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GEOGRAPHY

Resources for Paper 3 Geographical Applications

June 2022

Pre-release resources booklet

This booklet contains three resources as follows:

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- Figure 3 – A waste incinerator for Cambridge – a burning issue!: pages 6–7

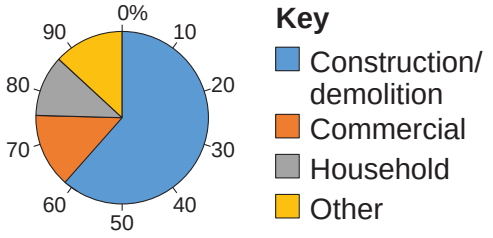
Information
- HIC is a higher income country.
- LIC is a lower income country.
- NEE is a newly emerging economy.

Figure 1

Managing waste in the UK

The growing waste challenge in the UK

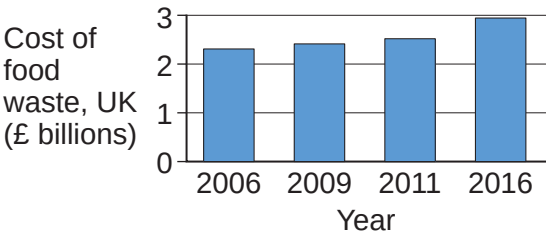
In 2018 the UK produced approximately 225 million tonnes of waste. The construction and demolition industry produced the most – about 140 million tonnes. Households generated approximately 27 million tonnes of waste, mainly made up of cardboard and packaging, paper, glass bottles, plastic and food waste.



Food waste in the UK

It is estimated that each person in the UK throws away between 15% and 20% of all the food they buy, costing an average family £800 a year.

- Each person throws away 69 kg/year
- 1 in 6 meals in hospitality/catering is wasted



Waste disposal in the UK

Within the UK there are a number of methods used to manage waste, including:

Landfill – Each year approximately 45% of all UK waste is disposed of by burying it in landfill sites. This includes household, commercial and industrial waste. There are over 500 landfill sites in the UK, many of which will be full within the next few years.

Incineration – The burning of waste which can be used to heat water and generate electricity. A number of older incinerators are now being shut down because of pollution issues.

Recycling – Converting waste into re-usable materials. In England, between 2000 and 2010 the recycling rate increased by approximately 30%. More recently this increase has slowed and the overall recycling rate is less than the 2020 EU target of 50%.

Anaerobic digestion – The breakdown of organic matter by biological agents. The process creates fertiliser and methane. The methane can be used to generate electricity.

Composting – Organic waste, such as garden or food waste, can be composted and treated to produce soil conditioner.

Slowing recycling rates blamed on a lack of understanding

Waste company Biffa has asked for more clarity about recycling, saying that inconsistency and confusion in labelling, sorting and collecting are preventing waste being recycled. The government's Resources and Waste Strategy aims to recycle at least 65% of all waste by 2035, but currently the rate is just over 45%, largely because of a lack of investment in recycling plants. The Chief Executive of Biffa said, "We need a system that is easy to use and cost effective, with increasing use of recyclable packaging and clearer labelling for consumers."

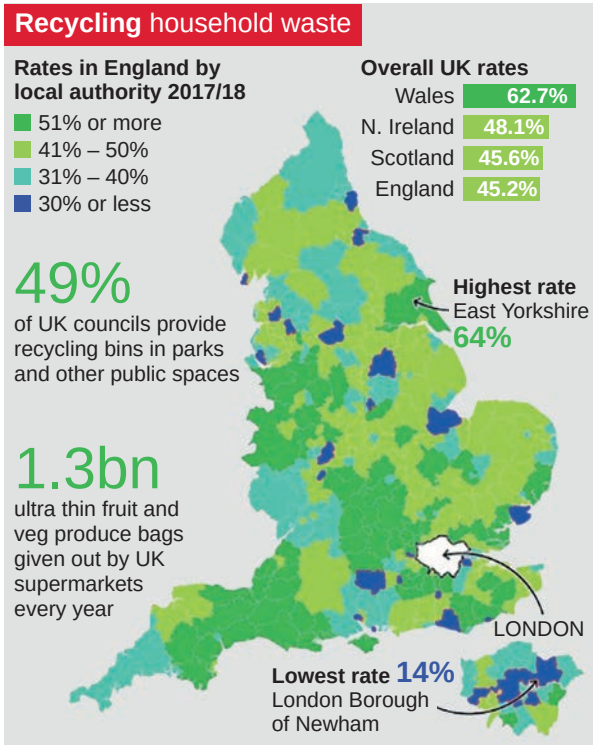
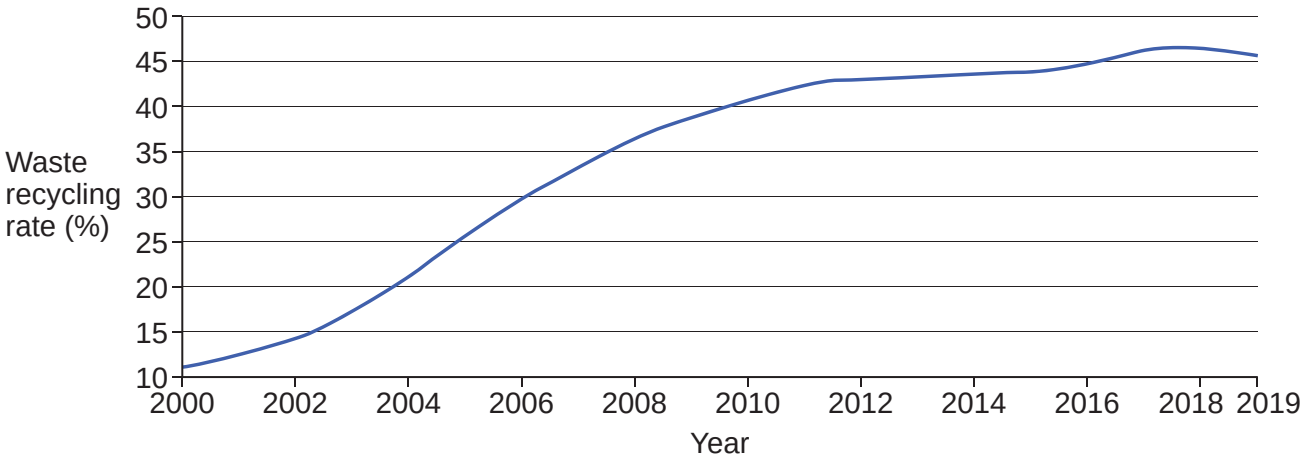


Figure 1 continued

Rate of recycling in England (2000 – 2019)



Increasing volumes of valuable waste resources exported from the UK

In 2018, most of the UK's plastic waste, along with an estimated 9.5 million tonnes of metal and 4.5 million tonnes of paper, was exported and recycled abroad. Until March 2018, China was the largest importer of plastic waste, but due to contamination issues China then decided to stop importing plastic waste unless it was totally clean. Increasingly, LIC/NEEs are saying that they will not continue to be a 'dumping ground' for contaminated waste from HICs.

The top five UK plastic waste export destinations, 2018 (tonnes, approx)

Malaysia	– 105 000
Turkey	– 80 000
Poland	– 70 000
Indonesia	– 63 000
The Netherlands	– 62 000

Friends of the Earth International

China's ban on importing plastic waste has resulted in more plastic being incinerated or sent to landfill or simply illegally dumped. This has led to polluted waterways and open burning, creating air pollution and serious health issues in some parts of the world.

Moving towards a more sustainable waste economy

In the past, waste management was seen as a 'linear system'. This meant that raw materials were used to make products and after their use they were seen as rubbish to be thrown away. The development of recycling has changed this to some extent. For example, waste paper is recycled and used to produce new paper and waste metal recycled and re-used. This reduces the amount of waste that is sent to landfill or incinerated and has created a more 'circular waste system' where waste is seen as a resource opportunity rather than a problem. Increasingly, products are being made so that they can be easily and cheaply repaired or updated and are made out of materials that can eventually be totally recycled. This will mean that fewer raw materials are wasted and disposable waste is kept to a minimum, ensuring that human and natural environments are safer.

The linear waste system



The circular waste system

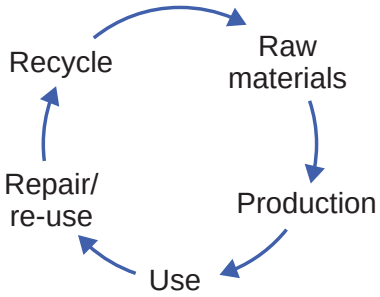
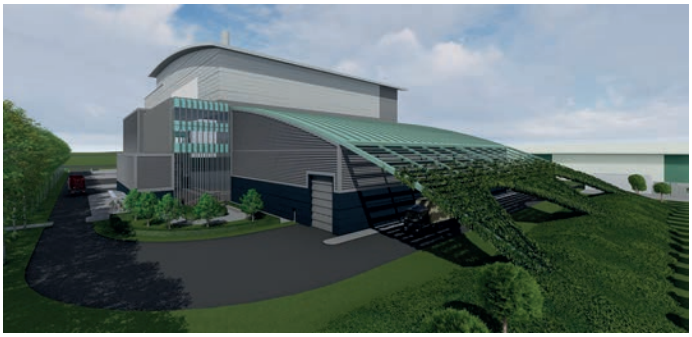


Figure 2

Proposed energy from waste incinerator for Cambridge

Amey energy from waste (EfW) proposal



Amey Waste Services has proposed building an energy from waste incinerator near Waterbeach, on the northern edge of Cambridge.

Amey already has a 162 hectare Waste Management Park near Waterbeach, where recycling, biological treatment, composting and landfill are used to deal with rubbish from the surrounding area.

An Amey spokesperson said, “Although the current processes aim to manage the waste created by households and businesses as effectively as possible, we are still landfilling about 200 000 tonnes of waste every year. This is expensive and not very environmentally friendly and the space available for landfilling will eventually run out. The proposed energy from waste facility will provide an alternative to landfill and create sustainable and affordable energy by burning the waste”. It will use state-of-the-art technology and be strictly monitored by the Environment Agency.

Key facts

- Over 80% of waste currently going to landfill could be incinerated at the new facility
- The new facility would be able to handle up to 250 000 tonnes of waste per year
- The new facility could generate enough electricity for 63 000 homes
- Over 300 jobs would be created during construction and operational phases

Waste incineration – conflicting views

In Lincoln, our £125 million energy from waste plant has processed over a million tonnes of waste since it opened in 2005, as well as providing energy for 29 000 homes. It has also produced 215 000 tonnes of ash, which is used in road construction. The amount of waste sent to landfill has been reduced by 92%, saving £91 per tonne in landfill tax.

Waste manager, Lincoln Council

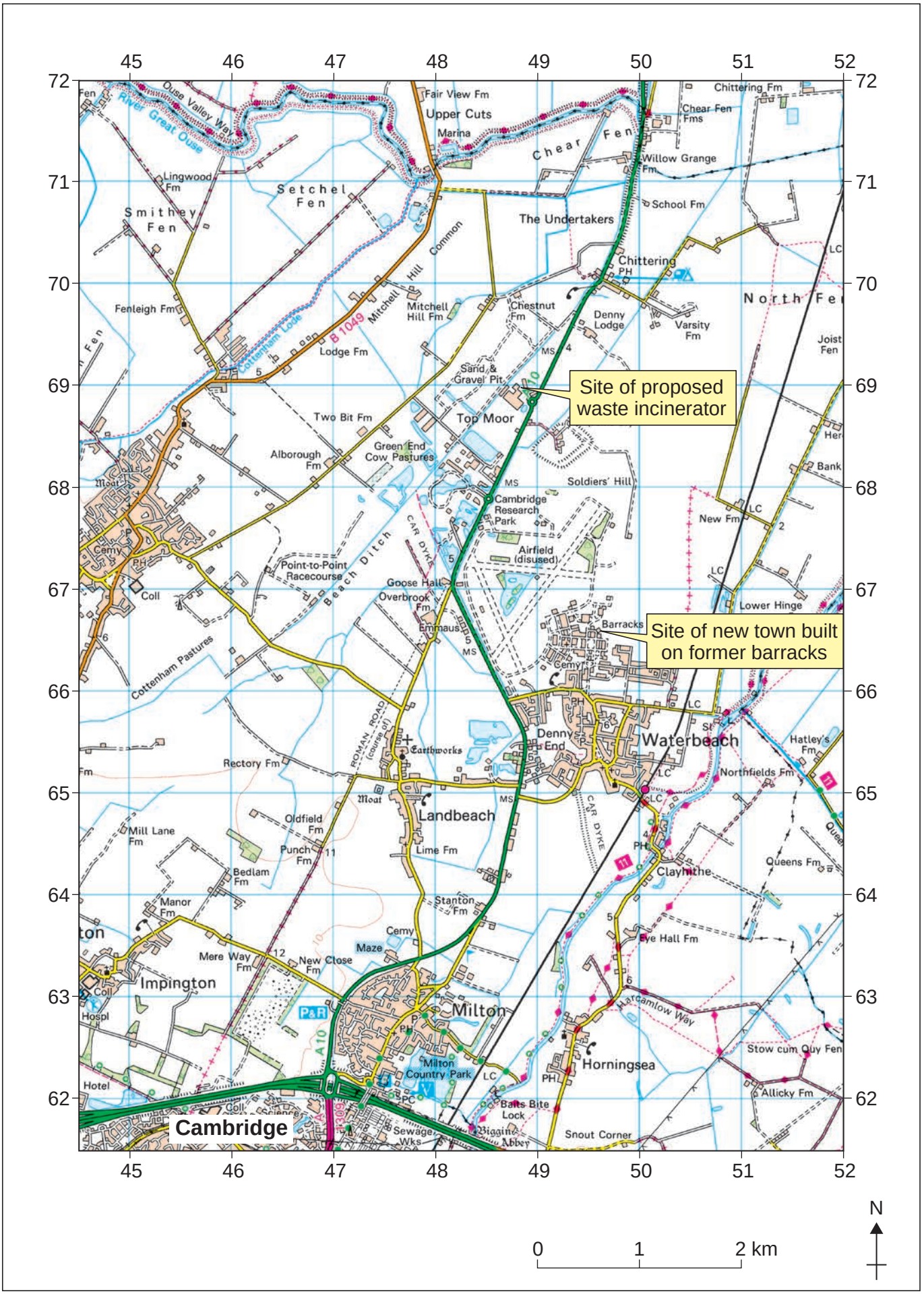
The current waste incinerator boom will add to levels of air pollution, harm the health of local people, increase carbon dioxide emissions and reduce recycling rates, wasting valuable resources. It may be cheaper to simply burn waste rather than recycle it, but when the cost of building the plant is taken into account it is very expensive and wastes a lot of reusable and recyclable materials.

University lecturer

Amey push for new £100 million energy from waste plant despite local opposition

Amey claim that an energy from waste facility on their existing site is the best solution for Cambridgeshire because it will bring environmental and economic benefits, including green energy and local jobs. The facility will be able to cope with the increasing volume of waste resulting from the growing population and will provide a source of energy for the new town to be built on the nearby Barracks site. However, many local people feel that the size of the proposed development will put even more pressure on the rural-urban fringe and damage the look of the countryside. The 80-metre chimney and huge building will be very intrusive in the low-lying landscape. There is also concern about the impact of heavy vehicle traffic on nearby residential areas during construction and the threat of air pollution to the residents of the new town.

Figure 2 continued



Turn over ▶

Figure 3

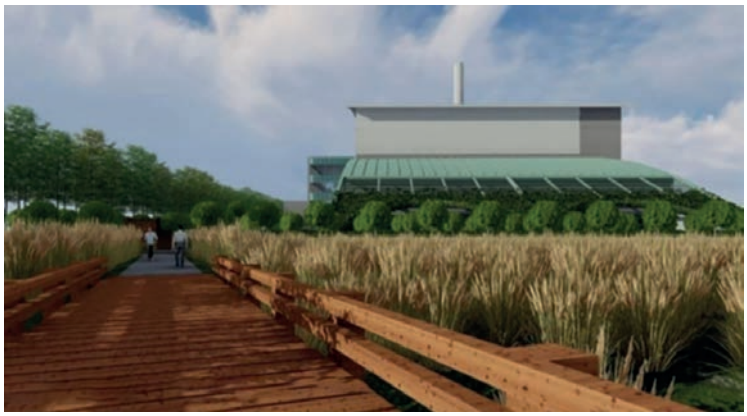
A waste incinerator for Cambridge – a burning issue!

Myths about incineration not reproduced here due to third-party copyright restrictions

Amey push to win planning battle for energy from waste plant

Amey Waste Services are pushing to get permission to develop a waste incineration plant on their existing Waste Management Park, alongside the A10 near Waterbeach. They claim that because the plant is within the boundary of the existing site and is next to the main road no additional land will be required and minor roads in the area will not be affected.

Currently, a high proportion of waste goes to landfill, but the existing landfill capacity will soon be full. If the incinerator is not built waste will need to be transported much further to alternative landfill sites.



Supporters of the proposed incinerator feel that it will improve the local environment because of the decrease in landfill and may also increase recycling rates. In addition, the strict environmental guidelines will mean that air pollution will not be a problem. The jobs created during construction and when the plant is operational will be a significant boost to the local economy.

The managing director of the Waste Management Park said, "The incineration plant is a sustainable solution for dealing with present and future waste needs. It will benefit the whole county and will generate wealth for the local community. It will supply electricity to thousands of local homes and will reduce the carbon footprint." Amey have said that they understand the concerns of local residents and will work to ensure that the site is landscaped in order to reduce the visual impact.

Figure 3 continued

Waste incinerator will dominate the landscape and ruin the views of Ely Cathedral

The proposed waste incineration plant will completely dominate the surrounding countryside, which is largely made up of small rural settlements. The planned building is 141 metres in length and 91 metres wide, with a chimney 80 metres tall. This is much higher than any local buildings and will harm the visual amenity of the area. It is very close to Denny Abbey and the Denny Farmland Museum, a listed building and a tourist attraction visited by many people throughout the year.



To keep the incinerator going will require huge quantities of waste which will be brought in from a wide area, adding a significant amount of heavy traffic to a road system that is already under pressure. 'Cambridge Without Incineration' said that they also had concerns about how close the proposed incinerator was to the new town at the former Barracks site in Waterbeach.

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Latest update

In June 2020, the proposal to build the waste incineration plant was rejected by the government.

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