



MARCH 2010

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Plastic recycling and recycled plastic

by John Bannister

PLASTIC IN ITS virgin form is made from oil, for which there is a mad global scramble to feed our addiction for flying and driving cars. To keep us supplied, oil companies mine vast areas of Canada for viscous tar sands, which are three times more environmentally damaging to extract and process than conventional oil. This happens in our name and yet we neglect to use or save energy as efficiently as we could.

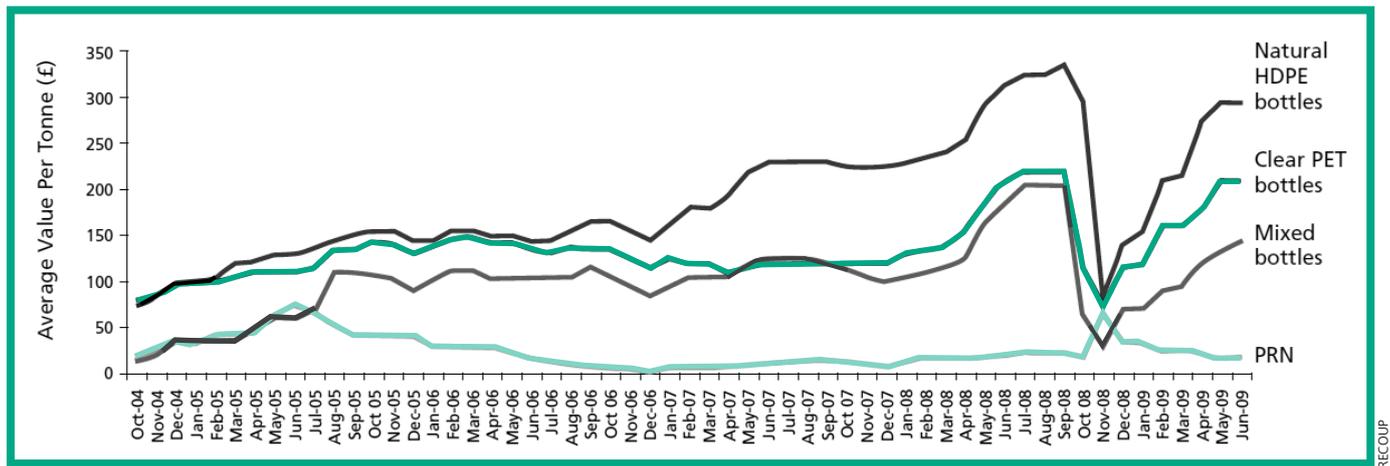
Recycled plastic requires only one eighth of the energy it takes to make virgin plastic, so there has to be a very good reason for continuing to send recyclable plastics to landfill. At present Guildford Borough Council (GBC), like most other districts in the UK, only collects plastic bottles at the kerbside; all other plastic containers are sent to landfill. Now gradually, as new plastics sorting and processing facilities come on stream in the UK, local authorities

are starting to collect mixed plastic containers for recycling. The Forum looks forward to the day when Guildford extends kerbside collections to include non-bottle rigid plastics.

There is a big demand by recyclers for plastic bottles, which are made from **HDPE** (high density polyethylene), **PET** (polyethylene terephthalate) or **PVC** (polyvinylchloride). These are all easy to recycle again and again. But many food containers are made from these same plastics or different plastics that can also be recycled. Furthermore, prices paid for recycled plastics have risen substantially and have recovered quickly following the collapse seen at the end of 2008 when the recession struck. It is ludicrous to send materials worth about £300 per tonne (HDPE) or £220 per tonne (PET) to landfill.

Across the UK we are only recycling about 40% of the plastic bottles we use. This means 60% are

	1999	2009
Number of bottle schemes	194	321 kerbside / 235 bring
Bottle tonnage reported	11,300t	216,067t
Bring / Kerbside tonnage split	4,740t bring / 6,260t ks	44,181 bring / 168,966t ks
Number of mixed plastic schemes	Unrecorded	49
Households with kerbside bottle collection	2.8 million	18 million
Kerbside average bottle recovery per household per year	2.2kg	10.5kg
New kerbside schemes coming online	70	17
Schemes stopped collecting bottles	7	0
Baled mixed bottles market value	£20 - £50	£60 - £160
Plastic PRN value	£25-40	£15 - £20
Average crude oil cost per barrel	\$20	\$70
Estimated average bottle contamination levels	1% - 5%	1% - 45%
Most common reasons for not collecting bottles	1) Insufficient funds 2) Not confident of markets	1) Cost implications for changing scheme set up 2) Focus on collecting heavier materials to meet targets



Reported values of key plastic bottle grades since 2004

still being sent to landfill. It is likely that Guildford is doing better than average and is somewhere in the top quartile, but the most urgent priority must be to increase our recycling performance for plastic bottles. We need a big campaign, in which school recycling schemes would play an important part. The second priority must be to start collecting and recycling non-bottle rigid plastic food containers, with a clear communication programme explaining what to include and what to leave out.

You may be tempted to put out rigid non-bottle plastic containers with the recycling now because you are so keen to do the right thing by the environment; but this is ill-advised because it risks contaminating and devaluing the value of the plastic bottles. Better to wait until the local authority starts to collect non-bottle rigid plastic containers along with the bottles.

The best recyclers of domestic plastics in Europe are the Germans, who recycle almost 40% of all plastic packaging, followed by Belgium and Sweden. The UK is middle of the pack, achieving about 18%. Given the right systems and incentives, we could do much better.

The opposite side of the recycling coin is buying products made from recycled plastic. GBC has just introduced wheelie bins right across the borough for the first time and was persuaded to buy bins made from virgin plastic. This seems perverse, given residents' commitment to recycling. The Forum has investigated and is assured by RECOUP (Recycling of Used Plastics Limited), who enquired specifically on our behalf, that bins made from recycled plastic are just as durable as those made from virgin plastic. Moreover, they are generally cheaper. We can't turn the clock back but there could be a lesson to be learned here.

These views on plastics recycling are intended to be helpful and do not in any way detract from the fantastic job that the Recycling Team at GBC is doing. Our recycling performance continues to improve, and the roll-out of Recycling Works with kerbside collection of kitchen waste coinciding with refuse moving to fortnightly collection has been a great success, lifting our recycling rate to over 63%. Let's do everything we can at home and in our communities to reach and exceed Surrey County Council's target of 70% recycling by 2013.

Onward and upward

IT IS GENERALLY ACCEPTED that the Guildford Environmental Forum does a great deal of valuable work in our town and community; and in order to make sure it continues to develop and grow we believe that officers should stand down after a few years, to make room for new people with fresh ideas.

John Bannister will be resigning from the Chair of GEF at the Annual General Meeting on 12th May, and some of the other Chairs would also be prepared to hand the baton on to new people. Raymond Smith will take the Chair temporarily, but he would be happy to continue as Vice-Chair if someone

else were to come forward to take on the role of Chairperson.

If you think you might like to take on one of the roles and join our Executive Committee, please let John know (telephone number 01483 570468) so that he can invite you to a special social evening we are holding on 22nd March at which, over a drink and some nibbles, we can tell you more about how GEF works and give you the chance to become more involved.

The Executive Committee is a fun group of people, all totally committed to arresting climate change and building for a better future. *Alwyn Marriage*

Killer plastic

In the Bering Sea, 40,000 northern fur seals are estimated to be killed every year by becoming entangled in plastic debris.

(Source: BBC Wildlife, May 08)

The ubiquitous bag

UK supermarkets gave out 452 million plastic bags in May 2009, down from 870 million in May 2008.

(Source: BBC Focus, Oct 09)

Fish demise

More than 75% of the world's fish stocks are fully or over-exploited. A 2006 study predicted that, if current trends continue, the last commercial species will be lost by 2048.

(Source: Living Earth, Spring 09)

FACTS & FIGURES

The crow is no bird-brain ...

In experiments at the University of Auckland, wild crows have worked out how to retrieve food from a deep box. They first use a short twig to fish a longer twig out of a container, realising that only a longer tool will reach the food.

(Source: BBC Focus, Oct 07)

... nor is the pigeon

Pigeons can discriminate between video images of themselves and differentiate paintings by Van Gogh and Chagall. These abilities are on a higher level than that of a 3-year-old child.

(Source: BBC Focus, Aug 08)



Garrett Jones

Guildford Action Furniture Project's new warehouse now open

THE NEW WAREHOUSE for the Guildford Action Furniture Project was officially opened by the Mayor of Guildford, Cllr Pauline Searle, in late January. Situated at Jacobs Yard in Woodlands Road, Slyfield Green, the warehouse had numerous items of really good quality secondhand furniture on display, all at very affordable prices. The Furniture Project also sells refurbished electrical appliances and white goods.

A detailed article on the Project was written by the man who runs it, Forum member John Atkinson, in our September 2009 newsletter. Anyone can visit the warehouse between 10.00hrs and 16.00hrs Monday to Friday. By

the nature of the project the stock is continually changing; in this way an enormous number of items are prevented from going to landfill and fewer resources are having to be used to create new items. There are huge benefits to those first starting out or with low incomes.

Your help is needed: the organisation is still looking for people who might be interested in becoming a Trustee, especially anyone who has experience on matters to do with recycling as they are looking to expand the scope of their operation. Please contact the Furniture Project on 01483 506504 if you think you might be able to help or know of anyone else who might help them with this very valuable project.

Enclosed is a membership questionnaire for you to tell us your views on the Forum and its activities.

Please take a moment to complete and return it.

Guildford company TMO Renewables in pursuit of the sustainable biofuel prize

by John Bannister

MANY STATES AND COUNTRIES have passed legislation to mandate inclusion of biofuels in petrol and diesel, with percentages rising to as high as 20% in future years. The twin objects in themselves are laudable – to reduce transport carbon emissions and provide greater energy security. The biofuel of choice for blending into petrol is ethanol and the first wave of plants to cash in on the subsidised ethanol bonanza use maize to make ethanol. This has been linked to escalating food prices causing real hardship for the world's poor. The US has now put a cap on the amount of ethanol derived from maize.

Brazil, a long term user of bioethanol as a transport fuel, uses fermentation of cane sugar to produce the alcohol. In some parts of the world rainforests are deliberately being burnt down or cut down to clear land for growing crops like palm oil, but it has to be said that this is nearly all used for our food and cosmetic products and very little for biodiesel. In arid areas in Africa and India jatropha is being grown on a huge scale, putting pressure on scarce water resources.

As a consequence the desired objectives are not always being achieved and not in a socially acceptable way. More people are going hungry and greenhouse gas (GHG) emissions are sometimes being increased rather than decreased. Fuel versus food is a massive issue and so is climate change. We have to find the right way to produce biofuels under strict regulations.

New ideas

Biofuel research and development is phrenetic. From first generation technology using food crops, technology is moving on to second generation and beyond looking at "waste" streams, tough, woody cellulosic materials, even using algae and novel processes to turn these into biofuels.

One innovative company is TMO Renewables Ltd based at the Surrey Research Park in Guildford, who a year ago commissioned a bio-ethanol

demonstration plant at Dunsfold Park on the former aerodrome. Twelve members of GEF visited the TMO plant in early February and were shown around by Jason Robinson and Dr Steve Martin. TMO had just won a coveted Innovation Award from the Carbon Trust, gaining first prize in the transport category for their process.

One route to sustainable bio-ethanol would be the energy-efficient conversion of the cellulose in "waste" organic materials. There are many emerging processes in development using strong acid, heat or enzymes in different combinations to break down complex carbohydrates like cellulose, followed by wet or dry fermentation of the sugars produced. TMO's breakthrough is smart. Their process uses the commonplace bacterium that breaks down cellulose into lactic acid in your compost heap – a high-



A small section of TMO's bio-ethanol demonstration plant at Dunsfold Park.

temperature loving bacterium called geobacillus. In nature, this bacterium produces tiny amounts of ethanol and lots of organic acids. They analysed its DNA, identified the pathways involved in making organic acids and ethanol, and then made three simple DNA changes that converted the strain from a lactic acid producer to one that primarily produces ethanol (a strain they call TM242). After perfecting the process at bench-scale the next step was to scale up to a pre-commercial demonstration plant, which is what we went to see at Dunsfold Park.

Nearly 50 different feedstocks have been evaluated. These include straw, grasses, the biodegradable part of domestic waste, forestry waste, commercial waste streams and agricultural wastes such as bagasse (the residue from cane sugar). The UK alone produces 7m tonnes of surplus wheat straw, which if converted to ethanol by TMO's process would meet 10% of the UK's current petrol demand. The US, Canada, Europe and Australia produce vast quantities of wheat straw claimed to have little or no value.

Results

Results from the Dunsfold plant are encouraging. Up to 400 kg of ethanol has been produced per tonne of complex carbohydrate feedstock. That's a 40% yield. Unlike ethanol made from maize – which can result in little or no reduction in GHGs compared to fossil petrol – TMO's process delivers almost four times the energy as biofuel than it takes to make it.

Most interest appears to be from the US, Brazil and China. For example, a by-product from maize to ethanol plants in the US is an animal cake and there is interest in extracting the protein, the valuable bit

for animal feed, leaving a fibrous residue, which will be fed to TMO's process. This could deliver 15% more ethanol per tonne of maize and a more nutritious animal feed.

Private equity funding for TMO has come from UK wealth funds and overseas investors, and development has been rapid from the first beginnings in 2002. TMO's business plan is to license their process and for it to be producing nearly 30 billion litres of bioethanol per annum by 2017.

TMO were questioned closely by Forum members on aspects of the life cycle analysis of TMO's process versus the alternative uses of "waste" materials. This led to interesting discussions about ploughing back plant residues into the land, improved performance of the most modern US maize bio-ethanol plants, increased maize yields using GM crops, the relative contributions of the oil price, biofuel production and drought on food prices, and much more. TMO are constantly refining the life cycle analysis of their process to prove its credentials. We expressed our gratitude to TMO and came away convinced that their process offered a significant improvement over first generation ethanol technology.

CHINA versus AMERICA

Not long ago China overtook the US as the world's biggest emitter of greenhouse gases. Very recently it overtook Germany as the world's biggest exporter. When discussing the state of the

planet China often gets targeted. It certainly has to be a big part of any solution and the following statistics may help inform the debate. Data is for 2007 unless stated otherwise.

	USA	CHINA
2008 share of global CO ₂ , %	19.9	21.4
Energy demand per capita, toe *	7.6	1.5
2005 passenger cars/1000 people	461	15
Domestic CO ₂ from road transport, %	31.6	5.7
2004 all civil aviation, bn passenger kilometres	1,160	176
Domestic CO ₂ from civil aviation, %	57.2	8.5
CO ₂ emissions from manufactured traded goods exported to China, US respectively, mt **	39	1,400
World share of CO ₂ from iron and steel, %	2.5	54.2
CO ₂ per tonne of steel output	0.96	2.51
Electricity generated from coal, %	49	81
Electricity generated from renewable energy, %	9	15
CO ₂ from electricity and heat output, gm/kWh	549	758

* toe = tonnes oil equivalent

** mt = million tonnes

From these data it is apparent that the average US citizen uses 5 to 30 times more resources than the average Chinese citizen; coal dependency is higher and industrial energy efficiency is 1.5 to

2.5 times lower in China than in the US; the US has outsourced the manufacture of a lot of its consumption, together with the associated CO₂ production, to China.

THE ART OF HEDGE LAYING

by John Bannister

I HAVE WRITTEN before in our newsletter about the co-housing community at Trelay Farm, near Crackington Haven in north Cornwall, which has an association with Guildford Environmental Forum. During some bitterly cold and wet weather in November I helped them with garlic planting, tree felling and some much-needed hedge laying.

Trelay Farm has several kilometres of traditional Cornish hedges some of which have become very overgrown, pushing upwards and outwards, and they are no longer providing an effective sheep barrier. The main tree species in the section of hedge we worked on were hawthorn, sycamore and holly, with occasional oak, ash and blackthorn. There were about six of us, some complete novices, under the expert guidance of Alan Beat, a trustee of the Yarner Trust, who has his own smallholding and waterwheel not far from Trelay.

A traditional Cornish hedge is a bank of stones and turf about 2 metres high with a tree species along the top. Well cared for, it makes a wonderful habitat for plants and animals and provides shelter for the sheep and crops. The Atlantic breakers, made enormous by the westerly gales, were visible between stinging showers away in the distance while we worked.

The principle tool for hedge laying is the billhook, which needs to be razor sharp. Bow

saws, for the very thick saplings, and loppers are also useful implements. Task number one is to cut away side growth so that you can get to the real work. Tree shoots sprouting from the top of the bank are almost completely cut through at the base with a billhook and laid over in an uphill direction along the top of the bank. Skill is needed to do this with a single well-aimed blow of the billhook without severing the growth. By remaining attached to the roots, the shoots will survive and will start sprouting multiple new shoots when the sap rises, forming a dense hedge. When laying, side shoots are cut away so that the long growth can be pushed well down and knitted in with the other laid saplings.

The task needs to be repeated roughly every five years and it will take at least this long to lay all the hedges at Trelay.

The traditional Cornish technique does not employ stakes driven in along the hedge as is done in some of the 30 or so other styles of hedge laying. Each county or region has its own style. It is hard work and labour-intensive but most satisfying. A large quantity of valuable wood fuel is produced and the finished result is very pleasing, unlike the mangled, badly-wounded hedges cut by machine. It is of course a late autumn/winter activity, as the flowers will soon appear and birds start nesting. There is never any shortage of work on the farm.



Jackie Carpenter

Land use – 1

UK nature reserves occupy 14,689 square kilometres.

Land use – 2

England is currently losing some 52 square kilometres of open land to new development every year.

(Source: BBC Wildlife, Dec 07)

FACTS & FIGURES

A benign bug

An arsenic-chomping bug that could clean up contaminated land has been discovered

by Australian scientists. It takes arsenic in its highly toxic arsenite form and oxidises it into a much safer form, arsenate, which can be more easily disposed of.

The bug could be used to clear up old farms where arsenic was used in sheep and cattle dips, and also to clean dirty drinking water in parts of the developing world where wells have become contaminated.

(Source: BBC Focus, May 08)

Consumers rule

Expected deforestation up to the year 2050 – feeding the demand for wood floors, garden furniture and ministerial front doors – will release more than 34 billion tonnes of CO₂, somewhere close to the UK's entire emissions over the course of 60 years.

(Source: New Statesman, 19 Oct 09)

Some diet!

The daily intake of an anteater is 30,000 ants.

(Source: BBC Focus, Sept 08)

Irish hares

There are thousands of non-native brown hares in mid-Ulster, sparking fears of a takeover from the native species. In Sweden, the brown hare has out-competed and interbred with the local hare. The Irish hare is genetically distinct and is Ireland's only endemic mammal.

(Source: *Natural World, Winter 08*)

FACTS & FIGURES

What crime?

"If I stole a packet of sweets, it would be recorded by Home Office figures. If I shot a golden eagle it would not." So says Ian West of the RSPB on why the Government needs to review the way it handles wildlife crime.

(Source: *BBC Wildlife, Oct 09*)

Chemicals – 1

The amount of pesticide applied to UK crops in 2005 was 31 million kilograms.

Chemicals – 2

A Cox's apple may be sprayed 16 times with more than 30 different chemicals before harvest.

(Source: *Living Earth, Winter 09*)

Altruistic ants

At dusk, Brazilian ants *Forelius pusillus* seal the entrance to their underground nest with soil and sand. A few workers finish the job from the outside, shutting themselves out. They almost never survive the night, sacrificing their lives for the good of the colony.

(Source: *BBC Wildlife, Feb 09*)



Dave Williams

Good news for dormice

by Clare Windsor

DID YOU KNOW that a dormouse weighs between 17 and 20 grams in summer, but that it eats to reach a weight of 30-40 grams just before hibernation? The two pictured above clearly managed it, hibernating cosily in a specially constructed dormouse box.

Dormice are rare and endangered, largely due to habitat loss. Because their numbers have dropped dramatically (by 70%) in the UK over the last 25 years, they are a priority species on the UK Biodiversity Action Plan.

If Surrey's dormouse population – patchily distributed – is to survive, then enhancement of the county's woodland is vital. Surrey Wildlife Trust is thrilled at being awarded £24,279 from Sita Trust especially for that purpose. Already working hard to protect them, it will use this funding to improve 34 woodland sites across Surrey, creating individual habitat management plans for each one before undertaking practical, dormouse-friendly work over the winter. This will benefit, incidentally, not just dormice but a wide variety of species including bats and butterflies.

The aim is to connect fragmented woodland sites and, in turn, the isolated populations of woodland species, which will increase the gene flow. Breeding will be encouraged through the installation of hundreds of dormice nestboxes, and cover and pathways through the trees will

be created and maintained. The Trust will also advise woodland owners and managers on habitat management, helping them preserve woodland of conservation importance and improve the quality of less valuable sites. The outcome should raise dormouse populations to sustainable levels, able to withstand seasonal variations in weather and food shortages.

Trust volunteers will play an important role in the project. Having been trained by Trust staff and in possession of a licence (required by law to handle dormice) they will help with the woodland improvements and the monitoring of breeding boxes well into the future. The resulting data will be fed into the National Dormouse Monitoring Programme which maintains a national inventory of dormouse sites and monitors trends on its database.

Last year, Surrey Wildlife Trust collaborated with HMP High Down Prison in Sutton in a project involving the prisoners making 230 dormice boxes. The Trust supplied the plans and materials, and the project was funded by the People's Trust for Endangered Species.

Meanwhile, following the installation of dormouse boxes more than two years ago at Chilworth Gunpowder Mills, one box was occupied last summer by a female dormouse with four healthy young – a delight for the Trust volunteer who found it.

HUMAN POPULATION and climate change are clearly interrelated – no-one would argue with that – but it would be easy to focus on our spiralling population at the expense of tackling climate change. The population of England and Wales surged exponentially from about 8 million in 1780 as a result of the Industrial Revolution and the improvements in health

and social conditions that followed. In due course world population reacted in the same way for similar reasons and is still rising relentlessly. Think of your Victorian ancestors and their huge families needed as sweated labour for the mills supplying the world with British goods. In the end all our current problems stem from rampant consumerism by favoured nations.

Human population growth and excessive affluence are causing massive habitat loss for the world's wildlife. The WWF Living Planet Index is an annual global metric that tracks biodiversity changes and the ecological footprint of every country in the world. Collectively we are exceeding the ability of the Earth's biocapacity to support us by about 20% and rising. Ecological footprint is a function of population x consumption per person x footprint intensity. Our carbon emissions are included in the calculation as are forest loss, over-fishing, etc. In Guildford we are privileged to belong to one of the high-income countries, which account for about 1 billion people, middle income countries another 3 billion and low-income countries about 2.5 billion. Who can deny the poorest people a reasonable share of Earth's resources? The question is how to achieve that without driving up even further the global ecological footprint.

We in Europe (England in particular) and the USA have cumulatively since 1780 been the prime contributors to global carbon emissions. We, plus a few others, are now the highest consumers on the planet and have to date caused most of the global habitat loss, pollution and climate change – change which will continue to cause havoc even without further additions.

The cure is up to us

We caused the problems, therefore we must correct them. If you want to cull populations then start with Americans and move on to Europeans and you'll get the biggest benefit in terms of biosphere regeneration globally. The simple answer is that people in high-consuming countries have to drastically reduce their consumption and allow the poorest, lowest consumers on the planet to increase theirs such that

Human population, the intermittency of renewables, and other reasons to PLAY DOWN climate change

by John Bannister

the world equilibrates once again at a level of global consumption that the Earth can provide in perpetuity. The model to achieve this exists. It is called 'Contraction and Convergence' and all politicians are well versed in it. But the rich won't vote for it. We've had our cake and we won't give it up for our poorest, most deprived fellow humans and the other

fabulous species that we share this Earth with that, ironically, we totally depend upon.

Most people would agree that control over how many babies we have is a fundamental human right but one that is frustrated by religious and cultural dogmas and by being very poor. It has to be said that factions in Europe and America are right up there promulgating fundamentalist religious views, denying this right to huge numbers of the global village. These influences must be opposed vigorously if we are to stand a chance of controlling the rise in human population.

Fossil fuel back-up?

The point is often made by climate change deniers that renewable energy sources are intermittent and therefore have to be backed up by fossil fuels and nuclear energy, resulting in little or no benefit. The fact remains that wind energy and other intermittent renewables can displace fossil fuel-based electricity generation, reducing both fuel use and carbon dioxide emissions. Some extra electricity generation balancing reserves will be needed, but overall the inefficiencies resulting are much smaller than the savings in fuel consumption and carbon emissions. A substantial net benefit results from intermittent renewable electricity supplies. This was the conclusion reached in 2006 by the UK Energy Research Centre (UKERC) after a prolonged study (*The Costs and Impacts of Intermittency*, March 2006, ISBN 1 90314 404 3). Furthermore, the clear benefits from a high penetration of renewable electrical energy have already been demonstrated by Denmark, including jobs, exports and energy security.

The UKERC study found that the extra cost to the UK consumer due to inefficiencies resulting from intermittency is expected to be about 0.3 pence per kilowatt hour. I'm currently paying 12.3 p/kWh to Good Energy to provide my electricity; it is the only UK company providing exclusively 100% renewable electricity. You can help the environment by switching to Good Energy. The Chief Executive of the National Grid came recently to the same conclusion, stating that the UK is transforming the national grid to a smart grid

able to live with a multiplicity of small local generators, which are far more efficient in that they don't waste 60% of their energy source like our centralised coal and nuclear power stations, throwing away heat into the atmosphere via cooling towers.

Increasingly you will see different renewable energies backing each other up over a wide area. There will be much more export/import capacity between European countries to share surpluses and deficits, creating a super-grid employing all kinds of renewable energy, local CHP (combined heat and power) with district heating. In fact this will go wider than Europe because plans are now moving ahead quickly by German companies (the UK is losing out on renewable jobs and business) to harness solar energy from North Africa connected into Europe using concentrated solar power. We have been pressing for some time for Guildford to embrace the benefits of renewables, CHP and district heating.

Europe is steadily building the interconnections needed to share electricity generation and storage.

The government here has just announced that by 2020 every house will be fitted with smart meters for our electricity supply, essential to fully exploit the efficiencies of a smart grid.

To dispel another myth put about by those who want to frustrate efforts to manage our impacts on the climate, on-shore wind turbines repay all the carbon used in their manufacture, transport and installation in about 6 months of operation. I don't have a corresponding figure yet for off-shore wind turbines. Solar PV takes about 4 years to repay its embodied energy.

It is important to remember that oil, gas, coal and uranium are all finite and we appear to have already reached Peak Oil (the recession caused by US and UK banks has merely created a temporary increase in spare capacity), so we have got to harness the sun and moon's energy and leave the coal and tar-sands, in particular, and some of the other fossil fuels in the ground if we are to stand a chance of reversing climate change.

Climate change could cause half a million deaths a year by 2030, warns report

The following paper, based on a report from the Global Humanitarianism Forum, is reproduced from the *British Medical Journal* with permission from the BMJ Publishing Group.

Andrew Cole, London

More than 300,000 people are dying each year, and millions more endure ill health as a result of climate change, says the first report to focus exclusively on the human impact of global warming.

The report, from the Global Humanitarian Forum, says that most of the deaths are caused by malnutrition, diarrhoea, and malaria. It estimates that 90% are the result of gradual environmental changes, with 10% attributable to weather disasters. The health of another 235 million people is being seriously affected.

The report predicts that by 2030 the annual death toll could rise to 500,000, with 660 million people seriously affected, making it the "biggest emerging humanitarian challenge in the world."

Launching the report in London last summer, the forum's president, Kofi Annan, said that climate change was not a distant threat. "It's happening now and it is having an impact on millions of people around the globe."

He added, "The first hit and worst affected are the world's poorest groups and yet they have done least to cause the problem."

The report says that global warming is leading to increased desertification, rising sea levels, and many weather-related disasters. These in turn create



conditions in which disease flourishes.

The biggest cause of death from climate change is malnutrition, with an estimated 150,000 deaths a year and a further 45 million people affected. Diarrhoea, linked mainly to problems with water quality and quantity, affects 180 million people a year and causes 95,000 deaths. Climate change is also thought to be responsible for 55,000 deaths from malaria a year, and a further 10 million people a year catch the disease.

The impact is greatest on women, young people and older people. Women account for two-thirds of the world's poor and also make up seven out of 10 agricultural workers. More than 90% of deaths from malnutrition and diarrhoea occur in children aged 5 or under.

The areas most prone to climate change, according to latest findings, are Africa, South Asia, parts of the Middle East, and many small islands in the Pacific.

The forum's report is based on a range of recent publications and projections by climate change experts. Its figures represent averages based on projected trends over many years but carry a significant margin of error. But it points out that, given the accelerating pace of global warming, its predictions "may prove too conservative."

I always wanted to return as a Peregrine ... but I'm less sure now

by John Bannister

MARGARET ATTWOOD, the Nobel prize-winning author, is Joint Honorary President of the Rare Bird Club within BirdLife International. A few weeks ago an article by her appeared in the *Guardian Review* about her concern for birds and the crisis they are facing. The following is a small extract containing some shocking statistics. After talking about the place of birds in literature and her own long love affair with birds she went on to say she took on the job as Honorary President because she:

“...knew about the crisis in the life of birds, and also about the connection between a healthy ecosystem and a healthy human population. ‘Canary in the coal mine’ – which comes from a time when miners knew if their caged canaries toppled over it meant imminent asphyxiation for them – is not an empty phrase: where birds are dying now (through poisons, habitat destruction, and famine), people will die later. The die-off in sea birds, for instance, signals a die-off in sea life, including fish. It doesn’t take a very smart augur to read that kind of bird omen”.

Then came the statistics:

“In the United States, power lines kill 130 to 174 million birds a year – many of them raptors such as hawks, or waterfowl, whose large wingspans can touch two hot wires at a time, resulting in electrocution, or who smash into the thin power lines without seeing them (think piano wire). Cars and trucks collide with and kill between 60 million and 80 million annually in the US, and tall buildings – especially those that leave their lights on all night – are a major hazard for migrating birds, leading to between a hundred million and a billion bird deaths annually. Add in lighted communication towers, which also kill large numbers of bats, and can account for as many as 30,000 bird deaths each on a bad night – thus 40 to 50 million deaths a year, and due to double as more towers are built. Agricultural pesticides directly kill 67 million birds per year, with many more deaths resulting from accumulated toxins that converge at the top of the food chain, and from starvation as the usual food of insectivores disappears. Cats polish off approximately 39 million birds in the state of Wisconsin



digitalchocolate.org

alone; multiply that by the number of states in America, and then do the calculations for the rest of the world: the numbers are astronomical. Then there are the factory effluents, the oil spills and oil sands, the unknown chemical compounds we’re pouring into the mix. Nature is prolific, but at such high kill rates it’s not even keeping up, and bird species – even formerly common ones – are plummeting all over the world.”

“How crazy are we? We’re a lot like those old cartoons in which the foolish character is sawing off the same tree branch he’s sitting on, while beneath him is a sheer drop to nowhere.”

Later she tries to clutch at a glimmer of hope.

“Despite such gloom – or perhaps because of it – there are many intrepid individuals and organisations out there, hurling themselves on to the tracks in the path of the speeding EcoDeath Express.”

Forum members help directly and support many of them – such as RSPB, Surrey Wildlife Trust, the National Trust, Amphibian and Reptile Conservation, the Hawk and Owl Trust, Butterfly Conservation, and dozens more – not forgetting local groups we help such as the Pewley Down Conservation Group and the newly formed Green Lane and Henley Wood Preservation Group.

THREE LITTLE BITS OF CHEER

New feed-in tariff

The Government has announced the final details of the proposed new feed-in tariff from April 2010 for microgeneration from systems like small wind turbines and solar photovoltaics. The proposed new tariff will pay for all energy generated by your system, **irrespective of whether you use it yourself or sell it back to the grid**. The amounts paid are **in addition to** any saving you will make by purchasing less electricity from your supplier and any income you earn from selling your surplus power to your electricity supplier.

The rates are significantly **higher** than previously proposed: the feed-in tariff will be set at **41.3p/kWh** for a typical domestic scale solar PV installation and **26.7p/kWh** for smaller wind turbines. These rates will be **index-linked** to inflation over the life of the scheme. It was confirmed that there will be **no income tax for home owners** on revenue from the feed-in tariff, providing the energy generated is used mainly by your own property.

The feed-in tariff will be effective as of 1st April 2010, but all systems commissioned from July 2009 onwards will qualify for the additional income from 1st April 2010. For full details of the feed-in tariff see: <http://www.decc.gov.uk/en/content/>

Congestion charge benefits

Cars account for 63% of passenger journeys in the UK (higher in the US) so even a small cut in congestion translates into a significant fall in overall carbon emissions. London's congestion charging scheme has reduced the number of cars entering the charging zone by 15%, reduced transport carbon emissions by 16%, produced an estimated extra 29,000 bus passengers each morning rush-hour and contributed to doubling the bicycle trips in the city this decade.

In November last year the Netherlands announced plans to introduce a nationwide system of road charging by 2012. Where pioneers lead others follow.

Henley Wood

Look up towards the Hog's Back from Guildford High Street and you will see the profile of Henley Wood, an ancient remnant of the King's hunting grounds. These chalk downs are home to orchids, knapweed, larks and butterflies. A volunteers' group has been formed to improve the chalk grassland for wildlife, and to help manage the wood for native bluebells again to flourish. Contact John Bannister if you'd like to lend a hand.

To *Hedera helix* with respect

Insinuating plant
so crooked in your course
from clutching soil
to beckoning sky
so quietly ambitious
the uninvited guest
who pays no fees
enjoys a hostile press.

How imperceptibly
you veil identities
names of the dead
contours of castle and cot
the wealth-announcing plaque
our mortal fripperies.

Yet perfumed flowers
your miniscule stars
herald a winter crop.
Hearth fires sleep in your stems;
your leaves are sustenance
even for lambs.

They say you bring old trees
old buildings to their knees
but worthy you are to be
Patron of Mountaineers
Archangel of Wrens.

Michael Tanner



Guildford Environmental Forum aims to improve the environment in and around Guildford for wildlife and for people and to build a sustainable future. Forum membership costs only £5 per year or £7 for a couple, and new members are warmly welcomed. Please contact John Bannister on 01483 570468 or e-mail johnw.bannister@virgin.net

BRICKS AND BREAD – SUSTAINABLE LIVING CENTRE IN ALDERSHOT

Regular Clinics at the Centre or at your premises

Friday afternoons: Reducing Energy Consumption in Your Home

Tuesday mornings: Reducing Energy Consumption in Your Business

Contact the Centre on 01252 314060



CALENDAR



All the Forum's Group meetings are open to the public

Tuesday 16 March

Guildford Geographical Association.

Dr. Katie Willis, Royal Holloway, University of London:

"Urbanisation in Less Economically Developed Countries".

1830. Guildford High School (on London Road).

Thursday 25 March

GEF Sustainable Energy Group.

Hugh Broom, Chairman Surrey NFU, farmer and journalist:

"Farming's Contribution to Mitigating Climate Change and Can Surrey Feed Itself?"

1900. The Old Billiard Room, Guildford Institute. (Liquid refreshments from 1830)

Thursday 29 April

GEF Sustainable Energy Group.

Roland Clift, Professor Emeritus, Centre for Environmental Strategy, University of Surrey and President of the International Society for Industrial Ecology:

"Invisible Impacts: the Environmental Effects of Everyday Purchases".

1900. Committee Room 1, GBC Millmead Offices. (Liquid refreshments from 1845)

Tuesday 11 May

Guildford Geographical Association.

Association Annual General Meeting followed by a showing of the film **"The Age of Stupid"**.

1700. Royal Grammar School Geography Department.

Wednesday 12 May

GEF Annual General Meeting followed by a presentation by Mike Waite from Surrey Wildlife Trust:

"Surrey Wildlife Trust's Living Landscape Project".

1900. Council Chamber, GBC Millmead Offices. (Liquid refreshments from 1830)

GUILDFORD ENVIRONMENTAL FORUM

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Please send contributions for the next issue to Clare Windsor by Monday 3 May.

The views expressed in this newsletter are strictly those of its contributors and Guildford Environmental Forum.