Report

Shandon Local Food Group

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Cover image created with wordle.net based on text from workshops.

Summary

The Shandon Local Food Group commissioned Footprint Consulting to assess the carbon emissions associated with food production, purchase, consumption and disposal in Shandon, and to explore with residents their priorities in developing the project.

The food related carbon footprint of Shandon is estimated at approximately 13,000 tonnes of CO2 equivalent per year.

We explored local people's interests in local food and the project. Three key issues emerged:

- Food and people's relationship to it, is important: people want to know more about food, to grow more themselves, and buy more local, organic and fairtrade food.
- Activities related to food can build community: this is important in itself and will lead to a range of wider benefits;
- Food production affects the environment and other people in many complex ways: understanding these impacts will help people make better choices.

People also identified activities they wished SLFG to develop to address these issues:

- Developing a community garden
- Encouraging and supporting home growing
- Developing links with local producers and retailers

We held action planning workshops to develop these ideas further and agree initial actions to move them forward. Building on these workshops we suggested the overall aim of the project:

> *The ways in which food is produced, distributed and disposed of can significantly impact, both positively and negatively, on the local and global environment, and on the local community and wider society.*
>
> *SLFG wants create positive environmental and social change through the ways in which people in Shandon buy, produce, consume and dispose of food.*

We also suggested a number of short, medium and longer term outcomes, associated indicators and approaches to monitoring these appropriate to the resources of the group. The indicators are:

- Number of activities;
- Number of people taking part in activities;
- Number of people sharing and working together;
- Area of land used for growing food;
- Number of households growing fruit & veg;
- Number of shops stocking local, organic and fairtrade produce;
- Number of groups and organisations participating in the project;
- Shopping trips by car.

1. Introduction

Shandon Local Food Group (SLFG) was set up in February 2009 to encourage and support growing, buying and eating local food in the community of Shandon. In April 2009 SLFG was awarded funding from the Scottish Government's Climate Challenge Fund to carry out research to (a) quantify the carbon emissions associated with food production, purchase, consumption and disposal in Shandon, and (b) to explore with residents their priorities in developing SLFG.

Footprint Consulting Ltd was commissioned to support SLFG by carrying out research, undertaking workshops with SLFG and the local community, and developing scenarios to illustrate how different local food activities could reduce carbon emissions.

The project evolved as we explored the implications of the research and better understood local people's interests in food and their motivations for getting involved.

First we established the **carbon footprint of food in Shandon** — see Section 2 — associated with food production, purchase, consumption and disposal in Shandon. This was done by using national figures for carbon emissions associated with food, and attributing a proportion of these to Shandon on the basis of population. Originally we had planned to use local information to modify these figures to reflect emissions in Shandon more accurately. In the event it became clear that this would be more difficult than originally anticipated — see Annex 2 — and any greater level of detail was unlikely to change decisions about the development of the project.

We explored SLFG's **objectives and ambitions** — Section 4 — in two ways: at meetings with the steering group (and subsequent email discussions), and at workshops with members of the local community where people reflected on why they were interested in local food — and what aspect of it motivated them to get involved in the project. Three key issues emerged:

- Food and people's relationship to it, is important: people want to know more about food, to grow more themselves, and buy more local, organic and fairtrade food.
- Activities related to food can build community: this is important in itself and will lead to a range of wider benefits;
- Food production affects the environment and other people in many complex ways: understanding these impacts will help people make better choices.

Understanding people's interests and motivation will be important to maximise the success of SLFG's activities.

The workshops made it clear that people in Shandon have a wide range of interests in food and reasons for engaging with SLFG; the way in which food production and consumption contributes to climate change is only one of these. Therefore we also outline some of the ways in which food production contributes to **other environmental and social impacts**, and suggest how these might be measured. Even without quantifying these impacts this information should be helpful, as the project develops, to avoid unintentionally contributing to one problem while trying to solve another.

One issue that was common to many participants in the workshops was an appetite for moving from talking about the project to actually starting some practical action. It was also felt that this would encourage more people to get involved. Based on the various ideas for practical actions that emerged from the workshops — and indeed were on the agenda from the start of SLFG — the steering group agreed on three areas of activity. We then held three **action planning** workshops — Section 5 — each focusing on one of the activities:

- Developing a community garden
- Encouraging and supporting home growing
- Developing links with local producers and retailers

Participants in the action planning workshops agreed the scope of each action; identified the initial steps required to move it forward; and volunteers agreed to take responsibility for these steps and to coordinate with the steering group.

In Section 6 we set out suggestions for **taking the project forward**. An important factor for the success of any project is the ability to measure progress towards goals — to understand whether the project is actually achieving its objectives; to take action if the project is off course; and to report and celebrate success when goals are achieved. For each of the objectives we have suggested potential indicators and ways of monitoring progress against them.

2. Carbon footprint of food in Shandon

The carbon footprint of Shandon[1] has been estimated by taking figures for total UK food related emissions and attributing a share of these to Shandon, based on population. These are necessarily very rough estimates, but provide a useful indication of the relative scale of emissions from different sources. The methodology is described in Annex 1.

The annual total greenhouse gas (GHG) emissions associated with food production, purchase, consumption and disposal are approximately 13,000 tonnes CO2e[2]/yr (Table 1). This is approximately 20% of total emissions attributable to Shandon from all sources.

Source of emissions	Shandon tCO2e/yr	% of food GHGs
Agriculture	*5,860*	*45%*
Meat	3,470	27%
Dairy	1,310	10%
Eggs	290	2%
Crops	790	6%
Transport	*1,360*	*11%*
Import by Air	170	1%
Import by Road	400	3%
Import by Sea	190	1%
UK Road Distribution	600	5%
Industry	*4,200*	*33%*
Food manufacturing	1,570	12%
Packaging	870	7%
Retail	900	7%
Catering	800	6%
Industry waste	60	0%
Household	*1,500*	*12%*
Car shopping	200	2%
Cooking & refrigeration	1,260	10%
Household waste	130	1%
Total Food	***12,920***	**100%**

***Table 1**: Total annual food related greenhouse gas emissions from Shandon grouped by source of emissions. Tonnes CO2 equivalent per year and as a percentage of total food related emissions. Rounded to nearest ten.*

In Figure 1 (below) emissions have been grouped to make it easier to see where along the food chain emissions occurred — this helps understand how Shandon Food Group's activities could be planned to reduce emissions most effectively.

For each of these categories we outline below what activities give rise to these emissions.

[1] See Annex 1 for definition of the area of the Shandon.

[2] CO2e or Carbon dioxide equivalent: The emissions of a number of greenhouse gases expressed as the equivalent amount of CO2.

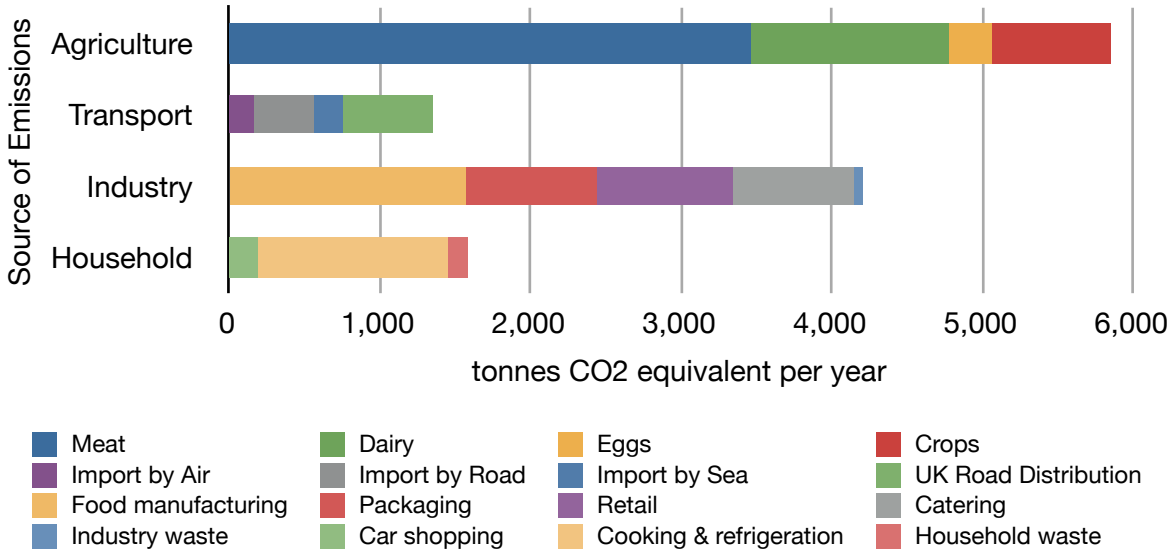


***Figure 1**: Shandon's food related GHG emissions from Shandon.*

Agriculture

This includes fertiliser production, emissions from soil and on-farm energy use. It does not include emissions from deforestation and land use changes overseas — such as the conversion of forest and savannah to arable for animal feed-stock, and to pasture. If these were included, emissions attributable to meat, dairy and eggs would be higher still[3]. It's often a surprise that the very great majority of emissions from agriculture are associated with livestock and poultry production — see *Box: Meat and climate change*.

Transport

This includes all transport from the farm gate, in the UK and overseas, to the retailer. (Emissions from shopping by car are included in 'household' below.) Given the level of interest and concern about "food miles", emissions from transport are perhaps lower than many people might expect — however they are still significant. It's worth noting that even though only 1% of food imported into the UK is transported by air, air transport accounts for 12% of food *transport* emissions.

Industry

This includes all food manufacturing and processing — from the production of basic foodstuffs (ie grinding grain for flour) to ready meals; industrial and consumer packaging; retail operations; and all catering including restaurants, hospital canteens etc. It also includes industrial food waste.

Food manufacturing is the second largest single component of food related emissions after meat. While some of these emissions will be associated with processing basic foodstuffs, like grinding flour

[3] A recent report for WWF (Audsley, 2009) reports that including emissions from overseas land use change increases the UK's emissions from food from 20% to 30%.

and cleaning and preparing grains and pulses, the majority is likely to be attributable to the production of canned, chilled and frozen goods; bread and bakery products; ready meals and similar products.

Household

This includes emissions from shopping by car, cooking, domestic food storage (freezers and refrigerators), and from the *disposal* of household food waste. Note that this does not include GHG emissions associated with the *production* of food which is subsequently wasted — see below.

The main source of food related emissions in the household level is from cooking and refrigeration — cooking is likely to make up the majority of these emissions.

Box: Meat and climate change

There are two main reasons why the consumption of meat, dairy products and eggs makes such a significant contribution to GHG emissions: Firstly, rearing animals is a very inefficient way of converting the sun's energy into food for people, compared with growing plants for food. Crops have to be grown as animal feed and only a proportion of the energy in those crops is turned into the food we eat — most of it is "wasted" as the animals live their lives, and much of each animal's carcass is also waste, or at least not food for humans. The second reason is that ruminants — such as cattle and sheep — have a digestive system that allows them to eat plants that other animals, including humans, can't; a side-effect is that their digestive system releases methane. Methane is a powerful GHG, over 20 times more powerful than carbon dioxide.

Reducing the amount of meat (and other animal products) we eat has the potential to reduce emissions — but crucially, as a recent report shows (Audsley, 2009), this depends on what we eat to replace animal products in our diet. If we switch to highly refined substitutes, such as tofu, soya milk and *Quorn*, we might see little benefit. This is because producing these substitutes requires large areas of land, mainly overseas, which will lead to increased emissions as more land is converted to agricultural production.

In the UK we typically eat more protein than required for a healthy diet. We can reduce emissions by reducing meat consumption — and, instead of replacing meat in our diet with processed meat substitutes, eating more fruit, vegetables and unprocessed pulses.

This view is in line with research for Friends of the Earth and Compassion in World Farming (Erb et al., 2009) that shows that the projected population in 2050 could be fed sustainably and humanely if the average diet has much less meat than is currently typical in the West.

Food waste

There are two ways in which food waste contributes to GHG emissions: firstly, the disposal of waste food in landfill generates methane (a powerful GHG) as it breaks down. Secondly, as we have seen above, producing, transporting and cooking food all generate GHG emissions — and these emissions are produced regardless of whether we eat the food or throw it away. So the less food we waste, the less needs to be produced in the first place. Avoiding food waste offers a significant opportunity to reduce carbon emissions — if Shandon was able to avoid throwing out any food unnecessarily, this would avoid the emission of 1,350 tonnes of CO2e. Considered in this way, avoidable food waste is the third largest single contribution to food related GHG emissions in Shandon.

Composting is an effective way of disposing of waste food where necessary, and causes less GHG emissions than landfilling. The emission savings from composting are however only 10% of those that could have been achieved by avoiding the waste in the first place. For more detail see *Box: Food waste*.

Scale of emissions

Considering food related GHG emissions ranked by quantity (Figure 2) makes it easier to see the relative impact of the different sources of emissions.

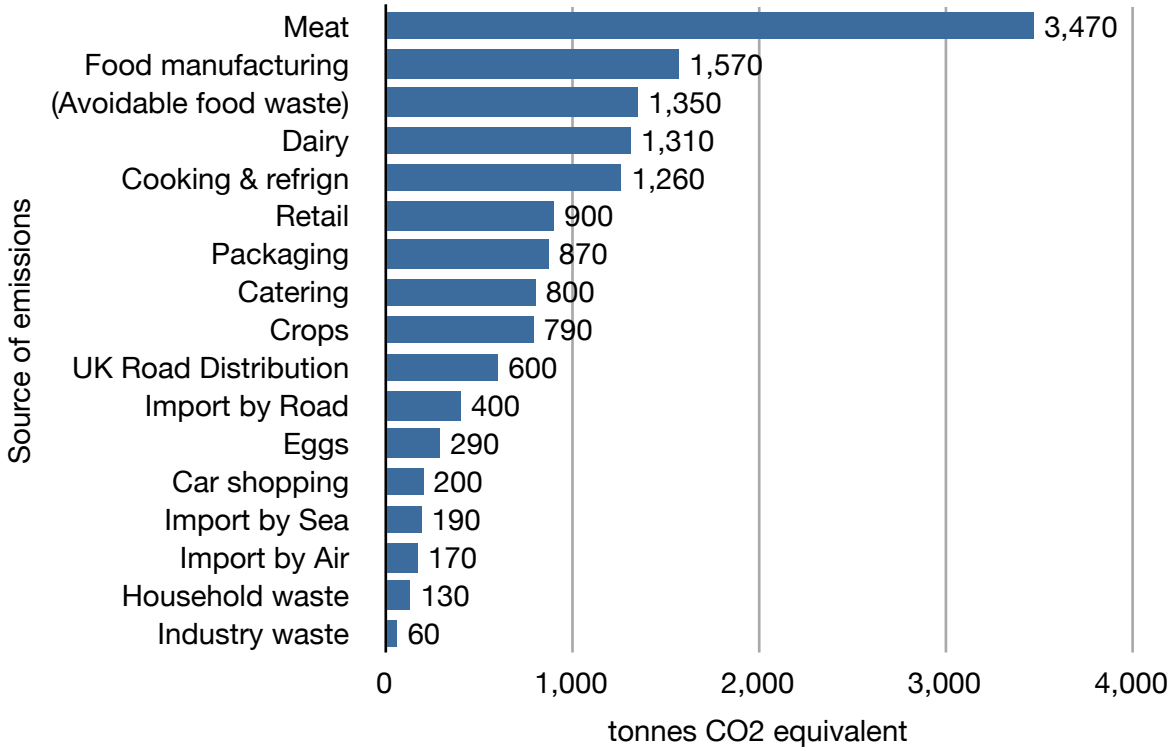


***Figure 2**: Total food related GHG emissions from Shandon ranked by quantity. Note that 'avoidable food waste' is made up of emissions from the other sources shown. Care must be taken to avoid double counting.*

Box: Food waste

Shandon wastes approximately 600 tonnes of food each year of which around 300 tonnes is *avoidable* — ie it could have been eaten if it hadn't gone out of date etc; it is not *unavoidable* like vegetable peel and chicken carcasses.

To reduce emissions, one could waste less food and/or compost some or all of the food:

If Shandon wasted no food that could have been eaten (ie avoidable food waste) around 1,350 tonnes of CO2e would be saved. If, instead of reducing wastage, this *avoidable* food waste were composted only 135 tCO2e would be saved.

If Shandon's *unavoidable* food waste was composted (instead of land-filled) 135 tonnes of CO2e would be saved.

The most effective way to reduce emissions, in relation to food waste, is firstly to waste as little food as possible — with the potential to save 1,350 tCO2e (bold in Table 2) — and secondly to compost all unavoidable food waste — 135tCO2e (italic in Table 2).

(tonnes)	Shandon	CO2e saved by waste reduction	CO2e saved by composting
Total food waste	600	n/a	270
Avoidable food waste	300	**1,350**	135
Unavoidable food waste	300	n/a	*135*

***Table 2**: Potential emissions saved by reducing food waste and/or composting food waste.*

The calculation of emissions related to food waste reduction is based on avoiding all the emissions in the production, processing and distribution of food that is subsequently not eaten — it therefore includes many of the emissions accounted for in Table 1. Because of this great care must be taken to avoid double counting when dealing with emissions 'from' food waste.

It's notable that the emission savings associated with composting food in Table 2, are significantly greater than than the estimated emissions from landfilling food waste shown in Table 1. This reflects the considerable degrees of uncertainty and different methodology; the figures in Table 2 are likely to be more realistic.

Refining Shandon's food related emissions

As noted above the figures for food related emissions in Shandon[4] have been calculated by taking national figures and attributing these to Shandon based on the area's population. However, a problem with this approach is that it doesn't take account of the specific nature of the physical and social neighbourhood of Shandon: it doesn't reflect the actual behaviour and buying patterns of people in Shandon — for example how much people use their cars for food shopping, how much of their own food they grow, how much meat they eat, how much food they waste, and how they dispose of it.

In principle this matters: firstly because if we are trying to understand food related emissions in Shandon, it would obviously be better to have figures that reflect what really happens in the area. Secondly, this would be helpful in understanding how the activities of SLFG affect the level of emissions over time. It would be possible to carry out surveys of people's buying habits, travel patterns, and what food growing they do.

In practice this would not only be very time-consuming, there would still be significant problems in attributing emissions to the products they buy.

We can however consider whether Shandon's food related emissions might differ from national averages — and what further information we might need to get a more accurate picture. This is discussed in Annex 2, and could inform future developments.

[4] See Annex 1 for definition of the area of the Shandon.

3. Food-related carbon emissions in context

The UK's total GHG emissions are estimated at 628.3 million tonnes of CO2e in 2008 (Department of Energy and Climate Change, 2010). This is just over 10 tonnes per person in the UK. For an area like Shandon[5] with a population of around 5,000 people this equates to 50,000 tonnes of CO2e.

Of course, these 50,000 tonnes are not emitted in Shandon itself — this is Shandon's share of the emissions generated by producing all the goods and services in the UK, from generating electricity to providing education, from transport to government services. The graph below shows the contribution of different activities to the emissions associated with everything that we buy and use.

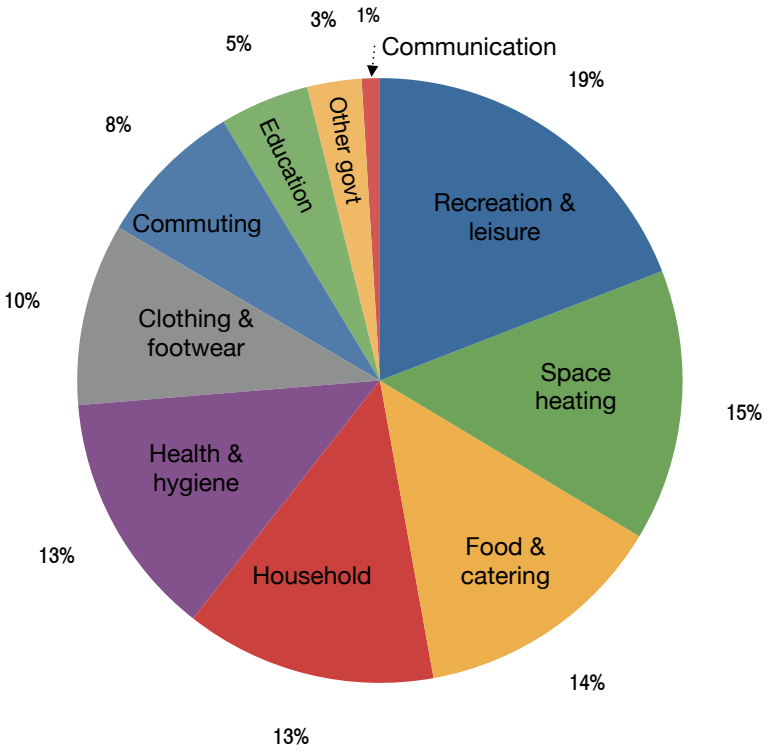


Figure 3: *The proportion of total emissions by final purpose[6] (Carbon Trust, 2006)*

These emissions are calculated by attributing *all* of the UK's emissions to consumption by households — rather than for example, attributing some to households, some to business and some to government. The logic is that all goods and services are *ultimately* "consumed" by people — so health and hygiene in the graph includes hospitals and clothes washing!

This graph is included here to provide an insight into the scale of impact of different activities. Some of these emissions are things over which as individuals we have a degree of control — we can choose

[5] See Annex 1 for definition of the area of the Shandon.

[6] Note that food and catering is shown at 14% rather than 20% as per text above due to a different method of calculation in the source data. Re-calculating to make this consistent is beyond the scope of this report. However, the relative scale is more important than the actual numbers.

how warm to keep our house, or whether to insulate it. Others such as education and government we have no control over — at least in the short term.

Because of this issue of control and influence, while the analysis shown in Figure 3 is useful to get an oversight of the situation, it is less useful as a guide to practical changes one can make to reduce emissions.

Figure 4 shows some examples of carbon savings that can be achieved from various lifestyle changes — including food related activities:

Where the emissions in Figure 3 are 'top down' — taking national emissions and allocating them to households — Figure 4 shows emissions calculated 'bottom up'. Making some reasonable assumptions these are the sort of reductions one might expect from various actions. Of course these are only estimates and will depend on individuals' specific situations, including their current pattern of behaviour, housing type, etc, but again it can be helpful to have an indication of the relative scale of different activities.

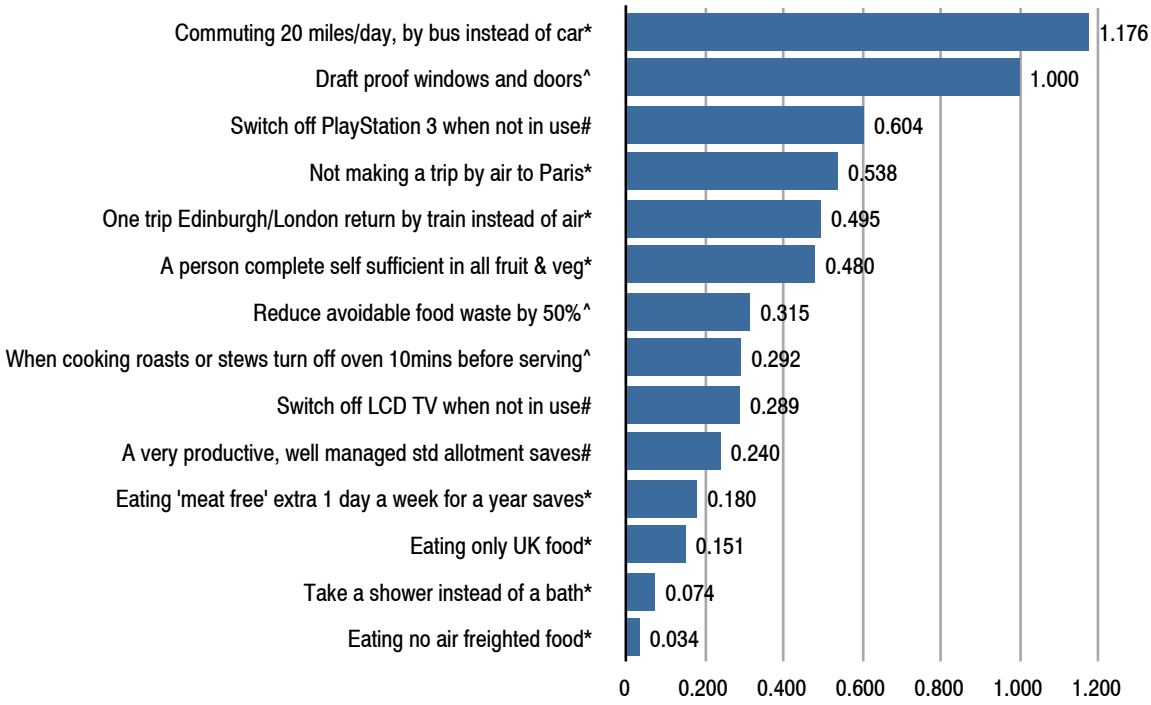


***Figure 4**: Carbon savings from lifestyle changes, tonnes CO2e (per year unless otherwise noted). Key: *person; ^household; #item. Sources: Food & Growing: (Footprint Consulting Ltd, Environmental & Resource Economics Limited, Alan Speedie Associates, 2009); other: (Going Carbon Neutral Stirling, 2009)*

The relatively low GHG reductions from *eating only UK food* and *eating no airfreighted food* are striking — this is because emissions from importing food to the UK only accounts for 5% of *food related* emissions (air 1%), and food related emissions for 20% of total emissions (see Table 1). This highlights the importance two issues: Firstly of considering the full range of environmental, social and economic impacts of food production — not just GHG emissions; this is explored in Section 4 and Annex 3.

Secondly, thinking about food related issues in the wider context — and the possible implications of *not* doing so. For example, if people believe the savings from eating UK food are higher than they really are, this may lead to them feeling they are already 'doing their bit' and that this compensates for emissions from, say, a long haul flight.

4. Objectives and ambitions

Clarifying the purpose

In our initial baseline report to the Steering Group in September 2009 we highlighted a number of aspects that would be important in developing activities for carbon reduction:

- **Control**: To what extent can people in Shandon control the different elements of the food chain? For example they can make their own decisions about how much meat they eat (putting aside cultural pressures for now); but they can do little to control how much energy is used in food manufacturing.
- **Influence**: Where people don't have direct control, they may have varying degrees of influence. For example they can influence retailers to stock more local produce — initially through campaigning, but ultimately by buying local produce in sufficient quantities that stocking it is profitable to the retailer.
- **Interest**: To what extent are people interested in taking action? To what extent does climate change act as a motivator? What other motivation will lead people to take action — for example, saving money by reducing waste, the pleasure of gardening, the health benefits of walking and cycling etc?
- **Ability to participate**: Even when people are interested and willing to participate in principle, a range of factors will influence their ability to do so. Some of the barriers will be structural eg lack of ground for growing. Others will be cultural and social, and the perceived strength of these barriers will vary with people's interest and commitment.

With these issues in mind, and also drawing on our discussions with the SLFG's research sub-group at the start of the project, we felt it was important to clarify the purpose of SLFG. In our initial report, we wrote:

These issues raise some important and inter-related questions about the nature and fundamental purpose of SLFG:

- *Is it a local food initiative which aims to deliver a range of social, environmental and economic benefits, one of which will be carbon reductions?*
- *Or is its primary purpose to reduce carbon emissions, and food projects are seen as a way of doing that, directly and indirectly?*

We therefore met with the Steering Group in September 09 to explore these questions. From this discussion the purpose of Shandon Food Group emerged as:

"*What we said:*

- *Localise production and consumption*
- *Facilitate community action on "local food"; raise awareness of carbon and climate change*
- *Bring together people to share and support*

- *To encourage, promote and support local food production consumption*
- *Community-based network — production, purchase and disposal — benign to environment*
- *Promote and enable — more sustainable food culture*
- *Enable people to — source and dispose food in a more environmentally sustainable way and that this takes place in a shared community-setting.*

Taking these together it seems:

- *The entire food chain from production to disposal is important*
- *Broader environmental and sustainability concerns are important, rather than, more narrowly, carbon or climate gases.*
- *The community aspect of this is important*
- *And we are principally about facilitating and empowering people to make their own choices.*

So a formulation of the purpose might read something like (a bit wordy):

SLFG wants to be a catalyst for as many people as possible in the community of Shandon to make positive social and environmental choices through buying, producing, consuming and disposing of food.

We will do this by sharing information, ideas and developing projects where people can work together towards this end."(Shandon Local Food Group, 2009)

As a result of this clarification of purpose, this scope of this report was revised to include considerations of other environmental and social impacts of food beyond climate change and carbon reduction (discussed below).

The next phase of the research project was workshops with members of SLFG. The clarification of SLFG's purpose required that the nature and purpose of these workshops evolved from that set out at the beginning of the project.

Following a meeting it was agreed that: *While the steering group share a vision for local food that is informed by the environmental and social benefits that it can bring, SLFG feel it is inappropriate to assume this is shared more widely in the community and also inappropriate to promote this perspective at this stage.*

Therefore: *one of the objectives of the workshops will be to understand why others are attracted to addressing local food issues. This understanding will inform any future development and articulation of the vision.*

And we agreed that the first workshops would explore:

- *What local food projects/activity the people present want*
- *Why these activities matter to them*
- *What needs to be done to bring them about,*
- *Whether people are willing to be involved in taking action themselves.*

Workshops

Three workshops were held in November. The first two were promoted to members of SLFG via its email list; the third was open to all residents and was promoted via the newsletter (delivered to all households in Shandon) and via a poster outside local shops. Each workshop ran from 7.30pm to 9.00pm and homemade soup was served.

The workshops were attended by 10, 6, 14 people respectively and were introduced by a member of the Steering Group. This number of people allowed for a good depth of conversation and discussion.

The workshops followed a similar format, varied slightly each time to take account of numbers, people's engagement with the SLFG, and lessons from the previous workshops. The key elements were:

- Introductions & background to the event
- Participants were asked to discuss in pairs their interest in food and food growing: "what brings you out to this meeting on a cold, wet evening?" People then shared the key points of their discussion with the whole group and sometimes questions of clarification and deeper exploration were asked.
- Participants were asked to take a few moments to reflect on what one activity they felt would be most desirable for SLFG to undertake. Each reported back in turn and their idea was written on flipchart. Once all ideas had been captured, there were questions of clarification to ensure we all understood the activities that were being proposed.
- The activities that had been suggested were grouped into broadly related themes and participants invited to choose the theme which most interested them and form into groups. Each group then discussed their chosen theme and explored what actions would be needed to take the idea forward.

Interest and motivation

People's interests in food and their motivation for participating were wide and varied — ranging from 'want to grow food in back garden' to 'keen on social aspect, meeting people', from 'satisfaction of growing' to 'taste, seasonality'. This part of the workshop was difficult to take notes on, especially when exploring people's motivation in more depth. However, based on these workshops, and incorporating relevant information from earlier discussions with the steering group, three themes emerged:

Food is important. People feel food, and our relationship to it, is important in itself. We often don't know enough about where it comes from; when we do know, we often don't like what we find out; we are often divorced from the physical actions of growing and preparing food. People want to be able to grow more food themselves, and to buy locally more food that is locally produced, organic or fairtrade.

Food can build community. People feel that activities related to food, and especially growing food, can help strengthen the community by bringing people together. In particular food has the potential to

bring people of different ages and different backgrounds together. Such community building is important and is likely to lead to other benefits beyond food and related activities.

Food affects the environment and other people. People recognise that the ways in which food is produced, consumed and disposed of, has impacts on the environment (including climate change) and on other people (eg fairtrade). They feel they have little information about these impacts. With a better knowledge of these impacts people believe they will be able to make better choices.

It was clear from the discussions that the first two themes were foremost in people's minds. The third theme emerged from asking more probing questions and appeared to often be implicit in what people talked *about*, rather than explicit what they *said*. Copies of the flip charts which recorded people's comments are reproduced in Annex 4a.

Activities

The potential activities that Shandon Food Group should develop that were put forward at the workshops were surprisingly consistent across all three workshops. They can be grouped into three areas:

- Developing a community garden
- Encouraging and supporting home growing
- Developing links with local producers and retailers

Communication and sharing information was an issue that was frequently put forward. In discussion it became clear that this would be an important aspect of each of the above areas. The full list of activities suggested are shown in Annex 4b.

In each workshop variations on the first two themes were explored further. As these themes were later discussed in depth in the action planning workshops (see below), the results of these initial discussions is not summarised here; however the issues noted are shown in Annex 4c.

5. Action planning

Purpose & structure of the action planning sessions

In discussion with the Steering Group it was agreed to add three action planning sessions to this research project. This was for the following reasons:

- There was a clear feeling from the workshops that many people were keen to move from research and consultation to action.
- Planning the development of these activities would inform scenario development taking into account the wider objectives of SLFG: engaging people; building community and benefiting the environment.

The Action Planning sessions were promoted at a public lecture organised by SLFG in November and via SLFG's email list. The topics for each session were:

- Developing a community garden
- Supporting home growing
- Building stronger links with local producers and local retailers.

They were attended by 15, 15 and 7 people respectively.

Each event was introduced by a member of the Steering Group. The format for each event was roughly as follows[7]:

- Introduction to SLFG; outline of the three areas selected for development; introductions.
- Summary of the three themes that are motivating SLFG — and encouragement to consider how the area of that evening's session can best contribute to addressing these themes.
- Participants were invited to consider: "If this activity is really successful, what will that success look like? How will Shandon be different as a result?" This was shared with SLFG.
- Participants worked in small groups to 'back-cast' how this success was achieved: "looking back from that imagined, successful, future, what activities were essential to achieving it?" This was shared with the group.
- Participants then volunteered to take responsibility for the actions identified.

It had been hoped that the sessions would include exploring possible project milestones, information needed to measure success, and methods for gathering and communicate this. In the event it became apparent that the activities were at too early a stage to do this.

These activities are described in outline below.

[7] The community garden session had a slightly different structure as there was a considerable amount of information to share about a potential site.

Community garden

The idea of developing some kind of community garden has been on the agenda since the beginning of SLFG and various options had already been explored. Gavin Corbett, Chair of SLFG, explained that there had been discussions with the council about adopting part of the Harrison Park as a community garden and, indeed, the City Council's draft allotment strategy in early 2010 identified part of the East Park as a suitable for growing. This however might well take several years to progress.

However, recently the opportunity had arisen for SLFG to join several other community groups to develop community gardens at the nearby Royal Edinburgh Hospital site. It was agreed that this was an excellent opportunity that should be progressed. However the potential of doing something more visible in the centre of Shandon in Harrison Park should also be explored.

In terms of the vision for the community garden, participants considered: what is the difference between a community garden and an allotment? From this discussion the following vision emerged:

The ***community garden should***:

- Attract and engage lots of people from across the community — not just gardening 'fanatics';
- Provide a range of opportunities to contribute, including opportunities which don't require ongoing or substantial time commitments;
- Have space for children to play;
- Grow food and have space for cooking;
- Create opportunity for sharing produce and space;
- Create opportunities for learning individually and collectively.

A range of ***practical issues*** were also discussed, including:

- Access to water, collective composting, security, tool store; relationship with other groups and the organisers of the site, length of lease and implications of that, etc;
- The need to develop ground rules for the use of the site, deciding what to plant; sharing of land; sharing of produce etc;
- Organising work and opportunities for learning;
- The need to seek advice and inspiration from established communal gardens and similar projects.

Recognising considerable further work — and information — was required to progress to the next steps, the following ***actions were agreed***, and people undertook to progress each of them:

- Clarify a vision and mission for the garden, leading to a physical plan;
- Develop a horticultural plan for the site;
- Organise visits to learn from other groups;
- Develop links between the garden and the school;

- Communicate widely what is happening and opportunities to be involved.

See Annex 5a for notes from the session.

Growing at home

"What ever people wanted to grow — it would be a success" and "great looking front gardens" were suggested as the vision for this theme. To achieve these visions, three specific types of activity were identified: Gardening Neighbours, Events, and a Community Table.

Gardening Neighbours

The idea of Gardening Neighbours is to create a loose network of gardeners and people wanting to start gardening, to share advice and information, and to provide mutual support and encouragement. A range of practical issues were discussed, but it was agreed that this was something that would benefit from starting small and developing the activity organically, rather than from further detailed planning at this stage. Initial steps were agreed and people undertook to progress each of them:

- Establish what people's specific wants and needs are — engaging with active members of SLFG initially, before broadening it out.
- Find or create, and then make available in an appropriate format, a year planner showing what food growing activities are best done at which times through the year.
- Establish appropriate communication system for this network, such as email group, Googledocs etc.

Events

It was decided that a series of public events such as lectures and visits providing practical advice and inspiration for food growing in gardens would be desirable. The initial step agreed was to organise an "Gardeners' Question Time" (focused on food growing), with a panel of experts, ideally in March[8]. A number of practical actions needed to organise this were identified, and a group undertook to liaise with the Steering Group and to take this forward.

Community table

The idea of the community table is to provide a place where people can donate and swap seeds, seedling, plants etc. This would be organised on a regular basis — appropriate to the season — in a public place, such Harrison Park, and at events organised by SLFG. The table would be staffed by volunteers, the items labelled and appropriate information provided. This idea requires further planning and people have undertaken to do this.

See Annex 5b for notes from the session.

[8] This has now happened and was well attended and welcomed by participants. It is planned to make the event a regular part of the calendar of events.

Developing links with local producers and retailers

The priority for this group emerged as getting more local, fairtrade and organic food (at affordable prices) in local retailers. A range of possible activities were discussed but it soon became clear that the key to effective progress was establishing dialogue with local retailers, with the aim of understanding their perspectives and how SLFG can best work with them if there are shared objectives.

The first specific action therefore was to start talking to retailers in this way. A group undertook to plan this in more detail.

See Annex 5c for notes from the session.

6. Taking the project forward

The aims of this section are to:

- Set out our interpretation of the aims, activities and outcomes of the project;
- Suggest potential indicators for monitoring the success of the project.

We understand that at this stage SLFG has no plans to seek significant external funding and will therefore neither be required to monitor and report its performance, nor will it have the resources to do so in depth. However SLFG do of course wish to be effective in what they do.

For this reason our suggestions for monitoring are 'light touch', designed primarily to inform the Steering Group and interested participants of success — or otherwise — of the project and individual activities. The structure and approach[9] recommended can be built on to provide more robust measures of success should that prove necessary or desirable in the future.

Aims, outcomes and activities

Drawing on Sections 4 and 5 above, the project's aims, outcomes and activities can be presented as follows[10]:

The **overall aim** of a project describes why the project exists and the broad, longer-term **impact** desired as a result:

> *The ways in which food is produced, distributed and disposed of can significantly impact, both positively and negatively, on the local and global environment, and on the local community and wider society.*
>
> *SLFG wants create positive environmental and social change through the ways in which people in Shandon buy, produce, consume and dispose of food.*

Outcomes are the results of a project's activities — the changes or differences that come about as a result of the project. SLFG's intended outcomes are:

> *Increased enjoyment of high quality locally produced and fairly traded food by local people;*
>
> *Increased knowledge about the environmental and social impacts of food in the community;*
>
> *Increased skills and confidence to grow food;*
>
> *More people growing fruit and vegetables locally;*
>
> *More local shops stocking, and people buying, locally grown, organic and fairtrade produce;*

---

[9] The approach builds on Evaluation Support Scotland's Evaluation Pathway: http://www.evaluationsupportscotland.org.uk/evaluation/index.asp

[10] These specific phrases and concepts, while based on the activity described in sections 4 and 5, are offered tentatively, recognising that further development by SLFG may be necessary.

A stronger local community;

Greater "net positive" environmental impact of food consumption in Shandon;

Greater "net positive" social impact of food consumption in Shandon.

Activities are the means by which these outcomes will be achieved. The activities of SLFG — current and in development — are:

A range of events, including film screenings, lectures and 'gardeners' question time';

Establishing a community garden;

A network of 'gardening neighbours';

A community table for exchanging plants, seeds etc;

Developing links with local producers and retailers.

The relationships between these aims, outcomes and activities — expanded where appropriate — are shown in a 'logic model' in Figure 5.

Assumptions

The relationships between the activity and the outcomes rest on a number of assumptions — especially about how the medium term outcomes deliver the longer term outcomes. These assumptions and the rationale for making them are described briefly below. Note that some of the outcomes grouped in single boxes to keep the diagram simple, have been grouped slightly differently here to better demonstrate links to evidence.

Increased viability of local shops and local producers contributes to a stronger local community: The New Economics Foundation, in their Ghost Town Britain (Simms, Oram, Macgillivray, & Drury, 2002), (Oram, Conisbee, & Simms, 2003) and Clone Town Britain (Simms, Kjell, & Potts, 2005) reports argue that the dominance of supermarkets and chains squeezes out local shops and producers leading to a loss of diversity, choice, local identity, social capital, skills and local economic contribution.

Increased viability of local, organic and fairtrade producers contribute to greater net positive environmental and social impact: The assumptions about the benefits of these types of produce are described below — the point here is that by choosing such products Shandon residents not only deliver direct benefits through their purchases, but also indirect benefits through creating and sustaining markets for producers — helping make their products available to others.

Increased proportion of local produce in the diet contributes to greater net positive environmental impact: Given the complexity of the food system and its environmental impacts (See Annex 3), this assumption will not be universally valid. However, where in season, local produce (not grown in fossil fuel heated greenhouses) is purchased in preference to imported produce, GHG emissions are likely to

be lower (Garnett, 2006). It is assumed that greater knowledge of the environmental impacts will lead to people in Shandon making good choices.

Increased proportion of organic produce in the diet contributes to greater net positive environmental impact: There are a range of more sustainable farming practices, including organic farming, which overall tend to have less environmental impact than conventional food production. Organic farming contributes to the environmental stability of the food supply (Niggli, Earley, & Ogorzalek, 2007) and contributes to lower greenhouse emissions (Niggli, Fliessbach, Hepperly, & Scialabba, 2009).

Increased proportion of fairtrade produce in the diet contributes to greater net positive social impact: (Nicholls & Opal, 2005, pp. 201 - 227) identifies a range of social benefits to fairtrade producers including not only extra income from fairtrade sales, and increased non-fairtrade sales as a result of developing longterm relationships, direct trade and credit provision, but also self-esteem and self-confidence.

Fewer shopping trips by car contributes to greater net positive environmental impact: as a result of lower GHG emissions; reduced air pollution and reduced congestion from reduced mileage.

The relationship indicated between greater net positive environmental impact and greater net positive social impact — that they are mutually reinforcing and of equal importance — is perhaps an aspiration and a value judgement rather than a causal relationship supported by evidence. However it is certainly the case, based on ecological reality, that humans rely on a healthy, functioning ecosystem — and any society that doesn't respect the environment will, sooner or later, experience significant negative social impacts.

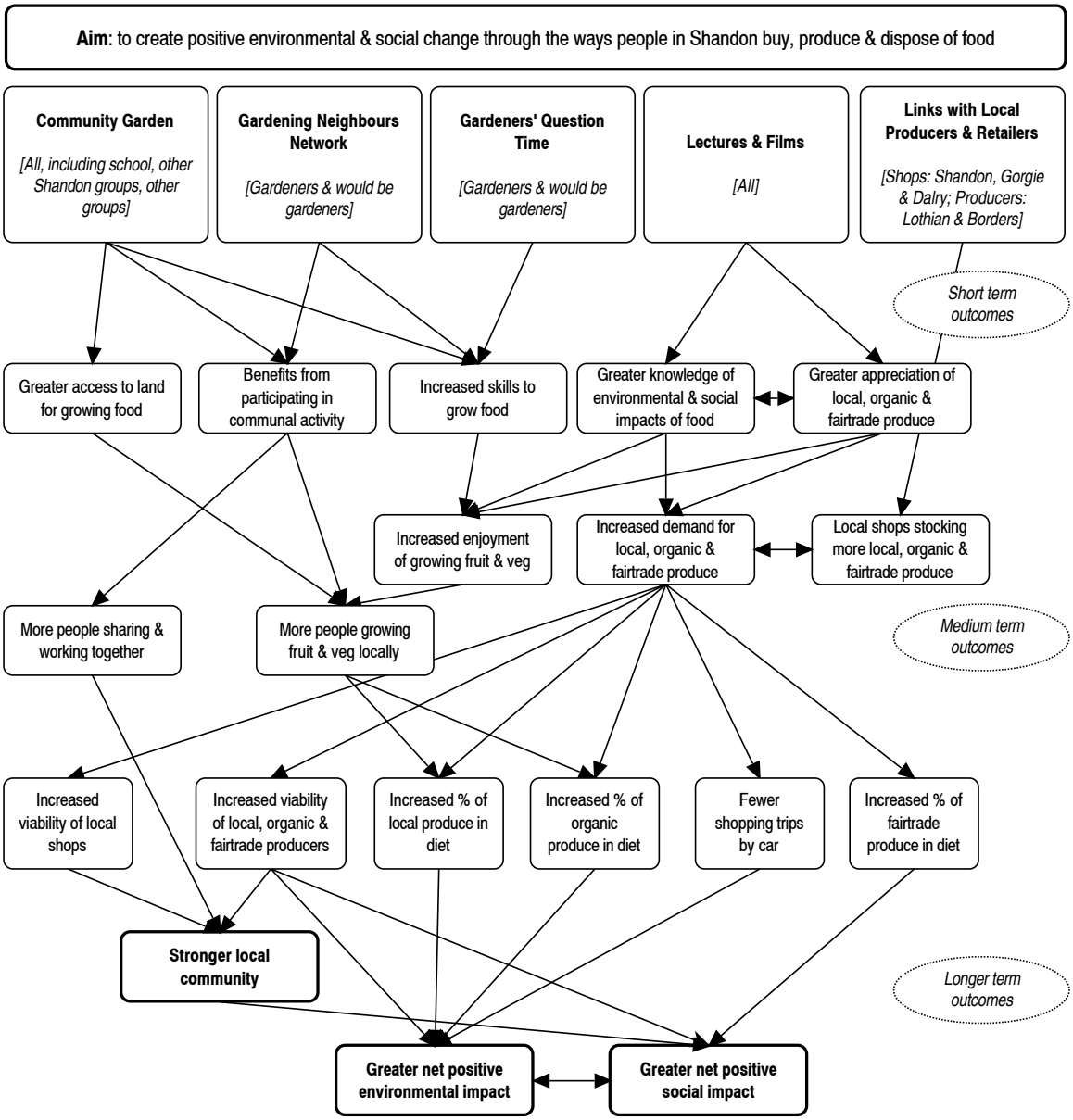


Figure 5 *shows the how the new and current activities of SLFG support SLFG's objectives. Further links could be shown — but have been omitted to avoid further complexity. Note that arrows indicate connection only where the arrowhead touches a box — not when passing behind one.*

Engagement strategy

Figure 5 demonstrates that achieving significant success in the longer term outcomes depends entirely on first achieving the full range of short and medium term outcomes.

This suggests the strategy for developing activities should:

- Ideally, focus on activities that increase involvement and engagement *while also* delivering wider environmental and social benefits;

- Where this is not possible, focus on activities that increase involvement and engagement while also laying the ground (through, for example, awareness raising) for future activities with such wider benefits.

Putting this another way: there is little point in developing activities that may deliver wider environmental and social benefits, if few people are motivated to participate.

This suggests that each potential activity must reach a certain threshold in its potential to involve people and engage their interest before considering its potential to deliver wider environmental and social benefits — including carbon reduction.

Choosing indicators of success

An important issue for SLFG is to decide the extent to which they wish to record and monitor indicators of success of the project. While there are clear benefits from undertaking at least some monitoring, it can also cause additional work and other difficulties. Possible pros and cons are shown in Table 3.

Stakeholder	Potential benefits of monitoring & reporting	Potential problems of monitoring & reporting
Steering Group	Better understanding of whether the project is achieving its aims and hence better able to plan future development Ability to demonstrate levels of support, participation and success to any future funders and partners	Additional time and energy required overloads SLFG's capacity 'Bureaucracy' stifles innovation and experimentation
Volunteers helping organise activities	Confidence and reward of knowing their time and energy is worthwhile	Resentment at time spent on form filling etc
Participants taking part in activities	Confidence and reward of feeling part of a successful project	Resentment at feeling 'monitored' by the project Resentment at feeling 'used' to deliver outcomes with which s/he does not identify
Local community	Appreciation that SLFG is actually bringing about positive change	Perception of group as busybodies or do-gooders pursuing their own objectives through the community

***Table 3**: The Potential benefits and problems of monitoring and reporting*

SLFG has the luxury of developing an approach to monitoring and reporting that suits the particular circumstances and needs of the project, its participants and local stakeholders.

Evaluation Support Scotland (Evaluation Support Scotland, 2009) recommend measuring no more than two to three indicators for each outcome (key indicators), while pointing out that some indicators may be relevant to more than one outcome. Given the range of activities, the number of interrelated outcomes, the lack of demand — and resources — for comprehensive monitoring, evaluation and reporting, and the pros and cons outline above, we recommend that:

- Ideally, monitoring, evaluation and reporting be an integral part of the activity, worth doing for its own sake, rather than an additional burden;
- Where this is not possible, the monitoring, evaluation and reporting should be as unobtrusive and cause as little extra work as possible;
- Meaningful to stakeholders — it should be obvious what constitutes progress and why it's a good thing;
- Overall the aim of the monitoring, evaluation and reporting should be to be 'good enough' with limited resources, rather than aiming for comprehensive processes which fail due to the high level of time and commitment required to manage them.

Developing indicators

We recommend that indicators be developed for the following outcomes — those in ***bold italics***[11]:

Recording the ***number of activities and the number of people taking part*** in each of them is primarily an output[12] indicator, and as such its main benefit is to provide an indication of how many of the community are engaged with the project and its activities.

The number of participants — particularly people getting involved in activities which involve working together — is also an indicator for the outcome ***more people sharing and working together***.

Greater access to land for growing food is important to enable some of the longer term outcomes to be achieved.

More people growing fruit & veg locally is important for two reasons: Firstly it indicates, at least in part, whether some of the shorter term outcomes, such as *increased skills to grow food* and *greater appreciation of local produce*, are being achieved. Secondly unless this is achieved, the longer term outcome *increased proportion of local produce in the diet* will be more difficult to reach.

The ***amount of local, organic and fairtrade produce stocked by local shops*** is important to enable people to act on an *increased demand for local, organic and fairtrade produce.* The former however is likely to be easier to measure.

Indicators for these five outcomes should, with careful planning, be relatively easy to collect and evaluate (see below). While they won't allow the project to demonstrate directly that all the longer term

[11] Other outcomes are indicated with *italics*.

[12] *Output* indicators measure progress in delivering activities; while *outcome* indicators determine whether or not the activities have actually made a difference.

outcomes are being achieved, they should be able to give confidence (based on the assumptions above) that the project is contributing to its aims.

To gain a fuller picture of how the project is meeting its longer term outcomes requires indicators that will be more complex and time consuming to collect and evaluate.

The extent to which a ***stronger local community*** is developing as a result of the project could be assessed by tracking the social capital of Shandon over time. However, a full assessment of social capital is likely to be too complex and time consuming. We therefore suggest that more easily measurable indicators, related to social capital, be used to measure achievement of this outcome.

The extent to which the project is contributing to ***net positive environmental impact*** could be assessed by tracking the estimated changes in the food-related ***carbon footprint*** of Shandon residents over time.

Indicators & monitoring

Suggested indicators and possible approaches to monitoring and reporting them are set out below. Table 4 summarises the indicators and shows how they relate to outputs and outcomes.

Number of activities

A record of the number of activities should be kept. To help ensure records are maintained this should be a regular agenda item for the steering group.

Number of people taking part in activities

A record of the number of people participating in each activity should be kept. This may be easier for activities like lectures where people can be counted at the start, than for activities like gardening where people may come and go over the course of a day.

The person or group organising each activity should plan to record numbers, and where possible distinguish between people who have participated before, and people who are participating in an activity for the first time.

These figures can help to estimate — avoiding double counting — the number of individuals participating in all SLFG activities in some way. This can be used to estimate the proportion of the local population that SLFG is engaging with.

To help ensure records are maintained this should be a regular agenda item for the steering group.

Number of people sharing and working together

This is a sub-set of the number of people taking part in activities, but is an *outcome* rather than an *output* indicator — ie this is one of the desired results of some of the activities, and hence should be recorded separately.

The steering group should decide which activities should be counted as ‘sharing and working together’ — this would probably include working on the community garden, but not attending a film

showing for example. Again, where possible, new and repeat participants should be recorded separately.

A carefully designed spreadsheet or database should allow the three indicators above to be recorded — and the data subsequently reported — with minimal additional work.

	Outputs	Social Outcomes	Environmental Outcomes	
Indicator			**General**	**Carbon Footprint**
No. of activities	•			
No. of people taking part in activities	•			
No. of people sharing and working together		•		
Area of land used for growing food			•	•
No. of households growing fruit & veg			•	•
Amount of local, organic and fairtrade produce stocked by local shops		•	•	
No. of groups and organisations participating in the project	•	•		
Shopping trips by car				•

***Table 4**: Summary of recommended indicators and how they relate to outputs (ie measuring project activities) and to social and environmental outcomes (ie achieving the aims of the project). Those indicators which are used to estimate the carbon footprint are also shown.*

Area of land used for growing food

This indicator should record the area of land used for growing food by local people. This will include communal land used for growing food (ie community garden); land in private gardens; and allotments. These areas should be recorded separately.

Care should be taken to define the areas recorded — this might be actual growing plots or the total area of the garden including paths, seating areas etc, and it may be useful to distinguish between open ground and polytunnels etc.

Recording some aspects of this indicator could be quite time consuming, especially private gardens. However, a 'good enough' figure could be obtained using a simple questionnaire with people at an event, and making some reasonable assumptions about the average size of garden plot etc.

Number of households growing fruit & veg

We recommend recording the number of households rather than people, to minimise the risk of double counting. This indicator could be made up of the number of households growing food in their own garden; on their allotment; in the community garden; and in any shared gardens. These should be recorded separately.

Recording this accurately could be quite time consuming, however as noted above this is an important indicator as it demonstrates the extent to which many of the short term outcomes have been achieved. We therefore recommend that if a more detailed survey based approach is not practicable or desirable, a simple estimate would be still be worthwhile. This could take the form of a show of hands at an event for example.

Amount of local, organic and fairtrade produce stocked by local shops

This indicator will need to be developed in light of the insights gained as links with local retailers are developed. Issues to consider will include the definition of 'local' — both in relation to which retailers are included and what produce counts as local; any minimum threshold of number of products; and how any seasonal changes in stocking would be accounted for.

Each of the three product groups — local, organic and fairtrade — should be recorded separately.

Number of groups and organisations participating in the project

This is proposed as one of the indicators relating to the outcomes of a *stronger local community* and *greater net positive social impact*. This could be recorded in a similar way to 'number of people taking part in activities' described above. SLFG will need to decide what 'counts' as participation and how groups and organisations are defined. This might include schools, community groups, local retailers, producers and other businesses, NGOs and government agencies.

Carbon footprint

The simplest way to estimate reductions in carbon emissions as a result of the project is to estimate reductions associated particular activities and with changes in behaviour. The main relevant activities and outcomes are: (a) ***area of land used to grow fruit and veg***; and (b) reduction in ***shopping trips by car***. While the proportion of local food purchased is also relevant the carbon impact of this is more difficult to assess.

It's worth noting that the potential reductions in emissions from these activities is relatively low compared with other food related activities such as reducing consumption of meat and dairy products, reducing food waste, and changing cooking habits, and compared to non-food related activities — see Figures 2 and 4. However, these indicators are suggested as they relate to the

objectives and activities identified by SLFG — see Section 4. If SLFG do develop other activities[13] with greater potential to reduce emissions, relevant indicators can be developed at that time.

The area of land is already suggested as an indicator above and applying the factors set out in Annex 6 the potential carbon reduction can be calculated. Monitoring of the actual levels of produce grown would be useful to check that the levels of productivity assumed in these factors are being achieved.

The reduction in shopping trips can be estimated from a survey of participants, or even a show of hands at events. Combined with reasonable assumptions about the typical distance driven for shopping, using the factors in Annex 6 the carbon reduction can be calculated.

Should SLFG wish to obtain more accurate estimates of carbon reductions, including other aspects such as local food, a more sophisticated approach, possibly using a combination of more detailed surveys and food diaries could be developed.

[13] While this report was being prepared, SLFG has been considering the possibility of participating in a food waste reduction project.

7. Conclusion

It's clear that the GHG emissions associated with food production, distribution, consumption and disposal are significant. And that there are a range of other significant environmental and social impacts associated with food. There are opportunities for people in Shandon to change how they grow, buy, use and dispose of food with the aim of reducing GHG emissions and other environmental and social impacts.

The complexity of the food system — physical, environmental, social and economic — makes it difficult to understand the food related impacts of a particular community like Shandon. This of course also makes it difficult to identify, and quantify the benefits of, specific actions that will help reduce such impacts — especially when so much of the food chain is outside the direct influence of local people.

Despite this complexity and uncertainty participants in SLFG events have demonstrated their very real interest in engaging more directly with how their food is produced and distributed. They have identified a number of ways in which local activities can contribute to a greater understanding of the environmental and social impacts of food — and help reduce them.

It's notable however that while most participants in this project shared a concern about the wider environmental and social impacts of food, their main reasons for becoming involved were their interest in food *per se* and the opportunities, through food related activities, to help build a stronger local community.

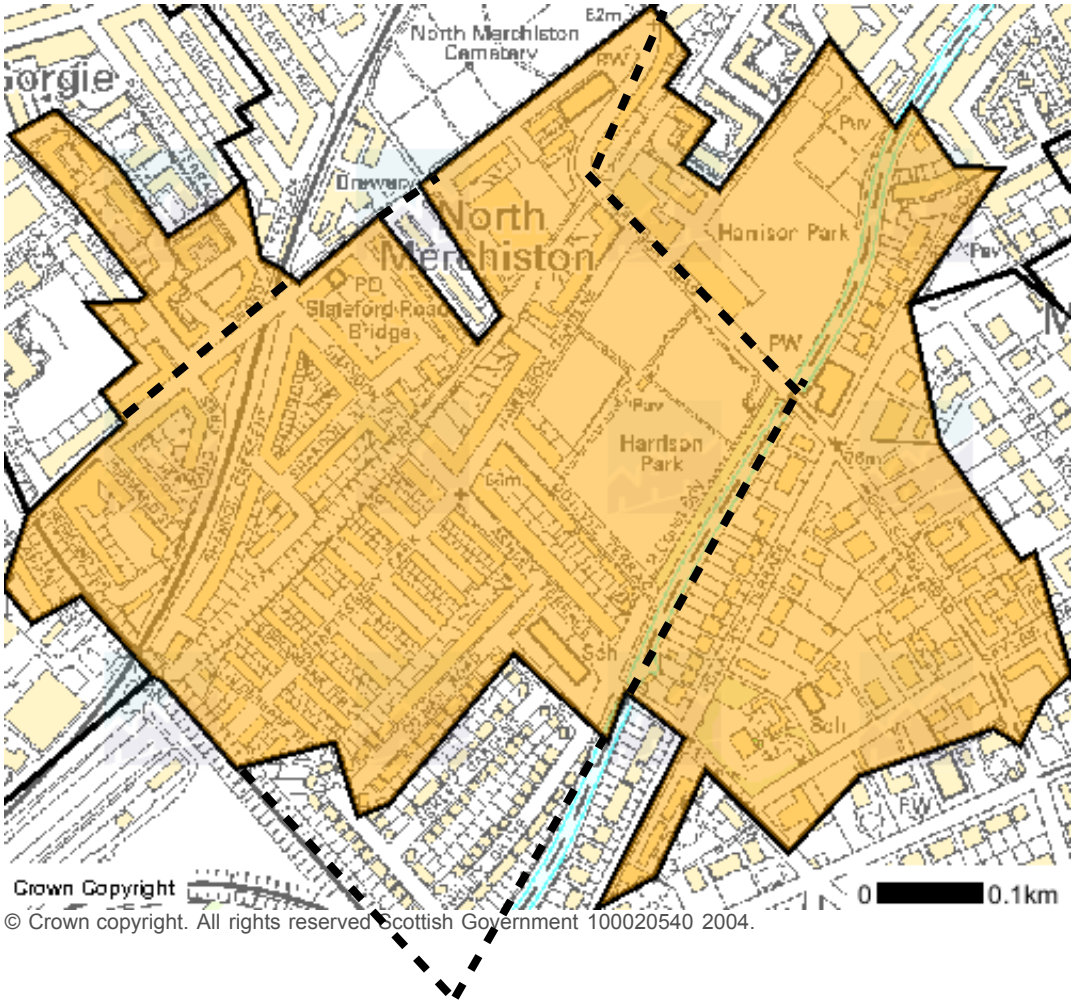
This suggests that SLFG should continue to develop activities which involve people by responding to their interests as well as creating opportunities for people to increase their understanding of the environmental and social impacts of food — and to take appropriate action.

As the project develops we recommend that the indicators we have suggested are used to support this approach — to provide evidence of how the activities are meeting SLFG's (and local people's) expressed objectives. However, given people's primarily motivations for getting involved in the project, we caution against using these indicators as goals in themselves. People are likely to be pleased to see how their activities are contributing to environmental and social outcomes, but to maintain interest and enthusiasm the direct, personal rewards of growing food, having access to local, organic and fairtrade produce, and being part of a strong community group, will be equally if not more important.

However, it is notable that the potential GHG reductions from the specific activities being taken forward by SLFG at this time are relatively low. In the light of the need for significant reductions in emissions to address the challenges of climate change, this suggests that the current activities could usefully be considered as effective ways for engagement and awareness raising. SLFG has demonstrated its ability to engage people beyond the 'usual suspects' of environmentalists, and its programme of activities has real potential to raise levels of 'carbon literacy' and environmental awareness. SLFG therefore offers the promise of future activities and behaviour change, involving much of the local population, which could reduce emissions more significantly, not only from food, but also from other sources of emissions.

Annex 1: Baseline methodology

The geographical area of Shandon is considered by the SLFG group to be the area in Edinburgh bounded by the Union Canal, the South Suburban Railway Line, Slateford Road, and Harrison Road. The Scottish Government's Scottish Neighbourhood Statistics defines Shandon as an "Intermediate Geography" area, number S02000365. This is slightly larger than the SLFG defined area, however as it is the smallest area for which population statistics are available this area has been used in the calculation of the baseline.



***Map 1**: The area of Shandon. Area enclosed by solid line is Scottish Neighbourhood Statistics Intermediate Geography area S02000365; dashed line encloses Shandon as defined by SLFG.*

This baseline has been calculated using the figures in the guidance for the applicants to the Climate Challenge Fund — *Low Carbon Route Map: Food* (Footprint Consulting Ltd, Environmental & Resource Economics Limited, Alan Speedie Associates, 2009).

The Low Carbon Route Map provides emissions from different sources per person. In preparing this report, the categories have been slightly reorganised and the emissions per person multiplied by the population of Shandon at 4,989[14].

Food waste figures are given per household in the Low Carbon Route Map. To apply these to Shandon we assumed Shandon has the same ratio of household to population as Edinburgh Central Parliamentary Constituency, the smallest area for which household numbers are available[15].

It's important to remember that these figures can only be very rough estimates. There are several reasons for this. These figures are calculated by taking figures for specific sources of GHGs such as power stations, industrial processes, transport, and then making assumptions about how these emissions should be "shared" between the different groups of activities listed in the table. Many of the original figures are themselves estimates, and different studies make different assumptions about how they should be shared — it often depends on the specific purpose of the study.

The figures shown for Shandon in this report will be higher than the emissions that are directly under the control of the people in Shandon: emissions from heating and lighting, and transport for example can be measured very accurately for households and individuals based on actual meter readings and travel patterns. While such direct emissions are useful to know so that one can understand the impacts of actions such as installing insulation or travelling by different means, they don't take account of indirect emissions in all the goods and services that we use. Neither approach is necessarily better than the other, they are just different tools for different jobs.

Food is estimated, in the Carbon Trust study (Carbon Trust, 2006), to account for around 14% of total emissions. However a more recent study by the Food Climate Research Network, (Garnett, 2008) estimates that food accounts just under 20% of emissions (Shandon: 13,000 tCO2e). This is probably higher than the Carbon Trust study (Carbon Trust, 2006) for several reasons: the FCRN study is looking specifically at food and aims to take account of all the emissions associated with it, is therefore likely that it includes emissions that the Carbon Trust left in other categories. In addition the FCRN study is more recent and is likely to incorporate recent research on emissions from agriculture. A report for WWF, (Audsley, 2009), takes account of land use changes overseas and estimates that food accounts for an even greater level of emissions — 30%.

However, in the case of this project, what is important is not the absolute emissions, but the scale of them and their relative proportions.

[14] Scottish Neighbourhood Statistics, 2007 figures, Scottish Government

[15] Scottish Neighbourhood Statistics, 2007 figures, Scottish Government

Annex 2: Refining food related emissions

This annex considers how Shandon's food related emissions might differ from national averages — and what further information might be required to get a more accurate picture — in relation to the four main categories of emissions.

Agriculture

The main issues here are the amount of meat and dairy products that people eat. The amount of salad and Mediterranean style vegetables grown in heated greenhouses will also be relevant to a lesser extent.

Vegans obviously eat less meat, dairy and egg products than average. While vegetarians will eat less meat, it is likely that in many cases they will have a higher consumption than average of dairy and egg products. Overall therefore, vegans and vegetarians will be responsible for lower emissions per person than average. If there is a higher proportion of vegans and vegetarians in Shandon than the average, or indeed people in Shandon eat less meat and dairy products than average, Shandon will have lower food related GHG emissions than the average for the UK.

One survey indicates that 3% of the UK population is vegetarian and a further 5% "partly vegetarian" (Food Standards Agency, 2009). A different survey however indicates that in England 2% are vegan, 3% vegetarian, 1% vegetarian who eat fish, 1% vegetarian who eat chicken, and 3% vegetarian who eat both fish and chicken! (DEFRA, 2007) There doesn't appear to be statistics on vegetarianism in Scotland, and certainly not at the neighbourhood level. Given the differences between these two surveys it is difficult to know what the real level of vegetarianism is, and while the DEFRA survey gives a breakdown by age, sex and other differences, it is not clear that one could reliably use this to estimate the level of vegetarianism in Shandon. Without carrying a survey of Shandon, it is not possible to estimate the difference in meat and dairy related emissions from the national average.

Transport

This category covers the import of food by air, road and sea, and the distribution of food to retailers; car shopping is covered in 'household' below. People who buy more locally produced food will typically be responsible for less GHG emissions from transport of that food to the retailer. It's worth remembering though that in some cases locally produced food might have higher total emissions than imported food — for example crops grown locally in heated greenhouses, compared with imported non-heated crops, and out of season fruit that has been kept in cold storage, compared with imported seasonal fruit.

Estimating the extent to which Shandon differs from the national average in terms of local food purchasing would be difficult to establish as there appears to be no detailed information about people's local buying habits which could be compared to the result of a survey in Shandon.

Industry

Industry is the second largest of the four categories and includes food manufacturing, packaging, retail, catering, and industry waste. Shandon's actual emissions in this category will depend on how the amount of manufactured and packaged food compares with national averages, the emissions associated with the types of retailer most used, and the extent to which people in Shandon use commercial and institutional catering facilities.

Estimating Shandon's differences in these respects from national averages faces similar difficulties to those outlined above.

Household

This category is approximately equal to transport, these are the two smallest categories. The largest source of emissions within the household is cooking and refrigeration, with car shopping and household waste being less important. The main factors influencing emissions from cooking will be the amount of cooking done and the types of appliances used. Cooking food from scratch rather than reheating prepared meals will use more energy and therefore be responsible for higher levels of emissions. Prepared meals on the other hand will be responsible for emissions in their manufacture packaging and distribution. Emissions from cooking can be minimised by using cookers efficiently — only boiling the amount of water required for example — and depending on the food being cooked, by using pressure cookers and microwaves.

Emissions from refrigeration will be determined by the size and number of fridges and freezers, and their energy efficiency.

Car transport for shopping will be largely influenced by how far people drive for their food shopping, and how often they do it. This is one area where Shandon is very likely to have a lower than average emissions. All residents of Shandon are within five minutes drive of a supermarket and of a convenience store and are therefore likely to drive fewer miles than the average. It's worth remembering however that lower emissions in this area are a "natural" result of living in a densely populated urban area, and don't reflect a conscious choice to reduce emissions on the part of people living in Shandon. That's not to say however, that people living in Shandon *don't* make such conscious choices, just that this data cannot provide evidence for that.

As discussed above, surveys of people's behaviour would be necessary to get a clearer picture of household food related emissions; even with detailed knowledge of behaviour in Shandon, without comparable information from other areas, it would be difficult to estimate with any confidence how these emissions vary from national averages.

Summary

Considering each of the areas above it is clear that even with detailed local surveys, the lack of information with which to compare this means that establishing a reliable estimate of all food related emissions attributable to Shandon is an insuperable challenge.

What this information does provide however, is an indication of the scale of emissions associated with food consumed in Shandon, and the relative contribution of different parts of the food chain to those emissions. This overview is helpful in understanding the potential impact on emissions of different activities SLFG might take forward.

Annex 3: Environmental & social impacts of food

The ways in which growing and distributing different foods affect people and the society vary tremendously depending on everything from the type of food, to where it's grown, what methods are used, how far it is transported, by what means of transport, how it is processed and many more factors.

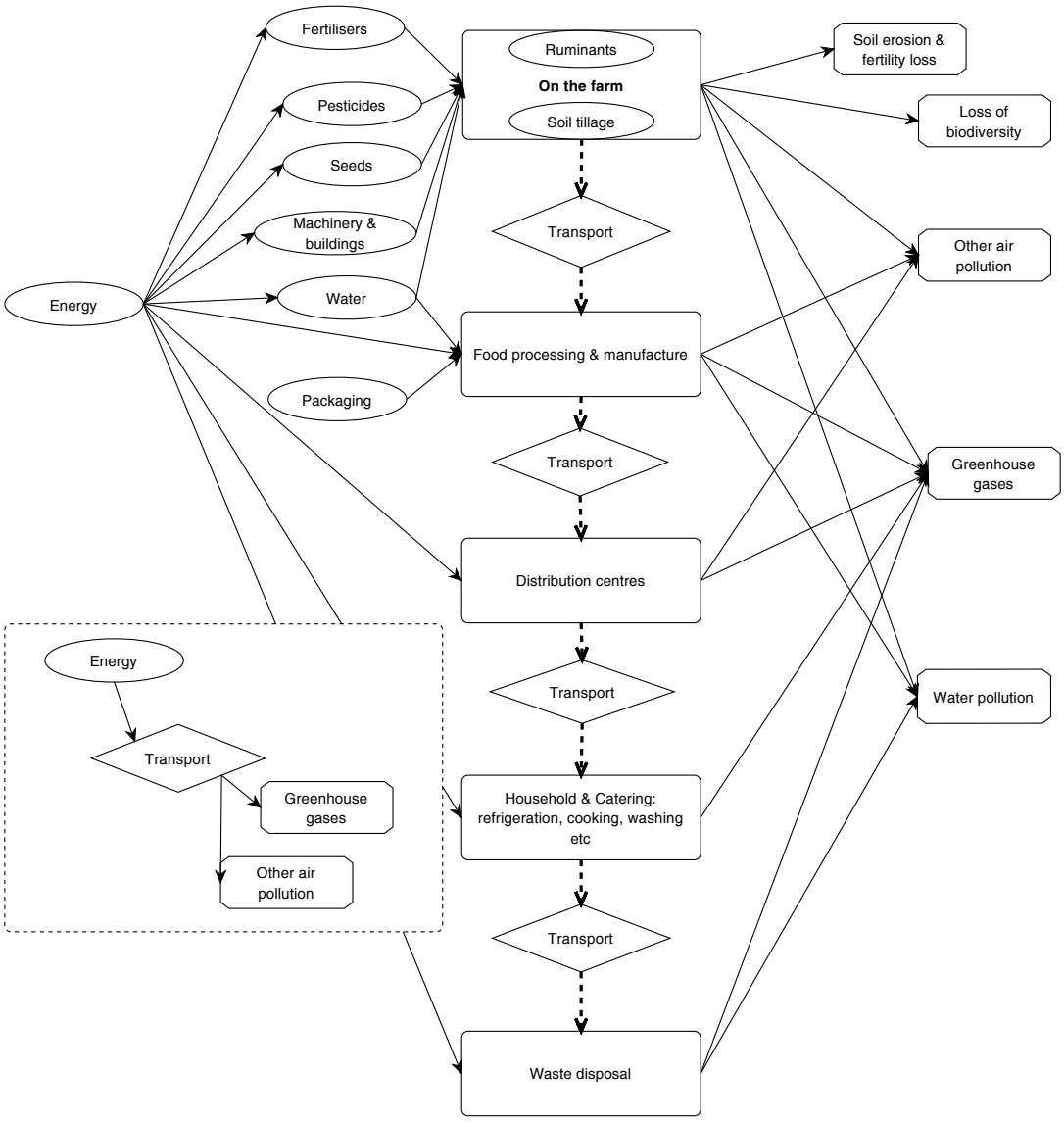


***Figure 5**: The environmental impacts of food, from farm to plate — and beyond.*

The centre of Figure 5 shows — in a simplified form — the route food typically takes from the farm to our plates. On the left are some of the resources and inputs that are used to provide our food. On the right are some of the main ways in which producing and distributing food affects the natural environment. Many of these impacts are damaging to the environment, but this is not always the case. Much depends on what is being produced and the farming methods being used.

There is little doubt that food production, as it is carried out today, has significant, largely negative impacts on the environment. For example food and (non-alcoholic) drinks account for nearly 60% of all eutrophication (a form of pollution) of water in the European Union, 30% of global warming, 30% of ecotoxicity (biological, chemical and physical stresses to the natural environment), 30% of acidification (another form of water pollution), 24% of human toxicity and so on. In fact, of all the goods and services produced and consumed in Europe, food is the biggest single contributor to almost every environmental impact — despite accounting for only 17% of all public and private expenditure (Tukker et al., 2006) Table 5.4.4. While these figures relate only to Europe, the scale of the impacts is likely to be similar in most countries although the details will be different depending on the crops and animals raised, climate and geography.

This illustrates the importance, as stressed by New Economics Foundation (Sumberg, 2009) of considering sustainable food, not just local food.

These environmental impacts affect people in many ways. Directly, by contributing to pollution of the air and water, and indirectly by damaging the environment so that it is less able to restore itself and carry out vital functions such as providing clean water, restoring soil fertility, preventing erosion — and other so-called 'ecosystem services'.

Of course, the environment is not the only way in which food production and distribution affects people. It provides jobs and incomes — in many poorer countries agriculture accounts for over 20% of employment and generates over 30% of GDP. (Gapminder, 2010)

Food also affects people's health and well-being, while access to affordable healthy food is an important aspect of social justice. Food can also play an important part in people's sense of identity and can contribute to developing a sense of local community.

Measuring the different ways in which food production and distribution contributes, both positively and negatively, to the natural environment and to individuals and society, here and overseas, is complex. However, its important to recognise not only the potential benefits of SLFG's activities, but also the possible unintended consequences both locally and further afield.

Carbon footprinting, which aims to measure the effect that particular activities have on global warming, is one approach to measuring one particular aspect of environmental impacts.

Environmental Impact is the approach used by (Tukker et al., 2006), mentioned above. This examines the effect of different activities on a number of different environmental impacts, of which global warming is just one.

Ecological footprinting also takes account of a wide range of environmental impacts, combining these into one single measure which makes comparison of different products and activities easier.

Assessing the social impact of the range of activities associated with food production and consumption is complicated not just by the different aspects one might consider (e.g. health, social justice, income, sense of community etc) but also by the wide range of different groups of people

involved. For example, how to compare income generation for workers in the developing world with building a strong sense of local community in Shandon? Indeed similar questions arise when comparing environmental and social impacts.

Methods which might be useful for assessing some of the social impacts relevance to SLFG include Local Multiplier 3 [16], which measures the extent to which money spent locally benefits the local community; and that the concept of Social Capital[17] measures the extent and quality of networks within the community. Even if tools such as these are not used in earnest, the concepts on which they are based can be helpful to understand possible impacts and therefore make better informed decisions.

[16] See for example http://www.proveandimprove.org/new/tools/localmultiplier3.php

[17] See for example http://www.social-capital.net/whatissc.php

Annex 4: Notes from the workshops in November 2009

All of the text below is transcribed from the flip charts that provided a record of the workshops. The flip charts were either written by the participants or written by Osbert Lancaster — in both cases care has been taken to present the participants' views as expressed, and not to paraphrase or summarise them. While presenting these 'raw' views is a little unwieldy, it does ensure as far as possible that participants' views are available for others to read.

These views have been summarised and interpreted in the body of the report — see Section 4: Objectives and ambitions.

4a Why are people interested in food?

(Individual responses to the question)

Want to grow food in backgarden

Want advice from neighbours

Social opportunities from gardening

Interested in bees, organics, role of gardens in health and learning difficulties, involved in forest garden project

Allotment was not successful, too far away

Like to eat reasonably priced food that's clean and local

Interested in growing food

Got a shared allotment

Children eat lots of veg because they see it growing

SLFG could build community

Interested in growing, keen to influence schools

Attracted by social side

Have own garden, interested in sharing

Stopped buying from supermarkets 5 years ago, now using box scheme, local butcher, farmers market and bulk buying fairtrade

Would like to see less crap in shops — would like to influence them

Like to see less waste

Get veg box and visited the farm

Grew veg as a child

Like to learn more about growing

Keen on social aspect, meeting people

Like to extend to school

Children

Satisfaction of growing

Taste, seasonality

Lack of knowledge

Nice to grow together and meet other people

Community aspect is important

Food unites people

Local shops

Good quality — want to know source

Different routes into community action

4b Activities people would like SLFG to pursue

(Responses following group discussion, stimulated by the question: if SLFG did just one thing, what should it be?)

Encourage people to grow their own food

Email group for people interested in gardening to: share advise and tips; share food

Local farmers' market

Community garden

Energise people to grow food

A visible community garden

Seriously local allotments

Learning gardening from others with more skill and knowledge

Local food coop — products from the Lothians

Help people to learn to grow (including people in tenements without gardens)

Encourage local suppliers to stock local foods

Shops to offer a wide range of local, fairtrade and organic food

Get food growing happening

Public talks — raising awareness, not just the converted

Growing food at schools

Start growing local food — learn from others

Start growing food — annual event to bring people together, community gardening show

Agree some specific aims: eg ,"grow three tonnes of food," — real sense of being able to change things

Shandon Farmers Market

Something to encourage sharing with neighbours

Newsletter with information on local foods and breastfeeding

Community garden

Shared buying of meat

Sharing info and ideas: newsletter, noticeboard

Provide a focus for everyone — a place

Start doing something

Help people grow more food in gardens

Encourage fruit growing

Instruction on / learning about growing food

A shared garden

Newsletter, information on what's in season

Sharing help with growing

4c Themes identified at the workshops and issues discussed/noted

(These themes were developed out of the activities noted in 4b. Note that the output from all three workshops have been amalgamated under each theme.)

Community Garden (or community allotment)

An ideal community garden would have:

- Meeting space
- Storage
- An 'overseer'
- Composting for garden waste and kitchen waste (not just from the community garden itself)
- An area of garden for kids only
- Free food
- Large greenhouse: for growing; and for sitting in
- Barbecue/picnic area
- Opportunities for leisure: multiple reasons to use the garden
- Community owned
- Cafe with local food

Issues

- Is a paid person with right skills needed? Or a group of skilled volunteers?
- Site!
- Important to get people involved from the beginning
- Learn from the experience of others, eg: Findhorn, Redhall, Tipareth, Colinton, Bridgend Community Allotments, Fife Diet
- Opportunities to learn from the community garden — coordinated planting in private gardens
- Garden makeovers and demonstration gardens
- Use space in Harrison Park
- Who for? Open to everyone
- Need support of wider community — petition?
- Look at precedent elsewhere: Security? Coordination?
- Examples: Bristol, Campbelltown, Seil Island

Thoughts

- Lead time; practical advice needed
- Where?! Need some land
- Want advice to help get started in my garden
- Email list with planting advice
- Yahoo grp
- Is there evidence of growing food leading to behaviour change?
- Look at Slow Food movement

Growing Food

- Advice on growing food in own gardens

- Web forum
- Events
- Hold a ‘potato day’, a calendar of events
- Garden visits
- Involving all age groups

Issues

- Organised/committee led versus self organised network?
- A year long series of master classes
    - Identify experts: Garden centres; Botanics
    - Using produce
    - Different types of gardens: Containers; Fruit and veg; Website for sharing produce
    - Abundance project in Marchmont?
    - Seed potatoes etc

- Communication
    - Develop newsletter
    - Where to buy section: Ask shops what they’re selling
    - Locally sourced label — what is local?
    - Food coop — why did Slateford Coop fail?

Annex 5: Notes from action planning sessions

All of the text below is transcribed from the flip charts that provided a record of the sessions. The flip charts were either written by the participants or written by Osbert Lancaster — in both cases care has been taken to present the participants' views as they expressed, and not to paraphrase or summarise them. While presenting these 'raw' views is a little unwieldy, it does ensure as far as possible that participants' views are available for others to read.

These views have been summarised and interpreted in the body of the report — see Section 5: Action planning.

5a Community Garden

Issues

Learn from other groups
How is a community garden different from an allotment?
It has to engage people — who?
Engage numbers of people, not just fanatics
Plan: what do we want? food; cooking
Timescale — 1 year only?
Learning: individual; between groups
Sharing: produce; swaps; space (individual plots? kids garden?)
Overall project management — shared costs
Composting — space, scale
Meeting ongoing costs
Access/security

Focussed on:

How is a community garden different from an allotment?
Planning and practicalities

How is a community garden different from an allotment?

Community garden:

Grp 1: Educational, open to all groups and ages, focal point, social hub, different ways to contribute, publicity, coming to learn, no commitment, more diversity

Grp 2: Might not have crop (but food group one might), numbers of people, could be played in, swing, willow tunnel, not only about food production, has community agenda, education, sharing, shared experience, some space for things not about production, areas for different use, room for celebrations, deciding relevant portions for each use

Allotment:

Grp 1: not shared, working space, functional, practical, commitment

Grp 2: 75% or more cultivated, producing ‘crop’, solitary ‘family’ size, no grass area, about food production, no community agenda, shared greenhouse, not much sharing, not allowed livestock

What do we do next?

Grp 2: what is practical in space? Find out what other people do. Mission statement, define it. Come together as community in the garden

Planning and practicalities

Private/individual plots or communal space?

Water

Compost: many cool compost sites, or collective hot compost?

Communication: mailing list, forum

Ground rules: food share rules; plant share rules; what to plant (species/varieties)?

Access, security, key holders, tool store

Regular group work: tutor/mentor; people power, kids area, peas!

One year only? Implications for: polytunnel, containers, raised beds, standard beds

How to choose? Advice from: Caley (RCHS); Rob Ford, Bridgend; ECBA; Plants for a future

Actions agreed

Talking about the vision/mission, leading to a physical plan

Organise visits to other groups

Horticultural plans

Develop links with school

Communicating that this is happening — what you can do…

Link with film events

5b Home growing

Imagining what success will look like

Whatever people wanted to grow, it would be a success (because they had the necessary information)
Great looking front gardens

What happened to enable success?

Open gardens weekend
Gardeners question time
Community table
Out of doors facility: where people meet; do stuff — compost, germination
List: skills, needs
1 to 1 buddy/mentor
Who's growing successfully in your street?
SLFG sign in gardens: "work in progress"

Action Planning for each of the three themes:

Gardening Neighbours

Wants and needs (active members first)
Year planner, what to plan when
Yahoo grp/forum/Googledocs

Events

"Food growers question time" — early March?
Panellists: organic grower, Gorgie Farm, allotment, composter
Time? Bring and share? Seedlings?
Questions in advance
Newsletter
Book hall
Check community garden plans to avoid clashes

Other possible events for the future:

School competition/event
Weekend event, late summer
Question time, mini—events: soil prep/feeding; pruning; germination

Community Table

Table with 1 —2 people
Harrison Park?
Swap/donate seeds, seedlings etc — seasonal
Mention to shops
Provide labels and info
When? Link to events

What information do people need?

Issues

How to engage, offer support to people without gardens?

Opportunities to use wasteland?

5c Working with local retailers and producers

Possible activities

Farmers market

Reclaiming good food — without paying a premium

What's available here now? (A local food map)

Box scheme? Doesn't help grow community

Local incentive cards

Is the cafe fairtrade?

Encourage shops to stock local food

Priorities

More local, fairtrade, organic produce (at the right price) in local shops

Look at this from local retailers' perspective — develop dialogue with them

Find out what the current situation — what do local shops do already? Not a survey, but start a dialogue.

Issues

Raise awareness organically — be realistic about expectations

Communicate with other organisations — how can we learn from them?

Action

Working group to meet to develop next steps

Dialogue: Questions

Where and how do they buy? From which wholesalers?

What have they tried before?

Interested in making source more prominent?

Interested in stocking fairtrade?

How can we help them?

Problems of getting more locally sourced food?

Annex 6: Emissions factors

The emission factors below are reproduced from the Low Carbon Route maps to assist with calculating emissions reductions associated with growing fruit and veg, and with reduced shopping trips by car.

Fruit and veg growing

A very productive, well managed standard 200m2 allotment saves 240 kgCO2e /year

A standard allotment with a less experienced grower saves 120 kgCO2e /year

A very productive, well managed vegetable garden saves 1.2 kgCO2e/m2/year

A vegetable garden with a less experienced grower saves 0.6 kgCO2e/m2/year

Travel

Average car (unknown fuel) emits 0.3286 kg/CO2/mile

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