



One Planet Dartmoor: Dartmoor Low Carbon Action Plan

Chapter 6: Delicious Dartmoor: A Resilient Food
Economy for Dartmoor

September 2010

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Version: 2

The Dartmoor Low Carbon Strategy

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Chapter 6

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6 Delicious Dartmoor: A Resilient Local Food Economy for Dartmoor

6.1 Introduction

The UK food economy is dangerously unsustainable from both a carbon emission and ecological footprint perspective. This reflects its high level of integration into the global economy. Globally, food is responsible for 20-30% of total greenhouse gas emissions, and 70% of humanity's ecological footprint.¹ Closer to home, food forms 29% of the South West's ecological footprint.² There are no figures for Dartmoor.³

but work has been done to identify the ecological footprint of residents in the South West. The breakdown is shown in Food Figure 1.

These indicators alone demonstrate that we must change the way we produce and consume food, if we wish to move to a low carbon lifestyle and to use only our fair share of the earth's natural resources. The Cabinet Office notes that our “existing patterns of food production are not fit for a low carbon, more resource constrained future”.⁴ There is a further reason to change, though, which is the need for food security.⁵

The way to achieve this is to create a sustainable food system, a fact recognised by government, most recently in Food 2030,⁶ which identifies six indicators of a sustainable food system, as follows:

¹ http://www.wwf.org.uk/what_we_do/changing_the_way_we_live/

² This shows that our total food footprint is 1.63 global hectares – while our total fair share of the earth's resources for all purposes (not just food) is 2.1 gha per person.

³ This lack of baseline data makes it very difficult to measure the success of any attempt to change. Work similar to this report has been undertaken in respect of Exmoor (Forum 21 (2010) *Exmoor National Park Carbon Neutral Programme Consultation* Exmoor National Park) at http://www.exmoor-nationalpark.gov.uk/exmoor_carbon_neutral_programme_consultation_v2.pdf and placed considerable emphasis on assessing likely reductions, rather than focusing primarily on the baseline. This approach would be worth developing as this plan is implemented.

⁴ Cabinet Office (2008) *Food: an analysis of the issues*. The Strategy Unit. Revision D. August 2008. Retrieved from www.cabinetoffice.gov.uk/media/cabinetoffice/strategy/assets/food/food_analysis.pdf p.16, quoted in R. Hopkins, Thurstain- Goodwin, M & Fairlie, S (2009) *Can Tomes Feed Itself?* retrieved from <http://transitionculture.org/wp-content/uploads/cantotnesfeeditself1.pdf>.

⁵ A good definition of food security is that “Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. (Food and Agriculture Organisation (200?) *Trade Reforms and Food Security* Economic and Social Development Department, FAO Chapter 2.2 at <http://www.fao.org/docrep/005/y4671e/y4671e06.htm>

⁶ See, for example, Defra (2009) *Food 2030: How we get there* DEFRA at <http://www.defra.gov.uk/foodfarm/food/pdf/food2030strategy-summary.pdf>

1. Enabling and encouraging people to eat a healthy, sustainable diet
2. Ensuring a resilient, profitable and competitive food system
3. Increasing food production sustainably
4. Reducing the food system's greenhouse gas emissions
5. Reducing, reusing and reprocessing waste
6. Increasing the impact of skills, knowledge, research and technology⁷

Change will be extremely difficult, simply because we are so closely tied into a global food infrastructure. We consume food supplied through a global marketplace dominated by a very small number of multinational food corporations who control most of the world's food production and distribution. This includes: supplying seeds; seed patenting; making and distributing pesticides, herbicides and fertilisers; equipment supply, and management. They also control the international and national supply chains.

While this system is socially and environmentally damaging in very many ways, it does keep people in developed countries fed.⁸ National food production has been reduced, and skewed by globalised markets and the small number of large retailers. These supermarkets are widely believed to maximise profits by depressing returns to growers, and to source at lowest financial cost, whatever the place of origin. This makes local food growing for sale to supermarkets unattractive.⁹

Large multiple supermarkets are also responsible for substantial transport costs. Their transport systems mean that even food which is sold as "local" may well have been first taken to a distribution centre many miles from where it was grown and then returned to a supermarket near its place of origin for sale.¹⁰ The highest transport emission relating to supermarket food is, however, incurred by consumers, driving to out of town stores. Overall, transport is the biggest user of energy in the food chain, as Food Figure 1 shows.

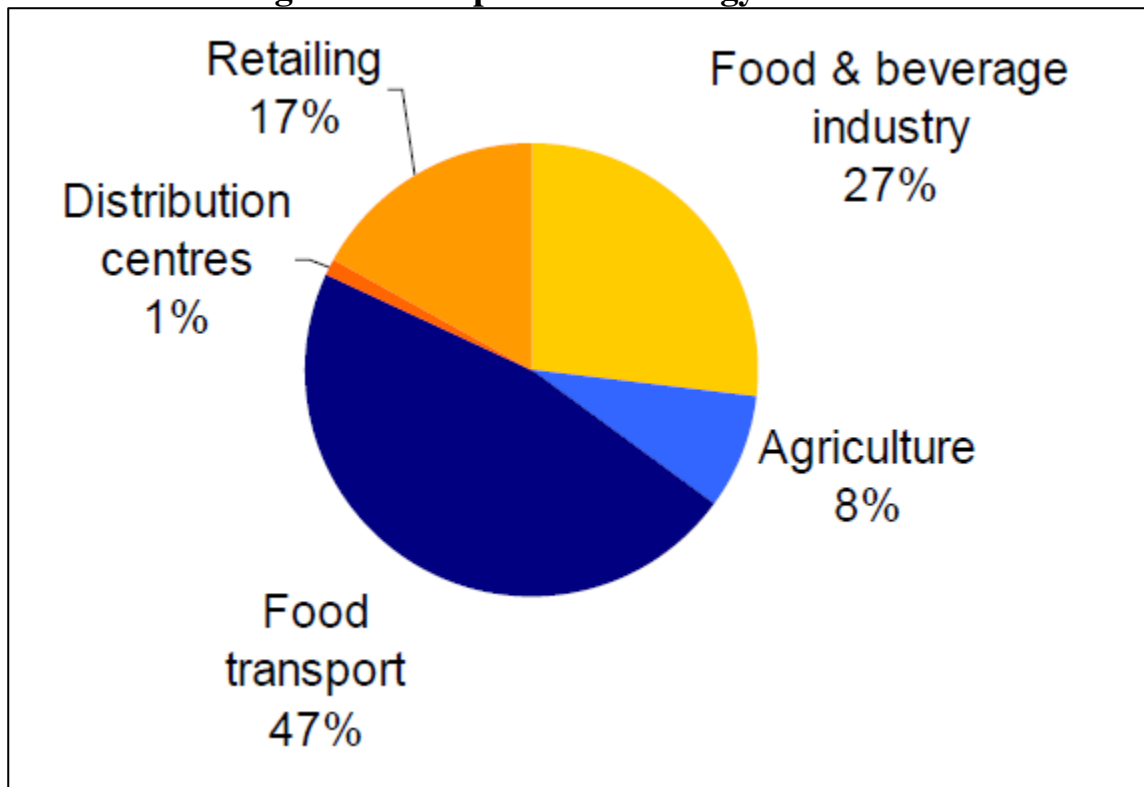
⁷ <http://www.defra.gov.uk/foodfarm/food/pdf/food-indicators-consult-response.pdf> p.4

⁸ This is different from the system which still pertains in most developing countries. There, most people eat food grown locally, on small plots of land, for their family's consumption. This is a much more environmentally sustainable model, and provides a basis for food security, though it is very sensitive to shocks arising from flood, drought, war and other external effects. It can also result in food poverty, and is one form of exploitation of women, who do most gardening in many societies in developing countries.

⁹ The UK imports half its food (by value) DEFRA (December 2009) Government response to consultation on proposed indicators for a sustainable food system Department for Environment, Food and Rural Affairs www.defra.gov.uk/foodfarm/food/pdf/food-indicators-consult-response.pdf p.3 A consequence of this is that it would be difficult for it to feed everyone in the short term if imports stopped.

¹⁰ The comparatively low cost of fuel, in proportion to the other costs in the food supply chain, incentivises moving food around.

Food Figure 1: Composition of energy cost of food ¹¹



Note: Packaging, catering and domestic cooking are excluded from the above.

Other causes of high emissions include the purchasing, cooking and eating habits of the average consumer. One example of this is the high level of imported food in the UK diet. Half of our vegetables, and 95% of our fruit, is imported. In one recent year, more than 50% of imported food could have been grown in the UK. Imported food often has a comparatively high carbon footprint from transport,¹² and also reduces the market for local producers.

There is also a high level of meat consumption in the UK (and it has doubled since 1975). Intensively-produced meat is particularly costly in carbon terms, compared with vegetables and Food Figure 2 shows that it makes up 35% of the ecological footprint of food in the South West.¹³ This is particularly unfortunate, as there is a very high quality alternative.

¹¹ Cabinet Office (2008) p.10

¹² This is not always the case. Where food can only be grown in the UK through using fossil-sourced heating, its carbon cost may be higher than an imported equivalent. The solution to this is to return to eating as much seasonal local food as possible.

¹³ The reason for this is, primarily, that it takes many times as much energy (and therefore resource) to produce a kilogram of meat or fish as it does vegetable protein. As an indication, one table shows a kilocalorie of meat might take 7.9 gha to produce, while vegetables might take 1.2 gha. (See table at <http://fatknowledge.blogspot.com/2007/06/ecological-footprint-of-food-items.html> , calculated using information taken from Collins, Andrea Jayne and Fairchild, R (2007) *Sustainable Food Consumption at a sub-national level: an ecological footprint, nutritional and economic analysis*. Journal of Environmental Policy and Planning, 9 (1). pp. 5-30. (at <http://www.scribd.com/doc/97599/Ecological-Footprints-of-Food>)

Food Figure 2: The Food Ecological Footprint of a South West Resident

Food type	Per person consumption (kg)	Per person ecological footprint (gha)	% of total food ecological footprint
Total food	698	1.63	100%
<i>of which</i>			
Animal-based	235	1.25	77%
<i>of which</i>			
Milk & cream	117	0.14	9%
Cheese	7	0.001	<1%
Meat	57	0.57	35%
Fish	10	0.50	31%
Eggs	9	0.02	1%
Butter	3	<0.01	<1%
Other animal-based food***	32	0.03	2%
Plant-based	463	0.37	23%
<i>of which</i>			
Vegetable Fats	7	0.02	1%
Sugar & preserves	8	0.02	1%
Potatoes	53	0.02	1%
Other vegetables*	67	0.01	1%
Fruit	76	0.02	1%
Bread & other cereals**	91	0.13	8%
Beverages	25	0.10	6%
Soft drinks	64	0.02	1%
Confectionery	7	<0.01	<1%
Alcoholic beverages	57	0.04	2%
Other plant-based food***	8	<0.01	<1%

* Other vegetables includes all fresh, green or processed vegetables such as lettuce, sprouts or carrots, but excludes potatoes.

** Other cereals include breakfast cereals, snacks (for example popadums), cakes and flour.

*** Other food includes for example soups, salad dressings and sauces.

Note: Totals may differ due to rounding.

Source: DEFRA 2002 & 2003a and ONS, 2003.

The livestock produced on and around Dartmoor has a comparatively low carbon and ecological footprint,¹⁴ but it is not sufficiently valued by consumers, and so provides poor returns to farmers. Consumers in general value low cost above quality and this become increasingly the case as incomes fall.

Another significant proportion of the UK ecological footprint, 35%, comes from our high fish consumption. One of the most immediately beneficial things which could be done to reduce carbon emissions and the ecological footprint of food would be to reduce the proportion of fish¹⁵ and intensively -raised meat, which people eat.

As the last two points illustrate, there are ways of addressing the high carbon and ecological footprint of people on and around Dartmoor. Change will be difficult, however. It will require us to challenge the political and supermarket-led focus on cheap food, which has acquired the status of a mantra, and has led to prices for producers being depressed, and to generating huge amounts of food waste. We also need to address the high energy and fuel cost of what is described as “conventional” food production.¹⁶

On the other hand, international experience, and to some extent our own history, shows that it is possible to build a local food production and distribution system which is sustainable, and can support our population with good quality, nutritious food.

¹⁴ Because it has lower inputs than conventional livestock farming, and sequesters carbon. Graham Harvey argues that species-rich permanent pastures (grazed by livestock, and so made economically viable) around moorland are valuable in sequestering carbon. Conventionally –raised livestock is run on mono cultured ryegrass pastures fed with chemical nitrates and pesticides, which not only carry a heavy carbon footprint but exacerbate the depletion of soil carbon. See Graham Harvey (2009) *The Carbon Fields: How Our Countryside Can Save Britain* Grassroots. A hectare of permanent pasture can sequester 400 tonnes of carbon which, if ploughed could release up to 360 to the atmosphere. This is disputed – see for example [Eblex \(undated\) English Beef and Sheep Production Roadmap](#) <http://www.eblex.org.uk/roadmap/roadmap-phase-1.pdf>, which implied hill run livestock have a higher footprint. This is said to be because of the potential landscape damage and high methane emissions. See also Simon Fairlie (2010) *Meat: A Benign Extravagance* Permanent Publications, which states that meat raised on grassland not appropriate for other food use (or pigs fed on foods waste) is acceptable.

¹⁵ As with meat, it is possible to differentiate between fish from different sources. There are sustainable sources of, for example, local shellfish. It is also true the some fish supplies essential fatty acids, and so is necessary for health.

¹⁶ It is also important, from the point of view of sustainability, to address the conventional farming because of its polluting effects. These include pollution of:

- 1) the atmosphere, through the release of carbon from ploughing, exhaust gases, and methane emissions from intensively reared animals
- 2) watercourses, from chemical run off (exacerbated through overstocking and leachate from manures, and the depletion of humus through over cultivation, and a switch from bulky organic fertiliser to chemicals). Run off causes a range of problems in watercourses, and increases the cost of water treatment, resulting in increased water bills (Jules Pretty (1999)*The Living Land: Agriculture, Food and Community Regeneration in the 21st Century* Earthscan)
- 3) soils, through application of salty chemical fertilisers which kill off microbial life in the soil and ‘burn up’ humus (by Graham Harvey (2008) *The Carbon Fields: How Our Countryside Can Save Britain* Fields Grassroots’)

This can be achieved without returning farming systems to their pre industrial state. Instead, appropriate, low carbon technologies and practices can be used - this report contains case studies demonstrating some of them. Dartmoor is a place where such initiatives thrive. If they can be copied widely, and complemented by effective ways of distributing and selling the food they produce, and helping people learn how to cook, where necessary, they it is possible to achieve a sustainable local food economy. The next sections of this chapter look firstly at the barriers to change, and then at ways to overcome them, building on those initiatives.

6. 2. Overcoming the barriers: the challenges and possible solutions to creating a local food economy

Building a local food economy, which reduces carbon emissions and ecological footprints, can only be done by identifying the barriers faced to uptake of local food, and overcoming them. Some of those barriers relate to starting and operating projects.

Food Case study: Growing Community Food MoreFood at Steward Wood

The sustainable living community at Steward Wood, in the Wray Valley, is creating a community garden in their woodland adjacent to a new national cycle path. It will offer free, accessible public gardening training and skills-sharing.

The garden will be easily accessible for low-income and mobility impaired individuals, families and Groups. Its objectives will include:

- To empower individuals and families to grow their own food using techniques that are
- relevant to their resources and scale
- To demonstrate genuinely sustainable food growing that is applicable to the climate, soil and situation of Dartmoor and the South West
- To be accessible to everyone, including people of limited means or mobility or both

People will be able to, either, grow food at the garden, in partnership with others, or use the skills they have learned, to begin growing food in their own gardens.

Discussions with people who have started local food projects, and with groups who would like to emulate them, identified the following difficulties to setting up such programmes:

1. Access to land. It is often hard to find land to rent or buy, and sometimes planning permission is also needed
2. Access to finance. Money is sometimes needed to buy land, or to buy equipment to work on it. Grants can sometimes provide the latter, but rarely

pay for land purchase.¹⁷

3. Access to information. Many communities simply do not know what has worked elsewhere, or how to go about starting a project
4. Access to skills. While people often have the technical skills, for example in food growing, they often do not know how to negotiate with landowners, find grants, write business plans, manage finances once a programme is operating, consult their community, or run the organisation needed to operate the project.

Food Case study: Community Supported Agriculture Chagford Community Agriculture

A group of food growing enthusiasts have developed a community supported agriculture smallholding at Chagford. They have a rapidly growing box scheme,



delivered by Samson, a Dartmoor pony. CCA is a two-acre market garden near Easton Cross, one mile from Chagford. In our first year we will be supplying 20 local households with a weekly veg-box delivered to a central pick-up point in the town. In the second year we expect to supply 35 boxes a week and eventually 50 boxes a week by April 2012.

The initiative secured an initial grant from the Big Lottery Fund's Local Food programme, used for fencing, polytunnels, tools and equipment and also to subsidise initial running costs. Within three-years the group plans to be financially self-supporting.

“In an effort to make CCA as low-impact as possible we use horse-power for cultivation, tillage and transport of our vegetables. Samson is a Dartmoor-Welsh Cob who has been trained by us from a foal. He works on the field 1-2 days each week using a French designed tillage tool called a Kassine.”

For more information, visit www.chagfood.org.uk/

As well as these barriers to starting and operating projects, there are some issues which are specific to the food sector. These can be divided up into those faced at each stage of the food cycle – growing, distributing, selling, cooking food and composting food waste. The barriers at each of these stages are show in the Food Figure 3.

¹⁷ The largest source of grants at the time of writing was the Rural Development programme for England, which did not provide money for land purchase.

Food Case Study: The Ecological Land Cooperative

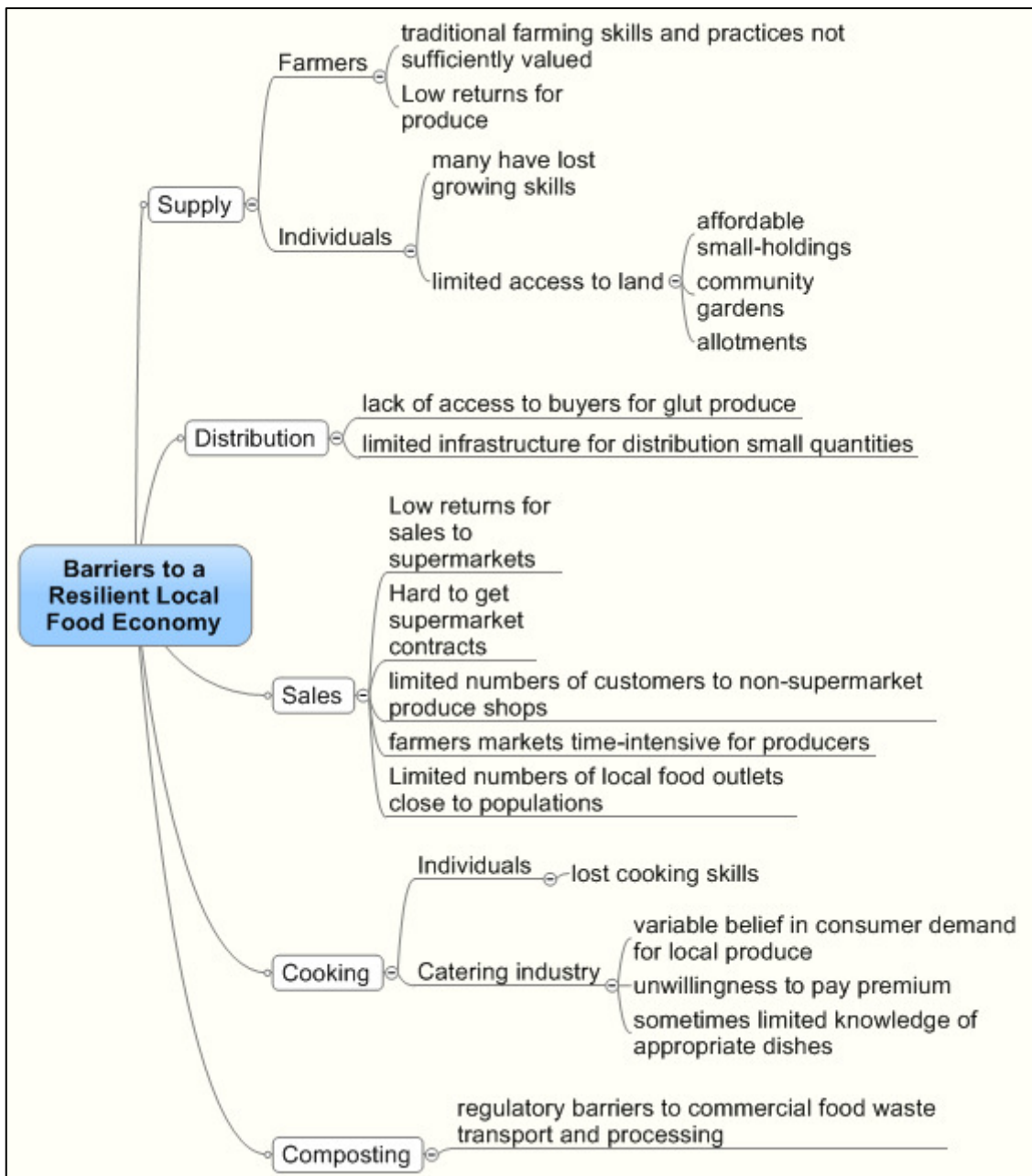
This group believes that small-scale production using, for example, agro-forestry or permaculture methods, maximises yields, protects the environment and reduces greenhouse gas emissions by reducing fossil fuel use. Such businesses also have many social benefits.

The problem is that land prices are too high for small scale organic producers. For this reason, the Cooperative purchases degraded agricultural land and applies for planning permission for low-impact small-holdings with temporary residences. It develops business plans for the small-holdings; provide a water supply and road access. It may also provide a shared barn made of natural and local materials, a telephone line, and a micro-generator and an electric delivery vehicle.

It then sells 999-year leasehold agreements for the small-holdings at an affordable rate, passing on costs plus a target return to investors of 6%. The Cooperative raises the money it needs from share issues.

More details are available at <http://www.ecologicaland.coop/about-us-our-mission> , from which this information is drawn.

Food Figure 3: The Sector-Specific Barriers to a Resilient Local Food Economy around Dartmoor



At first glance these barriers seem hard to overcome, but in fact there are successful initiatives already in place which start to address each of them.

Devon, and Dartmoor and its surrounding area in particular, may well have a greater variety and number of rural local food projects than anywhere else in England. Many have been started by inspiring individuals, others by groups working together to benefit their community. Some of those projects, and the groups which support them, are show in Food Figure 4. There is a list of these and others from further afield, with their contact details and a note of their activities,

and the end of this chapter.

Food Figure 4: Examples of food projects and supporters on Dartmoor



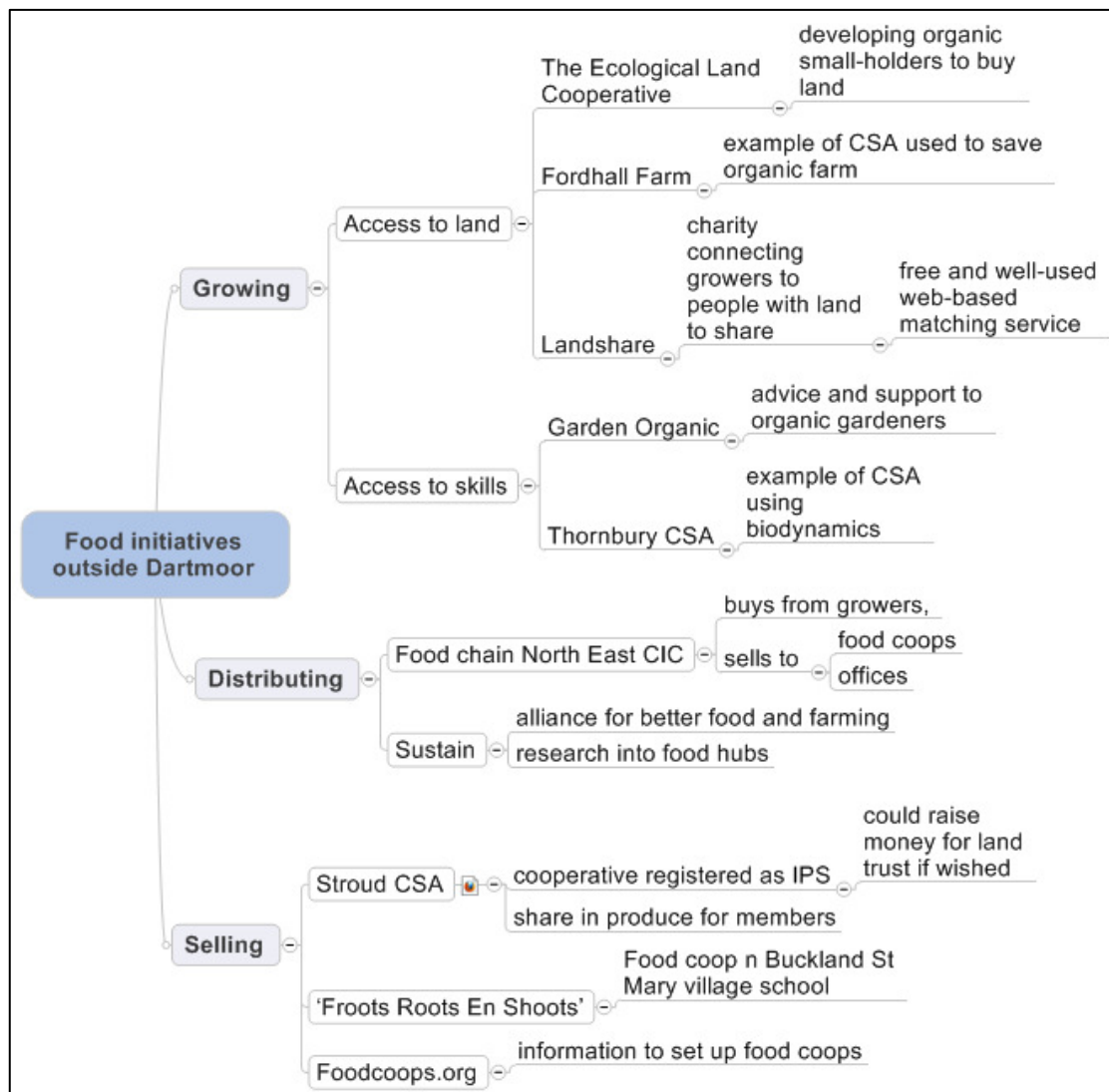
There are also some projects from further afield which have addressed some of these needs. A small number of these is shown in Food Figure 5.

Case Study: Slow Food Devon

“Since 1989 the international Slow Food movement has been celebrating good, clean and fair food by supporting local communities worldwide. As the antithesis to fast food and the fast life participating in Slow Food gives us all a chance to rediscover the pleasure of local produce and traditions” They hold events across the county, have an newsletter, and invite membership, and have a network of “sustainers” who are partners and donors who support their work.

www.slowfooddevon.org.uk/

Food Figure 5: Food Initiatives from across the UK



6.3 Delicious Dartmoor: A Resilient, Local and Fair Food Economy for Dartmoor

The wide range of initiatives described in the previous sections show that there is no shortage of people with inspiration and talent who want develop to food-related

projects on and around Dartmoor.

The challenge is to build on these initiatives, using the support of local and national organisations, to provide a comprehensive local food infrastructure which covers growing, distributing, processing and enjoying food, and composting food waste, across the whole area.

The authors propose that this work be done while adhering to the following principles:

1. Successful projects and programmes should be supported, extended or copied, as appropriate.
2. A completely new initiative should only be promoted if it fills a gap which cannot be addressed by an existing project or programme.
3. Any support should respond to people's aspirations.
4. People should be encouraged to buy as much local food from local retailers as possible.¹⁸

Food should, other things being equal, be purchased as locally as possible. One way to define local food is "the food which comes from the local "foodshed"". ¹⁹ There are several definitions of a foodshed, but the one adopted by this plan is "the geographical area from which a population derives its food supply".²⁰ The foodshed concept helps to define the area for which it is worthwhile creating a "more locally reliant alternative food system" to reduce the negative social and environmental impacts of agriculture.²¹ For the purposes of this plan, the Dartmoor foodshed is taken to be Dartmoor and its hinterland (as discussed and defined in Chapter 4, above). Within Dartmoor, and particularly in respect to its market towns, there are historic local foodsheds – those towns were supplied by small areas a few miles around them. Ideally, people should buy as much food as possible from their local town's foodshed, or from Dartmoor's foodshed.

Bearing these principles in mind, the authors believe that a programme should be developed which creates a sustainable, resilient local food economy on and around Dartmoor. It should inspire people to grow, buy and enjoy local food, and should help people to do so. The programme could be called "Delicious Dartmoor" and it would greatly reduce both the carbon and ecological footprints of Dartmoor. Its

¹⁸ There are arguments for buying less locally in some circumstances. Fair Trade food is one. Also, many foods which are currently staples are not available locally, including oats and wheat.

¹⁹ For the references cited here, and for drawing attention to the literature on the foodshed, the authors are indebted to R. Hopkins, Thurstain-Goodwin, M & Fairlie, and S (2009) *Can Totnes Feed Itself?*, referenced above.

²⁰ C. Peters, Bills, N., Wilkins J.L & Fick, G.W. (2008) Foodshed analysis and its relevance to sustainability *Renewable Agriculture and Food Systems*: p.2, sourced at <http://transitionculture.org/wp-content/uploads/peters-et-al-2008-foodshed-analysis.pdf>

²¹ J. Kloppenburg, Hendrickson, J., and Stevenson, G.W. (1996) *Coming in to the foodshed*. *Agriculture and Human Values* 13(3): discussed at p.33-42.

objective could be

Delicious Dartmoor Objective

To reduce the carbon and ecological footprint of food consumed on and around Dartmoor by 20% by 2015, by building on existing initiatives to create a resilient local and fair food economy, promoting local people's health, incomes and quality of life.

The target of a 20% reduction by 2015 is ambitious, but reflects the scale of change which is needed. The authors hope that the aim of promoting health, incomes and quality of life will inspire everyone who is involved in food production, distribution or sale of food, or in training people to cook it, or to recycle food waste, to help to make the aspiration a reality.

There are five activities which, implemented together, should achieve the objective. These are:

Food Activity 1: Growing

Help people, individually and in communities, to grow more local food, by:

- Making them aware of successful community garden, garden share, small-holding and home gardening initiatives.
- Linking them to organisations, and successful projects, who can help them create local versions of those initiatives.
- Help them access land, whether through buying, leasing or informally using it.
- Help them access finance, through grants or share issues
- Reduce the burden of book-keeping and administration they face, by providing back-office services or training.

Food Activity 2: Distributing

Help growers and food processors distribute their produce and products to outlets, by:

- Publishing existing distribution channels such as box schemes and online outlets.
- Linking them with small existing food delivery businesses, either directly, or by publicising their routes and timetables, or by establishing an online/text-based matching system similar to Shiply.com, but for local food.

Food Activity 3: Selling

Help growers and food processors sell their produce and products by:

- Supporting existing locally-owned food retailers
- Ensuring growers and food processors know of existing outlets,

both online²² and otherwise.

- Offering communities and schools help to set up food cooperatives.
- Working in partnership with existing support organisations such as Devon Food and Drink.

Food Activity 4: Enjoying

Inspire people to want to enjoy local food by

- Exploring with Slow Food Devon²³ ways to promote local slow food events.
- Exploring with Food for Life²⁴ ways to increase participating in their activities.
- Exploring whether there is scope to launch a Dartmoor version of the Fife Diet, encouraging people to buy 80% of their food locally.

Food Activity 5: Composting

Work with specialists to offer all food processing businesses with kitchen gardens a composting support service.

These activities could be delivered through a single programme, funded by, for example, the Rural Development Programme for England, or Big Lottery food strand.

²² Such as <http://www.bigbarn.co.uk/marketplace/vendors/gvkbzupo>

²³ <http://www.slowfooddevon.org.uk/>

²⁴ <http://www.foodforlife.org.uk/>