



# Dartmoor Low Carbon Strategy

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## Chapter 10: Waste Free Dartmoor

Authors:

Richard Gomme

Andrew Shadrake

T: 01822 801 822

F: 0845 625 0849

E: [andrew.shadrake@dartmoorcircle.org.uk](mailto:andrew.shadrake@dartmoorcircle.org.uk)

# **The Dartmoor Low Carbon Strategy:**

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## **Chapter 10: Waste Free Dartmoor**

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## Chapter 10: Waste Free Dartmoor

### 10.1 Introduction

The purpose of this chapter is to offer ways to reduce the waste carbon footprint of Dartmoor, with the aim of achieving a waste-free Dartmoor.<sup>1</sup> To do this, it will:

1. Outline the way in which waste has become institutionalised in the UK, as an inevitable part of its economic model, and the challenge this presents to efforts to reduce it.
2. Review the information which is available on waste generation on Dartmoor, and its carbon emissions, to give an indication of the baseline carbon emissions.
3. Review the barriers to reducing those emissions
4. Look at successful initiatives which might be copied on and around Dartmoor to overcome the barriers and reduce emissions
5. Present an objective of a waste-free Dartmoor, with a set of actions which will help to achieve it.

Waste has been identified by Dartmoor Circle as a sector needing urgent action, and so the first annual delivery plan will propose waste activities to be carried out in 2011.

### 10.2 The Context: Waste in the UK Economy: challenges and opportunities

The United Kingdom generates a huge amount of waste. The country landfills and incinerates 24 million tonnes of easily recyclable material every year,<sup>2</sup> with a value over £650 million. If this waste were not generated, the carbon saving would be roughly equivalent to taking six million cars off the road.<sup>3</sup> This would be extremely difficult to achieve however, because the UK economy is based on a growth model which institutionalises waste.

If waste were treated as a resource, on the other hand, which could be reused or recycled, it would create jobs, while saving energy.

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<sup>1</sup> Another purpose was to show how waste reduction, reuse and recycling could contribute to achieving the carbon emissions reduction target in the Dartmoor National Park Management Plan. That target required a reduction of 5% in excess of government targets by 2012. There are no easily identifiable targets over that time period, which was, in any case, very short. This strategy can inform the planning for the next edition of the plan, which can then set achievable targets.

<sup>2</sup> FoE (2009) *Gone to Waste: The Valuable Resources that European Countries Bury and Burn* Friends of the Earth, [www.foe.co.uk/resource/reports/gone\\_to\\_waste.pdf](http://www.foe.co.uk/resource/reports/gone_to_waste.pdf)

<sup>3</sup> This is a conservative estimate, for three reasons. Firstly it assumes a negative value for green waste compost and does not include the soil carbon benefits of returning organic matter back to the earth. Secondly it takes very low recycle prices for the calculations. Thirdly it does not include the embodied energy of materials and products, or the upstream and downstream unmeasured carbon impacts of waste and resources

### 10.2.1 The growth model

Government policy has long supported a growth model for the British economy, which incentivises maximum production and planned obsolescence (which plays a key role in maintaining demand).<sup>4</sup> It is a model which relies on people buying, rather than making a decision not to buy. For this reason, there have been no effective government actions to reduce consumption.<sup>5</sup> The model also depresses the true price to the consumer, by (in most cases) excluding the cost of processing the waste. As a result, the UK economy needs to devote considerable resources to processing its waste mountain.<sup>6</sup>

This over-production, and the waste of resources in addressing it, is particularly regrettable because there is a realistic alternative. A zero growth economy can deliver prosperity.<sup>7</sup> The UK government is not interested in this approach, and continues to advocate growth.

While a zero growth economy would reduce the waste stream hugely, some waste production is inevitable. There is a solution to this as well, which is a zero waste economy, based on a closed loop industrial system (in which discarded resources are recycled back to industries for reuse) and local, low carbon, low waste food production.<sup>8</sup> Such an economy would transfer resources from disposing of waste to ensuring sustainable practices throughout manufacture, distribution and consumption. It is not achievable through local action, but would require a transformation which must take place at a regional, national and international level. It remains, for the time being, a distant dream.

### 10.2.2 The economic opportunity from processing waste appropriately

While the greatest need is to change the economic model to one which produces only a fraction of the current level of waste, the waste which is generated represents an economic opportunity which is largely missed.

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<sup>4</sup> Planned obsolescence increases demand by reducing the time between repeat purchases. It also results in poorer design and builds quality than would otherwise be the case. Finally, it fuels consumerism, not merely because there is a need to buy new products, but because “obsolescence of desirability” means that once a product is no longer seen as fashionable, it must be replaced.

<sup>5</sup> The growth model is in any case unsustainable since it requires continuing access to the limited natural resources of our planet. It is a model which is incompatible with the One Planet Future approach.

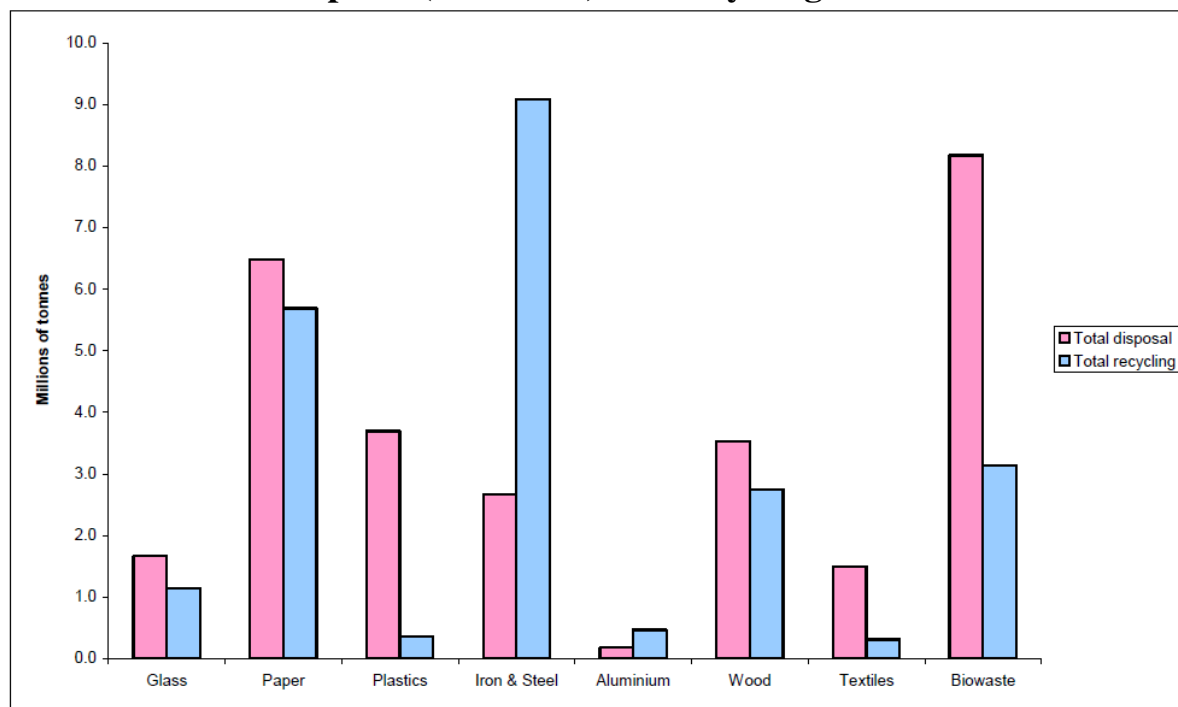
<sup>6</sup> The collection and disposal of waste are problems which have to be addressed by local government, rather than central government, which may have contributed to the lack of effective waste reduction policies.

<sup>7</sup> See Sustainable Development Commissions (2009) *Prosperity without Growth*

<sup>8</sup> See examples at [www.zerowaste.org](http://www.zerowaste.org), [www.zwallianceuk.org](http://www.zwallianceuk.org). It should be noted that some zero waste initiatives include waste to incineration (for example “zero waste to landfill by 2020 – a bright idea”, a Staffordshire and Stoke-on-Trent joint waste management board proposal).

Waste Figure 1 shows the volumes of recyclable waste which is landfilled or processed in the UK.

**Waste Figure 1: Total tonnages of key recyclables in the UK (Municipal and commercial and industrial) by material type: Disposal (to landfill) and recycling.<sup>9</sup>**



The figure shows that the greatest elements of unrecycled waste by weight are biowaste (largely compostable green waste), paper, plastics and wood. All of these have a commercial value, as Waste Table 1 shows.

Some of this value is being realised, as the waste is recycled. Most metal is recycled, because of the price it commands. Some paper and bio-waste is recycled, despite their low (or even negative) value, because European directives penalise landfill. There remains a need to increase recycling rates for the other types of waste.

The challenge is to find cheaper ways to recycle biowaste<sup>10</sup> and wood, or more profitable uses for them, and efficient ways to process paper and plastics, so that higher prices can be achieved.<sup>11</sup>

<sup>9</sup> Foe *Gone to Waste* above p.11

<sup>10</sup> The cost of collecting green waste is assessed as £18 per tonne, and the selling price of compost as £4 per tonne, in the table. There is potential to increase the selling price by producing small packs of high quality peat-free compost, if legal impediments can be overcome.

<sup>11</sup> There is also a very strong case diverting furniture and white goods from landfill and ensuring they are re-used, or remanufactured.

**Waste Table 1: Market Price for Recyclables, June 2009<sup>12</sup>**

Material type	Price used (£ per tonne)	Note on rationale
Glass	13	Based on lowest mixed glass price, although much is still collected separately
Paper	22	Based on lowest mixed paper price, although much newspaper and other grades are collected separately
Plastics	90	Based on lowest mixed plastic bottles price, also lowest per tonne price in basket of plastic types
Iron and Steel	30	Based on lowest steel can price, there are higher values for many iron grades
Aluminium	450	Based on lowest loose collected can price (used beverage cans)
Wood	-14	Negative value based on packaging recovery note (PRN) income (£6/t) minus collection cost (£20/t)
Textiles	175	Based on textile bank collection price, lowest in basket of grades
Biowaste	-14	Negative value based on compost selling price (£4/t) minus collection cost (green waste £18/t)

### **10.2.3 The regulatory context: Applying the Waste Hierarchy**

Despite the UK's growth economy, and the limited reprocessing of its waste, there is an opportunity to change. This will come from the revised Waste Framework Directive, which will be brought into effect in the UK during 2011.<sup>13</sup> The Directive reiterates the need to use a waste hierarchy, shown as Waste Figure 2, as a model which member states are generally obliged to follow.

<sup>12</sup> Foe *Gone to Waste* above p.9

<sup>13</sup> Draft regulations were laid before parliament in February 2011 (two months after the last permitted date under EU law).

**Waste Figure 2: The EU Waste Hierarchy<sup>14</sup>**

The hierarchy requires that prevention should be the preferred option in national waste policy, with the final and least preferred option being disposal. The directive allows for departure from the hierarchy, but only if an alternative offers the best environmental outcome.<sup>15</sup> One effect of the directive is that collecting authorities will need to continue to focus efforts on prevention, re-use and recycling, with considerable emphasis on reduction.

The Waste Framework Directive provides a policy environment within which local authorities (and the new Local Enterprise Partnerships) can create and deliver a new Devon-wide waste reduction strategy.<sup>16</sup>

#### **10.2.4 The move to incineration**

Many counties within the UK are moving towards incineration as methods of processing large amounts of waste, and meeting EU targets for reduction of waste to landfill. They have a strong incentive to do so, because landfill tax is increasing at £8 per tonne per years, and they also face penalties of up to £150 per tonne where landfill allocations are exceeded. In some cases there is also support from the government,

<sup>14</sup> N. Holmes (above) Page 9

<sup>15</sup> And the relevant guidance suggests that incineration will not <http://www.defra.gov.uk/corporate/consult/waste-framework-revised/20100708-waste-guidance.pdf> p.10. The guidance suggests energy recovery from burning would only fit this definition in respect of lower grade wood.

<sup>16</sup> Devon has a Municipal Waste Management Strategy (Devon County Council (2005) *A Waste Management Strategy for Devon* Devon County Council) which has a number of laudable goals. These have presented opportunities to community organisations to develop reuse and reprocessing facilities. Unfortunately, both goals and facilities look set to be undermined, at the time of writing, by plans to build incinerators.

demonstrated by authorisation of large Private Finance Initiative credits for incineration projects.

This trend is reflected in Devon. The South West Devon Waste Partnership (SWDWP) was, at the time of writing, going through a procurement process for an incinerator for South Devon, to be built in Devonport.

Incineration of waste is generally inappropriate. There are several reasons for this:

1. Incinerators do not necessarily lead to a net reduction in greenhouse gas emissions, and in many scenarios do not do so.<sup>17</sup>
2. Emissions from incineration are, for most materials which the incinerators are likely to take, higher than from re-use or recycling, as Waste Table 2 shows.
3. Incineration acts as a disincentive to developing other recycling options for organic waste, since once it is in business, the incinerator must be fed.
4. As the waste hierarchy shows, reduction should take priority over incineration. In typical cases, the financing and revenue support model for incinerators require councils to compensate operators where the waste supplied falls short of an agreed level.<sup>18</sup> This could act as a disincentive to pursue reduction options, since these would increase the likelihood that compensation would be triggered.
5. Incineration does not qualify as recycling. It is, at best, recovery.<sup>19</sup>
6. Incineration removes organic matter from the natural cycle, rendering it unavailable for composting (or unassisted decomposition) and ultimately food processing, and unable to contribute to soil stability and quality.

For all these reasons, the authors believe the proposed incinerator for Devonport should not be built.

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<sup>17</sup> D. Hogg (2002) *A changing climate for energy from waste* Friends of the Earth p. at [http://www.foe.co.uk/resource/reports/changing\\_climate.pdf](http://www.foe.co.uk/resource/reports/changing_climate.pdf)

<sup>18</sup> The trigger level is typically 20% below profiled residual waste tonnages, subject to a requirement for contractors to secure waste from alternative sources (often commercial or industrial sectors). Letter dated 21 October 2010 from Plymouth City Council Corporate Support Department to Dartmoor Circle.

<sup>19</sup> <http://www.defra.gov.uk/corporate/consult/waste-framework-revised/20100708-waste-guidance.pdf> p.10

**Waste Table 2: Co2 Emission factors by recyclable fraction<sup>20</sup>**

Material	CO <sub>2ea</sub> per tonne of landfilled fraction	CO <sub>2ea</sub> per tonne of incinerated fraction sent for energy recovery	CO <sub>2ea</sub> per tonne of recycled fraction	Source
Paper and card	2.20	1.40	1.30	CEPI (2007) <sup>xii</sup> FEFCO (2006) <sup>xiii</sup> Ecoinvent (2003) <sup>xiv</sup> Procarton (2008) <sup>xv</sup> Environment Agency (2005) <sup>xvi</sup>
Plastic packaging	3.10	5.00	1.50	WRAP (2006) <sup>i</sup> Defra (2009) <sup>xvii</sup>
Textiles	18.00	9.00	2.00 <sup>2</sup>	Allwood <i>et al</i> (2006) <sup>xviii</sup> ERM (2006) <sup>xix</sup> Morley <i>et al</i> (2006) <sup>xx</sup> Wooldridge <i>et al</i> (2006) <sup>xxi</sup>
Glass packaging	0.84	0.84	0.53	WRAP (2006)
Steel packaging	3.00	1.30	0.70	WRAP (2006)
White goods	3.00	3.00	0.70	WRAP (2006)
Aluminium packaging	11.05	11.05	2.00	WRAP (2006) EAA (2008) <sup>xxii</sup>
Garden waste	0.2	-0.14	-0.12	Grant (2003) <sup>xxiii</sup> WRAP calculation (2007) <sup>xxiv</sup>
Kitchen waste	4.50	4.20	4.08	WRAP calculation (2007) <sup>xxiv</sup> Lundie and Peters (2005) <sup>xxv</sup>

(Note: footnote references in the text have not been reproduced).

<sup>20</sup> *Foe Gone to Waste* (above).p. 7

### 10.3 Current waste levels on Dartmoor, and their carbon emissions<sup>21</sup>

According to one recent set of figures,<sup>22</sup> Dartmoor produces 8,800 tonnes of carbon dioxide equivalent emissions. This is made up almost entirely of methane, with the balance being nitrous oxide.

Methane in the waste stream<sup>23</sup> is produced from the natural breakdown of green waste, and nitrous oxide from use of agricultural fertilisers. There are no net carbon emissions from green waste.<sup>24</sup> On the other hand, non-organic waste carries varying amounts of embodied<sup>25</sup> carbon dioxide. These things, taken together, suggest that only organic waste is included in the total figure for emissions.

In turn, this means that other sources of information need to be examined to arrive at a more accurate emissions figure. This is difficult, but the starting point is to recognise that most waste figures are divided into household and commercial waste.

Commercial waste totals are difficult to identify, and are not divided by type – for example, there are no reliable figures for commercial green or food waste collected in Devon.

Some figures are available for household waste. While there are no precise figures for Dartmoor, West Devon, the district most similar to Dartmoor, produces slightly over one third of a tonne of household waste per person. If this average were applied to Dartmoor, it would give a total household waste figure of 5400 tonnes.<sup>26</sup>

To arrive at the carbon emissions for this volume of waste, it is necessary to work out how it is made up, and the carbon value of each element.

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<sup>21</sup> While this section focuses on waste on Dartmoor itself, actions to address it must involve the surrounding towns (see Chapter 3: Where is Dartmoor?).

<sup>22</sup> (2010) *Combined Carbon Dioxide, Methane, Nitrous Oxide Emissions - English NPs* English National Parks Association. The emissions by sector are discussed in Chapter 4, on page 9.

<sup>23</sup> As opposed to from livestock rearing, for example.

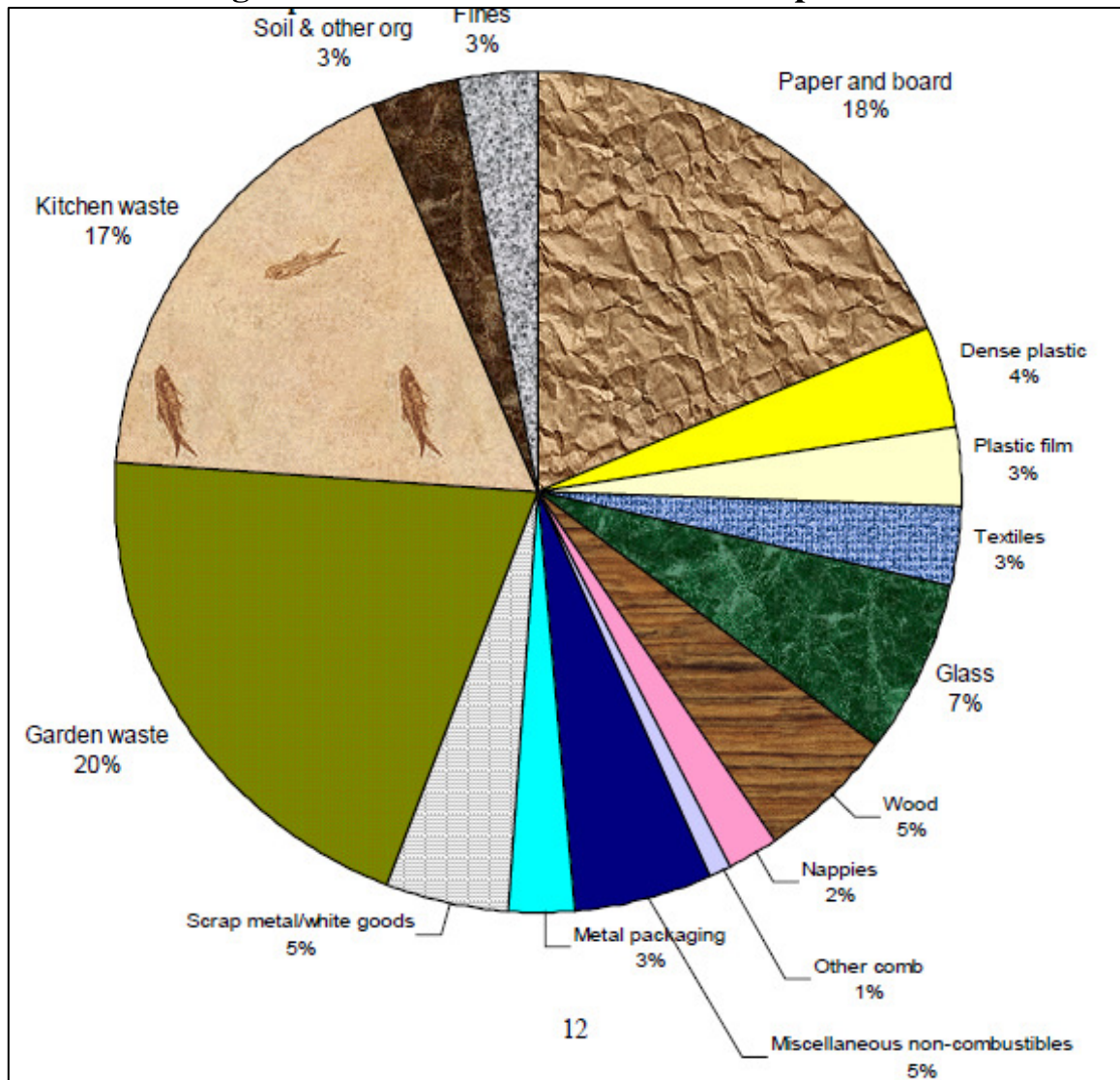
<sup>24</sup> Unless it has embodied carbon from, for example, artificial fertilisers, or the carbon costs of transport and disposal are included.

<sup>25</sup> Embodied carbon is the carbon emitted in producing, transporting and selling materials. It can be very high compared with direct carbon content. For example, aluminium, which has no direct carbon content, has embodied carbon of over 11 tonnes per tonne. Much embodied carbon comes from fossil energy, and much of this is wasted.

<sup>26</sup> Other research suggests that in the South West, households generate an average of 22kg of water per week. A. Jones, s. Nesaratnam & Porteous, A (2008) *The Open University Household Waste Study* The Open University p.4 at <http://www.defra.gov.uk/evidence/statistics/environment/waste/research/download/ou-fct05-20081008.pdf>

Waste Figure 3 shows the breakdown of the average household waste for the whole of the UK.

**Waste Figure 3: Total Household Waste Composition**<sup>27</sup>



<sup>27</sup> Parfitt, J. (2002) *Analysis of household waste composition and factors driving waste increases* WRPA, p.12 <http://www.cabinetoffice.gov.uk/media/cabinetoffice/strategy/assets/composition.pdf>

Applying these proportions to Dartmoor's extrapolated waste total of 5400 tonnes per year, gives the tonnages by type of waste show in Waste Table 3.

**Waste Table 3: Breakdown of household waste from Dartmoor by type and weight**

Type	Average household waste mix uk 2003	Total Dartmoor waste by type
	%	Tonnes
Food	17	918
Green garden	20	1080
Scrap metal white goods	5	270
Metal packaging	3	162
Misc non-combustibles	5	270
Other combustible	1	54
Nappies	2	108
Wood	5	270
Glass	7	378
Textiles	3	162
Plastic film	3	162
Dense plastic	4	216
Paper and board	18	972
Fines	3	162
Soil and other org.	3	162
Other	1	54
<b>All</b>	<b>100</b>	<b>5400</b>

At this point, however, things become more complex. Each of the types of waste has different carbon content. Some have a low content, such as garden waste. Others have very high content –not usually because of the direct carbon content of the finished product, but because of its “embodied carbon”. Waste Table 4 shows the embodied carbon in different materials.

**Waste Table 4: Embodied carbon in different materials<sup>28</sup>**

Material	Tc CO <sub>2</sub> per tonne
Aluminum (virgin)	11.5
Aluminium (recycled)	1.7
Steel (virgin)	2.8
Steel (recycled)	0.43
Portland Cement	0.83
Concrete (average)	0.13 (0.08-0.21)
Plastics (average)	2.5 (1.6-6.5)
Rubber (average)	3.2 (1.6-4.0)
Brick	0.2 – 0.5
Glass	0.85

Unfortunately, figures for all the different types of waste in the household waste stream are not readily available. The table does not include food waste, for example, which is estimated to embody an average of 4.2 tonnes of carbon per tonne.<sup>29</sup> Neither does it include garden waste, the embodied carbon of which depends on whether any pesticides or other artificial additives have been used, and also whether peat-based compost has been added. Organic garden waste has a very low embodied carbon content.

Without comprehensive figures, it is not possible to provide a robust indication of total embodied carbon for Dartmoor. Waste Table 5 is included as a starting point, which can be developed over time.

Meanwhile, this chapter concentrates on how the existing waste is processed, and identifies gaps and opportunities for improvement, particularly those where community organisations can have a role.

<sup>28</sup> N. Holmes (2010) *Embodied Carbon: What is it; Why does it matter?* Slide 8

<sup>29</sup> The greenhouse gas emissions associated with avoidable food and drink waste is the equivalent of approximately 20 million tonnes of carbon dioxide per year. This is roughly 2.4% of greenhouse gas emissions associated with all consumption in the UK. WRAP (2009) *Household Food and Drink Waste in the UK: Final Report* WRAP pp.6, 93.  
[http://www.wrap.org.uk/downloads/Household\\_food\\_and\\_drink\\_waste\\_in\\_the\\_UK\\_-\\_report.4fd022b7.8048.pdf](http://www.wrap.org.uk/downloads/Household_food_and_drink_waste_in_the_UK_-_report.4fd022b7.8048.pdf) The embodied carbon of food varies hugely, according to whether it is animal or vegetable, and methods of production.

<b>Waste Table 5: Proposed table for assessing total Dartmoor carbon emissions from waste, by waste type</b>					
<b>Waste type</b>	<b>total Dartmoor waste by type tonnes</b>	<b>product emissions by type CO2 p. tonne</b>	<b>embedded emissions by type CO2 p. tonne</b>	<b>total emissions by type CO2 p. tonne</b>	<b>total emissions from Dartmoor CO2 tonnes</b>
Food	918			4.2	3855.6
Green garden	1080		0	0	0
Scrap metal white goods	270				0
Metal packaging	162		5	5	810
Aluminium virgin			11.5		0
Aluminium recycled			1.7		0
Steel virgin			2.8		0
Steel recycled			0.43		0
Misc non-combustibles	270			0	0
Other combustible	54			0	0
Nappies	108			0	0
Wood	270		10	0	2700
glass	378		0.85	0.85	321.3
Textiles	162			0	0
Plastics - average			2.5	2.5	945
Plastic film	162			0	0
Dense plastic	216				0
Paper and board	972				0
Fines	162				0
Soil and other org.	162		0.02		0
Rubber			3.2		0
Rounding error	55				
<b>Total</b>	<b>5400</b>				<b>8631.9</b>

## 10.4 How Dartmoor's waste is processed

There is a substantial waste collection and processing infrastructure across and around Dartmoor. Some of its key features include:

1. A kerbside household refuse collection network, which varies between district councils in what is recycled, and how. Most of the moor is within West Devon, where only 42% of household waste is recycled.<sup>30</sup> The proportion is likely to be lower on Dartmoor, though kerbside collection of green waste is being extended.

<sup>30</sup> Table 1: Local authority municipal and household waste statistics 2008/09 Defra (2009) Municipal Waste Management Department for Environment, Food and Rural Affairs at

2. Household waste recycling usually allows recovery of glass, metal, newspaper, green and food waste and cloudy milk bottles. In some areas tetrapaks,<sup>31</sup> printer cartridges and batteries are also collected. A moderate amount of cardboard can also be placed in collection bins or bags.
3. All towns, and some villages, have collection bins for glass, some plastics and textiles. Some other items can be left in recycling bins (including plastic bottles in West Devon, and textiles more generally) or taken to recycling centres in Newton Abbot, Buckfastleigh, Ivybridge, Tavistock and Okehampton.
4. Bulkier objects can be taken to recycling centres, or sometimes to rural skips on specified days, or can sometimes be collected by councils.
5. Much commercial waste, and most non-recycled household waste, goes to landfill, and the organic element of it produces carbon dioxide and methane.<sup>32</sup>
6. Commercial waste collection is not free to businesses, but neither is recycling. This can have unfortunate effects. The researchers were told, in the course of researching this paper that many food-sector businesses do not recycle glass and some other waste, because it is still cheaper, and less work, to add them to the landfill collection.

Overall, existing systems provides a route to processing (as opposed to landfilling) most organic waste from Dartmoor's households, but much less from businesses. There are some opportunities to improve the way some recycled waste is processed, and also to reduce the volume of commercial green waste which is landfilled. These are considered later in this paper.

With the current system of collection, there are at least opportunities, both to increase recycling of material currently landfilled, and to divert collected material to a use higher up the waste hierarchy.

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<http://www.defra.gov.uk/evidence/statistics/environment/wastats/index.htm> Recycling rates are higher for other districts with significant areas of Dartmoor National Park: Teignbridge 0.395, 57%, South Hams 0.41% 58%. (same source). For the reason why West Devon figures are useful, see Chapter 4. Each person in the UK producing an average of half a tonne of household waste, of which 38% was recycled.

<sup>31</sup> Which can be taken to recycling centres in Newton Abbot, Tavistock and Okehampton.

<sup>32</sup> See above reference. There are plans to incinerate large amounts of waste, which are discussed elsewhere in this chapter.

## 10.5 Challenges to reducing Dartmoor's waste

The main challenges to reducing the waste from Dartmoor are:

1. The growth model of economic development, described in section 10.2.1, which makes it very difficult to reduce waste.
2. The proposed incinerator for South Devon, which could act as a disincentive to authorities to promote reduction initiatives, where there is any risk that this will reduce the waste stream to the incinerator below 20% below the forecast level.<sup>33</sup>
3. The carbon cost of disposing of waste. This includes: collections, transport and processing (recycling, composting, incinerating or landfilling).

## 10.6 Opportunities: Learning by example

Despite the challenges, there are several examples from which Dartmoor, and the communities around it could learn. These examples could help them to:

1. Create and promote, with stakeholder partners, a Waste Reduction Strategy for Devon which has reduction as its principal objective.
2. Support alternatives to incineration, including by using Materials Recycling Facilities for materials which cannot be reused, recycled or composting within communities.
3. Promote re-use, recycling and composting initiatives which are appropriate to community needs and local resources.

These examples are looked at in turn in this section.

### 10.6.1 A Waste Reduction Strategy for Devon

Because the Waste Directive restates the commitment to reduction as the most primary way of addressing waste, there is an opportunity to develop a waste reduction strategy with the agencies bound by it. It is easier, and more effective, to do this at a larger scale than a smaller one, and a strategy covering the whole county would be appropriate. Dartmoor communities could work with the county and district councils, and other stakeholders, to develop the strategy.

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<sup>33</sup> Unless contractors are able to source material elsewhere.

There are some excellent models upon which the work could be based, particularly those of Oxfordshire, Edinburgh and Flanders:

- Oxfordshire Waste Partnership has produced an innovative Waste Prevention strategy<sup>34</sup> which sets waste prevention, reuse and home composting targets and quantifies the amount of home composting.<sup>35</sup>
- The City of Edinburgh Waste Prevention Strategy<sup>36</sup> sets out principles and policy statements on how the city will work to prevent and reduce waste. This is unusual for a local authority.
- The Flanders experience is shown in the box.

### **Flanders Waste Strategy<sup>37</sup>**

Flanders has introduced a wide range of complementary measures to address waste, in pursuit of their far reaching aim to de-couple economic growth from waste generation, including:

- Waste prevention targets of 2% p/a less waste produced each year
- Charges for bin liners – in effect, pre paid collection fees
- A reuse strategy, with a target of collecting 10kg of items per year per inhabitant to go to reuse shops
- A national branding, “Kringwinkel” for a chain of reuse shops and warehouses.
- A free chicken scheme for householders, so that chickens eat kitchen scraps.

Communal compost facilities and provision of 5 trained volunteer master composters per 10,000 inhabitants.

As a result, it has already achieved:

- A recycling/composting rate of 72%
- A reuse collection rate of 7.5kg per person

Scotland also has a very detailed Zero Waste Strategy. There are various tools available to help authorities and communities who wish to devise such a strategy. One is the WRAP Waste prevention toolkit.<sup>38</sup>

<sup>34</sup> <http://myconsultations.oxfordshire.gov.uk/inovem/consult.ti/wasteprevention/listdocuments>

<sup>35</sup> <http://www.oxfordshirewaste.gov.uk/wps/wcm/connect/occ/OWP/Home/News/OWP++News++13+Aug+2010++Waste+Prevention+Strategy+2010-2020>

<sup>29</sup>

[http://www.edinburgh.gov.uk/internet/environment/rubbish\\_waste\\_and\\_recycling/open\\_spaces\\_maintenance/cec\\_waste\\_prevention\\_strategy](http://www.edinburgh.gov.uk/internet/environment/rubbish_waste_and_recycling/open_spaces_maintenance/cec_waste_prevention_strategy)

<sup>37</sup> [http://www.foe.co.uk/resource/reports\\_on\\_events/taking\\_out\\_the\\_rubbish.pdf](http://www.foe.co.uk/resource/reports_on_events/taking_out_the_rubbish.pdf) Reported in DCRN/DCCN newsletter ‘Junk Mail issue 4 2009.

<sup>30</sup> [http://www.wrap.org.uk/applications/waste\\_prevention\\_toolkit/restricted.rm](http://www.wrap.org.uk/applications/waste_prevention_toolkit/restricted.rm)

### 10.6.2 Supporting Alternatives to Incineration

Any alternative to incineration must provide a way of processing a very large amount of waste. The infrastructure and capital equipment needed is beyond the reach of community groups. Business has already shown interest, however. TQ Recycling has established a Materials Recycling Facility in South Hams, which will take a wide range of recyclable materials from, broadly, Devon south of the A38. It might be possible to develop other facilities to service other parts of the county.

#### **TQ Recycling Material Recovery Facility<sup>39</sup>**

This commercial enterprise is building a “state of the art facility which will enable us to process up to 32000 tonnes of mixed recyclable materials per year.”

TQ Recycling will supply the plant from its own collection rounds, but local authorities and trade waste companies within the region will also be able to use it. The facility will use the Infrared Scanning as well as visual sorting to process, in particular, a wide range of plastics. The plant will also be able to process loose segregated materials, bagged single or twin stream materials, baled materials and co mingled recyclables.

Glass will be delivered in bulk to a reprocessing plant for colour segregation and then crushing before being shipped to glass mills for making into new container glass.

There is another group<sup>40</sup> which is promoting a network of Materials Recovery Facilities, together with anaerobic digestion of organic matter eventually producing electricity, and a plasma plant burning everything else. This has the working title of “Option 7”, and would use the technology promoted by Peterborough Renewable Energy Limited.<sup>41</sup> This needs closer examination, particularly around the issue of whether organic material is used in the most appropriate way, but it might provide a good alternative to incineration.

<sup>39</sup> <http://www.tqrecycling.co.uk/>

<sup>40</sup> <http://www.sust-n.com/>

<sup>41</sup> <http://www.prel-online.co.uk/prel/theproposal.html>

### 10.6.3. Promoting re-use, recycling and composting initiatives which are appropriate to community needs and local resources

Community recycling and reuse is well established in Devon. Proper Job<sup>42</sup> has been operating in Chagford for 19 years, offering reuse and recycling services of all kinds, as well as composting, and ReFurnish and its predecessors has offered white goods and furniture reuse for many years.

#### Case Study: Refurnish



Refurnish is a long established recycling enterprise which has set up five furniture and appliance reuse shops around Devon, in Newton Abbot, Totnes, Tavistock, Ivybridge and Paignton. It operates an Appliance Refurbishment Centre at Bittaford nr Ivybridge which delivers considerable carbon savings through refurbishing and repairing items. The shops also offer employment and training.

Another excellent local example of a resource centre is Bodmin RE:SOURCE Centre (see box).

#### Case Study: Bodmin RE:SOURCE Centre<sup>43</sup>

The RE:SOURCE centre, is a new £1 million reuse and recycling centre on the outskirts of Bodmin, which offers:

- Good quality affordable furniture
- Domestic appliances
- IT Equipment
- Environmental Cleaning Products



It provides a clean, modern sales environment, as well as training and a PAT testing service.

<sup>42</sup> [www.proper-job.org](http://www.proper-job.org) See appendix to this chapter for detail regarding Proper job.

<sup>43</sup> <http://www.myresource.org.uk/shop.html>

### **Proper Job Reuse Centre**

Proper Job<sup>1</sup>, based near Chagford, has developed a sustainable model for a 'community resource centre' which provides services, facilities, and information for waste prevention, reuse, recycling and composting to households and businesses. The social enterprise also has a community shop and café selling local, fair trade and organic food products on Chagford itself.

Proper Job currently employs 14 people, and provides reuse, recycling and composting services, materials and support including:

- Adult and children's clothing. Fashion shows and clothes swaps have been held to promote recycled clothing etc, which have encouraged much more participation
- Composting, composting equipment and advice, including supply of composting equipment to schools in Devon (2010).

It has recently been conducting a feasibility study on growth options, which include:

- Reviewing and taking advantage of opportunities to be commissioned by local authorities and others to provide day services, apprenticeships and other training.
- Becoming the "Dartmoor EcoCentre", a large sustainably built centre offering recycling, reuse and composting equipment and advice.
- an expanded composting facility receiving all the material collected from households in the area by council's contractor. This could amount to 300 tonnes per annum. The resulting compost could replace a considerable volume of peat based compost and poor quality peat replacement soil conditioners.
- a reuse 'supercentre' with large scale well organised reuse departments for a wide range of items and specialisms. This will enable further developments of niche markets and can be supported by internet selling to access a wider market.
- building material reuse facilities.
- a demonstration site for sustainable, eco-building materials and methods, and eco-technologies.
- a centre for sustainable textiles – integrating local reuse of clothing and textiles with recycled fashion, repairs and alterations, promoting local wool, felt, hemp and other sustainable textile products.

There are also examples from further afield which could be adapted, such as the new Bodmin Reuse centre.

One option would be to create one or more reuse centres, perhaps with one in each quadrant of the moor. Tavistock and Ivybridge could establish centres around the existing ReFurnish operations, and Proper Job could offer a (possibly smaller) centre near Chagford. The centres would provide facilities for many items, including furniture and white goods. Presentation is crucial to the success of such centres, and they could follow the example of the Bodmin RE:SOURCE centre.

So far as Dartmoor is concerned, the opportunity is to offer these examples to communities, so that they may select the most appropriate for their locality, and then provide the support needed to help create a local project.

## 10.7 Waste Free Dartmoor: Objective and Actions

The long-term aim of any waste strategy should be to reduce waste to zero, primarily through reduction actions, and then by others which use or recover maximum carbon value from remaining waste. As part of this, all of Dartmoor and the towns around it should have access to ways of reusing, recycling or composting material, with as many types of waste catered for as possible. The waste objective in this plan reflects that.

### Waste Objective:

*To achieve a 20% reduction in carbon emissions from commercial and household waste on Dartmoor by 2015, and zero emissions by 2020, through waste reduction, reuse and recycling.*

This objective can be achieved through the following activities:

Waste Activity 1: Promote a Devon-wide Waste Strategy centred on materials recycling complemented by local reuse and recycling.

This objective can be achieved by working with local authorities and the groups promoting alternatives to incineration. Dartmoor Circle's role will be to help publicise successful examples, and identify the range of benefits to local authorities and other stakeholders of adopting these alternatives. These should include how they address local authority targets, and fit the Big Society initiative.

Waste Activity 2: Help communities on and around Dartmoor establish reuse and recycling facilities which suit their needs, building on successful projects.

Dartmoor Circle can assist this by:

- attending meetings of local community groups to help them identify whether there is an opportunity to develop a

local reuse centre, and which elements of the waste stream it should address.

- Making links between local groups and existing projects so that the value of copying, or working with, the latter can be assessed. Projects could include:
  - Bodmin RE-SOURCE Centre
  - Re-Furnish
  - Proper Job
  - TQ Recycling (as a market for product from local metal and plastic collection schemes)
  - The Essex-based 'Choose to Reuse' campaign<sup>44</sup>
- Providing secretarial and book-keeping support, and a web page on the Dartmoor Circle website, to groups developing such plans.
- Helping reuse centres to use a single back office system to reduce costs.

**Waste Activity 3: Promote composting initiatives which fill gaps in current provision, or offer a lower carbon emission alternative.**

Dartmoor Circle should assist its members to deliver this activity by:

1. In respect of commercial food waste
  - Work with Proper Job and others to establish a composting website which allows food processors complete a questionnaire which helps them choose and source the appropriate composting equipment for their needs.
  - Publicise the existence and benefits of on-site commercial food waste composting to all food processors through Devon Food and Drink, Dartmoor Partnership and other partners.
  - Work with Proper Job and others to offer a composting advice and support service to food processors.

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<sup>44</sup> /[www.choose2reuse.org.uk](http://www.choose2reuse.org.uk)

2. In respect of home composting
  - Promote the benefits and availability of home composting equipment, including Bokashi systems
  - Promote the benefits of local peat-free compost and publicise its outlets
  - Discuss with local authorities the possibility of their supporting a community and home chipping service, paid for from savings on transport and composting wood waste, on the Warwickshire model.<sup>45</sup>

These actions will be carried forward in annual delivery plans. Waste has been identified as a priority, and so will be addressed in the first annual delivery plan, for 2011.

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<sup>45</sup> [www.warwickshire.gov.uk/Web/corporate/pages.nsf/Links/4FE3397CDFAE0CA180256D1300495](http://www.warwickshire.gov.uk/Web/corporate/pages.nsf/Links/4FE3397CDFAE0CA180256D1300495)  
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