

Do-it-Yourself : Saving the Planet

3. Recycling

3.0 Introduction

In this paper I will review recycling. What are its benefits? What are its limitations? What more can we do?

3.1 Benefits

3.1.1 Postponing Resource Exhaustion

A fundamental reason for recycling is that modern, technological society relies on the large scale use of finite resources (e.g. iron ore, bauxite and many others) and, without recycling, these resources must run out one day. With recycling however, technological society can continue into the far future. The steel in a life expired car is used to make its replacement and its replacement and so on ad infinitum. Our society is not immediately threatened by resource exhaustion so, at present, this is perhaps an academic issue.

You will notice here that I am using the word 'recycling' in a broader sense than just the bins outside our houses or down at the local tip... sorry I mean recycling centre. A car scrap yard... sorry a registered car dismantler is an important part of the recycling system.

3.1.2 Safe Waste Disposal

A second reason for recycling is that many of the products we use contain harmful materials which need to be dealt with properly. Car batteries contain acid that will kill the fish in a river there and then. The lead oxide in their plates could contaminate farm land or aquifers rendering them unusable into the far future. I understand the aquifers under London are unusable because of the tipping of waste from metal working industries in the past. Even if a product is not harmful, it needs to be disposed of properly as otherwise there will be ever growing mountains of junk littering the country. For these reasons, we have laws requiring the safe disposal of old manufactured goods and systems for doing it. These may not always work as well as they might so we might wish for their improvement.

3.1.3 Greenhouse Gas Reduction

The above two reasons, valid though they are, are not relevant to a discussion of climate change but a third reason, which is, is that recycling often reduces greenhouse gas emissions. Melting down scrap

iron requires energy to heat the metal but does not otherwise release CO₂ whereas making iron from iron ore both requires more energy (as there is more than just the iron to heat up) and also the chemical reaction of reducing iron oxide to iron fundamentally releases CO₂. The situation is similar with aluminium.

Food waste, if not recycled, will rot releasing methane (a powerful greenhouse gas) into the atmosphere. After many years this methane will decompose into CO₂ and still heat the atmosphere but to a lesser extent. If food waste is recycled however, the decomposition process will take place in a closed environment and the resulting methane will be used as fuel. The same amount of CO₂ will then be released into the atmosphere but the methane stage has been eliminated and the CO₂ emissions are instead of similar emissions from burning other fuel.

Cardboard is similar. If sent to landfill, it will rot releasing methane. If recycled it will have another life as cardboard, and another, and another... This reduces the need to fell trees allowing either the trees to remain and store more CO₂ or the land to be used for some other useful purpose.

3.1.4 The Preservation of Value

Some things are recycled because they have a worthwhile financial value. Recycling these retains that value, making society as a whole better off. Scrap metal has long been recycled by traders who buy it, sort it and sell it as a way of making a living. Cars have long been recycled as cars by the used car trade. When a car is no longer reliable enough or fuel efficient enough for our purposes or our requirements have changed, we get a new or newer car and our old one will be found a suitable new owner, perhaps someone who does not do so much mileage and will repair it themselves.

More recently, the car boot sale and eBay have created a used 'thing' trade which finds 'things' a new owner. In these cases we are preserving not only their materials but also the value of their manufacture. In the spare time created by Covid, I've tried this and, by making a variety of purchases on eBay, replaced our life expired pots by repopulating and extending our best crockery. It worked just fine so we now have a large, good set of pots whose manufacturing CO₂ emissions were, in effect, zero. I also replaced a life expired set of nested, wooden tables with a really good quality set which I cannot tell from brand new and without cutting down a single tree. Saved £1000 too.

3.2 Limitations

3.2.1 CO2 Emissions

It is merely stating the obvious to say that recycling does precisely nothing to reduce the CO2 emissions caused by our use of gas, electricity, petrol, diesel or by our flying. Indeed there can't be much doubt that our emissions from these things are much greater than those that can be recouped by recycling. However, as stated above, there are reasons for recycling other than climate change so our conclusion must be that we should both reduce our emissions from our use of gas, electricity, petrol, diesel and flying and also that we should recycle as much as we can.

3.2.2 Plastic Pollution of the Seas

It may not be so obvious but our recycling will not reduce to any significant extent the pollution of the seas by plastic. This is an area currently being researched so there are few definite answers but it appears that...

1. The biggest source of plastic in the seas, is the tread worn off car tyres. Initially this is dust in the atmosphere (causing ill health) but it then settles onto roads and is washed by rain into drains, then into rivers and finally into the sea.
2. Another big source is fibres that come out of man made fibre clothes when they are washed.
3. Most of the plastic objects floating in the Great Pacific Garbage Patch have come from a few specific countries with lax environmental laws notably China, Vietnam and Indonesia.

There are certainly good reasons for reducing plastic pollution of the seas. There are reports that fish larvae eat plastic fibres on the assumption that they are food. They are however indigestible and lodge in the larvae's gut inhibiting their development into fish. The consequences of this are unknown. A reduction of fish stocks is possible and that may in turn have further consequences. As yet, I have heard of no commercially available solutions to these problems other than returning to natural fibre clothes.

This said, there are still perfectly good reasons recycling (see above). Our conclusion must be that these are additional problems that need to be solved and that we should still recycle as much as we can.

3.2.3 Limited Bottle Recycling

In Verwood and Britain generally, bottles, be they glass or plastic, are recycled as the material glass or the material plastic rather than being reused as bottles.

In Verwood, the colours of glass are not separated which, I assume, means the glass cannot be used for making new bottles and can only be used for making insulation. This is fair enough if there is a demand for the insulation but it is not a general solution.

Other areas (eg Test Valley) separate the colours so that the glass can be reused for making new bottles. The problem remaining with this is that a lot of heat is required to melt the glass and this involves CO₂ emissions. This would be avoided if, as in Germany, there were a general system for reusing bottles. For many years, they have had a system in which you go to a drink shop and pay a deposit on a crate and on each bottle. When you go back to buy some more drinks, you take the old bottles and crate back, and get your deposits back. A bottle will thus be used a number of times before needing to be recycled and thus CO₂ emissions will be saved.

Plastic recycling is currently, I understand, rather unsatisfactory in that the recycled plastic is not usually pure enough to make new bottles and can only be used for low grade applications. In Verwood, we are asked to return bottles with their tops on (often a different colour) which would seem to be an admission that the plastic is never going to be pure enough to make new bottles. This is fair enough if there is a demand for the resulting low grade plastic but it is not a general solution. Again the situation would be more satisfactory if, as in Germany, there were a general system for reusing bottles. A further advantage of such a system would be that when a bottle is life expired, this would be recognised at a bottle handling plant and, as it is only dealing with bottles of known composition, the resulting plastic or glass should be pure enough for reuse in bottles.

As we, as individuals, are dealing with a far from perfect system for dealing with bottles, our options are limited to avoiding buying things in bottles as much as possible. The rate at which glass bottles would pile up in my recycling bin certainly deters me from routinely drinking beer at home (so Birthdays and Christmas only). Verwood has made efforts in this area so that we can get bottles refilled but, useful though this is,

what would make the biggest difference to my remaining bottle consumption is a system for reusing milk bottles.

Some of us are probably old enough to remember revolutionary 'new' ideas such as off licences charging deposits on bottles and milk bottles being reused. Such is progress.

3.3 Maximising our Recycling

In Verwood, there is a long list of things the council will collect and recycle... plastic bottles (all types with lids on), plastic pots and tubs (with lids on), plastic trays, cardboard boxes (flattened), newspapers, directories and magazines, mail, tins, cans, aerosols, glass bottles (all colours with metal lids on), glass jars (with metal lids on), all cooked and uncooked food, meat fish and bones, fruit and vegetable peelings, tea bags and coffee grounds, egg shells, garden waste.

In addition to the above, there's another long list of things you can take to one recycling point or another. The VOW website has a detailed list of sites and what they take. The items that can be recycled include aluminium trays and foils, tetra packs, batteries, light bulbs, electrical and electronic equipment, scrap metal, wood and VOW's own centre in the Potter's Wheel car park caters for the specialist recycling of a number of types of plastic.

When all the above fail and although it's not on listed on the council website, for years I've been taking anything that is dry and flammable (e.g. unrecyclable plastic) to the 'Bagged waste for Electricity Generation' bin at the tip. This will be burnt and will cause CO2 emissions but these are instead of burning other fossil fuels and it does guarantee the final destruction of the plastic. There has been a curious anomaly in that if you took an old carpet there, they would put it in landfill but if you cut it up with a saw and put it in black bin liners they would then use it as fuel.

If you are prepared to use this facility (I take a car load about twice a year) and according to how much effort you are prepared to put into dealing with unrecyclable plastic packaging, the number of things that cannot be recycled and you actually have to throw away is quite small and does not include plastic. Old crockery, soft glass (e.g. glass dishes etc) and wet, soggy or unhygienic things are about it.

3.4 Conclusion

I guess the conclusions to be drawn here are that recycling is worthwhile but the available recycling systems limit what we can achieve.

I am very happy to give help to anyone who needs it and equally happy to learn from others. I hope this proves to be of some interest.

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