SDC, 2009; WWF-UK, 2012).

According to several sources, there is a need to promote healthy behaviour to encourage and motivate individuals to change their habits (such as cutting the amount of fat and sugar in their diet, eating more fruit and vegetables). The probable direction of change in consumption patterns appears to be towards a sustainable diet (increased consumption of plant-based food) as there is evidence that the current consumption of meat and milk produce will need to fall until 2050 (Perkins, 2009; Westland and Crawley, 2012; WWF-UK, 2012).

Sustainable behaviour change in diet is challenging, as it is difficult to change people's behaviour itself - but could substantially contribute to the UK's environmental footprint reduction. In practice, it has been recognised that the consumer's behaviour plays the key role in driving environmental impacts. It is the consumer that needs to be interested and understand the impacts of their food consumption. Consumers need to be provided with more information about environmental and social impacts of their food so their attitudes and therefore behaviour can change (Jackson, 2005; NHS, 2010a; WWF-UK, 2012).

According to Defra's (2011b) report, recent research shows that in the UK, a major part of the population is undecided about eating sustainably; 70% of respondents opted for a 'maybe' response and were non-committal in their willingness to change diet to have less impact on the environment. In respect to this, a recently published report from WWF-UK (2012) considers "the retailers are uniquely placed to promote sustainable diets". Retailers could potentially influence consumption patterns by providing more information about the impacts of different food products and by providing and promoting more sustainable food options to accelerate changes in consumer behaviour (Bearder *et al.,* 2012; WWF-UK, 2012; Defra, 2011).

3 Materials and Methods

3.1 Methodology

The research was conducted in three key stages. In first stage, a literature review (presented in Section 2) was undertaken in to order to understand current thinking on the concept of a sustainable diet. This was followed in stage 2 by creation and distribution of a questionnaire through the Internet and through face-to-face interviews. The web-based version of the questionnaire was used with the support of two environmental charities BioRegional through their mailing list of Veg Box[4] customers, and EcoLocal through their Newsletter subscribers. In parallel, the questionnaire was carried out face-to-face within the Sutton region in order to maximise the responses, and to reduce time-consumption and paper-costs.

In stage 3, several semi-structural Interviews with key informants were arranged to value the research outputs and bring better explanation to the results found.

Triangulation strategy was used in this study to confirm the findings. This strategy is mainly based on using the same data resources and inputs in two

[4] Veg Box: a follower of Veg Van that sells freshly harvested vegetables from Sutton Community Farm. Currently, the distribution of vegetables from the farm is through a box that can be ordered online from http://www.suttoncommunityfarm.org.uk/veg-box/ (The Veg Van, 2012).

different ways (structured face-to-face and web-based questionnaire) in order to compare the final results and check the conclusions. (McCracken, 1988, cited in Kemp *et al.,* 2010; Hammersley, 2008).

The findings were analysed using an Excel spreadsheet which was created in order to gather all the answers and the respondents' comments. This was used to help to organise the quantitative and qualitative data from the questionnaire and key informant interviews and to generate statistical data; first by plotting the relevant information in form of charts and second by applying these results in SPSS in order to generate cross-tables to find out the relationship between different parameters used during the research.

3.2 Materials and data collection

3.2.1 BioRegional

BioRegional is a multinational enterprise which establishes sustainable businesses around the world and which promotes real-life projects and solutions with the partnership of several organizations through consultancy, education and policy work. The subsidiary in UK applies around 35 employees and it is located in Surrey. Several actors take part in the programme in the UK, such as the UK government, funders and local organizations. BioRegional provides those actors with possible workshops in order to implement sustainable behaviour in their environment (e.g. schools, society) and works towards minimizing the carbon footprint by adopting a tough carbon budget and creating long term solutions and strategies (BioRegional, 2012a).

BioRegional is operating in several areas to achieve sustainability (e.g. One Planet Communities, One Planet Regions, One Planet Companies). This study is focused on London Borough of Sutton, which is an area where BioRegional's offices are located. Due to BioRegional's involvement in One Planet Food (by WWF-UK), their main aim is for the residents to be more involved in a sustainable diet, by for example purchasing more food from local and organic production and to eat less meat and dairy and more vegetables. This

way of Sutton becoming more sustainable community reflects their own definition of sustainable diet as used in all questionnaires.

3.2.2 Field site

The data collection was conducted in the London Borough of Sutton (Figure 3-1) through a questionnaire. Sutton occupies a total land area of 4,385 hectares and had a recorded population of 195,894 people in 2007 (London Borough of Sutton, 2008 and 2009).

Figure 3-1 Map of London Borough: Location of the survey, adapted from London Councils (2012)

The quality and historic development of the Borough can be reflected by the number of high quality heritage areas designated as Conservation Areas and Areas of Special Local Character reflects the quality and historic development of the Borough. 'Village feel' still remains as Sutton used to be a collection of rural villages. Sutton Town Centre is complemented by 6 district centers along with a large number of local centers and dispersed parades of shops (London Borough of Sutton, 2009)

3.2.3 Face-to-face and web-based questionnaire

A questionnaire was developed during June 2012. The questionnaire in its final form consisted of three parts:

(1) Information to explain the purpose of the questionnaire;

(2) The main body of the questionnaire which included the definition of the concept of sustainable diet, questions about current barriers and motivation to eat sustainably and also specific questions about Veg Box scheme, a project of BioRegional, and;

(3) Questions related to the sex, age, ethnicity, income and household.

From the 4th of July, face-to-face interviews were conducted in different locations in the streets of Sutton (Table 3-1).

Table 3-1 The locations and dates of the face-to-face interviews conducted as a part of the questionnaire survey in the London Borough of Sutton

Date	Location
04-07-2012	St. Helier Library (Carshalton) + Carshalton Pond
05-07-2012	Wallington town centre*
07-07-2012	Sutton Ecology centre, Food & Community event (Carshalton)
14-07-2012	Sutton Ecology centre, Summer Garden party (Carshalton)
15-07-2012	Belmont Festival (Sutton)
18-07-2012	Carshalton Pond
20-07-2012	Carshalton Pond

* The least successful location has been Wallington town centre as the least responses were collected here.

At the same time, a web-based (online) version of the survey, using the same information and questions, was launched and distributed with the help of BioRegional and EcoLocal to their Veg Box (BioRegional) and newsletter subscribers (EcoLocal). The questionnaire first attempted to map the knowledge of the respondents on sustainable diet, using the definition given by BioRegional (see Appendix A.1) and encouraged them to provide their own opinions of a sustainable diet. The respondents were also asked about possible

barriers and motivation to eat sustainably. Additionally, as this research was conducted for BioRegional, specific questions included a part for their Veg Box customers. In particular regarding changes in their shopping habits as a result of their subscription to the Veg Box and also regarding their satisfaction with this Veg Box project. Non-Veg Box customers on the other hand were asked what might motivate them to join the Veg Box scheme, as BioRegional has a remit to help promote local food production and sustainable change in the Sutton area.

3.2.4 Key informants interviews

Semi-structured questionnaires (see Appendix A.2) were conducted with key informants through face-to-face interviews and telephone interviews. These included an employee from BioRegional currently working on sustainable behavioral change and marketing of the Veg Box product. A specialist in sustainable agriculture provided an overview on food security and sustainable agriculture and diet. Two interviews from EcoLocal were undertaken to get an inside view of sustainable diet and its development. Finally a telephone interview was conducted to collect information on food perception of people attending cooking classes.

The questionnaires' structure was developed based on the questionnaire for the respondents from the streets of Sutton. It was divided into two parts. The first part included an introduction to the topic of the questionnaire and focused on basic background information about the informants. The second part included questions about the informants' view of the concept of sustainable diet (using the definition of BioRegional) and their view about the motivation and barriers to sustainable food and diet. The structure of the question was open-ended, as this left the respondents free to decide on the length, the wording of the answers, and the additional issues to be raised (Denscombe, 2007).

3.3 Data analysis

The data collected during the face-to-face interviews and the web-based questionnaire were stored and analysed in a Microsoft Excel spreadsheet (version 2007). A statistical package (SPSS) (version 19) was used to analyse statistical significance of these data. Interviews were transcribed and the narratives analysed for key themes using content analysis (Strauss and Corbin, 1998).

3.3.1 SPSS data analysis

Chi-Squared Test (χ^2) was used in order to analyse the statistical significance of the data.

This level of significance used in each sample (both face-to-face and web-based data) was 5%.

Null Hypothesis (H_0) established: The two variables are independent on each other and therefore there is no relationship present:

$H_0 = \beta_1 = 0$

β_1 represents the probability of not rejecting the null hypothesis.

H_0: p 0.05 < p observed $\longrightarrow$ reject $H_{0.}$

Using the SPSS Help Sheets from Virginia Commonwealth University (VCU, 2012), procedure of the Chi-Square Test analysis was as following (Figure 3-2):

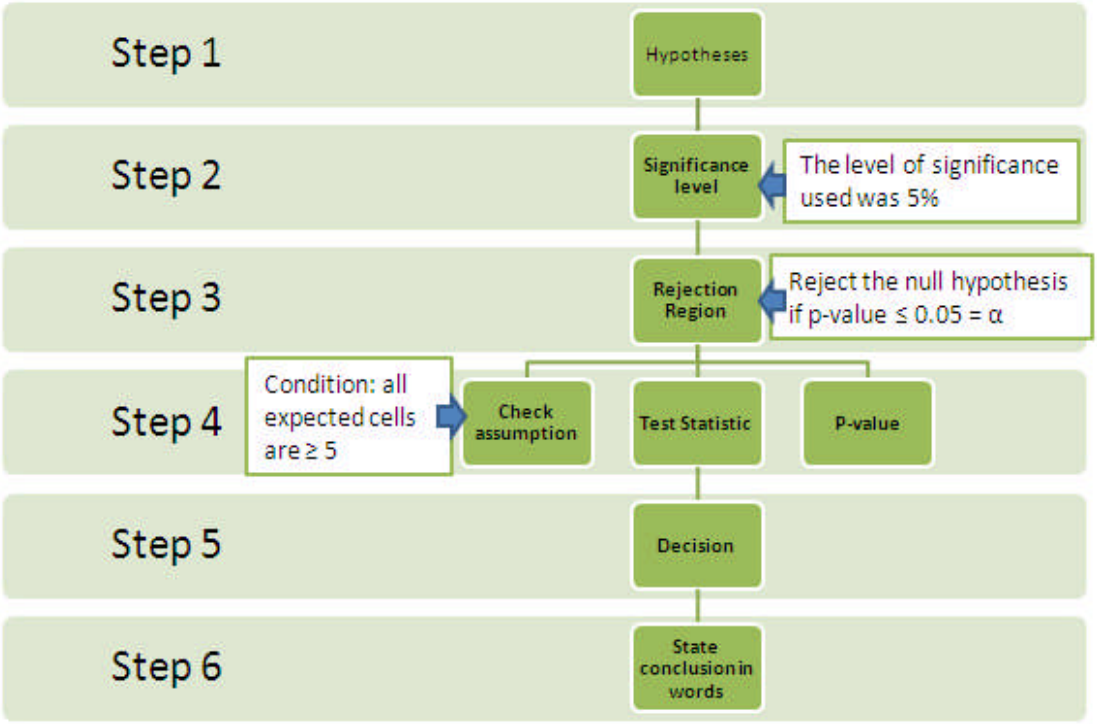

Figure 3-2 Procedure of the Chi-square test analysis

3.3.2 Research evaluation criteria

The evaluation criteria are used to make the judgment on the work results valid, reliable and credible. According to Strauss and Cronin (1998) there are seven main criteria for evaluations exposed and answered below:

Criterion 1: How was the original sample selected?

According to the calculation made by BioRegional, a minimum sample expected to be used (30 people) was through Veg Box customers participating in the last research done in January. However, in our study this number was highly overcome. Knowing that the bigger the sample is, the better accurate and understanding of the research that it can be generated. Final sample chosen was 130 responses to be judge separately.

Criterion 2: What major categories emerged?

As explained earlier, the questionnaire was partially answered by the Veg Box customers. In this case, several categories emerged for the study. The categories chosen therefore are customer or non-customer of the Veg Box from BioRegional, further gender, ethnicity and salary average.

Criterion 3: What were some of the events, incidents, or actions that pointed to some of these major categories?

These major categories identified were suggested from BioRegional. Their assumption was made based on a past researches done for the Veg Box customers.

Criterion 4: After the theoretical sampling was done, how representative of the data did the categories prove to be?

The findings were tested for their statistical significance and for establishing its representativeness. The data didn't prove to be significant

Criterion 5: On what grounds were they formulated and validated?

The grounds formulated are the main barriers (and motivation) that exist between the residents of Sutton to have sustainable diet. Results explained later will show that there are some relevant barriers in both face-to-face and web-based surveys and the level of motivation present in Sutton.

Criterion 6: Were there instances in which hypotheses did not explain what was happening in the data?

There were certain hypothesis assumed, for example that income influences the level of motivation with the sustainable diet. Data showed not relevant and significant results and those were explained in the Results and Discussion part of this study.

Criterion 7: What grounds were the final analytic decisions made?

The results based on the quantitative and qualitative analysis showed high motivation present in Sutton. This study also defined barriers and motivation to a 'sustainable diet' that is further explained in the Conclusion.

4 Results

Overall, 130 survey responses were collected for the questionnaire survey. Although the questionnaire is the same regarding the design, the number of answers differs. Indeed, the number of respondents in the face-to-face is 82 while, it is 48 in the online questionnaire[5]. The decision of analysing the results of both questionnaires separately is due to the fact that the samples number in both cases is strongly different (almost the double for the face-to-face). In addition to that, the web-based questionnaire was distributed to people who are familiar with the organizations and therefore, this can make an issue for interpreting the results once they are combined.

4.1 Face-to-face interviews

The analysis of face-to-face interviews showed that there were slightly more women (55%, n=44) than men (45%, n=37) in the sample (Table 4-1). The majority of respondent defined themselves as white (91.5%) and approximately half the sample was aged over 50. A sizeable proportion of the sample (37.8%) did not disclose its income. However, the majority of those that did disclose their income, earned between £20 and £40k per year. This level of income corresponds with the average (mean) gross annual household income in Sutton in 2011 which was £38.345 per annum (Drummond-Hay, 2011).

[5] Unfortunatelly, the response rate can be established only from the web-based survey. The estimate of responses was established at 100 participants, making the response rate of 48%.

Table 4-1 Data profile of the face-to-face respondents interview from the questionnaire survey in the London Borough of Sutton

Description	Category	No. of people	Percentage
Gender	Male	37	45.1%
	Female	44	54.9%
Age	16-24	3	3.7%
	25-34	17	20.7%
	35-49	22	26.8%
	50-64	25	30.5%
	65-74	7	8.5%
	75+	8	9.8%
Ethnicity	White	75	91.5%
	Mixed	1	1.2%
	Asian or Asian British	3	3.7%
	Black or Black British	2	2.4%
	Other	1	1.2%
Income	<20k	16	19.5%
	20k - 40k	24	29.3%
	>40k	11	13.4%
	I don't want to specify	31	37.8%

Regarding prior familiarity with the concept of a sustainable diet, results from the face-to-face interviews showed that nearly half of the respondents (46.3%) were unfamiliar with the concept before it was introduced to them during the interview (Table 4-2).

Table 4-2 Familiarity and perception of barriers and motivation to sustainable diet of the face-to-face respondents interview in the London Borough of Sutton

Familiarity with the concept of sustainable diet		
Yes **53.7%**	No 46.3%	
Perception about difference between "eating healthily" and "eating sustainably"		
Yes **72%**	No 13.4%	I don't know 14.6%

Barriers to sustainable eating		
This would make me eat sustainably	Nothing stops me, I eat sustainably	I don't think/care about sustainable food or
79.3%	8.5%	12.2%
Motivation for sustainable eating		
I believe there are barriers that stops me from "eating sustainably"	Nothing would make me change my mind	I don't care about sustainability
76.8%	13.4%	9.8%

When asked about the difference between “eating healthily” and “eating sustainably”, the majority of the respondents felt that there was a difference. However, they were unable to describe the difference in words. Respondents found a definition of “eating healthily” easy to formulate most of the time. But a definition of “eating sustainably” was much harder for them to provide, even though the concept of a sustainable diet as described by BioRegional had been given earlier in the questionnaire.

When asked whether there were barriers to eating sustainably, 80% of the respondents felt that there were. Regarding motivation, a similar number of respondents (76.8%) expressed that there were certain aspects which would motivate them to opt for a sustainable diet in the future. Both the barriers and potential opportunities are described and discussed in detail in the Discussion.

The three questions (Table 4-3) which asked respondents about their willingness to eat more sustainably (irrespective of the price) showed that the biggest motivation was regarding spending money that stays within the community (69.5%). The second most important motivation given by the respondents (67.1%) was that this would have a lesser impact on water. The lowest motivation was for reducing the ecological footprint of Sutton with just over half of the respondents (57.3%).

Table 4-3 Responses from the questionnaires of the face-to-face interviews to statements provided by BioRegional in the London Borough of Sutton

Change towards sustainable eating (price aside):		
a) Sutton's ecological footprint is 3x larger than it should be and eating local food would help to reduce it.		
Yes, I would eat more sustainably	No, It would not convince me	I don't know
57.3%	22%	20.7%
b) Eating local organic production would lower the environmental impact on water and water would become cleaner.		
Yes, I would eat more sustainably	No, It would not convince me	I don't know
67.1%	12.2%	20.7%
c) 80% of money spent on local food would stay in the community (rather than when you shop in local supermarket, only 20% stays in the local community).		
Yes, I would eat more sustainably	No, It would not convince me	I don't know
69.5%	13.4%	17.1%

Some immediate interest to be involved in a sustainable diet through the Veg Box scheme (provided by Sutton Community Farm) was evident with 13 respondents out of 79 (excluding current Veg Box customers) saying they would be willing to purchase the Veg Box immediately (Table 4-4).

Table 4-4 Motivation to join the Veg Box scheme provided by Sutton Community Farm from the face-to-face interview responses

Respondents interest in Veg Box scheme		
Yes	No	I don't know
65.9%	30.5%	3.7%
- out of 65.9%, 41 respondents stated conditions based on which they would be willing to join and 13 would join the Veg Box scheme immediately	- out of 30.5%, 22 respondents stated why they are not interested and 3 respondents stated different preferred form of support of sustainable diet	

Respondents who expressed interest if only certain conditions were fulfilled (41 out of 79 respondents, excluding current Veg Box customers) stated that it was the availability of information about the Veg Box and about the actual content of

the Veg Box (n=14). The second most stated condition was the price that was the concern (n=13).

The rest of respondents who were not interested mentioned mainly that they were already growing their own vegetables, preferred convenience of a supermarket, or that they were living alone and therefore wouldn't be able to use all of the Veg Box.

4.2 Web-based questionnaires

The analysis of web-based responses showed that there were more women (70.8%, n=34) than men (29.2%, n=14) in the sample (Table 4-5). The majority of respondent defined themselves as white (87.5%) and approximately half the sample was aged over 25. The majority of the sample (41.7%) earned between £20 and £40k per year.

Table 4-5 Data profile of the web-based respondents from the questionnaire survey in the London Borough of Sutton

Description	Category	No. of people	Percentage
Gender	Male	14	29.2%
	Female	34	70.8%
Age	16-24	4	8.3%
	25-34	18	37.5%
	35-49	12	25%
	50-64	10	20.8%
	65-74	2	4.2%
	75+	2	4.2%
Ethnicity	White	42	87.5%
	Mixed	3	6.3%
	Asian or Asian British	3	6.3%
	Black or Black British	0	0%
	Other	0	0%
Income	<20k	18	37.5%
	20k - 40k	20	41.7%
	>40k	6	12.5%
	I don't want to specify	4	8.3%

In the web-based questionnaire, 91.7% of respondents were familiar with the concept of sustainable diet (Table 4-6). This was to be expected, due to the sample and is examined further in the Discussion.

Table 4-6 Familiarity and perception of barriers and motivation to sustainable diet from the on-line survey in the London Borough of Sutton

Familiarity with the concept of sustainable diet			
Yes	No		
91.7%	8.3%		
Perception about difference between "eating healthily" and "eating sustainably"			
Yes	No	I don't know	
79.2%	20.8%	0%	
Barriers of sustainable eating			
This would make me eat sustainably	Nothing stops me, I eat sustainably	I don't think/care about sustainable food or	
70.8%	20.8%	0%	
Motivation for sustainable eating			
I believe there are barriers that stops me from "eating sustainably"	Nothing would make me change my mind	I don't care about sustainability	
83.3%	16.7%	0%	

When asked about the difference between "eating healthily" and "eating sustainably", the majority (79.2%) confirmed that there was a difference and were able to describe the difference in words in most cases. The most common answer was a statement that mainly included the observation that 'it's not sustainable to eat healthy food flown from far away' and 'you can eat healthy but not sustainably, but if you eat sustainably it's also healthy'.

The result showed that 70.8% respondents felt there were barriers to a sustainable diet. Regarding motivation, 83.3% of respondent expressed the motivation to participate in a sustainable diet.

The three questions (Table 4-7) which asked respondents about their willingness to eat more sustainably (ignoring price) showed in the web-based questionnaire that the biggest motivation was again regarding spending money

which stays within community (79.2%). The second most important statement given by the web-based respondents was towards ecological footprint of Sutton (75%). The lowest motivation (66.7%) given by respondents was that this would have a lesser impact on water.

Table 4-7 Responses from the web-based survey to statements provided by BioRegional in the London Borough of Sutton

Change towards sustainable eating (price aside):		
a) Sutton's ecological footprint is 3x larger than it should be and eating local food would help to reduce it.		
Yes, I would eat more sustainably	No, It would not convince me	I don't know
75%	12.5%	12.5%
b) Eating local organic production would lower the environmental impact on water and water would become cleaner.		
Yes, I would eat more sustainably	No, It would not convince me	I don't know
66.7%	14.6%	18.8%
c) 80% of money spent on local food would stay in the community (rather than when you shop in local supermarket, only 20% stays in the local community).		
Yes, I would eat more sustainably	No, It would not convince me	I don't know
79.2%	6.3%	14.6%

The online questionnaire showed that only 3 respondents out of 25 were interested in immediately joining the Veg Box scheme (Table 4-8). Twelve out of 25 respondents expressed their interest to join the Veg Box scheme to support a sustainable diet. These respondents stated that barriers to joining were lack of information ("I didn't realise they deliver"; "Where do they deliver?") or lack of practicality in terms of delivery times (either early in the week, or in hours that were not suitable). The rest of respondents were not interested (10 respondents) and mentioned that they were not living in Sutton (for example Oxfordshire, Redhill) and that the distance would make the Veg Box scheme inconvenient for them.

To be involved in the Veg Box scheme with immediate interest was evident with 3 respondents out of 29 (excluding current Veg Box customers) (Table 4-8).

Table 4-8 Motivation to join the Veg Box scheme provided by Sutton Community Farm from the on-line responses

Respondents interest in Veg Box scheme		
Yes	No	I don't know
51,7%	34,5%	13,8%
* This part of the questionnaire was aimed for non-Veg Box customers. Therefore only non-customers answered.		

Respondents who were interested if only certain conditions were fulfilled stated it was the convenience of the Veg Box delivery (6 out of 12). The rest of the responses differed, such as more information about the Veg Box, the content and the proportion of price & quality.

The rest of respondents that were not interested (n=10) mentioned it was the convenience that can be summarized as either they live too far or with their parents or eating irregular meals so the cooking of the vegetables raises an issue.

4.3 Key informants

The interviewees agreed that there are significance differences between healthy diet and sustainable diet. Most of them mentioned the importance of the sustainable diet from the economical point of view, especially for the local community; also producing locally is not a proper measuring tool for assessing sustainable diet. Those interviewees pointed out the fact that there is considerable lack of knowledge of the concept within the Sutton community and this is due to several barriers which are mainly:

- The perception of these products is viewed as more expensive and affordable only for higher income group.
- Lack of education leading to poor understanding of the concept of sustainable diet.

- Because food and eating habits are very personal, changing eating habits makes it difficult for some of the individuals.
- Price of the products and fresh vegetables is slightly higher in relation to conventional products.
- The impact of lifestyle and marketing of conventional food.
- The key informants agreed that sustainable diet is necessary and better understanding and marketing will globalise the concept and increase the intention of the consumption of sustainable food.

4.4 SPSS analysis results

All the steps were followed as described in sub-chapter 3.3.1 SPSS data analysis. The variables tested were the main categories gender, income and age group, and were later cross-tabulated to familiarity, barriers and motivation separately.

Only for one of the analysis (Appendix C.1) the Chi-Square test ($\chi 2(4) = 0.681$, $p=0.409$) fulfilled the assumption that all expected counts that were higher or equal to 5, and the data set was further analysed. In this case, the p 0.409 < 0.05 p and therefore H_0 wasn't rejected. The two variables were independent from each other and therefore there was no relationship present. No significant association was identified between gender and familiarity in face-to-face interviews (Mehta and Patel, 2011).

For the rest of the analysis no other relationships between gender, age, familiarity, income, neither barriers nor motivations were found. This is due to the failure of the main assumption presented for Chi-square which was caused by the size of the sample. Not enough data were collected as the sample size was determined based on a study from BioRegional's. However, this was found not to be the best approach as the sample collected failed to have enough records within each category compared. Further research should look into

obtaining higher number of responses than in this study. Nevertheless, results showed that there is no significant association between gender and familiarity.

5 Discussion

5.1 Perception and familiarity

Based on the questionnaire research (both web-based and face-to-face) clear differences were evident in the respondent familiarity with the concept of a sustainable diet (Figure 5-1). The answers from the face-to-face questionnaire reflected familiarity with the concept in 53.7% of cases, while the online results showed familiarity in 91.7% of cases.

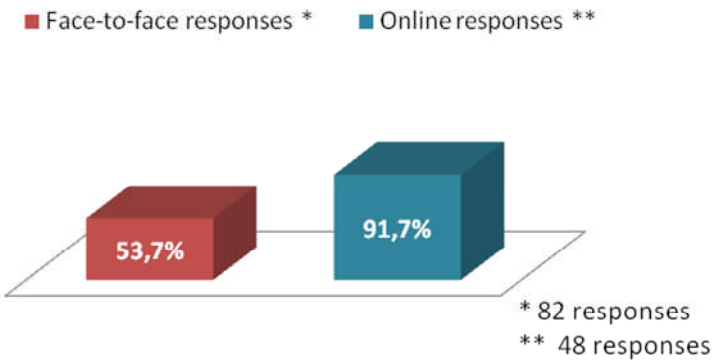

Figure 5-1 Respondents in the face-to-face interviews and on-line questionnaire that reported they were familiar with the concept of a sustainable diet

In the face-to-face interview survey, the narrative answers corresponded in most cases with the current definitions available in the literature (e.g. BioRegional, 2012; SDC, 2009; WWF-UK, 2011). Responses about a sustainable diet included ideas such as to ‘grow things, keep them growing and don’t just destroy’. The second most common response was that a sustainable diet is ‘growing your own food’ which doesn’t really reflect with the definitions available. In the third most common answer, sustainable diet was associated with ‘food that is locally produced’.

In the web-based questionnaire, the majority of responses correctly addressed issues of sustainability as described in the literature. These included many of the concepts, such as a "balanced diet being sustainably sourced", "food without depleting the soil", "chemical-free and local", "food without negative side effects on the environment and biodiversity", "local, seasonal and organic", and "food with the future of planet in mind"). Only one response was considered not to be correct as this leaned more towards a definition of a healthy diet than a sustainable diet (the response was: 'an equal proportion of meat, fish, vegetables and fruit').

The obvious knowledge on the topic in the respondents' answers in the web-based survey is likely to have been due to their interest in the activities of BioRegional and EcoLocal. It is worth noting that in the face-to-face questionnaire, knowledge of the concepts in a sustainable diet rose when the location of survey was linked to environmental issues such as the Sutton Ecology center events or Belmont Festival.

The question on familiarity and knowledge of low impact diets was also explored in Thornton's (2009) report. Within this survey on 'low impact diets', a low level of knowledge was also reported. Less than half of the respondents (43% of 1772 respondents) had heard about such a diet, showing similar results as this study in the face-to-face interview survey, where 53.7% were familiar with a sustainable diet.

After being provided with a description of a low impact diet (the approach used was similar to the approach used in this questionnaire survey), respondents in Thornton's (2009) report were also asked about their motivation to change their diet to have a lower impact[6] (Table 5-1).

[6] Question asked in tracker survey: *"Some food products have a higher impact on the environment than others. One way to adopt a low impact diet would be to change or eat less of certain foods." (*Thornton, 2009)

Table 5-1 Willingness to change the respondent's diet to make it more 'low impact diet' (adapted from Thornton, 2009 report for Defra on "Public attitudes and behaviours towards the environment – tracker survey)

How willing would you be to change your diet to make it more low impact?*				
Very willing	Quite willing	Not very willing	Not at all willing	Don't know
9%	50%	20%	13%	9%
* Base: All omnibus respondents (1,772)				

Source: Adapted from Thornton, 2009

More than half (59%) of respondents were motivated and willing to change their diet in this way. One third (33%) of respondents said they would not be willing to change their diet to low impact. Willingness to change a diet to make it more 'low impact' was linked to prior knowledge about how to adopt a low impact diet – respondents who said they knew how to adopt a low impact diet were a lot more likely to be willing to change their diet (82%) than those who did not know or had not heard of low impact diets prior to the survey (50%). Respondents in this study showed similar results to Thornton's (2009) research. In the online survey, respondents who were familiar with the concept of sustainable diet were also a lot more motivated to eat more sustainably (90%), as were the respondents in the face-to-face survey (61.9%).

In the questionnaire, questions for recognising the difference between health and sustainability were asked. It became clear that the "sustainable diet" description that was given after the first question wasn't understood in the face-to-face interviews. Even when respondents answered that there was a difference, they were unable to describe that difference leaving the question un-answered. Most of the answers described healthy and sustainable diets as: 'both very similar', but lacked the description about what the similarity was. In some cases, there was mention of food miles – so some of the respondents were educated about where their food comes from and recognised that 'healthy food' that is 'flown from far away is not sustainable'. In the online questionnaire, acknowledgement of the difference was higher and the

descriptive answers were better. The majority of respondents recognised the problem of food miles at a more detailed level and the fact that healthy food brought across the world (or shipped overseas, flown from far away) was not necessarily sustainable.

5.2 Barriers to sustainable diet

In web-based and face-to-face questionnaire existing barriers were expressed and identified. Questionnaire survey showed that the two biggest barriers that are stopping the respondents to eat more sustainably are price and availability in both online and face-to-face survey (Figure 5-2 and 5-3).

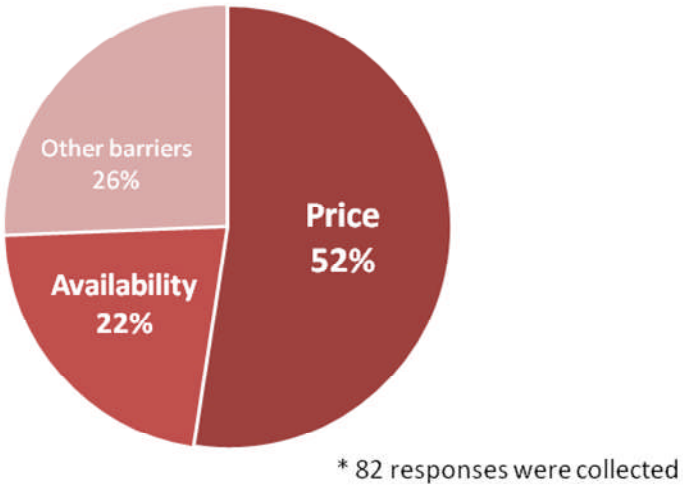

Figure 5-2 Reported barriers of a sustainable diet from the face-to-face interviews

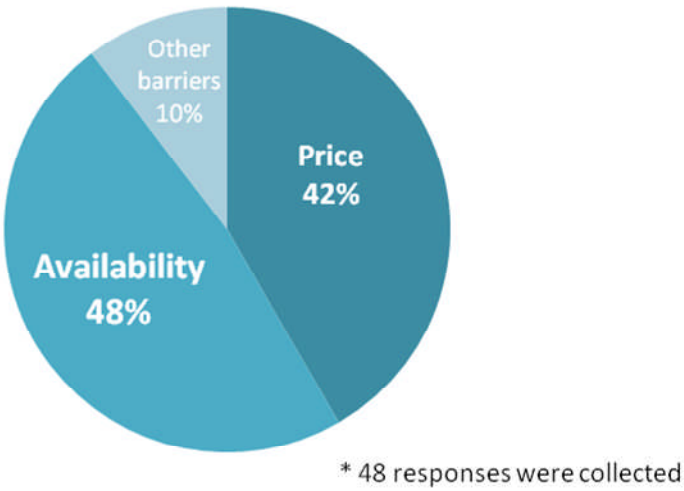

Figure 5-3 Reported barriers of a sustainable diet from the web-based survey

The fact of price and availability as a barrier is confirmed by Stockley (2011) and Defra (2008). They suggest that access (both physical and financial - costs) is among barriers to implement changes towards sustainable healthy diet. It is in agreement with the opinions of key informants regarding to eating sustainably was price being the biggest barrier. Not only the price itself, but also the perception of price as organic is viewed to be very expensive (see Gardyn, 2002, cited in Raab and Grobe, 2005; personal conversation with Graciella Miller, 18th July).

In the face-to-face questionnaire, the third barrier was convenience. In some of the cases, also information and time was mentioned. Boredom of vegetables came up in some cases (not significant sample), but this in fact could be related to the education and knowledge of how to deal with different kind of vegetables (cooking skills) and reluctance to use vegetables on a daily basis could be due to personal habits and food desirability (telephone conversation with Gaye Whitwam, 26th June 2012).

Regarding availability, most of the respondents had the feeling that sustainable food is unavailable in the area where they live. They stated that their supermarket doesn't offer local and chemical free produce and there are no local groceries, butcher or bakery to shop in[7]. Thus, in both online and face-to-face questionnaires, it is also availability that would motivate respondents to participate in a sustainable diet. It was noted that price and availability are the biggest barriers and as for motivation consumers to participate, the biggest issues would be availability and lower price.

5.3 Motivation for a sustainable diet

High motivation was expressed in both survey samples (Figure 5-4). The result of higher motivation to participate in the online survey group corresponds again with the fact that the web-based respondents were already interested in

[7] The number of local shops has decreased since 1960 to 2000 from 60% share of the food retail market to 6% share (Institute of Grocery Distribution, 2002 cited in Corporate Watch, 2010).

environmental issues, and therefore their motivation for sustainable eating was high.

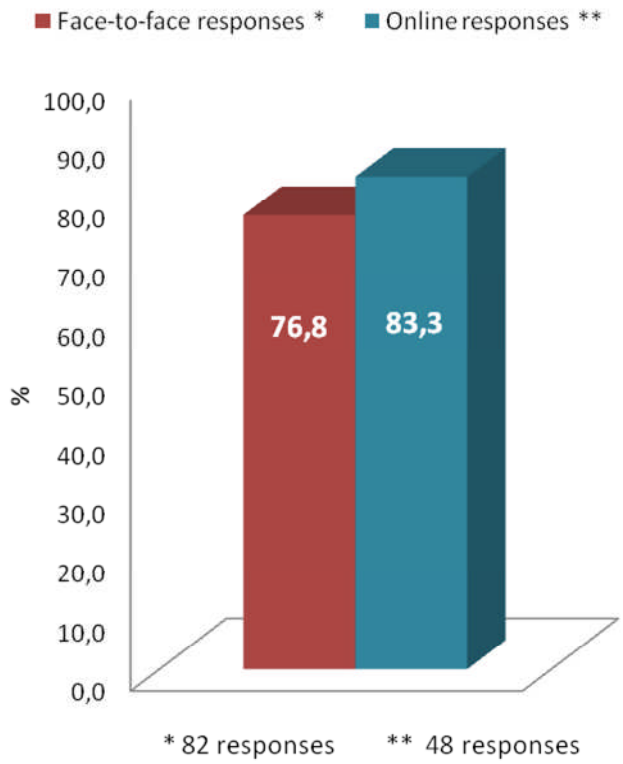

Figure 5-4 Reported motivation for participating in a more sustainable diet from the face-to-face interviews and on-line questionnaire responses

As possible motivation for helping respondents in the future to eat more sustainably, it was availability and prices that were repeated the most in both groups. In a small sub-sample of people, the other most repeated issue was time, knowledge and information, and trust in the quality of sustainable food provided. For the online questionnaire the third most common barrier was habit (e.g. enjoyment of meat and dairy by respondents made it difficult to give them up). This again confirms one of Stockley's (2011) and Defra's (2008) barriers about being locked into current lifestyle patterns. In the online questionnaire the respondents (although a smaller sample) expressed higher motivation to participate, and also there were no respondents that were left undecided. This was not so in the face-to-face questionnaire, where more answers included the "I don't know" option, possibly because of the pressure of time. The motivation included availability and lower price.

5.4 Motivation based on statements

As this research was conducted on behalf of BioRegional, there were three statements provided to be tested in the questionnaire. BioRegional's aim was to find the most convincing statement to determine what might motivate respondents to participate in "a sustainable diet". The results suggested (Figure 5-5) that if price wouldn't be the barrier the main motivation to participate in "a sustainable diet" was because the benefits would contribute to the local economy and community. This statement has proven to be the highest in both online (79.2%) and face-to-face questionnaire (69.5%).

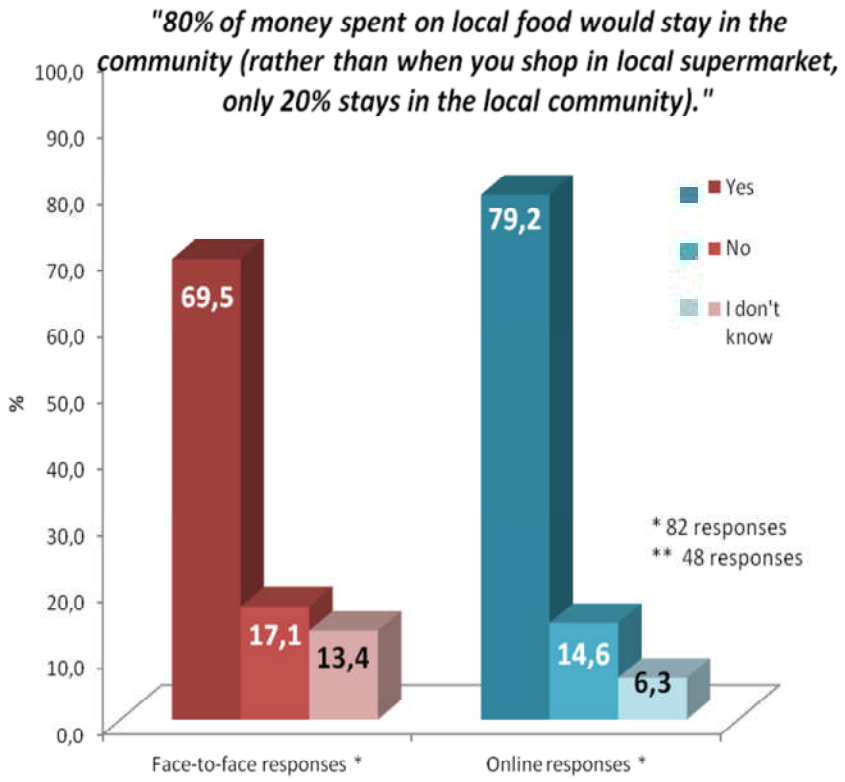

Figure 5-5 Respondents in the face-to-face interviews and on-line questionnaire that reported their motivation to the concept of a sustainable diet based on the statement provided

An argument that should therefore convince the population of Sutton based on this research (either face-to-face or online) to implement sustainable behaviour change is the improvement for local economies (such as raised incomes, direct

and indirect support of the farmers and local businesses; see for example Sustainable Food Chains, 2002; or Boyde, 2001, cited in Corporate Watch, 2010).

While the most convincing statement had the lowest number of undecided respondents, there was a high number of respondents (20.7%, n=17 or 17,1%, n=17) who stayed undecided for the other two statements. According to Bryman (2012), keeping a 'don't know' option brings certain controversy. There is thinking required towards a "sustainable diet issue" and presenting such option allows respondents to select it and avoid thinking about that topic. This option was included not to force people to express views that they don't really hold - as this is the main argument for including this option.

5.5 Future research

The results of this study should be viewed with caution as it has several limitations. Firstly, the time for this study was limited and the questionnaires were filled in only the month of July, which was largely assigned due to questionnaire development and the result analysis.

Second, the selection of places to collect face-to-face interviews was chosen randomly. There was no further research about the Sutton's distribution of income, households or any other information that could potentially be bias to the research. More comprehensive approach would require a longer time period for establishing key locations, to obtain in each place the same number of face-to-face interviews; therefore no general conclusions about Sutton's residents can be made. But this approach would not only achieve more data, which would lead to a sample with more of each categories to be comparable and the Chi-square test to be valid. On the other hand, this would cause higher financial costs.

Third, the location of face-to-face interviews that have proven to be the most efficient are events that are appropriate for the topic (such as those in the Sutton Ecology centre). For future research the recommendation would be to

aim for such events to achieve maximum responses. Also a pilot study would be beneficial. During the face-to-face survey, it became clear that the "sustainable diet", term that was used and explained, was not always understood. A pilot study might have picked up on this fact and reworded the question. For the future better wording should be considered. A further wording difficulty was in the question regarding willingness to participate to improve water quality ('eating local organic production would lower the environmental impact on water and water would become cleaner'). In face-to-face interview, it became clear that respondents assumed that it was drinking water that would be influenced and therefore the results from this question should be interpreted as valid in this context.

Fourth, there was a delay in the distribution of the questionnaire to the target group of newsletter subscribers which probably caused a lower number of responses. It would be beneficial to do the questionnaire face-to-face over two months to collect more answers, and eliminate the need for an online questionnaire.

Because a sustainable diet and eating habits is something that local authorities are interested in, they should also be included, possibly by circulating the survey in local newspapers (e.g. Sutton Guardian) delivered to homes of Sutton residents.

Finally, further research in different areas in the UK is recommended[8] to improve understanding of the perception and awareness of sustainable diet amongst different segments of society.

[8] For example a survey similar to Thornton (2009) but with the inclusion of the concept of sustainable diet when fully developed rather than low impact diet.

6 Conclusion

Both online and face-to-face questionnaire provide valuable information on which certain suggestions for BioRegional can be drawn. However, the online survey doesn't reflect the random population of Sutton, as it is clearly a sub-group of people with displayed interest in environmental issues. The information provided through the face-to-face interviews are to be said to reflect the real population of Sutton. The face-to-face results can be used for purposes of BioRegional and their aim to identify barriers and motivation of Sutton's resident.

The results further suggest high motivation that is present in Sutton (in both questionnaire surveys), which shows the potential of sustainable change to a sustainable diet to be developed in Sutton.

From the three statements provided, the main opportunity is the potential that such a diet might have in improving the local economy and community. This shows to BioRegional how to possibly approach the change of mind-set of Sutton's population in the future as they aim for Sutton's residents to eat more sustainably. Future convincing should be made on several bases (e.g. community and local economy) and it should also include individual benefit of health (as this benefit is considered as a common motivator, see for example Defra, 2008).

It should be noted, that the sustainable diet definition needs clarification and simplification as many people found it difficult to understand. The main barrier to participate in a sustainable diet was the perception that prices were high and availability low. Availability is arguable, as Suttons Community Farm is located in Sutton but many respondents were not familiar with this fact. Therefore better advertising and use of marketing tools give an opportunity to enhance the popularity of the Sutton Community Farm and hence the sustainable diet.

Although the recent research is optimistic, and shows that more than a half of respondents (56%) doesn't find it hard to change their habits to be more environmentally-friendly (genuine increase from 42% since 2007, Defra, 2010b) to change the mind-set of populations of Sutton to eat more sustainably and

implement sustainable diet is not an easy task. As mentioned in Cabinet Office (2008), a significant gap still exists between what people say that they believe as citizens and how they behave as customers.

To conclude, with the alarming increase in obesity in the UK and the need for GHG emission reduction, there is a possibility to develop general guidance in the UK for sustainable and nutritious diet. Both factors (health and sustainability) would be beneficial for the environment and human health at the same time. And the measure should be taken to intervene and convince costumers to change their eating habits to create sustainable behaviour change that is expected to be generational.

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APPENDICES

Appendix A Questionnaire

A.1 Questionnaire for distribution

Dear Sir or Madame,

my name is Michaela Skodova and I am a Masters student studying Economics for Natural Resources and Environmental Management at Cranfield University. With the help of environmental charities BioRegional and EcoLocal I am conducting research within Sutton area to investigate the perception of sustainable food (the data for the survey are collected between July 1st and July 29th). This information will be used to inform BioRegional and EcoLocal about possible barriers that can stand in a way of Sutton becoming better, healthier and sustainable community. I would be extremely grateful if you could take a few minutes to complete this short questionnaire. Tell us what you think about the sustainable food and diet.

There are no right or wrong responses; we are merely interested in your personal opinions. I assure you that my research is anonymous.

However, as a thank you for your time, BioRegional is offering a chance to win a 3x Veg Box delivery. It is a box of fresh, delicious vegetables that are harvested from the Sutton Community farm; the box contains a share of what's tastiest and in season, grown without chemicals. If you wish to be entered, please complete the last section of this form too (this is optional).

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1. Are you familiar with the concept of a sustainable diet? Please tick either "yes" or "no" in the buttons below. In both cases, please also provide your definition of a "sustainable diet" in the text box below.

☐ Yes

☐ No

Your answer:

Concept of a "sustainable diet"

Please allow me to explain the concept of a “sustainable diet" which we will now use for the rest of this questionnaire.

BioRegional defines a **"sustainable diet"** as:
a) a diet that is high in vegetables (plant based)
b) is low in consumption of meat and dairy products, and:
c) where the food is from local, chemical free produces wherever possible.

2. After reading the explanation of the concept of sustainable food, now please answer the following questions.

Statement:	Option:			
	Yes	No	I don’t know	Please explain your answer.
Do you consider yourself to be eating sustainable food?	☐	☐	☐	
Do you consider yourself to be eating healthy food?	☐	☐	☐	
Do you think there is a difference between “eating healthily” and “eating sustainably”?	☐	☐	☐	If your answer is "yes" or "no", please explain what you think the difference is.

Veg Box

In a partnership with Sutton Community Farm, BioRegional runs a Veg Box scheme. This Veg Box provides fresh in-season vegetables, grown without chemicals in your local neighbourhood, and is delivered to your house on a weekly basis. This part of the questionnaire is specially designed to ask you about your participation in this scheme.

3. Are you a Veg Box customer?

☐ Yes. Please answer what made you join the Veg Box scheme (3.i) and then go to the next question no.4.

3.i. What made you start with the Veg Box scheme?

☐I started to care about healthy balanced lifestyle

☐One of my family members got interested

☐Recommendation of a friend

Other (please specify): _____

☐ No. If NO, please skip the two following question and continue with question no.6 and further till the end of the questionnaire.

4. ***For Veg Box customers only! If you are not a customer, please skip this question.****
Has the Veg Box enabled you to:

	Less	Same	More
Eat vegetables			
Buy Local produce			
Buy organic food			
Eat Meat			
Shop at the supermarket			
Grow your own food			
Waste food			
Buy packaged food			
Eat at home			
Eat processed food			

Other, please add: _____

5. ***For Veg Box customers only! If you are not a customer, please skip this question.****
On a scale 1-5 (5 being the best), please rate following:

	1	2	3	4	5
Value for money					
Communication					
Deliveries					
Customer service					

6. *For Veg Box NON-customers only! If you are a customer, please skip this question and continue with no. 7 and further till the end of the questionnaire.*
If you were to know, that the Veg Box enables you to eat sustainably, more healthy and also to support local producers, would you consider purchase of a weekly Veg Box?

☐ Yes	**I would make immediate changes in my current shopping habits to purchase the Veg Box regularly**
	I would consider purchasing the Veg Box but only on the following conditions: (please add your conditions in the text box below)
☐ No	**I'm not interested** (please explain why you are not interested)
	I prefer different solution for sustainable eating: (please add your own solutions in the text box below)

7. Whether you are/aren't a customer of the Veg Box, are there any barriers (difficulties) that are currently stopping you from eating more sustainable food?

☐ I don't think/care about sustainable food or eating

☐ Nothing stops me, I eat sustainably

☐ I believe there are barriers that stops me from "eating sustainably"

Now, because you feel there are barriers, we would like to find out the most important statements which you agree with the most.
Please tick ONLY the '3 most important' statements that you identify as a barrier (or difficulty). If you have other barriers that are not listed, please add them in the box below.

- o I don't know how to eat sustainably
- o I feel sustainable food costs too much
- o sustainable food is not available in my area (where I live/study/work/other)
- o my supermarket/grocery store doesn't offer sustainable food (local and organic)
- o I feel to prepare sustainable food takes too much time
- o I don't have sufficient information about sustainable food and diet
- o I'll never be able to change how I eat
- o I don't have time to make changes
- o I'll be criticized or made fun of if I eat sustainable food
- o I like to eat meat/drink dairy too much to give it up
- o Other (please specify): _____

8. What would motivate you to eat more sustainably (i.e. more vegetables/less meat/less dairy/more local food?) in the future?

☐ I don't care about sustainability

☐ Nothing would make me change my mind

☐ This would make me eat sustainably:

- o If I had more information about eating sustainably
- o If the price was lower
- o If the sustainable food was available in my area (where I live/work/study)
- o If my supermarket/grocery store would offer more sustainable (local and organic) food
- o If I knew how to cook from local and organic food supplies
- o Other (please specify):

9. Price aside, if I were to ~~tell you that these are the benefits towards~~ sustainable eating, would it motivate you to change to eat more sustainable food (eat less meat/dairy/more local and organic produce)?

Statement:	Option:		
	Yes, I would eat more sustainably	No, It would not convince me	I don't know
Sutton's ecological footprint is 3x larger than it should be and eating local food would help to reduce it.	☐	☐	☐
Eating local organic production would lower the environmental impact on water and water would become cleaner.	☐	☐	☐
80% of money spent on local food would stay in the community (rather than when you shop in local supermarket, only 20% stays in the local community).	☐	☐	☐

Last part of the questionnaire

Few last information about you

You are ☐ Male ☐ Female

Age group

☐ 16-24 ☐ 25-34 ☐ 35-49 ☐ 50-64 ☐ 65-74 ☐ 75+

Ethnic background

☐ White ☐ Mixed ☐ Asian or Asian British ☐ Black or Black British

☐ Other

Income

☐ <20k ☐ 20k - 40k ☐ >40k ☐ I don't want to specify

Household

How many people live in your household? ☐

How many of that are children under 16? ☐

*** If you wish to enter the competition to win the Veg Box please leave your email address! (Optional)** @

A.2 Semi-structured interview questionnaire

Sustainable food and diet

Background about the informant:

- Name:
- Occupation:

Introduction: The focus of this work is to concentrate on awareness of sustainable diet. This information will be used to inform BioRegional and EcoLocal about possible barriers that can stand in a way of Sutton becoming better, healthier and sustainable community. BioRegional defines a "**sustainable diet**" as:
a) a diet that is high in vegetables (plant based)
b) is low in consumption of meat and dairy products, and:
c) where the food is from local, chemical free produces wherever possible.

	Question	Answer
1	What do you think about the concept of sustainable food and diet?	
2	Do you think there is a difference between "eating healthily" and "eating sustainably"?	
3	What do you think would motivate people to eat more sustainably?	
4	What barriers do you think currently stop people from eating sustainable food?	
5	Do you see changes in attitudes/habits/knowledge in people?	
6	Are people familiar with sustainable food?	
7	Are you optimistic for the future? How do you think the sustainable food and diet will develop?	

In answering the questions, we would like you to help us identify:

- any obvious gaps we have left out; and
- where you think there are gaps in the knowledge base which require further research.

Thank you for your time! *Michaela Skodova, Cranfield University MSc student and BioRegional's and EcoLocal's researcher*

Appendix B Figures

B.1 The Eatwell plate

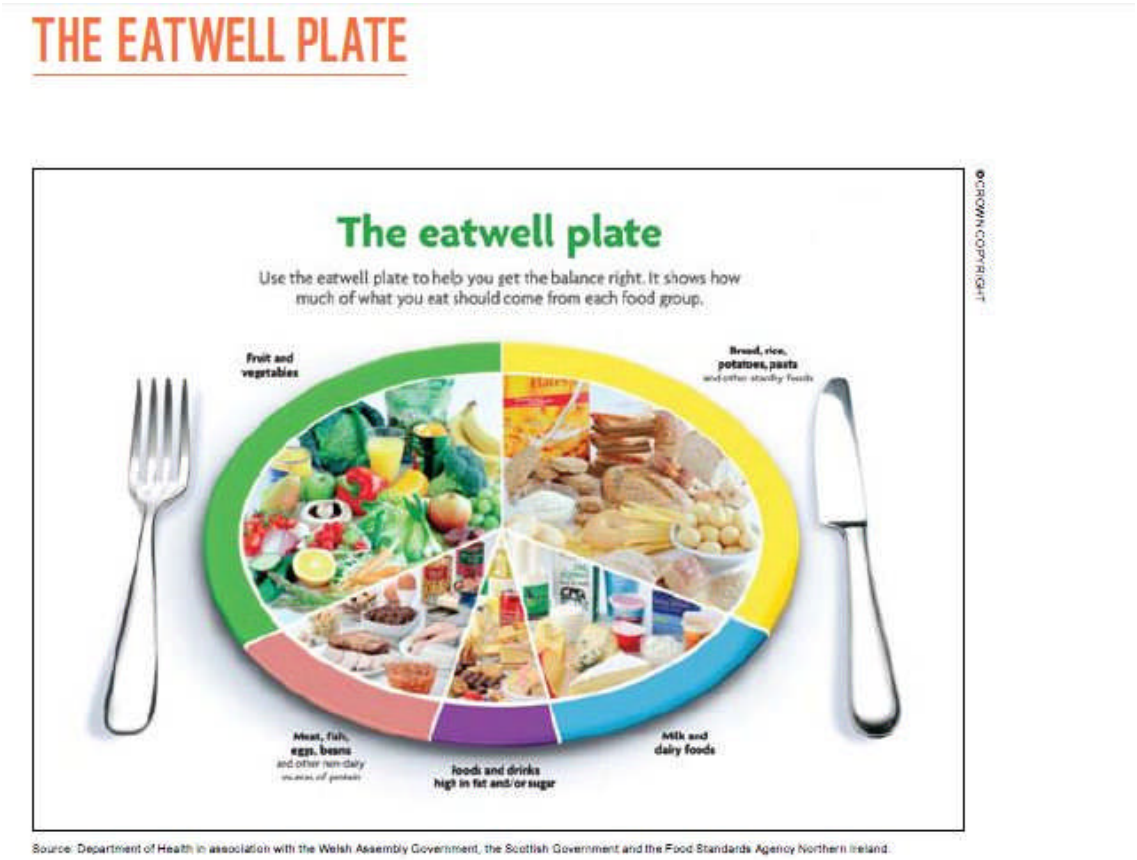

Figure 1: The Eatwell Plate (Food Standards Agency)
The plate shows consumers how the relative proportions of what they eat should come from each food group. The plate is divided into five food groups:

Source: WWF-UK (2011)

Appendix C Chi-Square test (statistical analysis)

C.1 Face-to-face survey: Gender and Familiarity

Based on the procedure of Chi-Squared Test (χ^2) in chapter 3.3.1, from SPSS following tables were obtained and analysed with significance level used 5% with no significance but not failing the main assumption.

Gender * Familiarity Crosstabulation

			Familiarity		
			no	yes	Total
Gender	female	Count	19	26	45
		Expected Count	20.9	24.1	45.0
	male	Count	19	18	37
		Expected Count	17.1	19.9	37.0
Total		Count	38	44	82
		Expected Count	38.0	44.0	82.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.681[a]	1	.409		
Continuity Correction[b]	.363	1	.547		
Likelihood Ratio	.681	1	.409		
Fisher's Exact Test				.506	.273
N of Valid Cases	82				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 17.15.

b. Computed only for a 2x2 table