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SPRING '14

ISSUE: THE ENERGY REVOLUTION

'Our financial rulers and the politicians who help them are playing a giant game of Monopoly with the worlds's finite resources - completely abstract from reality - even though they accept the facts of Climate Change. And yet, you can't play Monopoly when everybody's dead. They imagine they'll be the last people. They don't care so long as they win.'

Vivienne Westwood
www.endecocide.eu

PHOTO © CHRISTIAN SHAMBANAIT

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EDITORIAL:

Editor-in-chief: Katie Hill
Design: Nikki Saunders
Founder & Consulting Publisher: Jarvis Smith

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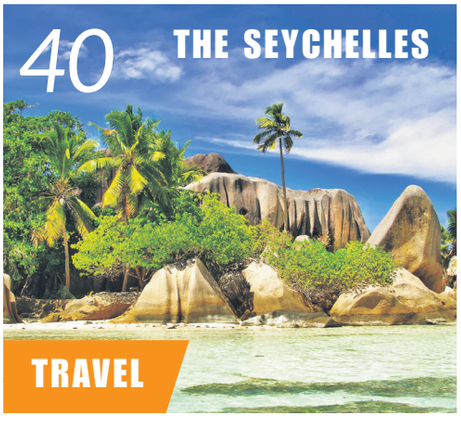

RENEWABLE ENERGY INNOVATORS FIGHT FOR CUSTOMERS' RIGHTS TO RHI

According to the government, the Renewable Heat Incentive (RHI) is the world's first long-term financial system for renewable heat, and the 'main scheme' for its heat strategy. It was introduced in 2011, with payments provided to industries, businesses and public sector organisations that use their own renewable heating systems.

The financial incentives were designed to encourage a movement away from fossil fuels, in a bid to cut greenhouse gas emissions and help the UK meet national targets set to reduce the effects of climate change. Following a consultation in 2012, a domestic version of the RHI was expected in 2013; after a couple of delays it now looks as though the household scheme will launch this spring.

What's happening?

To meet the government's target, 15% of the UK's energy consumption must be derived from renewables by 2020. This looks likely to be the last of our national targets for renewables; the EC's energy and climate goals for 2030 apply across Europe and place no legally binding requirements on individual member states.

The RHI's extension into the domestic sector is great news all round; the latest figures from DECC show that in 2012, domestic energy accounted for 29% of the UK's final energy consumption, and that the majority of energy consumed in the domestic sector was for the purpose of interior heating. In 2012 this represented 66% of the total domestic consumption, with water heating accounting for a further 17%.

According to DECC, the point of the domestic RHI is to pave the way 'for mass roll out of renewable heating technologies in the domestic heating sector during the 2020s by building sustainable supply chains, improving performance, reducing costs and reducing the barriers to take-up of these technologies.'

Hooray!

The renewables sector rejoiced in what appeared to be the warm embrace of a government in full support of the industry. Companies such as Newform Energy forged ahead with the research and development of hybrid photovoltaic thermal (PV-T) units that produce heat and electricity from one installation – a boon for those battling the logistics of maximising the renewable potential of their homes using separate, specialised pieces of equipment. The company's pioneering and award-winning Hybrid Solar Solution (HSS) is the first in the world to combine photovoltaic, thermal and heat pump technology in such a way that the total outputs are far greater than those of the individual components.

> *"This is yet another barrier erected by DECC for those trying to innovate in the green industrial revolution that Coalition ministers championed so enthusiastically while in opposition. What a contrast to the bend-over-backwards policy approach shale frackers and nuclear benefit from!"*
>
> Jeremy Leggett, founder and chairman, Solarcentury

Despite the delays, the domestic roll out of the RHI looked like a great step forward: homeowners would receive a financial incentive for switching to renewable heating systems, our future supply would be less dependent on imported energy and the UK's economy would be buoyed by homegrown businesses researching and designing the technology upon which it all rests.

Boo...

But here's the catch: draft legislation states that PV-T installations won't be eligible for the RHI scheme.

The draft for the The Domestic Renewable Heat Incentive Scheme Regulations 2014 states that, in order to be valid for RHI payments, solar thermal plants 'cannot also be used to generate electricity.' This would mean that current and future owners of intelligent, hybrid systems – developed and designed with support from the UK government – would not be able to cash in on the real life gains of the technology. This is despite the fact that drawing the benefits of both the RHI and FIT tariffs from one single PV-T unit would technically be no different from doing so via separate PV and solar thermal installations.

We contacted DECC for clarification on what appeared to be an honest mistake; the UK is currently a global leader in the development of PV-T and its applications, and UK industry is involved in the biggest PV-T system planned on Earth. Our PV-T sector has been building up its European partners for export and has the potential to generate huge revenues for the UK, with the focus on British engineering excellence.

But it's no mistake. A spokesperson from DECC told *PQ*, 'The Government's policies on the Renewable Heat Incentive (RHI) and Feed in Tariffs (FiTs) are designed to encourage people to be more energy efficient and drive down carbon emissions. Solar PV-T is a relatively new technology. We consulted on the domestic RHI policy in September 2012 when there was little evidence available on this technology. We therefore decided that it should not be eligible at the launch of the RHI scheme.

'If those who install measures through RHI were also paid a FiT, the Government may be paying them twice which would represent over-compensation and poor value for money for the tax payer. The Government will consider the appropriate level of support while examining the case for new technologies.'

This appears to be a complete misunderstanding of the technology involved in PV-T installations, which are - in every respect - the same as PV and solar thermal units installed as two separate entities. While the additional processing means the cost of manufacture is higher, the advantage comes in the efficiency gains of combining the two together.

Professor Peter Childs, Professorial Lead in Engineering Design, Department of Mechanical Engineering, Imperial College London, says, 'PV-T technology has the ability to attain significantly higher total power conversion rates than either PV systems or solar thermal systems, therefore giving a higher CO2 offset per meter squared of roof space than any other PV or solar thermal technologies.'

Benefiting from both the FIT and RHI cannot be

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seen as double counting; for every 1,000 watts of the sun's energy, approximately 15% is used for the production of electricity while a further 55-65% is converted into heat. This effectively means PV-T converts up to 80% of the sun's power into useful heat or electricity, displacing more CO2 per square metre than any other solar technology. Simply put, solar energy is not being used twice — it is being used for the production of either electricity or heat.

Imagine the confusion for British R&D companies — including Newform Energy and Natural Technology Developments — that received substantial government funding to continue research into PV-T technology, only to find themselves apparently excluded from the government's incentive at the eleventh hour.

In an email to Newform Energy, the Chair of the Solar Steering Committee said he had 'no objection' to eligibility for certification and listing as both a PV panel and a solar collector, provided the company was certified against MCS005 and MCS004 or Solar Keymark. He concluded, 'I don't see justification yet for any special category for product certification. In order to be used in any MCS eligible PV and Solar system, it will need to be certified separately under both categories. Evidence is insufficient to justify allowing, within MCS, any special consideration in terms of energy performance or the development of any other performance calculation methods that might reflect some performance uplift for PVT systems.'

Newform Energy fought for two years to have PV-T technology recognised by the Micro Certification Scheme (MCS) and the Solar Steering Committee. After extensive lobbying and over 300 signatures of support, it was decided that the products would be included under MCS as two separate technologies, provided that the panels were tested separately as solar thermal and photovoltaics under IEC/EN standards. The cost of this testing programme to Newform Energy was nearly £60,000. The company then spent a further £16,000 obtaining MCS certification for the technology, effectively paying twice for solar thermal and photovoltaic accreditation. It finally managed to obtain full MCS accreditation in 2011 and has maintained the certification, at a further cost of £2,000 a year, ever since.

Having fought its way through this process on the advice of the Solar Steering Committee – and marketing its installations as technology benefiting from both FIT and RHI – Newform Energy now stands to lose any chance of selling its products.

PV-T technology is real and in place now; 300 projects have been installed by Newform Energy alone, fully certified under the industry standard MCS for both PV and solar thermal. Customers have already opted to install the technology on the understanding that they will receive remuneration when the domestic RHI kicks in. Logically, homeowners should be able to capitalise on the full benefits of PV-T technology: the FIT could guarantee a minimum payment for the electricity generated by the PV-T installation, plus an additional payment for power exported to the grid, while heat production would be acknowledged under the RHI.

Speaking to *PQ*, Anthony Morgan, CEO and founder of Newform Energy, said, 'We have 300 installations — all potentially disappointed customers — and have just employed 20 new staff. We were looking to expand to 50 over the next 18 months to take advantage of the opportunity the RHI presented to us. It would appear that the decision by DECC to prevent the technology from benefiting from both tariffs will cut our ability to compete in the marketplace, effectively cutting our business off at the knees.'

The government's stance is a bit like a decision to back double glazed windows that need additional sealants, when airtight versions are already available on the market. If we are to meet our carbon reduction goals and move towards a secure, sustainable future, a hybrid approach to energy efficiency is absolutely necessary. There's no point in installing solar panels if your home's not insulated, and there's little chance you'll cut your energy bills – or recoup installation costs – if you're equipping an energy-efficient home with power-guzzling appliances. British companies like Newform Energy have been ploughing time, money and resources into the research and development of technology that ticks several boxes at once, with a view to driving innovation in the field and providing homeowners with financially viable alternatives to traditional mainstream energy sources. Now it looks like their future could be at risk, and that the government could be about to miss a crucial opportunity to boost industry, streamline domestic power use and reward homeowners for adopting carbon reduction measures.

> *"Preventing PV-T from entering the UK market flies in the face of DECC's carbon reduction programme. DECC's decision may be the nail in the coffin for one of the most cutting edge renewable energy developers and a very sad day for UK PLC!"*
>
> Anthony Morgan, CEO and founder, Newform Energy

DECC openly accepts that a 'step change in the uptake of renewable heat generating technologies' is required to achieve our decarbonisation targets, and to 'prepare the market for mass roll out in the 2020s.' It recognises that companies producing the required technology are not in a position to compete financially due to various barriers and market failures. However, the government appears to risk undermining the future of the entire sector – and sounding the death knell for the very companies that could help it succeed.

PHOTO BY DAVID VINER

BUILDING A CLIMATE RESILIENT FUTURE

DR DAVID VINER ARGUES A 'CLIMATE RESILIENT' FUTURE IS TAKING PRIORITY OVER THE REDUCTION OF GREENHOUSE GAS EMISSIONS

Across the world the weather and climate remind us - with deadly ferocity - that the issue has not and will not go away. On the 8th January, David Cameron said, 'We are seeing more abnormal weather events, I suspect that these are related to climate change. We need to invest in flood defences, we need to invest in mitigation and it makes sense to get information out better'.

The latest IPCC Reports and other peer reviewed science clearly demonstrate that the climate system is now almost definitely 'locked in' to breaching the 2°C threshold of dangerous climate change within the next 100 years. Furthermore, there is an ever-increasing likelihood of a rise in global temperature above 4°C, driven by growing greenhouse gas emissions. The global concentration of carbon dioxide is now above 400 parts per million – at the start of the industrial revolution it was 280 parts per million.

Population growth, resource scarcity and a constant drive for social and economic development already provide a full house of global challenges for humanity; climate change is fast proving the joker in the pack, adding an extra layer of uncertainty and difficulty onto an already strained world populace. A recent litany of devastating heatwaves, floods, droughts and eroding coastlines have led to the loss of livelihoods and some spectacular – and costly – failures of major infrastructure worldwide.

A new global imperative

Prior to climate negotiations at Copenhagen in 2009, and a spectacular failure to achieve a global deal on greenhouse gas emission reduction, the idea of adapting to the impacts of climate change was seen as somewhat defeatist. In recent years, however, the cost and frequency of extreme weather events is requiring politicians, businesses, communities and individuals to take note of the need to adapt and build resilience to climate change. Although a strong push for a belated global treaty on emissions is due to be agreed in Paris in 2015, the concept of climate change adaptation looks set to be an increasingly important aspect of achieving this goal. At the last UNFCCC talks in Warsaw in November, developing countries began to put pressure on developed countries to compensate losses experienced as a result of climate change. They are pushing for 'loss and damage' to be included in negotiations, a clear demonstration that any global climate deal will need to finance climate resilience.

Organisations such as the World Bank have estimated that the costs of adaptation will soon reach $100bn a year. Events like the recent Typhoon Haiyan in the Philippines have starkly illustrated that climate-related natural disasters have the potential to overwrite decades of development efforts; the tab for disaster recovery efforts is often picked up by foreign and international aid budgets which would otherwise have been spent on fostering economic development.

Fortunately, numerous global finance and aid institutes are beginning to respond in a big way. These include the International Finance Corporation (IFC) and African and Asian Development Banks, as well as national aid agencies such as the UK's DfID and German KfW. All of these organisations have committed hundreds of millions, sometimes billions of dollars of funding for climate change adaptation over the coming years. Many are also stipulating that climate adaptation be considered in all of their project funding decisions.

In the US, events such as Superstorm Sandy, which resulted in costs of over $80bn, have helped shake decision-makers to leapfrog the thorny debate over manmade climate change, and take action under the banner of 'Climate Resilience'. Fourteen states have already produced adaptation plans, and cities such as New York are devoting resources — and even setting up departments — to deal specifically with climate adaptation. The White House has also set up an Interagency Climate Change Adaptation Task Force, which is recommending ways to better prepare the nation for climate change.

The EU has gone even further, committing a fifth of its trillion-euro budget for the next six years to climate change, including both mitigation and adaptation on top of a requirement for all its members to produce climate adaptation plans. The most recent country to recognise its vulnerability to climate change and the need to respond was China, which announced in December that it has produced a nationwide blueprint for climate change adaptation, led by its economic planning agency.

Addressing the risks

While the governments' and aid agencies' efforts are important, the crucial role of the private sector cannot be underestimated. And responding they are. In an increasingly globalised world, businesses are recognising their vulnerability to climate impacts. The floods in Thailand, 2011, may not have grabbed headlines in the same way as those in Europe, the Mississippi basin or Queensland that year, but were ranked among the most costly events to date; nearly 15,000 companies reliant on Thai manufacturers and producers found their supply chains severely disrupted.

Research by insurers such as Munich Re, one of the world's largest reinsurance companies, has identified a consistent trend of more extreme and costly weather events across the globe. Worldwide insured losses have risen from an annual average of $5.1bn in the 1980s to $27bn over the last decade.

> *"The most climate sceptic banker will sit up and take note when a billion pound investment is wiped out by a flood, hurricane or storm surge."*

Naturally, insurers across the world raise premiums and reduce the availability of insurance in at-risk areas. In response, businesses are forced to increase their climate resilience to protect value chains, assets and reputation; shareholders are pressuring businesses that have not already included climate change in their business risk management and reporting.

This sense of self-preservation under a changing climate is not just limited to businesses; banks and funders are also keen for climate risks to be considered. The most climate sceptic banker will sit up and take note when a billion pound investment is wiped out by a flood, hurricane or storm surge. Financiers are now demanding that climate risk and resilience are included in the feasibility and environmental and social impact studies required before making investment decisions.

Entering an Age of Resilience

Increasingly, knowledge and understanding of climate change will be required in day-to-day decisions. Engineering companies are now realising that designs and projects will need to function under the 'disastrous' two degrees of climate change. Mott MacDonald, a multidisciplinary engineering consultancy, has taken this issue head on by beginning to incorporate climate risk into all its projects.

The financial cost of climate adaptation is staggeringly high, but now is the time to see changing climate not just as a threat and a challenge but also as an opportunity. Next year is the year for climate action. We now have a choice to enter the Age of Disaster, or invest in and build the Age of Resilience.

Dr David Viner manages Mott MacDonald's Policy, Sustainability and Climate Change Portfolio.

CROFT CASTLE ©NATIONAL TRUST IMAGES. JOHN MILLAR

PUTTING CLEAN ENERGY AT THE HEART OF CONSERVATION

The National Trust, in partnership with renewable electricity supplier, Good Energy, has launched an ambitious plan to get green energy into 43 more of its historic buildings. It's an exciting and innovative step in the charity's commitment to protecting the nation's special places and green spaces, so they can be enjoyed by everyone, for ever.

Patrick Begg, National Trust's Rural Enterprises Director, said, 'We want to show that renewable technologies can be made to work in some of the country's most sensitive landscapes and historic environments.

'By investing in renewable energy production, we can reduce our energy bills and invest more in vital conservation work around the country. It will put clean energy at the heart of conservation.'

Initially, five pilot projects will be developed at a cost of £3.5 million. If successful, the Trust expects to spend ten times that amount in a programme that will result in 50% of its energy being generated from renewable sources and its fossil fuel consumption slashed in half by 2020. This would be a fantastic achievement — not only in terms of carbon savings, but also in illustrating the unique role renewables can play in the UK's energy future.

The eccentric home

The iconic neoclassical country house at Ickworth in Suffolk will be one of the first properties to benefit from the programme. Home to the eccentric Hervey family for over 200 years, it was gifted to the National Trust in 1956 and offers visitors acres of woodland and wildlife to enjoy alongside a striking architectural oddity.

But there is one historic artefact at the site that is not so welcome – the oil tank, which provides the property with the 51,000 litres of fuel it needs for heating each year. Under the scheme, this is expected to be replaced with a 300kW biomass boiler fuelled entirely by timber collected from the estate, which will bring the dual benefit of self-sustainability and improved woodland management.

Plas Newydd

At Plas Newydd, a Grade 1 listed mansion on the shores of the beautiful Menai Strait in North Wales, the sparkling water that has until now simply provided the property with an elegant backdrop could soon be supplying it with a local, natural heat source, too. Oil-fuelled boilers are to be replaced with a marine source heat pump – one of the largest of its kind in the UK – which will provide for all of the property's heating requirements.

ICKWORTH

PLAS NEWYDD

Selecting the most appropriate technology for each property is a priority and at Plas Newydd, installing a marine source heat pump (rather than its more common cousin, the ground source heat pump) will reduce costs and minimise impact on the historic environment.

If the trial phase of the project is successful, the National Trust plans a further 38 schemes. These will be tailored to individual properties and selected according to strict criteria, with the binding goal of ensuring each of the special places has a secure and sustainable future.

To help achieve its vision, National Trust has partnered with green electricity supplier, Good Energy.

As a pioneer in the renewable industry with its own community of 55,000 independent green generators, Good Energy provides guidance and expertise in producing power from local, natural sources, as well as financial support to the Trust.

Juliet Davenport OBE, the CEO and founder of Good Energy, said, 'Britain is blessed with abundant sources of natural power and we hope people will be inspired when they see how National Trust properties can generate renewable energy in harmony with the environment.

'Together we hope to encourage people to switch to green electricity, reduce their energy usage and, if possible, generate their own renewable power at home.'

JULIET DAVENPORT, CEO & FOUNDER, GOOD ENERGY & PATRICK BEGG, NATIONAL TRUST

Good Energy recently announced that prices will be frozen for the whole of the winter. For more information, a price comparison and to join, go to goodenergy.co.uk/national-trust or call 0845 456 1640.

NEWFORM ENERGY AND THE SOLAR HOUSE

THE ZERO CARBON HOME THAT SHOWS HOW GOVERNMENT TARGETS CAN BE ACHIEVED

The government's environmental track record took yet another hit when, in last year's autumn statement, Osborne confirmed that some environmental levies on domestic power bills would be rolled back in a bid to cut down household power bills. The statement came hot on the heels of reports that Cameron had told aides to 'get rid of all this green crap'.

Those seduced by Cameron's green rhetoric are feeling stitched up, and those that weren't sucked in by the 2010 slogan 'Vote Blue, Go Green' have had their lack of faith in party politics confirmed. But the question remains: considering the government's inertia (at best) on all things green, who are the trailblazers that will fight back and research, design and invest in the technology that will help ensure a sustainable future?

PQ talks to Anthony Morgan, CEO and founder of Newform Energy, about the practical, economical and very much functional (see for yourself) solutions that should shake up the market – and wake up the government.

> *"11% of GDP came from the renewable energy sector in 2012...We have the only Chancellor of the Exchequer that is actively suppressing the fastest growing aspect of our economy!"*

No man is an island... But what if you were?

Islands constitute some of the most climatically sensitive areas of the world. Atolls in the Maldives and the Marshall Islands are witnessing the stark realities of climate change, and their inhabitants are battling against erosion and rising sea levels. In many cases the money available for investment in R&D for sustainable technology is minimal – certainly when compared with that of the UK – but still these governments are adopting new measures to ensure a carbon-neutral future, as the consequences of doing otherwise are catastrophic and immediate. It is a straightforward case of life or death. There is no greater priority.

If you're isolated in the middle of the ocean, you need to be self-sufficient – and you need to come up with creative solutions that maximise the efficiency of the resources available. Anthony Morgan spent 10 years as a marine engineer before founding Newform Energy in 2009. 'It was during my time at sea, whilst working on a research vessel looking at the causes of coral bleaching, that I had an epiphany', he tells *PQ*. 'It's possible to build ships as autonomous units – self-sufficient for power, light and water – so why aren't buildings designed in the same way? So, some 10 years ago I began to develop my ideas and research ways in which this could be achieved on land.'

> *"The 'Big Six' have too much vested interest in what they are doing now to do anything other than get in the way of change."*

The solution for Morgan is in the hybridisation of renewable energy technologies, to increase energy yields in areas where the sun has a more transient nature (such as the UK) and where energy storage still has a key role in the technology mix.

'The point we have had to make and get understood', says Morgan, 'is that this is not about a single technology; it's about understanding the synergies between technologies and looking at things from a different perspective.' This is a tough message to get across to a market that's only just beginning to get its head round photovoltaics, but Morgan lifts the gauntlet

with the analogy of a new type of carburettor in the engine of a car. 'It may be more efficient as a component, but on its own it can't run the car. We are improving the efficiency of the engine by changing the design of each component, one by one', he says.

Starting a new business in the middle of a recession was never going to be easy – particularly for a company that places a huge focus on R&D and has set out to introduce new products into a hugely conservative market. 'We have had to deal with everything from funding to accreditation issues, vested interest and complete technology denial', Morgan explains.

The UK: 'the world's best place to invest in fossil fuel tech'

Newform Energy received a regional growth fund to help expand and grow the business. However, this was from the local government; when asked about his views on the central government's green credentials, Morgan has to recover from a bout of laughter before responding. 'That is a joke! As far as I can tell the only thing this government is interested in is protecting the interests of the top 1%. The current British government has put in place subsidies to support oil and gas extraction which are making the UK the best place in the world to invest in fossil fuel technologies. This has been done at the expense of giving real support to renewable energy technologies and sustainability in general. They then have the front to say that subsidies on fuel prices that are supporting energy efficiency are to blame for energy cost increases.

'11% of GDP came from the renewable energy sector in 2012, it has shown greater growth than any other sector and has the potential in the long term to have a downward pressure on inflation. Yet still they slam all those fighting to support the sector and do what they can to encourage growth in oil and gas extraction. We have the only Chancellor of the Exchequer that is actively suppressing the fastest growing aspect of our economy!'

The government is cutting the cost of the Energy Companies Obligation (ECO), which placed legal obligations on large energy companies to help customers improve the energy efficiency of their homes, and replaced the Carbon Emissions Reduction Target (Cert) and the Community Energy Saving Programme (CESP) at the beginning of last year. 'The Big Six have too much vested interest in what they are doing now doing now to do anything other than stand in the way of change', says Morgan. 'But in the utopian world of zero carbon, it could provide services and finance to deploy technologies. That way it could still benefit from the sale of the energy and also ensure the efficiency of its assets are maintained.'

For Morgan, the biggest medium-term support the government could provide would be to continue with policies and subsidies that give the construction sector enough time to implement cost reductions. It should also provide a stable framework that promotes investment in companies like Newform Energy, which would allow continued improvements and innovations in the services offered.

Zero carbon by 2016?

The government has resolved to make all new housing zero carbon by 2016 but, in negotiation with the building industry, is being pushed back from this ambition by an industry that is unable to meet the target at an attractive cost (if at all). The introduction of inter-seasonal storage of solar energy, in combination with complementary technologies developed by Newform Energy, makes this target practical and affordable.

The government's target to make buildings zero carbon is clearly possible – Newform Energy has done it itself. However, Morgan believes that, for many reasons, the goal won't be achieved by 2016. 'The main reason is down to the building lobby expressing its concerns. Some, such as cost, are legitimate – but others are less so and are clearly motivated by short-term profit', he says. 'There is a degree of conservatism and resistance to change involved, too', he adds.

With energy cost increases and technology cost reductions it's only a matter of time before zero carbon will be an affordable reality. At this point the government just needs to hold its nerve and refrain from any further watering down of the targets.

'The UK's current definition of zero carbon excludes a significant portion of the electricity that is used in a building and, as such, it is not fit for purpose', says Morgan. 'As far as I know, we are the only country in the world that has done this! It is essential that there is no further watering down of the targets. Now we're nearly there it's time to keep focus and gently start tightening again. We are so close to being able to deliver on zero carbon in a way previously thought impossible, at cost point, which works now but can improve further.'

Moving forward...

Despite the setbacks, Morgan believes the industry has moved a long way forward in the last six years or so. Keeping the Code for Sustainable Homes, plus stronger enforcement of the policies that have already been in place for some time, would certainly be a step in the right direction. 'There is a vast need for retraining the construction sector about the technologies, methodologies and best practice from across the globe', he says. 'We have unfortunately missed a great opportunity in the last six years to do this. Now is the time to get on with the business of delivery.'

Opening up RHI — the Renewable Heat Incentive, which pays those that generate and use renewable energy to heat their homes — to commercial new builds would also help. 'This would provide a massive incentive to commercial house builders to go the extra mile', says Morgan. 'At present, RHIs are limited to self-build, retrofit and commercial buildings, so there is little incentive for large housing developers to spend any money on taking buildings beyond the regulations. This means that we will have new developments that will have to be retrofitted in the near future, which is ridiculous!

"As far as I can tell the only thing this government is interested in is protecting the interests of the top 1%. The current British government has put in place subsidies to support oil and gas extraction which are making the UK the best place in the world to invest in fossil fuel technologies."

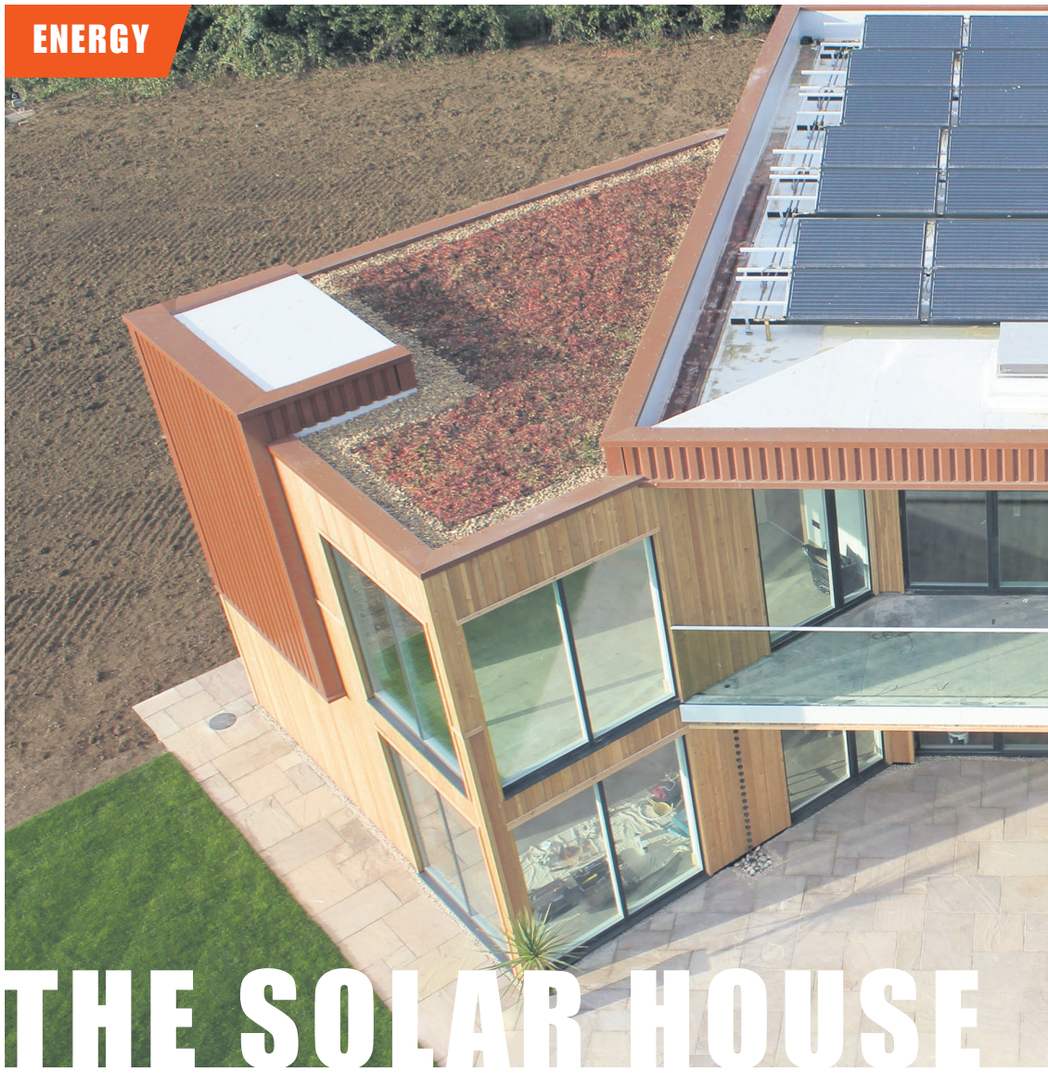
'We all have a responsibility to hit the targets, but ultimately it has to come from the top down. Without the right framework and policies in place we lack the drivers to make it happen. There needs to be a step change in approach, support and investment in innovation, far more in the way of education and a carrot and stick approach to subsidies.'

To Morgan, the single most important thing that will help ensure a sustainable, zero carbon future is teaching the next generation that all our planet's resources are precious and need to be protected. 'The cost of inaction will be so much greater if we don't get on with the job now', he says. 'Society has moved a long way in the right direction, but complacency and apathy could undo all the good work that has been done. The only way to prevent this is by ongoing education.'

If Morgan held the reins of power in his hand, his first act would be to ban excessive greed. 'I am all for supporting success and allowing reward for those who are prepared to take the risk, drive innovation or are driven to succeed,' he says, 'but we need to be able to understand at what point enough is enough and when too much becomes greed. Greed drives corruption, stifles innovation and limits change; those with the most to lose have the greatest vested interest. I think this is the greatest challenge to humanity; if more from the top were distributed to the bottom, many of the issues you see today would not be there.'

A more equal and rewarding society may result in no man feeling like an island — or it may make us understand that we're united on the most beautiful one of all: our home. All equal and all together, we must use the precious resources available intelligently and efficiently as we float in the universal sea.

For more information on Anthony Morgan and Newform Energy's projects, visit www.newformenergy.com



THE SOLAR HOUSE

THE SOLAR HOUSE SERVES AS LIVING TESTAMENT TO THE FACT THAT ZERO CARBON BUILDINGS ARE A PRACTICAL AND AFFORDABLE REALITY. CAMERON: IF YOU'RE READING THIS, THIS IS HOW IT'S DONE

The five-bedroom construction sprawls across 360m² of Great Glen, Leicestershire, and incorporates technology that allows the offset of 100% of its energy requirements using on-site generation. Electricity will still need to be bought to run the heat pump when there is no light for the panels to generate electricity, but this will be offset by the energy sold back to the National Grid. This means running the house should be cost neutral — in fact, with the relevant subsidies in place, the lucky owner should be in a cash positive position. Newform Energy sees the technology used as a viable alternative to heating and powering homes through traditional fossil-based energy sources. Data from the building is being gathered and analysed independently by De Montfort University, and the evaluation is crucial to the credibility of both the project and the science behind it.

The Solar House cost about £550,000 to build, and the additional cost of the technology — over and above what would be used in a conventional house - is around £45,000. 'This makes it around 5% more expensive than the average selling price for a similar-sized property in the area,' says Newform Energy, 'which isn't far off stamp duty.'

The brainchild of Michael Goddard of Caplin Homes, the Solar House was intended to demonstrate a repeatable methodology for zero carbon buildings. For Newform Energy it was the final piece in the jigsaw puzzle: inter-seasonal energy storage in a cost-effective package, that could be deployed across the mix of high- and low-density development schemes. The symbiotic relationship between the different technologies means that the sum of the parts is greater than the individual components. Here's how it was done.

> *"Stealing energy from precious resources with little regard for the consequences is a short-sighted and risky approach. We have an abundance of sustainable energy; learning how to tap into it and developing a unique approach could revolutionise our ability to deliver zero carbon buildings."*
>
> Anthony Morgan, CEO and founder of Newform Energy

Foundations - the thermal battery

'Historically, the best way to achieve a zero carbon build was to use a hybrid system with deep boreholes, from 35-100m, and a heat pump', says Anthony Morgan, CEO and founder of Newform Energy. But this approach is fraught with issues — the main one being geology. 'No matter how good a geological survey, when you start to drill you don't know what you will find', he says. 'The Solar House takes our existing methodology and does away with the need for deep boreholes, using the foundations beneath the building (which are only 1.5 meters deep) as a thermal battery instead.' This removes the need for deep drilling and large horizontal ground arrays. Provided the house is highly airtight and well insulated (Newform Energy has its own minimum standard, somewhere between Passivhaus and building regulations), a formula can be applied to calculate the thermal storage requirements, heat pump size and number of PVT panels needed on the roof.

Frame

The conventional timber frame has low embodied carbon, as well as being a much better insulator than mineral-based alternatives. The base level of insulation (100mm) sits within the studs of the frame, which keeps wall thickness down. Then, in order to attain the required u-values (the measure of heat loss for a particular part of a building — a lower value means a more efficient transfer of the building's heat), multi-foil cladding (as opposed to more foam insulation) is used between the studwork and the service void. This means that, with its larch cladding, the walls of the Solar House are only 250mm thick, yet have a u-value of 0.14. Current building standards (Part L) place the maximum u-values for walls at 0.3.

Smart controller

The smart controller calculates energy flow, working in a slightly different way from either a more conventional differential controller (such as a solar controller) or a BMS (Building Management System). In essence, it calculates the amount of energy required to hit a target within a given time frame. It then works out, from the resources available, the most efficient place from which to draw energy — always prioritising free power.

PV-T panels

In summer months, if the PV-T (photovoltaic-


SOLAR PV-T


EARTH ENERGY BANK

thermal) panels are hotter than the domestic hot water (DHW) cylinder (which stores hot water for potable use), free solar thermal energy passes to meet demand. If the panels are hotter than the ground — but not hot enough to heat the DHW cylinder directly — the panels are used as a source for the water-to-water heat pump. If the building demand is satisfied, the building temperature is 21°C and the demands of DHW have been met, then the excess energy from the panels is directed to the earth energy bank beneath the building. This energy is then stored inter-seasonally and used to heat the house during winter, when there is less energy from the sun to meet the building's demands. The process allows the heat pump to run less and, when it does, to run more efficiently. This adds up to a higher efficiency (COP) than conventional heat pumps. Additionally, the cooling effect on the photovoltaic part of the PV-T means more electrical generation per kW peak than conventional PVs of the same output.


HEAT DELIVERY MATRIX

Water-to-water heat pump

A water-to-water heat pump is a device that transfers low grade thermal energy from a source, such as the ground, to a higher temperature destination, such as a DHW cylinder. The device uses a compressor to take the low grade heat, then applies mechanical work to raise the temperature so it can be used within a building. It's similar to a fridge working in reverse: the cold part is the part in the ground and the hot element, like the one found at the back of your fridge, is used to heat the building.

Windows

The windows are triple glazed with a generous south-facing area. Newform Energy is also evaluating passive solar walls, which pre-heat the incoming MVHR (mechanical ventilation heat recovery) air and help with the overall energy equation.

Newform Energy doesn't just focus on new builds, and Morgan believes the retrofit market could benefit most from a hybrid approach. Its retrofit solution offers massive carbon savings while also being cost-effective; the soon-to-launch 'multi-source air source heat pump' has an additional energy input that takes low grade solar energy during the winter months to improve overall system efficiency. Using this method, Newform Energy has been able to meet the government's 2050 energy targets — an 80% CO2 offset on all buildings in the UK - today, provided insulation, glazing and other thermal efficiency measures have been carried out on the house. Though targeting off gas grid homes, Newform Energy hopes to introduce products that will be able to show a similar impact on gas grid homes in the future.

The target price for this system, which will take care of 100% of a home's heating requirements and around 60% of the home's electrical energy needs, is roughly £14,000, including installation. When you take into account the financial incentives of the FITs and - hopefully - the RHI, this could dramatically reduce a home's domestic power bills, and would typically pay back in under six years.

If you're looking at ways to improve the energy efficiency of your home, the first thing you should look at is insulation. It's the cheapest and most efficient means of carbon and cost reduction, and it's always best to look at ways to reduce your energy consumption before you consider generating your own. 'There is definitely a crossover point,' says Morgan, 'where the costs associated with extreme insulation and air tightness measures can be better applied to generation in order to get maximum cost benefit and CO2 offset.'

For more information on Anthony Morgan and Newform Energy's projects, visit www.newformenergy.com

PUMPING HEAT

After developing gas fired heating systems at British Gas, Andrew Sheldon, founder of Ice Energy, became aware of the importance of energy and the effect it has on people's lives. 'As Britain's gas resources decreased', he tells *PQ*, 'it became obvious to me that, at some point in the future, we would need an alternative solution.'

Sheldon came across heat pumps while investigating how other countries around the world were dealing with their heating demands in the context of rising energy bills, climate change and the necessity of carbon reduction.

Heat pump technology had a proven track record in terms of long-lasting benefits, and the low long-term costs meant that, for Sheldon, this was the technology to back. In tandem with additional renewable options such as solar PV, it presented a realistic opportunity to achieve zero carbon homes. 'I was convinced that ground source heating was the long-term solution to the UK's inevitable heating problem', he says. 'I founded Ice Energy in 2000 with a view to getting government support to change the way in which the UK heats its homes.'

Sweden is a leading example of a country that has embraced and implemented heat pumps as an alternative to gas and oil; over 90% of its homes are built with a heat pump heating system as standard. However, despite the fact that the steady state heat loss principles of heat pumps can reduce the total peak heat demand of the nation's homes, getting mainstream support for a technology that isn't widely understood or accepted in the UK hasn't been easy. Architects needed to be brought on board, installers had to be trained, the public had to be made aware of the benefits and the government had to be lobbied for grants and funding schemes.

'The biggest issues for the heat pump industry are rooted in knowledge and perception', Sheldon explains. 'Although the number of people installing heat pumps in their homes is on the rise, there is still a large knowledge gap. Many people are under the misapprehension that they don't work with radiators and can't provide enough hot water, or even that they don't work at all! But nothing could be further from the truth.'

How do they work?

Ground source heat pumps use a series of pipes, known as a ground loop, to extract solar energy that has been stored beneath the ground. The pipes, which contain a mixture of water and glycol (a type of antifreeze), are buried roughly a metre beneath the ground, where the temperature is a fairly constant 10-13°C. The liquid in the pipes is warmed by the surrounding soil before passing through the heat pump, where it is heated to the point at which it can be distributed through radiators or underfloor heating. Air source heat pumps work the same way, but sit outside a building and extract heat from the air rather than the ground. In both cases, heat pumps provide a total heating and hot water solution for a property.

Ground source heat pumps are extremely efficient and available to around 90% of the UK's domestic premises; they are installed via boreholes and so only require a very small footprint of land. Ground source heat pumps can achieve an average Co-efficient of Performance (COP) of 4:1, which means that, for every kilowatt of electricity used to power them, you can produce 4 kilowatts of heat. Air source heat pumps are cheaper to install as they don't require ground loops; while they're still extremely efficient (with an average COP of 3:1), the trade-off is that air source heat pumps are slightly less efficient than the ground source units. That said, in either case, you are still looking at significantly better efficiency rates than traditional heating systems.

Switching a building's thermal energy source from oil to heat pumps could slash 60% off your energy costs. 'We have examples of customers saving £1,500 a year after switching from previous oil systems', Sheldon explains. Figures from the Department for Energy & Climate Change (DECC) estimate that, by 2020, there will be 575,000 heat pumps installed within the UK. 'Assuming a saving of four tonnes per annum in carbon,' Sheldon says, 'you are looking at annual savings of approximately 2.3 million tonnes.'

The bottom line

A ground source heat pump will cost around £10,000-15,000 to install, but this can be recovered under the Renewable Heat Incentive (RHI) - a government incentive which starts this spring. The scheme should allow you to recover the total installation costs within seven years.

'Thanks to the Renewable Heat Incentive, people choosing to install now are probably in the best position yet to do so', Sheldon tells *PQ*. 'Owners of heat pumps will qualify to receive tax-free payments for the next seven years for the renewable heat their systems generate.' In the vast majority of cases people will not only recoup the installation costs, they could also earn an additional amount on top. For these reasons, Sheldon believes the RHI is 'probably the single-most important funding scheme to help the UK heat pump industry and the UK's carbon reduction as a whole', and he wholeheartedly welcomes its introduction and support across all political parties.

Even without the payments available via the RHI, the case for heat pumps is still incredibly strong. They're sustainable, reliable, more cost-effective to run, have minimal maintenance requirements and, as they don't use any combustible substances and are a far safer option than gas, for example. They don't require the import of foreign energy supplies and could help reduce the UK's balance of payments to create a stronger economy.

Installing heat pumps during the building process is more straightforward; an appropriate unit can be incorporated into the design and the trenches for the ground loop can be dug while there is already a degree of disruption around the build. However, ground source heat pumps can also be retrofitted to existing homes. 'New builds are getting more efficient all the time, but there are clearly millions of older properties in dire need of an upgrade to ensure people can heat their homes efficiently and cost-effectively', Sheldon explains. 'The big gains in carbon savings are in upgrading existing housing stock.'

The Prime Minister's official visit to Ice Energy's offices, along with the drive to stimulate interest in renewables and reward adopters of renewable heating systems through the RHI, are, for Sheldon, clear indications that the government sees heat pumps as a viable alternative to traditional systems. 'Over the years we have built up a strong collection of political supporters within the government,' he says, 'all of whom are firm believers in the technology.'

Going forward, Sheldon believes all efforts should be made to sustain an approach in which energy companies are controlled and directed towards carbon reductions. He thinks that the recently revised ECO spending targets should be reinstated and that our goal should be the long-term development of programmes that support renewable energy and carbon reductions.

However, he also adds that it's vital to stop extending the domestic gas main — particularly in light of the fact that 49% of our gas was imported last year. 'We all have an important role to play,' Sheldon says, 'but the government must take a more joined up approach to energy and ensure that renewable energy and low carbon systems are promoted sufficiently, in the same way that nuclear has in the past. This will help achieve a balance between the average person's desire to pay less for their domestic energy and the challenge of moving towards a zero carbon future.'

For more information on Ice Energy and ground and air source heat pumps, visit www.iceenergy.co.uk.

ENERGY

SOLAR PV: STILL FIT FOR PURPOSE

THE FEED-IN TARIFF (FIT) RATE WILL BE FIXED AT THE CURRENT 14.9P/KWH FOR PV SYSTEMS INSTALLED BEFORE APRIL 1 2014. JAMIE CLARKE, FOUNDER AND CEO OF ECOSYSTEM ENGINEERS, EXPLAINS THE OPTIONS AVAILABLE TO HOMEOWNERS, AND WHY SOLAR INSTALLATION COULD STILL BE A SHREWD MOVE

Since 1971, the price of a single watt of solar power has fallen from £63 to just 0.67p, thanks partly to government incentives to ramp up the adoption of domestic solar power generation. Homeowners that install solar panels score wins all-round under the Feed-in Tariff scheme; as well as slashing energy bills by generating your own power, you're also paid for all the electricity you generate – even if you use it yourself. Anything left over can be sold back to the National Grid, so the cash flows in whether you use the power or not.

The FIT rate – or the sum you're paid for the energy you generate – started off pretty high when the scheme launched in 2010; at 41.3p per kilowatt hour (kWh), you could expect an average-sized solar PV system to pay for itself in 10 years. But when the rate dropped to just 21p/kWh at the end of 2011, the payback time stretched out to around 18 years. Last July the rate was shaved again, and those installing solar PV systems now will be paid 14.9p/kWh.

While solar installation might be starting to feel more like a risky gamble than a sure-fire income generator, don't be put off just yet. The rate you receive is fixed from the point of installation and guaranteed for the next 20 years; while rates might drop in the future, the earlier you get in, the better off you'll be.

The falling rates are testament to the solar boom's success, and the solar PV market is being forced to respond to increasing competition. From small flexible panels to large ground-mounted tracking stations, the market has differentiated itself to provide power for all sorts of situations, making solar generation a possibility for everyone. So while FIT rates may have dropped, innovative new ways to harness the sun are appearing – and they're carrying lower price tags than ever before. Here's a rundown of the technology available and information to help you decide which system would work best for you.

Amorphous Silicon

Amorphous panels usually consist of a glass or plastic panel coated with a thin film of amorphous silicon. This particular form of silicon doesn't have a crystal makeup and, due to its disordered structure, produces efficiencies in the region of 6-9%. Amorphous silicon panels tend to take up more space than other options and also cost more to install – but the panels themselves are relatively cheap, which tends to balance things out. Interestingly, amorphous silicon can be coated onto plastic sheets in order to make a flexible solar panel, and can even be made transparent to certain wavelengths of light. These designs can act as both a window and solar panel simultaneously. One such example of transparent solar panels is brought to us by Polysolar (www.polysolar.co.uk) of Cambridge in the UK.

Polycrystalline Silicon

Companies like Sharp have been making polycrystalline panels since 1963. This type of panel comprises many small crystals which have been fused together and cut into a wafer. This is in contrast to monocrystalline panels, which consist of one large continuous crystal. Polycrystalline panels typically have efficiencies of 12% in standard test conditions, meaning they're twice as efficient as amorphous silicon options. As a result they require half the roof space, which reduces installation costs. The typical installation process involves attaching a racking system through the roof tiles and into the rafters of the building. The panels are then mounted to this frame. To install a 2kW solar array will cost around £2,000 in equipment costs and £1,800 in installation costs.

Monocrystalline Silicon

Monocyrstalline panels from companies such as Hyundai are the most efficient form of conventional solar panel, with efficiencies reaching 17%. Monocrystalline silicon is grown into one large single crystal, stretching 30cm in diameter and 2m in length. This is then cut into incredibly thin wafers for use as solar cells. Due to the excellent crystal structure, monocrystalline cells use more of the energy that falls onto their surface - but due to increased manufacturing costs, this tends to be a more expensive option for the homeowner. Monocrystalline and polycrystalline panels share similar installation costs; for this reason many solar installers recommend opting for monocrystalline panels for their higher lifetime efficiencies.

Concentrating Photovoltaic

Research into concentrating photovoltaic panels began in the USA's Sandia National Labs in the 1970s. The concept is to reduce the amount of silicon required for construction by concentrating sunlight through a series of mirrors or lenses. It's possible to concentrate the sunlight one thousand times onto a focused point, which contains a very small but highly efficient solar cell, typically one or two centimetres wide. This reduces the number of silicon cells required by up to 95%. Through clever reduction of the expensive silicon components, CPV panels come very close to the price point of monocrystalline panels.

Due to the reduced use of silicon and the increased use of glass mirrors and framing, the vast majority of CPV panels can be recycled again and again as technology improves. Another major benefit of CPVs is that they typically require 40% less space than the most sophisticated monocrystalline panels. Less material taking up less space results in a reduced environmental impact for each watt of power generated, making concentrated solar power very attractive when used in the correct application.

This type of panel functions best in direct sunlight, so CPVs are typically ground-mounted and attached to a single or dual axis tracking system, designed to follow the path of the sun throughout the day. This adds an additional cost, but single axis tracking alone can improve efficiencies by approximately 20% over a fixed panel. This means that concentrated solar power is ideally suited for use in large-scale solar power stations; the increased weight makes their use prohibitive for roof-top installations.

CPV efficiencies can reach 36%, which even outstrips coal- and oil-fired power plants (which have efficiencies around 33%). This is just another feature of concentrated solar panels that makes them very attractive for large power generation projects.

For updates on FIT rates, including when they'll expire and kick in, have a look at www.ofgem.gov.uk.

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*£21,000 invested over 12 years is projected to return £74,734 with the following payouts:

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- **We own all of our plantations unencumbered, manage them using our professional forestry staff and monitor them daily with our team of caretakers**
- **Why not visit our website to learn more about the security we offer to investors, see our plantation maps and read about our Forestry Easement Trust that protects the natural forests on our land?**

Melina project 2013/14
Investment and projected returns table

Amount invested	Projected returns
£28,000	**£99,755**
£35,000	**£124,775**
£42,000	**£149,469**
£49,000	**£174,489**
£56,000	**£199,328**
£77,000	**£274,063**
£84,000	**£299,083**
£91,000	**£324,104**

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Guide includes our returns, terms and conditions and risks associated with this investment described in full. Calls to 0800 numbers are free from a UK landline. Mobile and international call costs may vary.

Important information: * **The projections provided are for information purposes only and are based on our assessment of the amount of timber that can be grown and the market price, as explained in our brochure, following investment in Melina over 12 years (2013/2014). Actual returns will depend on the

over
1,700,000
new trees planted and managed on behalf of our investors

over
72,000
new trees now planted per week during peak season

over
2,150
acres currently protected in our Forestry Easement Trust

over
400
The amount of people we currently employ in the UK and Costa Rica

On our 25-acre head office site in Costa Rica, we nurture 12,000 new Melina saplings per day during peak season

Every tree we plant is given a unique GPS point, which is registered on our tree management database, allowing us to monitor each one individually

Our thriving Forestry Easement Trust protects and enhances Costa Rica's woodland, from vast swaths of wild forest to individual trees of importance

Melina trees grow very quickly, reaching an average height of over 20 feet after just 1 year and over 95 feet when they reach maturity in year 12

Our investments are designed to maximise the amount of timber yielded. By year four, the trees our Forestry Engineers nurture are substantial in size and value

Before we harvest any tree, we check its unique GPS point on our tree management database

Based on our Costa Rica head office site, our timber mill and sales division prepares and sells wood to the domestic and overseas markets

How we integrate and support the communities in which we operate is important to us. One such example is our Workers' Co-operative, where we fund the development of a sustainable food source for our workforce

We pride ourselves on being transparent about our operations. On our website you can see our plantation maps and learn how to independently check their validity on Costa Rica's Land Registry

yield produced and the market price at the time of harvest. Returns may be higher or lower than projected and there is no guarantee that you will receive back the full amount invested. Any returns may be subject to additional costs and liabilities such as tax, which have not been factored into our projections.

THE PEA AWARDS 2

FOUNDED BY OUR VERY OWN JAR (PEOPLE & ENVIRONMENT ACHIEV INSPIRATIONAL PEOPLE WHO AR GREEN AGENDA. HERE ARE LAST Y CRUCIAL CONTRIBUTIONS TO TH

The PEAs were a roaring success, with Laurence Kemball-Cook cleaning up with three awards. 'You will be hearing more about him as he walks it and talks it', said PEA Awards founder, Jarvis Smith. 'Congratulations to all our winners this year — and thanks to Jo Wood, Phaldut Sharma and Oliver Heath for helping to give the night a lighter touch.'

2013's PEA Champion, Best Energy-Saving Idea and Business Person of the Year

Laurence Kemball-Cook, CEO, Pavegen Solutions

Laurence Kemball-Cook, winner of the Best Energy-Saving Idea and Business Person of the Year PEA Awards, was also crowned overall PEA Champion, 2013, for his work as the founder and CEO of Pavegen Systems. This innovative clean-tech company has designed, built and demonstrated a pioneering flexible paving slab that generates electricity using the wasted kinetic energy from people's footsteps. An unnoticeable downward movement of 5mm generates up to 7W over the duration of a footstep, enough to power low-voltage local applications such as street-lighting, advertising displays and ticket machines. Since the company's inception, Pavegen has become the market leader in the footfall energy-harvesting sector, and a series of commercial installations is underway.

Speaking to *PQ*, Kemball-Cook said, 'Ideas in the area of sustainability and clean tech have had a hard time in the past three years. Validation of the idea from independent groups, such as the PEA Awards, goes hand-in-hand with commercial traction. Pavegen could play a key role in the smart cities of the future. Imagine if people walking, running and jumping could help power the lights and applications in our cities. This is the first step towards Pavegen's vision of a more sustainable tomorrow.

'Winning the PEA Awards has helped put Pavegen in the spotlight as a driver towards a greener planet, and the three awards we won were great recognition for our hard work. However, the work does not end here - it's only just begun! We have a lot of growing to do as a business and a lot of value to create over the next 24 months of our business cycle.

'We will be installing our largest installation ever in one of Europe's largest transport hubs in Q2, alongside a number of other exciting world firsts.'

Arts, Fashion & Music (sponsored by THTC)

Esther O'Callaghan OBE, Director, Creative Common

Situated on a formerly derelict plot of land in the heart of the Bristol Temple Quarter Enterprise Zone, Creative Common is a temporary use project that has transformed the area into a bright and vibrant hub for creativity and culture, with environmental sustainability at its heart. It's on target to attract over 100,000 visitors, creating the equivalent of 58 full-time, local jobs, with a programme featuring 250 individual artists and performers.

O'Callaghan told *PQ*, 'I don't consider myself to be a game-changer – yet! I am just embarking on this journey. You can make events sustainable without beating people over the head about the "green agenda". I believe it is important to be able to offer a viable alternative that is mainstream, accessible and fun.'

Best Earth-Saving Idea (sponsored by Good Energy)

Michael Lawley, Director and Renewable Energy Engineer, EcoInnovation's PowerSprout

PowerSpout provides micro-hydro turbines for domestic and commercial markets. They are among the most cost-effective and efficient renewable energy generators, achieving up to 60% efficiency, and a single turbine can generate up to 1.6 kW and produce 10,000 kWh per year. Some sites install multiple units to generate up to 16 kW. PowerSpout turbines are manufactured using 68% recycled materials and 77% can be recycled.

Speaking to *PQ*, Michael Lawley said, 'Since my teenage years I have been aware of the pressure on our resources. At some point the planet will become sustainable and I hope my work brings this day a little closer.'

Best Environmental Film/ Documentary

James Balog, *Chasing Ice*

In the spring of 2005, acclaimed environmental photographer James Balog headed to the Arctic on a *National Geographic* assignment to capture images that would help tell the story of the Earth's changing climate. Even with a scientific upbringing, Balog had been a sceptic about climate change.

Chasing Ice is the story of one man's mission to change the tide of history by gathering undeniable evidence of our changing planet. Balog battled untested technology in sub-zero conditions, deploying revolutionary time-lapse cameras across the brutal Arctic to capture a multi-year record of the world's changing glaciers. His hauntingly beautiful videos compress years into seconds and capture ancient mountains of ice in motion as they disappear at a breathtaking rate.

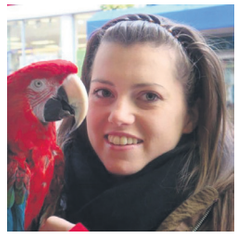
Campaigner of the Year (sponsored by VegFest)

Nicola Peel, rainforest activist and film maker, Eyes of Gaia

Since starting work in the Ecuadorean Amazon in 2000, Peel has travelled from the headwaters in Ecuador down the Amazon River to Brazil, researching the effects of the oil industry on the environment and its indigenous people. She has produced a number of short films as well as the feature documentary *Blood of the Amazon*.

Peel co-founded The Amazon Mycorenewal Project, which researches the use of fungi to clean up contaminated sites. She also used 3,200 eco-bricks (empty plastic bottles filled with rubbish) to build the first restaurant in the Amazon that serves local coffee and food wrapped in banana leaves. Peel speaks on Ecuadorian radio and TV about the threats of genetically modified seeds and the dangers of corporate control (namely Coca-Cola and Nestlé) preventing local business from thriving.

Community Award (sponsored by Mott MacDonald)



Shelley Rowley, co-founder, Conserve me Foundation

The Conserve me charity aims to advance young people's understanding of science, biodiversity and wildlife conservation. Working with primary and secondary schools, it designs and delivers a series of interactive and educational science projects, using a wide range of mechanisms to deliver different messages. Since 2010, its projects have supported over 7,500 students from 150 UK schools.

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VIS SMITH, THE ANNUAL PEA VEMENT) AWARDS RECOGNISE E MAKING A DIFFERENCE TO THE YEAR'S WINNERS, AND THEIR E FUTURE OF OUR PLANET.

'Funding our work is the greatest challenge we face,' Rowley tells *PQ*, 'but with a small amount of money and a lot of determination, you can deliver meaningful educational programmes. Receiving a PEA Award has raised my profile with my corporate clients; it it has also been rewarding to know others acknowledge and value the work we do.'

Entrepreneur of the Year (sponsored by Gaeia)

Shruti Barton, Creative Director, Easthetic, and owner of Flower Pozzy

A trip to Columbia Road Flower Market originally inspired Barton to come up with a way to help reduce the cut flower industry's reliance on disposable packaging. She noticed people universally carried flowers awkwardly and, since there wasn't a green or easy-to-use solution, she set out to create a contemporary range of designs made from natural fabrics.

Encouraging people to change the way they buy and carry flowers has been Barton's biggest challenge. 'I've tried to create a range that will appeal to the more style conscious,' she tells *PQ*, 'and I've loved being a bit more creative with the online marketing of my brand, Easthetic, to get the product noticed.'

PEA-ple's Favourite Award (sponsored by My Green Directory)

Suzanne Whelan, Director and Editor, Daisy Green Magazine

Launched to showcase ethical, British and locally made products alongside motivational stories to inspire like-minded people. The team has organised multiple events, including handmade markets, fashion shows, clothes swaps and

business-to-business events the Big Eco Show and Show Your Mussel.

'Daisy Green was born from the fact that there was little, if anything, in the mainstream to inspire myself or Nicola Alexander, the founder of Daisy Green, to be "greener"', Suzanne tells *PQ*. 'We are both women who like to take care of ourselves, family, people and the planet around us — but we have never been 'campaigners' in the traditional sense. Our greatest achievements are getting people to listen and act. To date we have saved at least 10,000 items of clothing from landfill — simply through clothes swaps and then getting people to consider their future purchases.'

Public Sector Award

UK winner: Simon Jakeman, the 'Green Firefighter', London Fire Brigade

Over nearly 20 years as a firefighter, Jakeman has evacuated flooded homes by boat, chased wildfires through woods and picked up the pieces during storms. A changing climate seems personal to him, and he feels he has to do his bit to change attitudes.

'Fire and water is my profession, but Earth and sky is my passion', he tells *PQ*. 'The greatest challenge is swimming against the tide; many attitudes are hard to change, but as a firefighter it's not in my nature to walk away.

'I hope my PEA Award will give others a nudge to do their bit, too. I may be just a small seed in the wilderness, but if we could all start greening the grey of our cities together, things may eventually change.'

Public Sector Award

International winner: Abdulhadi Alalyak, Vice President, Asset Management and Corporate Administration, Fujairah Retail Shop

The retail outlet at Fujairah city centre is the UAE's first Leader in Energy and Environmental Design (LEED) Platinum certified retail outlet – the highest LEED ranking possible.

'In our desire to become more green, we applied leading techniques and technologies to reduce the environmental impact of this shop', says Alalyak. 'Achieving Platinum certification from LEED is a testament to our efforts, however the true reward is in demonstrating that it is possible to open and run a successful, conscious retail outlet in the UAE.'

The Fujairah Retail Shop was designed, supervised and managed by Asset Management and Corporate Administrations (AMCA) projects' team to achieve LEED certification.

Responsible Travel (sponsored by Experience Travel Group)

UK winner: Jamie Andrews, co-founder, Loco2

With 'ex-hippies turned eco-entrepreneurs' for parents, Jamie Andrews and his sister Kate, co-founders of Loco2, have been green-minded

since childhood. 'Family holidays took us around the world,' Jamie tells *PQ*, 'but it soon became clear that carbon offsetting wasn't a viable solution to the challenge posed by flights.

'When planning her post-university travels, Kate hit on the idea for Loco2 (meaning "low CO2" as well as locomotives), and I jumped at the opportunity to get involved. While Kate was on her gap year(s) circumnavigating the globe by land and sea, I set about learning how to build websites. Our greatest achievement is making trains as easy to book as flights at loco2.com — and, of course, winning a PEA Award so I can tell our story here.'

Responsible Travel (sponsored by Experience Travel Group)

International winner: Victoria Blanco, supervisor at Cock of the Rock Lodge

In 1995, Blanco began working for the Conservation Association of the Southern Rainforest (now Peru Verde Association), preserving the unique and intact tropical rainforests of south-east Peru — biologically one of the most diverse areas in the world.

'At the beginning, we developed only conservation projects', explains Blanco. 'However, in 1996 we began to work with ecotourism as a sustainability tool. The Cock of the Rock Lodge is one of these projects and is verified by Rainforest Alliance.

'One of the best achievements for Peru Verde was the creation of the Private Cloud Forest Reserve, which was recognised in 2008 by the entity of the government in charge of the Natural Protected Areas. The main difficulty was in making our staff understand why it is important to use sustainable methods during our activities.'

Schools (Sponsored by MyGreenPod.com)

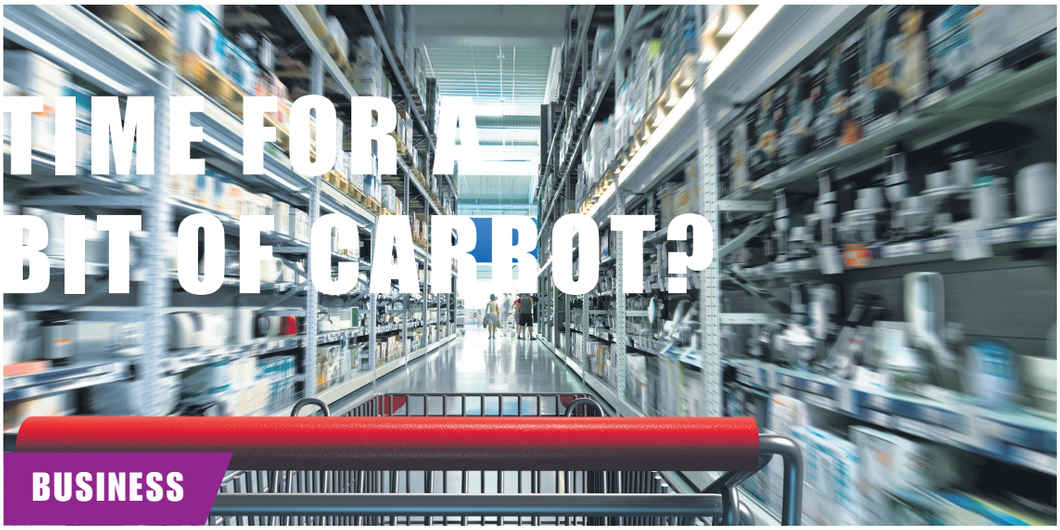
Alicia Wingfield, The Eco Bus

The Eco Bus is a refurbished double decker that offers environmental education with a difference. It provides a fun and interactive classroom where young people and the local community can learn about environmental responsibilities and the importance of reducing, reusing and recycling domestic waste.

The Eco Bus has organised 205 school events and 78 community events within the borough of Sandwell, engaging over 25,000 people. The workshops range from saving water to recycling; each is tailored to the school's needs.

'We aim for young people to build skills and knowledge into their everyday education and learning environment, by identifying the problems and coming up with solutions', says Wingfield. 'This project also aims to dispel the myth that young people create all the negative issues within the environment; we encourage them to become active participants in their own community and build the values of good citizenship.'

For more information and photos, visit www.peaawards.com.



TIME FOR A BIT OF CARROT?

BUSINESS

TONY JUNIPER ON THE COMMERCIAL REALITIES OF SUSTAINABLE BUSINESS PRACTICES

November 1991. I'm outside a B&Q DIY store in North London distributing leaflets to customers. With dramatic pictures of destroyed rainforests, our advice was for people not to buy tropical wood from the company.

The idea was to use consumer power to convince B&Q to be more careful about where it bought its forest products. Our reasoning was that if we got them to specify more sustainable sources for the wood they sold, then a contribution could be made towards saving the tropical rainforests.

Earlier that week I had been with Friends of the Earth colleagues when we inflated a giant chainsaw-shaped balloon attached to a transit van in the car park of a Wickes store in Islington. We drove this unusual contraption around the huge retail shed, at one point putting the 20-feet-long rubber blade through the front door. The intention of this elaborate stunt was to get some TV coverage for our new 'Destroy it Yourself' campaign. It worked.

Awareness spread as to the perils of buying rainforest wood in DIY stores. The media called the companies to ask what their policy was. The fact that they didn't have one only added to the pressure. Questions were asked in Parliament. The reputational damage being done was considerable, and the people running the DIY chains wanted a solution.

> *"While there is a proud track record in wielding the stick, there are fewer examples of effectively dangling the carrot."*

For three decades, environmental campaigners have successfully used tactics like these to target company after company, chivvying them along with pressure in search of action to do better for the planet. Campaigns raising the profile of environmental questions within different companies have over time been quite successful, with businesses in a wide range of sectors responding with new policies, targets, strategies and products.

Marks & Spencer launched its impressive Plan A, which sets out dozens of targets relating to a range of environmental challenges. Unilever's Sustainable Living Plan has been driven by the company's global chief executive, and has set a new standard for consumer goods companies. Skanska is leading the construction industry with its ambition to do deep green business, again setting new standards. The facilities management company Interserve has adopted an industry-leading plan called SustainAbilities. Asia Pulp and Paper is implementing a Forest Conservation Policy to end the loss of natural forest linked to its business.

These and other plans have emerged from a number of strategic priorities. One is to protect a company's reputation. Another is based on the realisation that nature is threatened and that this poses a strategic business risk. Others have seen new laws in the offing and decided that there are advantages to adopting new practices before they come into force. Some see value for recruiting new talent or retaining or winning customers.

So it is that the world of corporate environmentalism has been transformed. No longer fluffy PR, sustainability targets and strategies are now mainstream, real and often led from the top of very large international companies.

These days I work more on the inside with companies, and thereby see more of the dynamics in play when a strategy to achieve environmental goals is being considered. Stick is still effective, but in responding to it cost is a big issue. If the change in strategy or product design needed to deliver better environmental outcomes costs tens of millions of pounds, or more, then there will obviously be reluctance, scepticism and push back.

Investors want to know if the outlay will be recouped. Management must be convinced that the disruption is worth the sometimes complex changes needed. Everyone wants to know why they're making a big effort when many of their competitors aren't. When we raise our standards, they ask, will our competitors with lower ones do better, because we are taking on costs that they are not?

Even when those with good intentions are making the decisions, when the financial equation looks damaging the positive change probably won't happen.

All of this is quite predictable. As far as campaigning is concerned, however, this basic problem is often not reflected in the strategies of those who wish to see change going further and faster. So what to do about this commercial reality? The answer lies in part in seeing that, while there is a proud track record in wielding the stick, there are fewer examples of effectively dangling the carrot.

What could this mean in practice though? For a start it could lead to publicity that highlights the leaders, as well as the laggards. It could also mean more explicit advice on where to shop. If any one of, or more powerfully a coalition of, for example, Friends of the Earth, Greenpeace, Oxfam and Amnesty, advised me on where to buy my groceries, electricity, clothes and consumer goods, I'd probably follow them. So would millions of others.

There are huge problems for campaigning organisations in taking this kind of approach, but I fear there are even bigger ones in not doing it. Companies who have stepped up but who remain unrecognised – or, worse still, come under attack – are vulnerable to internal pressure to go backwards. And if the companies who try to lead fail then that is just more evidence to the sceptics that sustainability does not work in the real world.

This leads me to conclude that, where good things are being done, attention needs to be drawn to them. Otherwise the reward for doing the right things will remain too modest to make sufficient difference.

One effect of our 1990s rainforests campaign was to help instigate the Forests Stewardship Council (FSC). Twenty years later, this scheme for certifying and labelling forest products from sustainable sources remains the best and most credible scheme of its kind in the world.

B&Q was one of the leaders who made it happen, and today remains a great champion for nature's cause with respect to how businesses work. Today B&Q is going far further. With the leadership of Chief Executive Ian Cheshire, the company is now not only looking to reduce the harm it causes, but also to create a net positive impact - to leave the forests better as a result of their business. But how many consumers know that, and shop there for that reason? Too few I think.

Tony Juniper is a campaigner, writer, sustainability advisor and leading British environmentalist. His latest book, *What Has Nature Ever Done For Us?* (Profile Books, 2013), is available online and from leading bookstores. He is a co-founder of Robertsbridge, the sustainable business advisory group. For more information, visit www.tonyjuniper.com.

SINGERS THAT HARVEST THE WIND (AND THE SUN)

After starting life on a dirt road in Taos, New Mexico, 35 years ago, KTAO radio station has grown into the most powerful solar radio station in the world (as well as the most popular FM station in Taos County). In 1991 it became the world's first solar powered radio station, after 150 solar panels were installed on a super-structure on the 10,800ft Picuris Peak. The number of solar panels has since grown and the station is now licensed at 100,000 watts - around double the power of some solar stations that have sprung up since.

The station intrigued singer-songwriter Finlay Morton, who was already keen to explore alternative energy sources. He visited KTAO during his first U.S. tour; on a separate trip to Boulder, Colorado, he met with Keith Bare, who runs the website wind4me.com. The site is devoted to the use of wind and solar power and, along with the work done at KTAO, helped inspire the lyric 'Hoist up your solar sails' from the title track on Morton's *Harvest the Wind* album.

Speaking to *PQ*, Morton said, 'I believe we are now very close to the "tipping point" when the damage we are doing to our fragile ecosystem will not be reversible.

'If we harnessed the power of the tides, the constant stream of energy from the sun and wind power, we could do away with the need to burn fossil fuels. We must invest now, on a worldwide basis, in the technology to harvest these energy sources if we are to give future generations any chance of a life free of pollution, extreme weather and the very real threat of international conflict over resources.'

Another band that has been leading the charge in the environmental arena is The Phoenix Rose. In 2006, the band made a commitment to play only on stages powered by renewables — which was no easy task considering the number available at the time (roughly a handful).

Working with record label Archangel Music, Jarvis Smith, lead singer of The Phoenix Rose and founder of GREEN Magazine and the PEA Awards, created the first sustainable recording contract. The band has since played Isle of Wight, Glastonbury, Sunrise and many other festivals on solar powered stages. It recorded an album with Bob Marley's Junior Marvin on lead guitar and, in 2009, was quoted as being better than 'sticking fair trade on yer hand', in reference to Coldplay's Chris Martin (who often does just that when he performs).

The music is reggae rock with skanking beats, shamanic haunts, melodic Indian vocals and quality rock songs — each offering a positive message. It was produced by the world-famous Native Wayne Jobson, who won two Grammies for his work with Gwen Stefani and No Doubt. The pieces fell into place when Pete 'Mixmaster' Hammond put the final touches to the band's latest album, *Sick and Tired*, which goes out to anyone fed up with leaders that are doing nothing to ensure a sustainable future.

Smith said, 'Music can move us without having to think. We respond in our hearts and souls. But what if music can change the way we are, who we believe we are and clear out all the stuff that doesn't serve us? That's what I'm aiming to do with this album, so listen and perhaps gain a new way to be in the world. Bob Marley did it, as did Lennon and others. This music will do the same.'

Sick and Tired from The Phoenix Rose is available for download from digital sites, including iTunes and Amazon.co.uk, now.

BRINGING HEMP TO THE HIGH STREET

If today is a typical day on planet Earth, the human population will increase by 250,000. 116 square miles of rainforest will be lost (about an acre per second) and we will lose another 72 square miles to encroaching deserts as a result of human mismanagement and overpopulation. We will also add 2,700 tons of chlorofluorocarbons to the atmosphere and 15 million tonnes of carbon, making the Earth hotter, its waters more acidic and the fabric of life more threadbare.

So what are you going to do about it? *PQ* speaks to Gav Lawson, co-founder and CEO of THTC clothing, on activism, art and why he's spreading the word (on organic materials).

Gav was introduced to the uses of hemp, in its various forms, by his brother Drew, who studied Environmental Politics and introduced Hempology at Hull. Since then Gav has helped promote hemp as an industrial crop — a clean and sustainable textile, paper, plastic, fuel source, building material and medicine with hundreds of thousands of uses, which can be grown practically anywhere without pesticides. 'When I learnt the facts, I naturally assumed it was a no-brainer that governments and industry would embrace this wonder plant to help combat environmental destruction,' Gav tells *PQ*. 'Oh how naïve we were!'

When THTC launched in 1999, ethical and organic clothing wasn't in high demand. 'We set about creating our own following, for people who didn't want to sacrifice style for eco and ethical values', Gav explains.

The T-shirt designs carry strong political and environmental messages, which are often satirical and hard-hitting. The label works with hundreds of actors, musicians, activists, poets and designers to help get its messages out there. 'We try to reach people who otherwise probably wouldn't be especially interested in fair trade or organics, to try and convert them into eco warriors', he says.

> *"We, as a people, can change anything we like by choosing to support or ignore whichever brands we like. I feel that it's better to buy fewer products of higher quality that are built to last, and boycott the hell out of brands that are detrimental to the survival of the planet and the people. I'd also advise watching some of the many life changing documentaries that can be found on YouTube or elsewhere online – and less reality TV. Choose your heroes based on what they have done, not just because they are famous!"*

Most of THTC's clothing consists of hemp mixed with organic cotton or 100% organic cotton, though its current range features 60% recycled cotton and 40% recycled bottles. You can save over 2,000 litres of fresh water by using 55% hemp in a T-shirt, compared with a T-shirt that uses 100% conventionally grown cotton. 'By buying a THTC T-shirt you have made your first step into eco activism', Gav says, 'whether you know it or not. We try and create 'armchair activists,' empowering people to make little steps towards a greener life.'

Gav also experimented with bamboo but found that, while it's great for furniture and building materials, it's 'not the great eco fabric' many believe and doesn't hit the spot as a viscose fabric. 'What I think we should be doing is using a lot more hemp and a lot more Recycled PET (plastic bottles),' Gav explains, 'as well as upcycling our clothes and repairing worn out garments.'

All THTC's non-hemp garments are sourced from factories in India, Portugal and Turkey, which are fully certified by The Carbon Trust, The Fair Wear Foundation and The Soil Association. While the price of cotton varies wildly according to quality, organic cotton is generally more expensive than the non-organic version which often contains harmful chemicals that destroy farmland and have been linked to cancer. While sourcing organic cotton in Europe is pretty straightforward, finding hemp is a bit more difficult. It's mainly produced as a textile in China which, unlike other countries, refused to buckle to America's 1937 Marijuana Tax Act and has a long and illustrious history of hemp production. Romania and Hungary also produce hemp for textile production, but the quality and capacity is nowhere near that of China.

THTC's hemp is provided by its agent of 14 years in China, whom Gav describes as 'a very honest man with great integrity.' Gav's brother travelled to China to visit the factories and check on working conditions. All the workers are paid well over the national average wage; they are aged 19-65 and work a maximum of nine hours a day, six days a week - with no forced overtime. 'Generally you'll find that factories that are manufacturing hemp and other organic fabrics are run by decent people', Gav says, 'who are trying to do right by the environment and their employees.'

FADE ASM - PHOTO BY FLAVIEN PRIOREAU

THTC's mission is to bring hemp to the high street, which isn't an easy task when the cost of production is probably about ten times higher than a Primark alternative. THTC certainly has the potential to become mainstream, but a shift in consciousness and mentality would be required first. 'The fashion industry is, by nature, a throwaway industry', Gav says. 'People are told and encouraged to buy more each season, to fit in with how you're 'supposed' to look. If they can buy six T-shirts from Primark for the same price as one from THTC, there needs to be a good

HOBBIT & BALL ZEE STEPPIN OUT

has been runner-up for several other awards, including the Observer Ethical Awards, and was also a founding member of the Ethical Fashion Forum. The brand has run workshops in schools, prisons and even one at Clarence House, as well as showcasing a range at Queen Elizabeth's birthday celebration in Rome.

Being called up by one of the Wu Tan Clan's managers with a request to model THTC T-shirts was also a definite high point for Gav. Before launching the THTC brand, Gav studied music technology and music business at Bristol. 'Hip hop is in my blood,' he tells *PQ*, 'and has been for as long as I can remember. I don't mean the crap that you generally hear on the radio and see on MTV — I mean actual lyricists, genuinely talented

GAV LAWSON AT THE PEA AWARDS

people who write and perform beautiful music with a meaning. These are the values from which hip hop culture was originally born.'

THTC is not just a hip hop label but, along with reggae, that's where Gav's heart lies. 'THTC represents my beliefs, and it's very rare that I work with people whose work I don't love', he says. He admits to having occasionally given T-shirts to musicians whose music he's not into, in a bid to help get THTC's name out where it will be seen. 'Otherwise,' he says, 'the love I have for great music is equalled only by my contempt of shallow, meaningless, X-Factor-esque nonsense. The reason I get so wound up by it is because there are so many talented artists who never make it because most people don't make any effort to scratch the surface. On the one hand, THTC would reach a far bigger audience if we watered down our messages and just focused on what is commercially popular, but we also want to create something special, something that means something. THTC has so many USPs that the brand's mission is sometimes a little foggied.'

The brand has always opted to work with creative individuals and, as a result, attracts other like-minded people. Examples to date include the poet Professor Benjamin Zephaniah, activist/comedian Mark Thomas and actor/hemp activist Woody Harrelson. THTC has produced over 100 T-shirt ranges for bands, artists, clothing labels and charities, from The Black Panthers to environmental groups. It has produced ranges to draw attention to a diverse range of subjects, from tourettes to human trafficking, youth depression to medical cannabis, police brutality, corrupt governments and fallen heroes.

Hard-hitting messages require hard-hitting visuals and, to that end, Gav tracked down street artist Mau Mau (who designed the cover for this issue of *PQ*, as well as album cover artwork for hip hop legends Rodney P and Skitz). 'I consider Mau Mau to be the greatest street artist on the planet (and that includes Banksy!)', says Gav. 'He has produced more than half of THTC's T-shirt designs, and without him there would be no THTC! I also work with a fair few other very talented artists, such as Fybe One, Herse, Reeps One, Oberon, Gibla74, Carrie Reichardt, Owen Tozer, Paul Yuille and Amnesty poet Martin Powell, who are all friends who I have met along the journey.'

Keeping a small independent clothing brand going for 14 years in the current climate is a big achievement, but Gav feels that greater government support for ethical businesses, in the form of heavy taxes or charges for the worst culprits in the industry, would be a big help. Greater celebrity endorsement and a far bigger effort from the media — particularly mainstream TV — to educate people about where products come from and how they are produced would, of course, also be a big step in the right direction.

On top of that there's a lot more that we could do ourselves; Gav urges everyone to ask producers questions - everywhere from supermarkets to clothes shops - and look for ethical certifications. When you're buying tea, coffee, sugar or bananas, always choose those that are Fairtrade certified - it doesn't cost a lot more but makes all the difference to suppliers. 'Try wherever possible to support small, local businesses instead of chains', he advises. 'We, as a people, can change anything we like by choosing to support or ignore whichever brands we like. I feel that it's better to buy fewer products of higher quality that are built to last, and boycott the hell out of brands that are detrimental to the survival of the planet and the people. I'd also advise watching some of the many life changing documentaries that can be found on YouTube or elsewhere online, such as *The Age Of Stupid*, *Food, Inc.*, *The Union*, *The Corporation*, *The End of The Line* and *The Cove*, and less reality TV. Choose your heroes based on what they have done, not just because they are famous!'

You can find out more about Gav and THTC's clothes and work on Twitter: @gavthtc and Facebook: facebook.com/thtc1 as well as the THTC website www.thtc.co.uk. More examples of Mau Mau's street art can be found at www.mau-mau.co.uk.

reason to choose us. I don't think enough people care how their products are made, and what impact their consumerism has on the workforce and on the environment', he says.

Gav believes that public companies don't want to rock the boat because they have a duty to their shareholders. 'It's hard enough to stay competitive as a smaller business as it is,' he tells *PQ*, 'but it's even tougher if your cost of product is higher than that of your competitors. It all comes down to cost at the end of the day; so long as people are willing to buy products produced in modern day slavery conditions, then these conditions will not improve. If everyone stopped buying from brands that have no regard for workers' welfare, these brands would soon change their ethics. If we don't demand change, it won't come.'

Despite the challenges, THTC was the first organic and ethical clothing product to be stocked in Virgin Megastores and TK Maxx. As well as winning a PEA Award in 2012, THTC

GAEIA – GLOBAL AND ETHICAL INVESTMENT ADVICE – IS CURRENTLY CELEBRATING 20 YEARS IN BUSINESS. ESTABLISHED IN 1993, GAEIA IS ONE OF THE UK'S LONGEST ESTABLISHED ETHICAL FINANCIAL ADVISERS

Ethical investment

Ethical investment is a way of matching core values and principles to financial and investment choices; it has come a long way since the UK's first retail ethical investment fund was launched in 1984.

The growth of the Fair Trade movement and the success of the Move Your Money campaign - despite the economic downturn - demonstrate the strength of feeling in our society that our money, and the enterprises we invest in, should serve both our needs and those of the wider society.

EIRIS says the amount of money invested in the UK's green and ethical retail funds is at an all-time high of £12.2 billion, up from £4 billion in 2001. Also, in a YouGov survey of British Investors (people with any sort of investment) carried out for UKSIF, nearly 2 in 3 (63%) would like to be offered the option of a sustainable and ethical product when making an investment.

For example, if you are a staunch environmentalist and Friends of the Earth supporter, you are likely to want to be sure that your savings are not being used to bolster petroleum or fracking enterprises. If you care about human rights, you may not want your money invested in companies with a poor employment practices. But making ethical financial decisions hasn't always been easy.

Positive impacts

In the early years of ethical investment, people wanted to be able to avoid companies involved in tobacco or the arms trade – known as 'negative screening'. Nowadays, socially responsible investors want to do much more than that. They want to actively support employers with beneficial social and environmental policies and invest in companies that produce goods or services that make a positive impact, for example, producing renewable energy or tackling water pollution and deforestation.

If you buy fair trade goods, support independent local shops, make careful choices when buying general products and services and care about the impact we have on the environment, then you are likely also to want to be able to make financial choices that reflect your own values and principles. But this is often an area that is overlooked. Gaeia is one of a small number of specialist ethical financial advisers that can help you make more appropriate financial decisions.

Gaeia's advisory team

Gaeia is based in Manchester but its advisory team has clients all over the UK. The office is a short walk from Piccadilly Station and there are good public transport links from across the region.

All Gaeia's advisers are personally committed to ethical and sustainable living:

Helen Tandy is on a mission to make more financial advisers aware of ethical investment options and has helped run ethical 'boot camps' with Blue and Green magazine. She is also treasurer of Friends of the Earth Chester.

Olivia Bowen is a strong supporter of the Campaign for Real Farming and sits on its advisory committee and Haydon Waldek is a member of the Green Party and a keen environmentalist.

Making a difference

Gaeia is a founding member of EIRIS, a global leader in the provision of environmental, social governance (ESG) research for responsible investors and has been an enthusiastic supporter of National Ethical Investment Week. This year, Gaeia hosted events in London - at the Social Stock Exchange - and in Manchester, to raise the profile of ethical and environmental investment, helping ensure that everyone knows that there are green and ethical options when it comes to making financial decisions.

Gaeia has recently supported a bursary to enable Jamie Innes to complete an agro ecology course at the Schumacher College and every year supports one local and one overseas charity.

As well as sponsoring the world music programme at Manchester's Band on the Wall, Gaeia has been instrumental in setting up the Band on the Wall Foundation, which aims to fund music making programmes for disadvantaged young people throughout the Greater Manchester area (www.bandonthewall.org).

How Gaeia operates

Gaeia is owned by its employees, its clients and a charitable foundation, ensuring the long-term sustainability of the business, not the short-term gains of individual shareholders.

All Gaeia's advisers are fully qualified financial advisers and, in accordance with the Retail Distribution Review (RDR), Gaeia's fee structure is transparent and clear and agreed with clients upfront.

In order to champion and expand ethical investment opportunities, Gaeia fully supports shareholder advocacy and works with active fund managers who vote critically at AGMs to influence company policy. It's a very effective way of ensuring more socially responsible practices from the companies that we choose to invest in and acts as a reminder to other listed companies that adopting ethical and responsible practices makes good business sense.

Return on investment

Ethical financial management is a growing industry. There is more choice than ever now in terms of ethical banks, building societies and investment opportunities. The best sustainable and ethical investments offer excellent returns.

Ethical funds have outperformed non-ethical funds in the last three years, up 36% on average compared with 31% for the average non-ethical fund, according to moneyfacts.co.uk. The CBI believes that over a third of the UK's economic growth in 2011-12 came from green businesses.

But we understand that maximising profit isn't necessarily the sole focus when it comes to investment. Many clients have been with Gaeia since the outset and most are interested in how their money can make a positive difference as well as receiving a fair return on their investment.

Whatever your needs, Gaeia can offer financial advice tailored to your values and objectives, both today and as they evolve over the coming years.

EO

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For more information or to arrange a consultation with one of the advisers contact Gaeia on 0161 233 4550, email office@gaeia.com or visit the web site www.gaeia.com and complete the online enquiry form.

WHERE NINE SEEDS MEET COCA-COLA

FEATURE

NAVDANYA

Two of India's mightiest and most sacred rivers, the Yamuna and the Ganges, strain towards each other through Doon Valley in the lower Himalaya: their closest meeting point before intersecting at the Triveni Sangam. The air in the mountain-framed valley is full of magic; golden orioles streak through the canopy and, according to local legend, the haunted soul of an unloved daughter calls 'The mangoes are ready' when the orchard fruit is ripe for harvest. This lush belt in Uttarakhand state is sustainable development in motion: organic farms and seed banks are spurred on by the tireless work of Dr Vandana Shiva, and over 50 micro, small and medium enterprises in the area have been established – and continue to evolve – in harmony with nature.

But last year, a familiar battle started to play out on the soil of the valley floor. The magnetic draw of industrialisation led the government of Uttarakhand to open its doors to Coca-Cola, a multi-billion multinational that represents everything this state does not. Nevertheless, an agreement was signed in April to allow Coke's Indian arm, Hindustan Coca-Cola Beverages Private Limited, to invest ₹600 crore (around £60 million) in a 40-hectare bottling plant in Charba village, Doon Valley, in the hope that a surge in employment and an economic boom would follow.

Charba villagers, whose livelihoods depend on the fertility, moisture and availability of the soil, rallied to protest 'In a country of milk and curd, Coke and Pepsi is absurd' and 'Coca-Cola is poison; it is wreaking havoc on our nation.' The village community passed a resolution – with 100% consensus – to put a stop to the plant, which would sprawl over an area of the village commons that the community had planted with over 60,000 trees.

Villagers tied sacred threads – or bonds of protection – called rakhis to the Shisham, Kher, Bakkaiyan and Sagwan trees destined to be felled for the plant, echoing the famous Chipko movement in the 1970s that put a stop to logging in the Himalaya. Sacred water was collected from the Yamuna as residents pledged to protect their rivers and the groundwater. For many, many reasons, Coca-Cola is not welcome here.

It may come as no surprise that Dr Vandana Shiva, the well-loved campaigner and activist, has spearheaded the rally against Coca-Cola's project. Uttarakhand is Dr Shiva's home state, and Doon Valley the home of her own organic biodiversity farm, Navdanya, where I was staying when news of Coca-Cola's plans struck.

Navdanya, meaning 'nine seeds', is a 40-acre testament to the fact that no land is beyond saving if you're prepared to invest love, time and patience. Before its transformation, the site hosted 20 acres of sugarcane and eucalyptus – two dangerously thirsty crops that were having a drastic impact on the water table – and a 20-acre mango orchard. All the land was chemically farmed. After just three years and a lot of hard work, the turnaround was complete and a fully operational organic farm fluttered from the chrysalis. During my stay, Dr Shiva explained that even the most barren land can be turned around in five years, and that chemical farming is simply a 'farming of ignorance' effected by a farmer's disconnection from the land.


NAVDANYA FARM


NAVDANYA SEED BANK

The irony is that traditional Indian farming relied on a deep spiritual and emotional connection to the earth, and employed some of the most successful agricultural techniques on the planet. In 1889, on being deputed by the Secretary of State to India to advise the imperial government on the state of India's agriculture, Dr. John Augustus Voelcker reported, 'I do not share the opinions which have been expressed as to Indian Agriculture being, as a whole, primitive and backward, but I believe that in many parts there is little or nothing that can be improved... I may be bold to say that it is much easier to propose improvements in English agriculture than to make really valuable suggestions for that of India.' (cited p.26, T*he Violence of the Green Revolution*, Dr Vandana Shiva).

The wrenching of farmer from land was a forced one; the Green Revolution of the 1970s created a dependence on seeds and artificial fertilisers from the west, by those intending to supercharge India's agricultural productivity and over-satisfy consumer demand. The agrarian crisis that ensued is still being felt – most painfully in areas such as 'the suicide belt' in Vidarbha, Maharashtra, where a reported average of 56 farmers per month are driven to take their own lives in the face of insurmountable debts. Imposed farming techniques have rendered land barren and, as the multinational seed companies' prices (and profits) have sky-rocketed, so have the farmers' debts. The architects of this movement were driven by the will to maximise yield and profit, with no view to the long-term social – or environmental – costs.

In a country as vast, populous and climatically varied as India, seed diversity is essential – and a monocrop, chemical system that strips away diversity is plain dangerous. Indigenous farmers experimented for centuries to find and cultivate seeds to withstand local climates and conditions, yet this wisdom and connection to the earth has been eroded as traditional farming techniques are consigned to the history books. This at a time when the constant evolution of crops to meet changing climatic conditions is more necessary than ever. Rice is particularly climate-sensitive and must be allowed the freedom to evolve with the land; seeds in Orissa must be resistant to cyclones and flooding, while different characteristics would be required for resilience to the drought-prone soil of central India. Time will tell which traits will be most valuable in the future, but chemical agriculture has already reduced biodiversity to the point where iron and vitamin C deficiency are big problems in India.

This is where Navdanya's role as biodiversity protector kicks in. The real treasure in this farm is its seed bank; the shed locked away at the back of the farm is home to around 1,500 seed varieties, including 630 different rice cultivars

alone. Each seed is organic, and each is available to local farmers who wish to make the transition to organic farming. Over 100 other seed banks have now been established in 17 states across India, and training and support is offered to help farmers move back to the organic system.

Roughly 20 people work full-time on the farm, and there's a constant stream of volunteers to help with harvesting and planting, as well as tending areas of land including the medicinal herb garden. Roughly half of the seeds from every harvest are saved and replanted to ensure they're constantly evolving, and the rest are allowed to flourish in order to feed the staff (the food on the farm – from the fresh leaves to the fluffy rice, amaranth chapathis and mixed, seasonal vegetable sabzis – was absolutely delicious) or be sold through stores. I missed the harvesting but was able to help with chana (chickpea) sifting, which meant separating the 'good' (for dinner) from the 'bad' (for the cows). A meal always tastes better when you've worked for it, and the hours invested in ensuring every chickpea was shuffled to its destiny – along with having my eye trained by the expert wives of local farmers – re-affirmed my belief that there's no such thing as waste.

I asked Dr Shiva about the possibility of upscaling this farming utopia, and how these labour-intensive techniques could be used to satisfy a booming global population that's hell-bent on consuming beyond its needs. The answer was very simple.

'Just do it.'

Don't farmers need some sort of support to make the transition from chemical to organic farming? How are they supposed to provide for their families in the five years it could take to turn the land around? Her answer made sense. The reality for most farmers is that each harvest plunges them further into debt; if they just stopped what they were doing – immediately – they (and the land) would instantly be better off.

The earth carries a bounty on its head, but it's not an accurate reflection of the bounty that lies beneath. Dr Shiva believes the 'financialisation' of nature should only ever be applied in red light terms, as a way to put a stop to plans that stand to put land and lives at risk. When used as a green light to underwrite the financial viability of development, it's nothing more than the commodification of the earth – the antithesis of her belief in the five sovereignties of land, seed, food, water and forest. Dr Shiva is not alone in her belief that, if we continue on our present path (or autobahn), we're finished. 'It's no exaggeration to say we're on a suicidal path to the extinction of the human species in 50-100 years', she said. The pure shock of what's ahead will make us look for demons and scapegoats; 'We'll kill ourselves through hatred before we die of hunger.' She believes the only alternative is enlightenment – which can only be achieved through education and understanding.

From a consumer's point of view, Dr Shiva believes it's absolutely vital to know and understand where our food comes from. We are all responsible for the choices we make; true 'ethical consumerism' – that trendy phrase that's bandied round by marketing managers and brands that want to make you feel good about giving them your money – should be about ethics, not flighty purchasing decisions. Without knowing where our food comes from we have no idea how ethically it has been sourced, irrespective of what the packaging might say. Organic certification in India is corruptible, just like everything else, and no substitute for a connection to your local suppliers. 'Change won't happen by talking to corrupt people,' Dr Shiva's eyes are wise but retain a definite twinkle. 'They know they're corrupt – they take the bribe.'

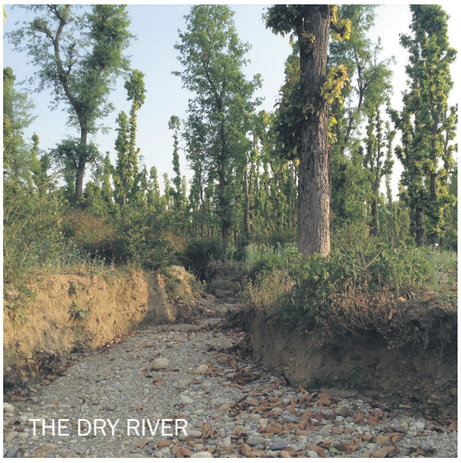

CHANA SIFTING

I asked how realistic it is for a modern, increasingly urbanised population to be connected to the source of the food we eat; a recent study by the British Nutrition Foundation (BNF) found 19% of five- to eight-year-olds didn't realise potatoes grow underground, and almost a third of UK primary pupils thought cheese was made from plants. Again, education is the key – and Navdanya's accommodation of a class of schoolchildren from Delhi was among the most inspiring aspects of my experience on the farm. We organised treasure hunts, showed them where their dinner came from and generally helped keep them entertained in an environment with no phones, TVs or computers. On their last day, I asked whether they'd missed anything from home. They all talked at once. 'At first, I really missed watching TV', 'Yaaar, I didn't know what to do!' 'I would have been playing on my Dad's iPhone…' 'Or computer!' 'Ha ha ha!' 'But after about two days, we didn't miss them at all.' 'There's still lots to do…' 'Like volleyball!' 'Ha ha ha!'

Education will be a deciding factor in the way our consumption patterns evolve. The pace of our mushrooming population's urbanisation means cities will need to become their own suppliers – and new generations from different environments will need to step into the boots of the traditional farmers that can no longer bear the burden. This localisation will help re-establish the connection between consumption and production, and could solve other issues, too. At the time, Dr Shiva's team was preparing to visit Greece for a 'seed drive', insisting 50% of unemployment could be remedied by a return to organic farming.

A common complaint is that local produce tends to cost more, but that depends on the currency. The true cost of some of the produce we consume is often witnessed thousands of miles away, while our own priorities are immediate: financially and geographically.

Most people that pick up a bottle of coke don't think about how – or where – it was bottled, and what impact the process had on the local communities and environment. A bottling plant,


THE DRY RIVER

similar to the one planned for Doon Valley, was built near Plachimada in Kerala, south India in 1999. In 2004, Plachimada's local officials shut the plant down after local villagers and activists protested that the plant had had a serious impact on the availability and quality of water in the area, by contaminating the ground water.

Despite the fact that the Kerala High Court rejected the pleas of local activists, the village panchayat refused to renew Coca-Cola's licence, and the plant has remained shut ever since. It was reportedly extracting 510,000 litres of water from the ground every day – and producing one litre of product (along with a large amount of waste water) for every 3.75 litres of water used. This in an area that was already suffering from a lack of rainfall, and a country that is drawing far more underground water than nature is able to replenish.

During my time at Navdanya, Dr Shiva was confident that Coca-Cola's plans for Uttarakhand would once again be thwarted – and once again by the strength of local opposition and engagement. Paradigms take generations to shift but it has to start somewhere, and small-scale community action is the most obvious first step. 'We know it will be difficult,' she leans forwards – half maternal, half twinkling mischief, 'but that's no reason not to try.'

Whether the mighty force of industrialisation can run parallel to the wants and needs of local communities – as the Yamuna river flows undisturbed against the flush of the Ganges though Doon Valley – remains to be seen. But as long as true ethical consumerism is alive – the kind of Dr Shiva's vision, that fiercely defends the land because it understands its connection to those that live on it – even the most powerful multinationals, supplying consumers the world over, will get a run for their money.

GUERRILLA GARDENING

GARDENING

> *"guerrillagardening.org is now also a growing arsenal for anyone interested in the war against neglect and scarcity of public space."*

THERE ARE GUERRILLAS IN OUR MIDST - AND THEY'RE CHANGING THE URBAN LANDSCAPE

If you haven't yet heard about guerrilla gardening, you've been asleep for the last 360 years. Or at least that's what David Reynolds, founder of www.guerrillagardening.org might say. Reynolds' book, On Guerrilla Gardening (£8.99, Bloomsbury), traces the activity back to the seventeenth century, when Diggers protested against land ownership laws and fought for their right to cultivate common land in the face of sky-high food prices.

Snap back to 2014 and guerrilla gardening is a burgeoning global activity. Neglected territory is adopted, transformed and beautified with plants: life seeded in ever-sprawling patches of hostile, disused land. It unites cells of political activists and nature-lovers, and inspires acts of solitary defiance against the wasted potential of unloved space. According to Reynolds, it's 'for anyone interested in the war against neglect and scarcity of public space as a place to grow things'.

'Fight the filth'

There are laws against cultivating land you don't technically own, but guerrilla gardening has flourished as an urban, underground activity. As Reynolds puts it, it's a way to 'fight the filth with fork and flowers'. Its illegality is absurd and usually ignored – particularly as all evidence suggests that more green space and contact with nature are key drivers for a healthier, happier society.

Whether it's a bus stop or a brick wall, it's easy to transform a local blank canvas into a community project to be proud of. But don't be tempted to don a balaclava and a miner's lamp as you creep through the shrubbery with a trowel. You'll be arrested, but it'll be for different reasons.

How to throw a seed bomb

Patches of urban land can be hard to reach, and developers might want to make public access as difficult as possible. But you don't need to spend hours on your knees with a trowel to bring life back to the land. Seed bombs, or 'green grenades', are perfect for guerrilla gardeners that want to push the limits – or don't want to spend too much time at the scene.

The idea is to combine soil and seeds in some sort of biodegradable container, which can be thrown from a train or car window or lobbed over a fence into an otherwise inaccessible area. Here are some of the designs Richard Reynolds has come across, along with their pros and cons.

Classic clay seed ball

Japanese biologist and farmer, Masanobu Fukuoka, is credited with the design of the classic and most widely used seed bomb. Mix clay soil (or potter's powder), compost and seeds in a ratio of 5:1:1, using water to bind. It's an easy and cheap method that requires only natural ingredients, but the clay can bake solid and prevent – or at least slow down – germination.

Kabloom 'SeedBom'

Darren, a guerrilla gardener from Scotland, designed and creates these seed bombs from recycled paper, egg boxes, compost and seeds, as well as the odd teabag. You can buy them ready-made online, along with detailed instructions on how to use them, but they need to be handled carefully and require quite a lot of rain.

Explosive eggs

Guerrilla gardeners Ella 1305 and Aime 1306 invented this method in 2007. The white and yolk are sucked out of a raw egg through a tiny hole in the shell, and then seeds and a bit of peat are dropped in. They're fiddly to make but are easy to carry in an egg box and only natural ingredients are used.

Seed balloon

The seed balloon was devised in 2009 by guerrilla gardener Vanessa 6111. A biodegradable rubber balloon is filled with helium and seeds before being released into the unknown. These balloons can travel far and wide, but lack any kind of accuracy. The rubber will also take a long time to break down, which could affect the seed germination.

Seed pill

Another of Vanessa 6111's creations, the seed pill holds a mixture of seeds and compost inside an empty biodegradable pill capsule. Designed to fracture on impact, the seed pill is easy to carry and throw, though it's fiddly to make.

You don't need a degree in landscape design to get cracking – in fact you don't need much at all.

Find your spot
Keep your eyes peeled for a patch of unloved land; you might be surprised by the number of local areas that are ripe for the guerrilla treatment.

Keep your friends close...
Talk to your local council beforehand; when it comes to criminal damage there's no legal distinction between felling or planting a tree on land that's not 'yours'. Bonkers, we know.

Keep it simple
Go for something hardy that can look after itself. Lavender and thyme look and smell great without needing much attention.

Share your plans
You can do more as a group; www.guerrillagardening.org has a community page for planning activities and sharing tips and advice.

Under cover of... Dusk
Local authorities will likely turn a blind eye, but going out in the evening will reduce the chance of unnecessary confrontations.

GROWING YOUR OWN IN AN URBAN ENVIRONMENT

As the global population becomes increasingly urbanised, and the planet's soils become degraded through intensive cultivation, a horticultural product known as biochar offers a unique solution to sustainable growing.

Because of its moisture retaining qualities, biochar is an essential ingredient in urban container growing. It's ideal for window boxes and pots, which are often the only potential growing space in cramped cities where vertical gardening is becoming an increasingly common sight.

Biochar has been referred to by US biochar expert, Wae Nelson, as 'the oldest new thing you've never heard of', and it's certainly no new invention. Studies of soil at sites throughout the Amazon Basin suggest that ancient Amazonian civilisations made a primitive type of biochar and added it to their land to grow food in inhospitable soils. The result was a rich and fertile black earth – or 'terra preta' – with a high carbon content, which is still evident today.

Biochar is a highly porous, high carbon form of charcoal that naturally helps improve soil structure, enhances soil fertility and boosts soil health whilst locking away atmospheric carbon dioxide for hundreds of years. Using biochar is a simple form of carbon sequestration. It is made from any waste woody biomass that has been charred at a low temperature with a restricted supply of oxygen, a process called pyrolysis. This process results in a stable form of carbon that is removed from the atmospheric carbon cycle when added as a soil amendment. One tonne of carbon locked away in biochar represents the equivalent of three tonnes of carbon dioxide being removed from the atmosphere – an essential step towards cutting the carbon footprint of food production.

By blending biochar with microorganisms and natural nutrients, Carbon Gold's unique biochar replenishes the diverse soil biology that is often missing from lifeless, urban soils. Because biochar creates a natural refuge for good bacteria to flourish and improves soil structure, it also supports a 'no dig' approach, which reduces the greenhouse gases released by digging (and saves you some back-breaking work!). Plus, as all the benefits of Carbon Gold's products result in higher yields, it means you can grow your five-a-day in less space.

GARDENING

THE OLDEST NEW TH
YOU'VE NEVER HEAR

UK engineering supporting global biochar production

British biochar business Carbon Gold was founded in 2007 by Craig Sams, co-founder of Green & Black's and former Chairman of the UK's leading organic charity, the Soil Association. Carbon Gold's ambition is to help people mitigate climate change and support sustainable food production through the development of biochar-based products and projects, simultaneously removing carbon dioxide from the atmosphere and improving soil fertility.

Not only does Carbon Gold sell a unique range of biochar products for UK gardeners and growers, it also supplies British engineered biochar kilns to rural development projects throughout the world. The company often works in partnership with Pro-Natura, an international NGO that creates 'Super Vegetable Gardens' in areas of severe desertification. Using biochar to enhance lifeless, arid soils, these remarkable

> *"Using biochar is a simple form of carbon sequestration."*

gardens produce a sustainable supply of fruit and vegetables for local communities in five-week cycles throughout the year. Carbon Gold's biochar kilns are currently helping cacao farmers in Belize to increase their crop yields sustainably, and a French engineering base in Ashgabat, Turkmenistan, now produces its own supply of biochar to grow fresh fruit and vegetables for workers and their families. Carbon Gold is also developing a kiln for a project funded by the Department of Energy and Climate Change and coordinated by the RSPB, where natural habitats for birds are being restored in Scottish wetlands.

Bringing biochar to Britain

On the back of biochar's international success, Carbon Gold was inspired to introduce horticultural products to the UK — not only to help gardeners, growers and farmers sequester carbon and improve soil health, but also to enable more people to grow their own food in urban and rural settings.

To do so, it has developed a range of biochar-based products, now popular with home and professional growers. Carbon Gold's GroChar range is Soil Association approved for use in organic production, and is designed to enhance soil for growing high cropping fruit and vegetables – whether that's in a small, city window box, a suburban garden or on a commercial farm. The

WHAT THE EXPERTS SAY

James Wong, ethnobotanist, television presenter and garden designer, uses this biochar blend to bring on the exotics and tropicals he's famed for growing in the UK. 'I love the soil improver', he said. 'It performed exceptionally well at (paradoxically) improving the drainage and water retention of my London clay, which normally bakes rock-hard in the summer so water just runs off the surface. Water now soaks in instantly and is retained for significantly longer, so I need to water half as much. The subsequent effect on plant growth is also impressive, meaning I could plant far more densely than I would have done in previous years. More crops in the same space with less watering, excellent!' **Alys Fowler**, gardening expert, writer and TV presenter, is also a fan. 'I've found that, by using Carbon Gold Soil Improver in my garden, I've seen improved soil structure and fertility, which has resulted in stronger, healthier plants', she said.

HING
RDOF

100% peat-free composts are key to the fight against the desecration of natural peatlands. Formulated from coir, the fibrous husk of a coconut, GroChar composts are enriched with biochar, mycorrhizal fungi, seaweed and wormcasts, which provide the perfect growing medium for propagating and potting. The magic ingredient, biochar, keeps nutrients in the top level of soil and helps make them readily available to plants, while also retaining water and adding structure to the soil.

The GroChar Soil Improver is Carbon Gold's flagship product. It looks like charcoal, but actually contains a mix of biochar, microorganisms and trace elements, which are added straight to the soil, mixed with potting compost or dusted onto the roots of seedlings before planting out to increase nutrient uptake and and the soil's water retention. Used by celebrity growers James Wong and Alys Fowler, it's become a firm favourite with both amateur and professional growers.

Biochar benefits soil health and plant growth in several ways. It holds onto nutrients, preventing them from leaching away and making them available to plants. Its microscopic honeycomb-like structure provides a home in which mycorrhizal fungi and beneficial microbes can grow and flourish, which leads to strong root development and increases disease resistance. The porosity of biochar also improves soil structure and reduces the need for watering. The outcome is stronger, fast-growing plants and a higher yield.

Working with Royal Warrant-holding tree surgeons, Bartlett Tree Experts, Carbon Gold has also explored the benefits of biochar for keeping carbon capturing trees stronger for longer. Biochar has been found to promote quicker establishment of transplanted trees and significantly reduces losses, encouraging better root growth and healthy soil biology. As it retains moisture, biochar minimises drought stress, increases photosynthetic efficiency and boosts trees' natural immunity to pests and disease.

The vital relationship between soil and carbon

Soil is a major store of carbon and its role in reducing CO2 emissions is substantial – it locks away carbon dioxide, preventing it from being released into the atmosphere. Peatland soils hold the highest density of carbon; their destruction not only removes irreplaceable organic matter from the land (peat is currently used for the large-scale production of most mainstream composts and as a fuel for non-renewable power stations), it also releases significant volumes of carbon dioxide into the atmosphere. While the Earth's soils are an important sink that keep greenhouse gases out of the atmosphere, plants thrive on carbon. Carbon is the building block of life – the essential 'black gold' for all living and growing things. It's the organic matter in soil that gives plants the carbon they need to be healthy and resilient to disease.

Saving the planet, one garden at a time

Does biochar hold the key to saving our planet's rapidly degrading soils? Does it help lock away carbon for a planet facing climate change? Can it help the world grow more of its own food? Carbon Gold certainly thinks so. It believes that biochar can play a significant role in the fight against climate change, as part of a wider effort to cut energy consumption, reduce greenhouse gas emissions and resist intensive farming practices which can lead to deforestation and the destruction of natural ecosystems. Great global claims that can, it says, be put into practice by growers across the country – however much space you have to play with.

Grow your own urban fruit and veg with biochar

It's surprisingly easy to grow your own food, even if your outside space is more rooftop than allotment.

Vertical gardening

Gaining popularity with urbanites, vertical gardening makes the most of the space available. By creating a 'green wall' or fixing pots to your exterior walls or fences, you can grow a whole array of plants – from strawberries to nasturtiums. By planting in a peat-free, biochar-based compost, your soil's water retention will improve significantly – meaning plants will grow healthily in a restricted environment. Plus it won't matter if you forget to water them once in a while!

Patio pots

A common sight in most suburban gardens, but why limit them to flowers? Edible gardening is fast on the rise, with growers replacing tulips for tomatoes and lilacs for lettuce. Using a biochar blended fertiliser will encourage large, healthy root systems and improve nutrient uptake for abundantly fruiting plants.

Window boxes & windowsill herbs

Don't have a garden? Don't worry! The good old window box not only gives your home a stylish touch, it can also grow your favourite ingredients. Perfect for cut-and-come-again salad leaves. Alternatively, set up your own mini herb garden in small pots, cans or even cups on a sunny windowsill for easy-to-reach cuttings. By adding a teaspoonful of Carbon Gold Soil Improver, plants growing in small spaces can access all the moisture and nutrients they need.

Carbon Gold has put together a special bundle of all the products you need for your very own urban farm. The Urban bundle consists of 1x20l GroChar All Purpose Compost and 2x1kg GroChar Soil Improver, and costs £22.97. Use the promo code 'GP-02' at the check-out for free delivery.

Carbon Gold sells biochar-based composts, soil improver and fertiliser. For more information, visit www.carbongold.com or contact Info@carbongold.com (0117 2440032)

FARMING SPACE IN THE CITY


BROOKLYN GRANGE
WWW.BROOKLYNGRANGEFARM.COM

GARDENING

GREENING A SPRAWLING METROPOLIS ISN'T EASY - BUT ARCHITECTS AND BUSINESSES ARE FINDING INCREASINGLY CREATIVE WAYS TO FARM WHAT LITTLE SPACE IS AVAILABLE

From organic rooftop farms in New York City to outdoor classrooms that teach gardening techniques to inner-city kids, designers are making the most of the ambient heat and solar energy readily available on the rooftops of urban buildings.

Pop-up greenhouse cubes on the streets of Tokyo and tomato vines suspended above corporate conference tables are less permanent solutions to ever-changing and evolving cityscapes where everything is transient and few take root.

Here are three of the world's most eye-catching urban farms.

Brooklyn Grange, New York, USA

In 2010, a two dozen-strong 'ragtag crew' united to convert a seventh floor New York rooftop into a commercial urban farm. Two years and 10,000 transplanted tomato seedlings later, Brooklyn Grange was hailed the world's biggest rooftop soil farm; it broke even in its first year and showed 40% growth in its second, operating over two acres of rooftops in Brooklyn and Queens.

"At the end of the day, it's about sitting down with our family, admiring that sunset over the city skyline, snacking on a perfectly ripe, sweet tomato and remembering: this is what food really is."

Brooklyn Grange Farm


HK FARM, HONG KONG
PHOTO - NGAU TAU KOK

It provides over 40,000lbs of organic produce every year, which is sold to restaurants and local communities through weekly farm stands.

HK Farm, Hong Kong

Following a stint working on Brooklyn Grange (see left), HK Farm's Creative Director, Michael Leung, was inspired to 'bring fresh urban agriculture concepts to Hong Kong's concrete landscape'. In March 2012 HK Farm was born, uniting aspiring farmers with artists and designers that share a common belief in the value of rooftop farming and the benefits of food that has been locally produced. The aim is philosophical as well as practical: HK Farm's output may not be as high as that of some urban farms, but its aim is also to collaborate with schools and communities in Hong Kong, providing workshops and tours and sharing lessons in urban agriculture on a global scale.

Gary Comer Youth Center, Chicago, USA

Designed by John Ronan Architect as an outdoor classroom, the Gary Comer Youth Center's award-winning rooftop teaches gardening methods to inner-city kids in one of Chicago's poorest neighbourhoods. Thanks to soil depths of nearly a foot, a wide variety of

GARY COMER YOUTH CENTER, CHICAGO
PHOTO - STEVE HALL

plants can flourish in this 8160 sq ft vegetable garden, which provides a recreational space for 8-18 year olds in after-school hours. Annual fruit and vegetable production is 1,000lb and 175 children are fed every day from the rooftop crops; any excess is distributed to local restaurants and sold at farmers' markets.

"This courtyard garden provides students who have little access to safe outdoor space the opportunity to interact with the natural world freely... As children learn about the seed-to-harvest cycle, they also learn about environmental concerns."

Gary Comer Youth Centre, Chicago, USA - John Ronan Architect

WASTE COOKING

PQ TALKS TO CHEF TOBIAS JUDMAIER ABOUT THE AUSTRIAN ART PROJECT THAT'S PUTTING THE SPOTLIGHT ON THE FOOD INDUSTRY

The food we throw away in Europe would be enough to feed all the hungry people in the world, and 'waste divers' have long sought to redress the balance by proving you can live (very happily) off the 'rubbish' other people discard.

The Austrian art movement wastecooking launched in April 2012, with a mission 'to rescue food from the dark of the garbage container and bring it into the spotlight'. Quite literally.

'Our approach is to use art in order to make people aware of the global issue of food waste', says Tobias Judmaier, food blogger and chef for the wastecooking TV show.

> *"We are the fly in the ointment of the throwaway society, the incarnate protest against food waste!"*
>
> wastecooking Manifesto

'We produce a cooking show, critical of society, that mainly uses produce that had previously been thrown away in order to prepare delicious meals', he says. The project was designed to reach the masses: the show can be watched as web episodes on wastecooking.com and is also aired on selected TV channels. 'We perform in public spaces and cook in venues that draw communal attention, such as town squares, concerts and fairs', says Judmaier. 'We rescue food from the dark of the garbage container and bring it under the spotlight of a cooking show. Our aim is to show the actual "dirty business" of the food industry.'

'Waste diving' is a form of politically motivated anti-consumerism. It kicked off in the United States in the '80s as a protest against arms exports; the 'Food not bombs' activists were the first to cook with waste, transforming the art into public action.

This movement isn't afraid to get its hands dirty to make a point: according to the Food and Agriculture Organisation (FAO) of the UN, we

> *"Food is culture, and more than just a means to an end. We try to give the body what the mind needs to look at the bigger picture."*
>
> wastecooking Manifesto

'lose' 300kg of food per head — half of which is thrown away by households, the other half by supermarkets, farms and the industry. Judmaier tells *PQ*, 'According to the studies, most of the food that is wasted is being thrown away by households. But when you see what we find in supermarket bins, you understand that the numbers must be a bit different from that.

'Overall, almost 50% of all food produced is wasted. In Africa this is mostly due to bad storage and transport; in Europe it is due to perfectionism, spoiled consumers and an industry that overproduces. We wash carrots and potatoes before we sort them by size and aesthetics, so we can spot tiny mistakes and throw out what does not look perfect.'

In many countries, including Germany, waste diving is illegal; activists have appeared before court in Munich, accused of theft and trespassing for rescuing waste fruit, vegetables and bread from the rubbish bins. In Austria rubbish is deemed 'unclaimed property', but trespassing onto supermarket sites to claim it is illegal.

Aware that it's operating in a legal grey zone, wastecooking fires back the following challenge: 'Who commits, in your opinion, the greater crime? The individual waste diver that gets the food out of the barrel that is otherwise burned, or those who are responsible for the global, systematic destruction of food on a large scale? Our conscience tells us that we are doing nothing illegal if we bring waste back to life.'

While some may find the waste diver's approach hard to swallow, wastecooking is gathering mainstream support from those that understand the absurdity of throwing away perfectly good food. Its 'free supermarket' event in Vienna, September 2013, was supported by the Arts and Culture department of the City of Vienna, and closed with a gala dinner that catered for 150 seated guests. 1.5 tonnes of food, collected from farms surrounding the town, were given away for free.

Judmaier seems to thrive on the creative challenge of the process. 'Usually I screen what we have available, then I decide on a recipe. It is crucial to be imaginative as you always have to improvise. I get to cook a large variety of dishes.

'On the one hand we actually "dive" for food as you can see from our videos. We also gather lots of veggies at farms. The biggest challenge is that you never know what you will find or get. Also the volumes vary wildly; one night we might find enough bread for a month — the other day we might find carrots in a field that could feed

> *"Basically it comes down to dealing with our natural resources. Overproduction has to be stopped... Waste cooking begins with food. A drop in the ocean? Yes, that's right. But constant dripping wears away the stone."*
>
> wastecooking Manifesto

thousands of people. When we go waste diving we have a whole set of rules; we take no meat or meat products, we never leave a mess at the supermarket grounds and we always smell something to decide whether it has gone bad. In my experience the "best by" and "sell by" dates are a big scam, as they are regulated by the food industry.'

According to Judmaier, revising 'sell by' dates and forbidding 'buy two get three' offers are critical to the reduction of food waste. 'We should also produce and eat local and not consume things that are shipped around the globe,' he adds, 'and we should use our brains when we go shopping and check the fridge before we leave the house. A yoghurt, for example, lasts for months before it goes bad. Use your nose and smell it!'

There are, of course, many more things we can do; food waste is nobody's fault, but we are all responsible. A consumer who expects fresh bread and vegetables in the evening hours at a supermarket must be aware that, once the supermarket closes, fresh things get thrown out because they can't be stored.

'Check the fridge and shop according to what you still have to cook with', advises Judmaier. 'Have a recipe in your mind while you are shopping for groceries. Avoid supermarkets and use local grocery stores; support local produce from small farms as they don't waste anything. Also, always have a soup cooking. Everything can go into a soup - it's a great recycling tool. We throw away mostly bread, dairy, fruit and vegetables, so why not make a bread cake out of it?'

Good idea. Here are some recipe suggestions from Judmaier that will help you make the most of what you already have, and save you the time, cost and effort of another visit to the shop.

For more information on wastecooking and Tobias Judmaier, visit www.wastecooking.com. The project will soon be moving to a whole new level: founding Austria's first sustainable catering company. As well as cooking sorted and rescued food, it will employ people that otherwise have difficulties entering the labour market. All possible produce will be organic and wastecooking will recycle as much as it can. As always, avoiding waste will be the main focus. For more information on the project, visit www.wastecooking-deluxe.com.

MINESTRONE

'Minestrone is an Italian classic that I can eat every day because it can be different every day. It is a great dish to recycle all sorts of food left in your kitchen. We often have veggies left, but perhaps not enough to make a dish on their own. A piece of Parmesan rind, a handful of pasta, a leftover slice of ham and half a cup of rice are all things that can go into the Minestrone. There is nothing more comforting than a hot bowl of soup.'
(Tobias Judmaier)

Suggested ingredients:

- Half a red onion
- 2 cloves of garlic
- ½ a celery bulb
- Some celery greens
- 2 potatoes
- 1 leek
- 1 large carrot
- ½ a turnip
- A handful of pasta
- Cannellini beans
- Parsley
- Some Parmesan rind
- Parmesan to grate
- Oregano
- Salt and pepper

What to do:

Soak the beans overnight in water. Boil until soft. Drain and put aside (alternatively you can also use canned beans).

Dice all your veggies into a similar size so they cook evenly (the broccoli you can cut into larger pieces as it needs less time to cook - the garlic you need to dice very finely).

Heat some olive oil in a pot. Fry the onions on a medium heat for a couple of minutes, then add the garlic and Parmesan rind.

Add the vegetables one by one, starting with the carrots, celery bulb, turnip and potato. Add enough water to cover all the veggies and bring to the boil. After approximately 5 minutes of boiling, add the greens and the pasta. Allow the soup to cook for a further 10 minutes.

To finish the soup, add the beans, oregano, salt and pepper. Be aware that the Parmesan also adds salt to the soup. Remove the rind from the soup. Sprinkle with chopped parsley and some grated Parmesan.

CHOCOLATE BREAD CAKE

'Got some stale bread at home? Great! This is the main ingredient of the Chocolate Bread Cake. Old cookies, some chocolate and fruit also go into this cake. Again, you can get creative and add more ingredients than I found this time. Using different kinds of bread is also OK.'
(Tobias Judmaier)

Suggested ingredients:

- 1 stale baguette
- 1 litre of milk
- 4 apples
- 5 old cookies
- Honey to sweeten
- 2 eggs
- 6 pieces of chocolate
- 3 tbsp. of cocoa

What to do:

Heat the oven to 200 °C.

Break the baguette as much as you can. Place the pieces into a bowl and pour the milk over them. Leave to soak for 20 minutes.

Take the bread out of the liquid and break it up into small pieces. Place in a deep baking tray. Dice the fruit and add to the bread.

Soak the old cookies, break them up and add them to the bread.

Mix the eggs with the milk and cocoa. Sweeten with honey.

Pour the liquid over the bread and fruit mix. Chop up the chocolate and sprinkle it over the mixture.

Bake for 40 minutes.

SMALL CHANGE BIG DIFFERENCE

HEALTH/BEAUTY

IT'S TIME TO STOP 'UPPING THE ANTI' (BACTERIALS), SAYS BBC RADIO PRESENTER AND THE UK'S NUMBER ONE NATURAL LIVING EXPERT, JANEY LEE GRACE.

By way of introduction I should tell you upfront that, despite being on Steve Wright in the Afternoon on BBC Radio 2, I am NOT the old woman – a fact lamented by many Hollywood Stars who long to meet the enigmatic character. But what you'll certainly find me doing is banging on about organic food, skincare, cleaning without chemicals, natural pregnancy and birth – not to mention balls and nuts (more on that later...).

Now imperfectly natural is the key here – in fact it was in the titles of three of my books. I'm no 'Green Goddess', I'm barely Lime, but I do take the 'small change, big difference' approach and I'm passionate about encouraging everyone to live a little more simply, and to look for 100% natural alternatives – without compromising on looking and feeling great.

Of course the best eco intentions can go down the compost heap in times of recession and economic crisis, so it was brilliant to be asked to present the PEAB awards in London recently, where we were reminded that there are still many companies, large and small, who are committing to sustainability. But what can the humble consumer do to ensure that we take note of our whopping great carbon footprint and make some necessary adjustments? That's where I believe the holistic small change approach really comes into its own. If we look to our own personal environment and make sustainable choices that are 100% natural, we will improve our health and wellbeing and tick the eco box almost without trying.

> *"Statistics show the average home is more polluted than a busy street corner."*

Got green fatigue?

As our bank balances have dwindled some 'green fatigue' has set in; it no longer feels so important to be carbon offsetting or investing in solar panels when friends and colleagues are facing redundancy or struggling with mortgage payments. But going green can save us money as well as saving the planet.

A good way to start is to ditch the chemicals – sounds way too obvious but I meet many eco-warriors who omit to consider what they're eating, wearing on their skin or washing down their own sinks. Start small and notice the impact. The good news is that the recent rise in availability of organic and natural products has been huge; Mintel recently reported a 40% rise in organic skincare spending over two years.

Ensure that the products you choose are also 100% natural and preferably Soil Association accredited. Also, look for what's NOT in a product – the most ethical skincare companies will make it clear that their products contain no parabens, preservatives, sodium laurel sulphate or other synthetic chemicals. Don't put anything on your skin that you wouldn't eat is the mantra: scientists say at least 60% of what we put on our skin goes within. If you're dubious, think about how HRT cream works!

Statistics show that the average home is more polluted than a busy street corner; pollutants, fixtures, fittings, furnishings and the synthetic chemical products we bring into our home all add up to a 'toxic soup'. Emotive marketing has convinced us that we must create a sterile environment for our home to be safe and balanced for our children, but with the rise of anti-biotic B-resistant superbugs, my view is that we should be 'anti the antibacterials'.

Keep the balance

Opt for plant-derived green cleaners instead, but even then avoid antibacterials because they unbalance the microbial environment in your home. Antibacterials can't discriminate, killing all the good, friendly, beneficial and essential bacteria, too. The force that drives materials to biodegrade is bacteria, so antibacterials can only degrade by taking something out of the environment – making the 'environmentally friendly' claim tough to justify.

One solution is a probiotic cleaner called Libby Chan (I'm not on commission!), full of friendly bacteria which put positive microbes back into the environment. Its cleaning power comes from the fermentation process of 100% edible ingredients, which can rebalance your home's microbial environment. I'm a big fan of detergents that don't need the 'skull and crossbones' 'call the cavalry style' warning – I love Green People's slogan for its washing up liquid: 'Does the dishes not the fishes'.

As for balls and nuts... Well, laundry balls work by changing the molecular structure of the water (try the Ecoegg – it will save you a fortune). Even funkier – soapnuts have been used in India and Nepal for ever as detergents. You need a handful of soapnut shells in a little bag or sock straight in the drum – when they come into contact with water they create saponin, or soap, cheap as chips! (And far healthier.) They look like truffles. Don't eat them though, unless you literally want to be foaming at the mouth!

Janey Lee Grace is the author of five books on holistic living, founder of the 'Janey Loves' product Accreditation Award and was voted Number One Personality in the 2013 *Natural Beauty Yearbook*. For more information, have a look at www.imperfectlynatural.com.

WHERE SCIENCE MEETS NATURAL MEDICINE

AN HONEST APPROACH THAT USES THE BEST OF BOTH WORLDS COULD BE THE ANSWER FOR OPTIMUM HEALTH

Dr Mariano Spiezia MD graduated in Medicine and Surgery from Naples University in 1981, and worked for several years as a conventional doctor in an emergency medical department to build up his professional experience. From the beginning, Dr Spiezia felt it was clear that mainstream medicine lacked a preventative and holistic approach to disease; it addressed the effects rather than the origins of health problems – and often too late.

Having spent most of his youth in contact with nature, including many years as a Boy Scout and Scout leader, he was always intrigued by plants, flowers and their synergy with mankind and health.

At the end of his university studies, Dr Spiezia started exploring alternative ways to treat illnesses. He told *PQ*, 'I found the first answers in homeopathy and herbalism, so I dived into this amazing world and trained in both, unveiling some fascinating answers.'

Roots of herbalism

Humans have used healing plants for thousands of years, going right back to the Paleolithic era. According to the World Health Organisation (WHO), many countries still use herbalism as the most common means for primary care.

> *"I think that, with an honest approach and an open mind, it is possible to contribute to human health by gleaning the best from both sides."*
>
> Dr Mariano Spieza

Most people don't know that many pharmaceuticals, including aspirin, digitalis and opium, come from plants or some of their chemicals. Growing scientific evidence is proving the efficacy of the chemical compounds of herbs – and thousands of years of traditional use doesn't exactly weaken the argument for their use.

Homeopathy is a more recent discovery (1796), made by the German Doctor S. Hahnemann, and is based on the fascinating principle that 'like cures like' when diluted and shaken. Conventional science often looks at alternative treatments with suspicion, forcing a way of action within the 'Scientific Criteria'.

This approach has put many people off, and some have become disillusioned by modern medicines and their side effects. According to Dr Spiezia, 'with an honest approach and an open mind, it is possible to contribute to human health by gleaning the best from both sides.'

Watch out!

Not all plants are beneficial and safe – in fact some can be dangerous without expert advice on how to take them. One example is the purple foxglove (*Digitalis purpurea*), which contains a very powerful and poisonous alkaloid (digitoxin). Even the common dandelion can have nasty side effects if taken the wrong way.

There are different ways to take herbal remedies: herbal teas and infusions are the easiest and most common, followed by the more concentrated herbal tinctures and herbal capsules. They are absorbed into the system to produce beneficial and therapeutic effects. Some plants and seeds can be applied to the skin as a poultice, and some medicinal herbs can be macerated in oil and combined with beeswax to produce healing ointments or high quality herbal skin care products. These can work wonders in keeping the skin healthy and young.

The power of 'weeds'

We are surrounded by important medicinal plants we call 'weeds'. One of Dr Spiezia's favourites is nettle (*Urtica dioica*), which he has been using for years with excellent results.

Wild nettle

Nettle is a powerful mineralising plant rich in potassium, calcium, iron, vitamins (A, B2, C, K, folic acid), chlorophyll, flavonoids and beta-carotene. It's an anti-inflammatory and an excellent cleanser and diuretic.

You can easily recognise its dark green colour and sting hairs. For an instant and effective detox, pick a bunch of fresh nettle leaves (don't forget the gloves!) in an open, unpolluted field and make a fresh cup of refreshing tea.

Another common yet amazing medicinal plant you can see everywhere is marigold (*Calendula officinalis*). You will recognise marigold for the bright orange coloured petals. Dr Spiezia says 'I love it. It reminds me of the Sun - to which, in fact, marigold is strongly linked (heliotropism)'.

Wild marigold

This humble orange flower is rich in carotenoids, xanthophylls, flavonoids, essential oil and polysaccharides. It's great to drink as a tea to balance the menstrual cycle, and as a balm it is one of the greatest healing plants for all sorts of skin complaint.

The latest at the moment is horsetail (*Equisetum arvense*): again, an extraordinary plant rich in silicic acid and flavonoids, horsetail is one of the oldest plants which takes its name from the horse tail shape. For anemia, tiredness, lack of minerals and even when suffering from osteoporosis or arthritic discomfort, this plant is a panacea that is best taken in capsules.

IF YOU ONLY DO THREE THINGS

Opt for Spirulina maxima tablets, acidophilus capsules and Aloe vera juice.

Spirulina is an excellent blue/green algae, rich in amino acids, many vitamins (B1, B2, B3, B6, B9, C, D, A, E), essential fatty acids (omega 3-6), beta-carotene, chlorophyll, potassium, calcium, iron, magnesium, copper, chromium and more. Great to regain energy and detox the blood and colon.

Acidophilus probiotics, or friendly bacteria, are living microbial organisms that are very important in maintaining good gut health, including its immune system. Antibiotics, toxins, junk food and lack of fibres alter the delicate action (intestinal dysbiosis), promoting the growth of potentially aggressive bacteria.

Aloe vera juice is a great friend for general health, helping to alkalise your body, cleanse your bowel, reduce inflammation (IBS) and nourish the system with minerals, vitamins and enzymes – besides protecting it from oxidative stress.

WELEDA
Since 1921

Nature and Nurture

Weleda is unique. Our activity is based on responsibility and a love and respect for nature, something that has not changed since we started in 1921.

That means environmentally friendly sourcing of raw materials, fair trade, biodynamic cultivation, and all with the aim of being climate neutral whilst actively encouraging our employees and suppliers to live sustainably.

Take Lavender, used in over 50 Weleda products. We have encouraged small scale organic production in Moldova and now we support over 200 farming families as they produce the finest quality lavender oils from this fragrant flower.

Just one example where Weleda has made a difference.

Visit our website for more information at www.weleda.co.uk

cosmetics business awards 2013 winner Special award for eco-sustainability

ECO BEAUTY AWARD WINNER COSMETIC EXECUTIVE WOMEN UK 2012

WINNER NATURAL HEALTH MAGAZINE Beauty Awards 2013

BEST SUSTAINABLE BRAND Sublime MAGAZINE 2013

SUSTAINABLE BEAUTY Awards 2013

In harmony with nature and the human being

Since 1921

21ST CENTURY ALCHEMY FOR THE SKIN

INLIGHT ORGANIC SKINCARE USES DR MARIANO SPIEZIA'S NEW INNOVATION, WHICH TAKES ORGANIC BEAUTY INTO THE REALMS OF 21ST CENTURY ALCHEMY

The culmination of years of research, and the ideal marriage of science and alchemy, The Bio Lipophilic Matrix® consists of a specific blend of pure organic, cold-pressed plant oils carefully nurtured for their high biochemical affinity with the lipidic human skin layer.

These super-concentrated oils are energised prior to production, using a patent applied technique that harnesses the principle that all matter is alive (quantum mechanics). Ancient alchemy is employed to heighten the oils' vital force. The idea is simple: to deliver the purest, high quality, supernatural nutrients in a form the skin instantly recognises.

The plant complex is loaded with skin rejuvenating efas, ceramides, enzymes, minerals and vitamins, all designed to deliver a dynamic burst of highly effective nourishment, regeneration and detoxification to the skin. Think of it as turbo-charged organic beauty – with a dash of Italian style and va, va voom!

Just launched at Inlight

The exquisite, good enough to eat Chocolate Face Mask, with pure cocoa powder – an antioxidant rich in magnesium and selenium – is especially good for brightening, deeply feeding and calming your skin.

Inlight Super-food Face Mask with spirulina and barley grass, both high in chlorophyll, is a wonderfully uplifting and rejuvenating face mask to detoxify and repair the skin. Brimming with antioxidants and essential fatty acids, and rich in vitamin E, this is the perfect weekly detox and anti-ageing treatment. Both masks contain baobab powder, acclaimed as a 21st century superfood, which gently exfoliates without stripping the skin of its natural oils.

Beauty boosters

Whatever the weather, these organic products contain active ingredients to help bring the glow back to your face and skin.

1. Inlight organic Face Cleanser, £30.00 (60ml)

This exquisite balm is precious nectar for dry, sensitive or mature skin as it effortlessly moisturises as it cleanses. The oil-based formula makes this gentle yet effective cleanser ideal for removing makeup.

Star ingredients: Coconut, olive, green tea and rosemary.

2. Inlight organic Floral Face Tonic, £22.00 (100ml)

This toner is extremely gentle, highly emollient and won't dry even the most delicate skin. It works like a dream with Inlight organic Face Cleanser (see above). It also performs beautifully as an instant skin tonic and reviver at any time of the day. The toner is alcohol-free and 100% organic.

Star ingredients: Rose, Roman chamomile, lavender and cornflower.

3. Inlight organic Super-food Face Mask, £41.00 (50ml)

This is a wonderfully uplifting and rejuvenating face mask to detoxify and repair the skin. Brimming with antioxidants and essential fatty acids – and so rich in vitamin E – this is the perfect weekend detox and anti-ageing treatment.

Star ingredients: Spirulina powder, barley grass, rosehip oil, baobab powder.

4. Inlight organic Daily Face Oil, £30.00 (30ml)

We love the way this oil brings a celluloid, goddess flush to the face after gentle massage, diffusing fine lines – especially when patted carefully around the delicate eye area. This cult face oil flows over skin like a caress. With euphoric top notes of vanilla, this vibrant oil is packed with organic flower and seed oil extracts and is excellent for feeding the skin daily.

Star ingredients: Blue mallow, rosehip oil, lavender, evening primrose oil and jojoba oil.

5. Inlight organic Body Butter, £41.00 (60ml)

A delightful, restorative body butter that is rich, comforting and pleasingly aromatic. It sinks in effortlessly to pamper, soothe and replenish skin whilst toning and restoring. Another super-concentrated formula without water, so a little really does go a long way. A glorious pampering treatment balm for dry or sensitive skin and suitable during pregnancy.

Star ingredients: Coconut, rosehip oil, nettle and bilberry.

6. Inlight organic Firm & Tone Oil, £42.00 (100ml)

Dr Spiezia has formulated this powerful, toning body oil with high concentrations of active plant oils and astringent, toning herbs selected for their traditional use in relieving water retention, breaking down fat deposits, toning and improving the appearance of cellulite. You can expect more healthy, toned and elastic looking skin after few applications.

Star ingredients: Green tea, ginger root and burdock.

For more information on Inlight organic skincare, and to browse through all the products on offer, have a look at www.inlight-online.com.

SKIN-DEEP BEAUTY

YOUR OUTSIDE BODY IS EXPOSED TO ALL SORTS OF EXTERNAL HAZARDS; FOR OPTIMUM BEAUTY, IT SHOULD BE TREATED JUST AS PRECIOUSLY AS YOUR INSIDE: ORGANIC ALL THE WAY

The skin is more than just the body's outfit: it's the overall expression of our inner health. Our feet, ears and hands are just some of the areas that, through the nervous system, are particularly closely connected to internal organs.

Our skin is clever and detects when something isn't quite right; you can easily tell by someone's skin if they're unhappy – and it's not difficult for a physician to figure out inner imbalances and ailments by observing complexion. Keeping the skin healthy is vital, and feeding it properly – both on the inside and the outside of the body – is the best secret weapon against ageing.

Springy skin

The precious winter stasis has reinforced our physical, emotional and spiritual roots and given us time to think deeply about future projects. The springtime will give us the energy and enthusiasm to put these plans into action.

The passage between winter and springtime is slowed down by sediment, or toxins, accumulated during the cold winter season, on both the physical and psychological level.

To get rid of these toxins you'll need to activate the emunctory organs (kidneys, lungs, liver and skin) to stimulate the metabolic processes and the blood circulation, the fundamental detox procedure. The sediments, sitting in the body's tissues, will then be expelled and new springtime vitality will take place in the body and mind.

If you would like to see through your glasses or the windows of your house to enjoy the daily spring sunshine, you need to clean them. The same applies to our organs: if they are not cleansed, everything will appear opaque and dull.

All these changes involve the skin; as well its detoxifying function the skin is the mirror of what is happening within our body. Our skin and body share a lot of intimate, anatomical and nervous connections.

Spring is the perfect time to detox and nourish the skin, which renews its epidermic layer every 28 days (the same number of days as a moon cycle). In fact, at the beginning of the spring the skin can show some signs of impurity and can have mild areas of redness, inflammation or dry patches.

A detox program will help get rid of the sediments stored in our organs and tissues. Twice weekly, bathe for 20 minutes in warm water with 150g of pink Himalayan salt. This will help to draw out the sediments or toxins. Afterwards, dry your body with a rough towel to activate the blood circulation and to produce a gentle peeling effect.

Treat your skin

A daily cleansing regime is vital to free the pores from debris, dead cells and pollutants. Cleanse your face in the morning and at night using Inlight Face Cleanser, which is formulated with a delightful fusion of coconut, jojoba and olive oils, green tea, cypress and rosemary, to lift deep impurities. The skin is left conditioned and restored by the gentlest exfoliating and polishing action.

Finish off your cleansing ritual with the super-emollient Floral Face Tonic, which is alcohol-free. Inlight Tonic is also a great option any time you feel the need for a quick freshener. Just hide somewhere for a quick spritz; a few drops will leave you feeling immediately revitalised.

Remember that the skin can absorb many substances, which means it will also suck in unhealthy man-made chemicals, too. Check the list of ingredients on your skin products to avoid synthetic additives that could cause damage. By using natural and organic ingredients, you'll also counteract the negative impact that most cosmetic residues have on our environment, so it's win-win.

Totally organic skin care is the answer both for the skin and for our planet. Make sure the ingredients are certified organic; look for a minimum content of 95% – though 100% is, of course, as good as it gets.

Keep it clean

Different skin types require different beauty regimes, so tailoring your routine will make all the difference. Here's what you need to know, whatever your skin type.

Dry skin

Dry skin is the result of many factors: stress, a poor quality diet, ash soaps, pollutants, oxidants, synthetic cosmetics, central heating, calcium-rich tap water, alcohol, caffeine, smoking, lack of vitamins A and B and zinc and not enough water. Dry skin can often be more sensitive and prone to allergic reactions.

Never go out in the morning without the cult beauty oil Inlight Daily Face Oil, packed with flower and seed oil extracts of blue mallow, rose, lavender and evening primrose, which are renowned for their ability to plump, smooth and hydrate skin. At night let the verdant, aromatic Inlight Night Balm do the hard work while you sleep and wake up to beautiful, replenished, glowing skin.

Oily and combination skin

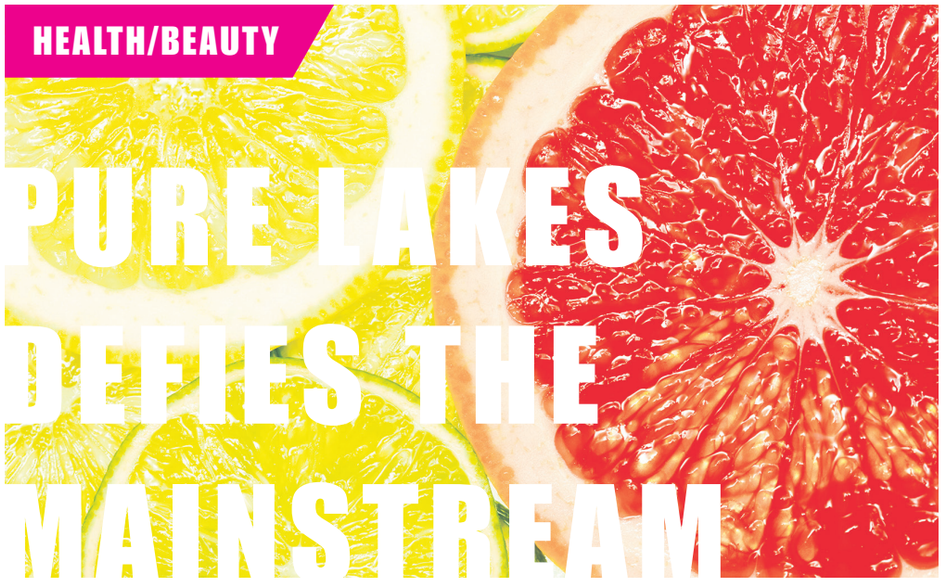
Oily and combination skin is mainly hereditary, but often triggered by diet, hormonal imbalances, birth control pills, excessive humidity and heat. It's more common during hormonal changes due to the overproduction of sebum, so therefore in teenagers and during pregnancy and the menopause. Watch out for aggressive cosmetics and skin products containing alcohol; they can thin the skin's hydrolipidic barrier, producing more sebum and breakouts.

Mature skin

With age, the glands that produce the skin sebum become less active, inevitably leading to dry and more sensitive skin. Between the skin layers collagen and elastin production slows down, reducing the skin's ability to respond to normal movements. Sun damage (photo-ageing) also plays a big role because excessive exposure to UV rays breaks down collagen, reducing the synthesis of elastin.

Junk food, alcohol, smoking and pollutants are all oxidants and cause an early ageing of the skin. Don't just wait for your skin to show you are growing up before you repair damages; you can stop this happening with some preventative TLC.

> *"Totally organic skin care is the answer both for the skin and for our planet"*



PURE LAKES DEFIES THE MAINSTREAM

LUXURIOUS SKINCARE DOESN'T HAVE TO COST THE EARTH; BY PASSING ON SAVINGS, COMPANIES LIKE PURE LAKES ARE MAKING NATURAL PAMPERING AN AFFORDABLE REALITY

Just over a decade ago, Iain and Sandra Blackburn took the leap that few are brave enough to dare: after a 'little think' they ditched their office jobs at a software company and upped sticks to the Lake District to open a tea room and gift shop.

Speaking to *PQ*, Sandra admitted that the 'only downside' to switching IT for cream tea was that she could no longer afford the natural products she had been using for her skin – and was appalled by some of the mainstream alternatives. She said, 'After doing a bit of research, I was amazed by the fillers, harsh synthetic chemicals and general rubbish found in many toiletries.'

The first to admit she has a 'thing' about hype and celebrity marketing in the cosmetics industry, Sandra was shocked that some companies choose to plough their time and money into the look – rather than the quality – of their products.

After suffering a series of allergic reactions to the conventional soaps and cosmetics she'd started using, Sandra decided to concoct her own lotions and potions instead. Over time she developed a wide range of gentle, natural products for friends and family, each made from ethical and sustainably sourced ingredients and natural fragrances that are kind to both the skin and the Earth.

Scaling things up

It wasn't long before word got out, and friends in the local hotel industry asked Sandra to supply biodegradable toiletries for their guests. Replacing just one product in one hotel room with a refillable version would divert 100 small bottles from the dustbin – a reduction of 700,000 bottles per year in Cumbria alone – and help hotels cut down on the waste produced by traditional packaging. 'We were really excited' Iain recalls, 'because this also had the obvious environmental benefit of cutting down on wastage from small bottles and sachets.'

And so Pure Lakes Skincare was born; Iain and Sandra sold their gift shop and started producing eco-friendly toiletries in bulk.

The use of simple packaging, combined with the discounts of buying raw materials in large volumes, allowed Sandra to create natural, high quality and handmade toiletries at affordable prices. Passing these savings on to customers meant Sandra and Iain were able to provide luxurious products at affordable prices, for a fraction of the cost of many high-end natural skincare products.

Award-winning products

> *"After doing a bit of research, I was amazed by the fillers, harsh synthetic chemicals and general rubbish found in many toiletries."*
>
> Sandra Blackburn

95% of Pure Lakes' waste is reused or recycled and 100% recycled plastic bottles are used. As a result, the company has won several environmental awards, including an Environmental Excellence award and the 'Green Hero' award from the Environment Agency. The company is also proud to be on the Janey Lee Grace 'loves' list.

Still making all the products by hand in their Cumbrian workshop, Pure Lakes now supplies guest toiletries to a wide range of small and medium hotels throughout the UK.

Available from Pure Lakes

1. Grapefruit & Lemongrass Hand Wash, £7.50 (250ml refill)

No harsh detergents, just gentle glycerine soap, made to a traditional recipe using organic sunflower and coconut oil.

2. Rose & Geranium Skin Repair Bar, £7.50 (60g tin)

Intense moisturiser based on unrefined, honey-scented beeswax combined with rich butters and oils of avocado and calendula. Great for nourishing and protecting cracked, dry skin.

3. Lavender & Chamomile Dry Skin Balm, £7.50 (60g tin)

Packed with all the good stuff Sandra could get in: Aloe vera, beeswax, avocado, jojoba, calendula, coconut and shea butters. It looks like thick clotted cream and is just as rich.

4. Facial Hydration Moisturising Cream, £6.95 (25g jar)

A deliciously soft cream Sandra originally made for herself, using shea butter and organic rosehip seed oil for natural vitamin A and omega 3, plus oils of neroli, bitter orange and frankincense because they smell sensational and are wonderful for mature skin.

5. Grapefruit & Lemongrass Hand and Body Lotion, £8.50 (250ml refill)

Sandra's special concoction of sweet almond, sunflower and avocado oils whipped into Aloe vera gel is silky soft and sinks into the skin like a dream. Extensively tested by ladies of all ages!

Pure Lakes has a 'Detox in a Box' gift pack (£42) to give away to one reader, and two 'Gardeners' Gift Bags' (£17) for two runners up. For details of how to enter the competition, visit www.mygreenpod.com.

For more information on all the gorgeous products available from Pure Lakes, visit www.purelakes.co.uk.

HYUNDAI ix35 FUEL CELL

THE ASSEMBLY LINE ECO CAR

TRANSPORT

STEVEN GLASER, ECO-RALLY FOUNDER AND AUTOMOTIVE TECHNOLOGY EXPERT, WENT TO FRANKFURT TO GET A CLOSER LOOK

Last February, the world's first assembly line production of zero emissions fuel cell vehicles began – and the Hyundai ix35 Fuel Cell was born. Could mass production be a game changer for the eco car market as it was for conventional cars, and is this the best technology to be backing?

In the blue corner (like other manufacturers, Hyundai has branded its 'green' sub-brand 'blue', with a Blue Drive range that already includes battery-powered electric vehicles and hybrids), the ix35 Fuel Cell weighs in at 1,800kg. It looks like Hyundai's standard ix35 but minor exterior revamps, such as a new grille, mark the Fuel Cell out. The performance is also remarkably similar but, thanks to the whisper-quiet 100kW (136hp) electric induction motor, it doesn't make anywhere near as much noise.

> *"It's the car companies' job to make the cars, but the vehicles need fuelling and there are obviously huge financial interests at stake when it comes to shaking up the status quo."*

Hyundai has tuned the Fuel Cell version for the 'demanding preferences of European drivers', with improved handling and driving dynamics. Like the standard model it handles well at speed, and the four-wheel drive kicks in for grip and stability when cornering in wet or slippery conditions.

0-60 in 12.5 secs

The ix35 Fuel Cell accelerates from 0-100km/h in a respectable 12.5 seconds, but you really notice how nippy it is when you're at the lights and accelerating to city speeds from a standing start. The top speed is limited to 160km/h (around 100mph) and a little over 5.5kg of pressurised hydrogen will keep it going for a liberating 594km (341 miles). The car is hybridised with a fairly small, 24kW lithium battery to maximise efficiency, which can power the vehicle for a mile or so if you need it.

The Hyundai ix35 Fuel Cell will go into production in 2015, so we'll have to wait for the ticket price. But how do you price radically new, planet-saving technology that, not so long ago, was a laboratory prototype worth tens of millions? Rumour has it that Toyota lost $80,000 on the sale of every Prius at the beginning of sales, and continued to make a loss on each vehicle sold for a decade before it shifted enough units to put the model into profit. But in a pioneering move, Hyundai is making a lease option available in the UK. Fleet users and those living near our rare hydrogen refuelling facilities could be looking at around £10,000-15,000 a year for the kudos of a seat among the first owners.

Fuel cell technology

Fuel cells have been around since 1839, but it was the fate of batteries (invented a couple of decades earlier) and steam (later replaced by the internal combustion) to power us through the industrial revolution and up to the present day. It wasn't until the 1960s that NASA saw a use for fuel cells, and kicked off a development programme that would ultimately take man to the moon.

The auto giants have spent billions over the last decade turning laboratory curiosities into real-world electric vehicles, and it looks like the tide's turning. It makes eminent sense to use electric power for propulsion because, like everything else, cars are using more and more electric power for auxiliaries, including communications systems and even the propulsion control systems themselves. Several manufacturers have released models that send electronic, rather than mechanical, signals from the 'gas' pedal to inject more fuel.

The Japanese, Germans and Americans are also well into the hydrogen game. Ford, GM, Honda, Mercedes, Nissan and Toyota are just some of the fuel cell electric players, and BMW developed a Hydrogen 7 series combustion engine model a little over five years ago (though the company is now partnering with Toyota on the development of 'fuel cell' hydrogen cars). Honda has installed a hydrogen filling station at its Swindon HQ and a couple of other companies have access to hydrogen fuel in the UK. But why would manufacturers offer fuel cell electric vehicles (FCEVs) in a country which, as yet, has no real hydrogen infrastructure?

Will fuel cells catch on?

For the UK, the ix35 Fuel Cell will play a role in the question 'what comes first, the vehicles or the fuelling stations?'. The availability of hydrogen vehicles should encourage meaningful investment to help get hydrogen fuelling moving. Frankfurt, for example, is part of a growing network that offers hydrogen as an option on some public forecourts; at €9.99/kg you could fill the Hyundai's tank for around €50 (£41).

There's a crucial political role in the establishment of a hydrogen fuelling infrastructure; it's the car companies' job to make the cars, but the vehicles need fuelling and there are obviously huge financial interests at stake when it comes to shaking up the status quo. Having said that, the first fuel cell car on this side of the Atlantic – a modified DAF 44 – was actually developed by Shell's technology centre in 1967 – although it used the carcinogenic fuel hydrazine rather than hydrogen.

Last year, a government-backed study estimated that 1.6 million hydrogen vehicles would take to British roads by 2030, served by over 1,000 hydrogen fuelling stations. That tallies with commitments from all the big Japanese auto-makers to release 'series production' FCEVs from 2015 (though unlike the Hyundai model, they're not expected to be immediately available in the UK). If the same report is correct, the market share for FCEVs could be 30-50% by 2050.

Zero emission fuel by 2050

The establishment of a 'hydrogen economy' has been likened in magnitude to the move of commerce from canals to rail. The investment required for this monumental shift is comparable but, like railways in the second half of the 19th century, the roll-out will be spurred on by demand. Hydrogen sources will gradually de-carbonise as market share increases, with estimated carbon savings of 75% by 2030 – and truly zero emission fuel by 2050.

Investment mistakes and red herrings can be hugely expensive and the car industry, which invests billions in manufacturing, is a cautious beast. It's hard for 'new' tech to compete with a century of work to slash car manufacturing costs; no one was concerned about the individual production cost of fuel cells in the space programme – the focus was on reliability, efficiency and a low launch weight.

But in huge factories producing half a million cars per year, you can't make fuel cell 'engines' using hand-carved graphite plates - and nor can you smother them in expensive precious metals like platinum. The materials used must be cheap, recyclable and lend themselves to mass production. On top of the commercial risk, until recently the materials that could make fuel cells cheap enough for an affordable family car just weren't available.

Getting FCEVs on the road

A technical breakthrough at the famous Los Alamos laboratories significantly reduced the amount of platinum required for workable fuel cells, and led to a ground-breaking report report for the US Department of Energy in 1991. The report identified fuel cells as a 'wild card' potential future propulsion system for cars. Later that decade, the car industry started to realise that the technology warranted serious consideration, and began assembling the research platforms that have led to today's fully functional fuel cell cars.

Any new product entering today's marketplace must satisfy far more stringent criteria than the incumbent product on sale, and FCEVs are no different. As well as the standard safety tests, regulators now consider the life-cycle of product materials when certifying vehicles.

The good news is that the components in a fuel cell are fairly straightforward to recycle (with platinum recovery rates currently over 90%, for example). Unlike internal combustion engines – which can be works of art if you like that kind of thing – fuel cell 'stacks', which constitute the heart of the fuel cell system, have lots of so-called repeat components. This means that, in the long term, they should be much easier to produce and assemble than any kind of conventional engine.

We don't know for sure how the personal transport market will evolve over the next century, but we do know that various options – that make sense from a holistic perspective – must remain open to us. Things will look pretty different in a century's time, but it's clear that electricity is going to play an increasingly important role in the transportation of the world's citizens. The challenge will be to use, deliver and store it efficiently and in a sustainable manner that places minimal stress on the environment.

100% guilt-free, carbon-neutral motoring is a very challenging goal, but we can take big steps towards it – and vehicles like the Hyundai ix35 Fuel Cell represent giant leaps. We don't yet have the infrastructure in place to make the system perfect, but that's no reason not to start – provided we believe we can make the necessary improvements over time. If the car industry wants to keep selling cars well into the next century, it'll probably to have make an 'electrified' vehicle very similar to this one.

Fuel cells can't solve all the world's problems, but they are tailor-made to match the requirements of a 21st century power source. Do they herald the dawn of a new energy era, still fuel-driven – but in a manner which doesn't carry the seeds of its own destruction? It's looking more likely than ever.

WHAT IS A FUEL CELL?

For those not in the know, a fuel cell, like a battery, is an electrochemical energy conversion device.

What happens inside is basically the reverse of the 'water electrolysis' you probably saw back in school, where an electric current splits water into its basic elements, hydrogen and oxygen.

As water is the only 'emission', any fuel cell-powered device is considered to be zero emission.

ECO-CARS TO LOOK OUT FOR

If, like us, you were seduced by the high-end hybrids at last year's Geneva Motor Show — including Ferrari's V12 — don't take out a second mortgage just yet. Supercar manufacturers are just the latest players to realise eco-cars can be super sexy — and practical, too.

Vauxhall Ampera

Under £30,000

Crowned the 2012 European Car of the Year, the four-seat, five-door Ampera has been touted as the 'first real-world solution to electric car ownership'. At under 50 miles the battery range isn't great, but a small range-extending petrol motor is included to recharge the 16kWh lithium-ion battery. The top speed's limited to 100mph, but acceleration is impressive at 0-60mph in 8.7 seconds. It also achieves a staggering 235mpg with a mere 27g of CO2/km. Available from specialist dealers.

Peugeot 3008 Hybrid4

£26,995-£29,950

Winner of *What Car?*'s Green Car Award, 2011, this roomy hybrid is the world's first mass produced diesel-electric car and is great for families. It features a stop-start system mated to an automatic or manual gearbox and has a pretty high spec. Sat-nav, built-in hard drive, parking assist and distance alert are also included.

Renault Twizy

£6,690-£7,400 plus £45/month battery hire

If you're looking for a small, easy to park, full electric urban two-seater, legally classified as a heavy quadricycle in the EU, take a serious look at the Twizy. It's by far the cheapest on this list and has a reasonable range of 100km (62 miles). The outboard position of the four wheels gives it a novel look, and other nice features include a frame and body of deformable structure, which is lightweight and maximises passenger protection if you suffer an impact. The Twizy was Europe's top-selling plug-in electric vehicle during 2012.

Honda Jazz Hybrid IMA

Starts at £16,770 (basic model)

This 1.3 litre hybrid is an affordable family car that's well-designed, easy to drive and has advanced eco technology. It has been around for a couple of years so you can now pick up cheaper secondhand models. Rear visibility is a marked improvement on other Honda hybrids, such as the Insight or the sporty CRZ.

Driving style usually has the biggest single impact on fuel consumption, and the smoother you can make your driving the more efficient it will be. Changing the way you drive could chop 25% off your fuel bills as well as reducing emissions.

ARUNDELL ARMS HOTEL IS LIVING PROOF THAT SUSTAINABLE ALTERNATIVES MAKE GOOD BUSINESS SENSE

Surrounded by river valleys and rolling countryside on the western side of Dartmoor, Arundell Arms Hotel is flanked by some of the UK's most beautiful and unspoilt countryside.

This 300-year-old former coaching inn is owner and guardian of 20 miles of the best fly fishing in the West Country, along a wild and unspoilt stretch of the River Tamar and its tributaries. As a result, it has earned a reputation as the UK's premiere sporting hotel.

Open wood fires in the living room and bar add to the rustic charm that oozes from Arundell Arms, which has a fine dining restaurant, brasserie and village pub on site. Renowned for its great food, this hotel is a tranquil paradise of old world charm and traditional service, nestled in the heart of swathes of unspoilt countryside.

The 'best fishing school in the UK'

The fishing school was named the best in the UK by *The Field* magazine, and there are countless opportunities for walks, cycling and birdwatching, as well as the option of golfing or surfing at the nearby Cornish beaches.

Arundell Arms Hotel has been in the hands of the same family since 1961, and four years ago a decision was made to 'make the business more sustainable in all regards' – beyond the usual requests for guests to re-use towels.

Today it serves as living proof that sustainable alternatives make good business sense. A host of changes to the day-to-day running of the hotel have made the hotel a case study in environmental best practice for older buildings.

A 198kW biomas boiler and a 4kW PV system will be part of the hotel's 'Green Energy Centre' – and will save it £25k per year.

Growing and sourcing food locally, investing in boreholes and pumps, replacing bottled for on-site filtered water – and diverting 12,000 bottles from landfill per year as a result – are just some of the measures that have resulted in a 20% energy cut – and a 15% lift in profits. In recognition, Arundell Arms Hotel won the 2012 Devon Environmental Business of the Year award.

The next step for the hotel is to build a 'Green Energy Centre' with a 198kW biomass boiler and a 4kW Photo Voltaic system, which will put an end to all on-site consumption of fossil fuels – and save the hotel £25,000 annually.

Arundell Arms Hotel is on Bus Route 510 from Exeter to Newquay, and just one mile from the main A30 dual carriageway.

Free secure cycle storage is provided and the rate for a double room is around £85 per night, depending on the season.


FISHING ON THE RIVER THRUSHELL

COMPETITION

We're giving away a two-night stay for two at Arundell Arms Hotel, including breakfast, unrestricted access to all facilities and a five-course tasting menu dinner in the AA two-rosette restaurant. For more information, visit www.mygreenpod.com.

TAKE AN ENVIRONMENTALLY-CONSCIOUS BREAK WITH THE 'ELEMENTS STAY PACKAGE'

In a bid to become 'London's most sustainable luxury hotel', The Savoy has developed a package that lets guests experience the luxurious and 'green' sides of London.

The 'Elements Stay Package' includes a 'Green Butler', who will be on-hand to share all he knows about what The Savoy – and London – has to offer for the eco-conscious tourist. Intellectually curious travellers can enjoy a three-hour sustainability-themed walk with Context Travel, or experience London's wild side with a trip to ZSL London Zoo, which has been attracting visitors of all ages since 1847.

10 squids for the zoo

At the zoo you'll get to meet and explore the habitats of over 750 different species of animal, and learn about some of the zoo's wild animal conservation, education and science programmes. On top of that The Savoy will donate £10 to The Zoological Society of London (ZSL) charity on your behalf.

During the stay you'll be able to enjoy meals in Kaspar's, which is a member of the Sustainable Restaurant Association, and a gourmet organic hamper can be arranged if you feel like going out for the day. The concierge will be able to point you in the direction of heritage sites, nature walks, cycling and jogging routes, wildlife centres, conservation programmes and community projects for volunteering.

If the weather's not great and you don't want to make use of one of the hotel's BMW bikes (and helmets), there's a one-day travel card to fall back on. But, after being picked up in a chauffeur-driven luxury Mercedes 'BlueTEC' hybrid on arrival, the Jubilee line at rush hour may seem a bit of a fall from grace.

For bookings, rates and availability, visit www.fairmont.com/savoy-london.

THE ELEMENTS STAY PACKAGE: WHAT'S INCLUDED

- Overnight accommodation.
- Transfer from a London airport or station in The Savoy's chauffeur-driven luxury Mercedes 'BlueTEC' hybrid vehicle.
- Complimentary valet car parking if arriving by hybrid vehicle.
- A 'Savoy Green Butler' to assist with requests such as packing and making travel arrangements, advising on green initiatives within the hotel and places of interest around London.
- Welcome amenity on arrival.
- A leisurely breakfast served in Kaspar's, The Savoy's new restaurant, which is also a member of the Sustainable Restaurant Association.
- A three-course dinner in Kaspar's, plus a pre-dinner biodynamic cocktail in the famous American Bar.
- A trip to ZSL London Zoo to experience London's wild side, or alternatively you can choose from one of Context Travel's inspirational three-hour green walking tours of London.
- Complimentary use of a BMW bicycle, with a helmet provided.
- A one-day travelcard allowing free use of London's public transport network.
- A donation of £10 to The Zoological Society of London (ZSL) charity.

THE SEYCHELLES

JARVIS SMITH ON THE FORGOTTEN ISLANDS THAT INSPIRE OUR CHILDREN

Sitting at a family gathering when I was five years old, my uncle announced (proudly, as was his way) that he and his new wife were off to the Seychelles for their honeymoon. 'Pure white beaches and turquoise blue waters', he said. 'It's paradise.' Everyone gasped with 'Oooo!'s and joyous 'Wooo!'s, before promptly following with 'Aren't there sharks there?' 'How long will it take to get there?'

'Sharks?!' I said, and my aunt swiftly put my easily-influenced mind at rest. 'Don't worry – they have shark nets to stop them coming too close to the beach.'

Whilst sitting on a panel for responsible tourism at London's latest World Travel Market conference for the BBC World Service, Alain St. Ange, the Minister for Tourism in the Seychelles, caught my attention. He expressed very real and serious concerns for his national – and global – responsibilities during the current climatic changes.

I was drawn to his sincerity and passion and decided to go and see for myself what he was up to. I would take my five-year-old daughter, Sophia; maybe she could learn something valuable for when she becomes a young adult and starts to consider her own environmental impact.

Upon arrival at Victoria airport at 13.30, we were immediately blessed with the warmth of the golden sun. Ahh I'd missed it; this was February and we'd had a pretty miserable winter in the UK. Sophia said 'Daddy it's so hot!' Yes, we had arrived.

It was a more mountainous country than I'd imagined; green and lush in parts with stunning turquoise seas. We arrived at the Constance Ephelia Hotel in the Port Launay Wetlands on Mahe, a wonderful resort bordering a national park on the north of the island – right on the coast of a secluded, mangrove-lined bay (more on that later).

Our villa was well-equipped, with a lap pool, jacuzzi, steam room and hot tub, two nice-sized bedrooms and a separate entertainment room with TV.

I do remember thinking 'Wow, based on size and comfort I could live here!', and felt slightly disappointed I was leaving in a few days to see other parts of the island. I wanted to get down to detail: did all the lights have to be on? What toiletries were provided? But being with my little one, I just had time to dump our luggage and off to the beach we went.

Little did I know how much of a treat this would be. Was it a private beach? I was told there are no private beaches in the Seychelles; everyone can go to any beach any time. How refreshing.

I was beginning to feel that this country had got things going for it. Was this the sentiment I had felt from Minister Alain? Could this really be a country that equally cares for its residents, land, businesses and tourism? Well, over the next seven days I found out...

There was a relaxed vibe in the air and Sophia and I quickly headed into the sea. Wow it was warmer than my local swimming pool – warmer, in fact, than the kids' pool. Sophia and I giggled at how much fun we were having – little did I know how much better it was going to get.

"Was it a private beach? I was told there are no private beaches in the Seychelles; everyone can go to any beach any time. How refreshing. I was beginning to feel that this country had got things going for it."

"Bird Island's website states, 'The magic of Bird Island cannot be told, you have to live it.' We've been very fortunate to visit one of the most beautiful islands of the world – and I have to agree."

The mangroves

So mangroves, as I explained to Sophia, are the Earth's natural defence system in areas of high-energy wave action. They dominate three-quarters of tropical coastlines, and play a vital role in protecting the islands that will be most troubled by the rising sea levels that result from melting ice caps. I drew some little pictures in the sand to explain. 'So they're very important, Daddy?' 'Yes darling, as is all nature on the Earth. It's all connected, so if they get cut down then that will have an effect on the rest of the island's natural habitat.'

How great this hotel has a project in Port Launay Wetlands with NGO Sustainability for Seychelles, under an arrangement with the Seychelles National Parks Authority (SNPA) and the Seychelles Department of Environment (the official management authority for the site). Working together, they protect the environment and the landscape that form the core of this resort's attraction.

Bird Island

We travelled to Bird Island on the daily charter service, using Air Seychelles aircraft, departing from the Seychelles Domestic Terminal. Not an ideal way to travel, but with a little one and time constraints it was unavoidable. I explained to Sophia that, had we had a little more time, we might have sailed to the island and allowed the air and the sea to take us, which would have reduced our carbon footprint. And perhaps if our lifestyles allowed us to take longer holidays then we could have sailed to the island.

As I had her attention, I explained we could also take the train through countries rather than flying over them, and that social and lifestyle changes would only come about if the governments that set the rules supported the environment and our wellbeing. Our lives would have a much healthier balance of work, rest and play. That made her smile. Anything involving play makes her smile (and me too, in fact).

SOPHIA ON THE BEACH

> *"Sophia and I quickly headed into the sea. Wow it was warmer than my local swimming pool – warmer, in fact, than the kids' pool. Sophia and I giggled at how much fun we were having – little did I know how much better it was going to get."*

Being greeted by Mrs Savy, the wife of the owner of the island (which has been owned freehold for over 60 years) made it feel like we had arrived somewhere very special. Landing on a grass airstrip down the middle of the island added to the buzz – and seeing Aldabra giant tortoises wandering around freely made it easy for Sophia to connect with the magic and wonder of this extraordinary place.

BIRDS NESTING

Bird Island ticked all my boxes; the eco-design of the lodges (built with locally-sourced materials), the solar-heated water for all guests, the conservation of wildlife... For 35 years the island has operated on ecological principles and it has run conservation programmes for various aspects of its wildlife since the early 1970s.

Currently the focus is on programmes that monitor and protect sooty terns (which breed on the island in their millions from May-September), the green and hawksbill turtles (which also come to the island to lay their eggs), the long-tailed white tropic bird (which nests on the ground next to trees), the newly-introduced Seychelles sunbirds (which trans-located from the main island in February 2006), weather monitoring and plenty of other programmes.

Off to the beach...

We were advised to head to the beach, and oh my, this was the most spectacularly beautiful beach I had ever seen. Soft and bouncy white sands, warm crystal-like turquoise seas and the deepest, bluest skies.

It was twilight; the deep orange sun was setting and it felt like the birds had all taken flight for a prayer of appreciation to the sun and what it gave us all that day.

I have felt euphoria a few times in my life: once upon exiting the Great Pyramid, having laid in the sarcophagus in the King's Chamber; another time swimming with free pilot whales in Hawaii; seeing the Grand Canyon for the first time – and not being able to speak for two hours as I was so in awe of and overwhelmed by its magnificence – and when I gazed upon my first son being born 24 years ago.

But this feeling was different. It was a feeling of union. I was watching Sophia and her whole being became truly angelic; she bounced around

giggling and absolutely high on an experience of immense beauty, in full celebration with the sun and sea, dancing the dance of creation. It's so difficult to put into words, but I felt it and I could see she was feeling it, too. Was this the feeling of heaven on earth? Never before or since have I seen Sophia so free and spirited; it made me want to give her that life for ever. I wondered, could that be possible?

We ate beautiful local food in the open restaurant and then headed off to bed. By this time the wind-up torches provided in the room were needed, and actually made this all the more of an adventure. As we got closer to the room, the birds began to sing – and oh my what a symphony. I'm sure the song changes with the seasons, but this was loud and close and like nothing I had heard before. Sophia was asleep within five minutes and I got to listen to the conversational chatter until I drifted off myself.

The next day we met Robbie Bresson, the island conservation manager and expert. He had so much enthusiasm for what had been achieved on the island, and took such great pride in his work, that hanging out with Robbie is a must. He's a wealth of knowledge and experience and taught Sophia about the different bird species as she stroked the white-tailed tropicbird chicks and chatted to the tortoises.

Walking back to that heavenly beach afterwards, I explained to Sophia that all animals deserve this kind of freedom and that's why I don't eat meat, because the animals are mostly bred specifically for human consumption. If humans became vegetarian, then animals would live a much richer life - plus it would reduce our carbon footprint, help conserve land and water and protect the oceans. You can find more information on the Vegetarian Society's website, www.vegsociety.org/info.

A few days later we were leaving the island and off to stay at the newest resort in the Seychelles, the Raffles Praslin Resort. We had to fly back to Mahe and were heading to Praslin by boat, but we had one very important place to visit along the way.

Conservation with Nature Seychelles

Nature Seychelles is described as a dynamic, independent organisation involved in a wide range of conservation activities. I met with Robin Hanson who runs the place, a young English gentleman who greeted us with fresh coconut milk from the trees on site. Probably one of the best greetings in the world.

> *"Vallée-de-Mai Nature Reserve was declared protected in 1966, and hosts the largest concentration of Coco de Mer trees in the world. This palm is endemic to the islands of Praslin and Curieuse and reminded me of Jurassic Park: huge trees, huge leaves and even huger nuts."*

One of the things this organisation does is study the flora and fauna and invite groups of people from all walks of life to re-connect – or perhaps connect for the first time – with nature. I was particularly drawn to a programme to rehabilitate drug users, re-teaching life skills through yoga and conservation.

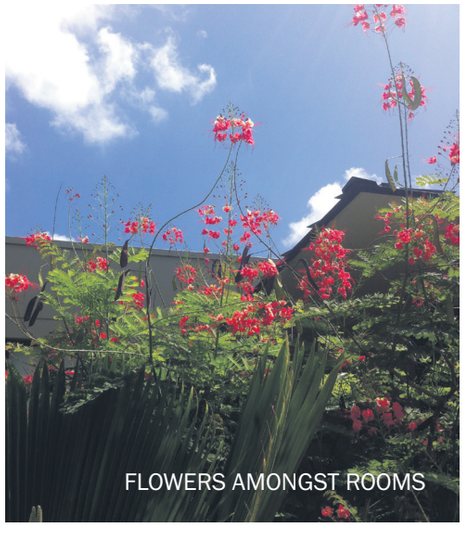
If I had a personal playground, this is the kind of place I would want it to be – where I could learn about the impact of climate change and its effect on my immediate environment whilst growing herbs and fruit, nurturing mangroves and other important species for a sustainable world.

In fact, if everyone in the world stopped 'business as usual' tomorrow, and committed to regeneration, regrowth and the redistribution of land, I bet all the money in the world (which, incidentally, will have absolutely no use when the tides and winds change) that this planet could be turned around to become completely sustainable in less than five years! For more information on Nature Seychelles and the work its doing, visit www.natureseychelles.org.

Raffles Praslin Resort

So the newest resort indeed... I must admit I was blown away by the luxury here, but at the same time I also questioned the necessity of such an overwhelmingly 'beautiful' resort. Lots of vibrant flowers and plants spread around grand villas and suites over vast swathes of land, and something in the natural air felt uncomfortable to me. I didn't feel it had the same depth of connection to nature as the other places I'd visited.

Later that day I began to find out why. I was shown pictures of the natural yet fairly barren land on which it had been built, and the huge disruption to the rock faces and plant life. Perhaps in a very strange way I was picking up on how nature had been handled here. I understand there is a market for luxury tourism, but why does it have to be at the expense of the natural world?



FLOWERS AMONGST ROOMS

PLANTING A MANGROVE

BEACH AT DUSK

COCO DE MER

What about working with what's already there, and building around the trees to allow people and planet to co-habit together, using the trees and rocks as part of the building's story?

I wanted to dig a little deeper and find out what was real here and why we had come; on the one hand I was effortlessly seduced by the Royal Panoramic Villa suite and its stunningly breathtaking views, and on the other hand I was shocked by what felt to be a reckless and destructive misuse of the land.

So I met with the landscape gardener and picked his brains. He explained that actually, a lot of this land was dying off due to corrosion, heat, lack of water and other climate issues in the area. With the 86 villas and their surrounding environment, he had been able to re-introduce fauna and flora growing naturally around the island, feeding the area with far more sustenance than it had received beforehand.

He had done a beautiful job, but I think because it was all so new it hadn't quite taken shape and felt unnatural to me. I would like to revisit this place again in a few years' time to see how these two environments, the resort and its grounds, grow together.

Having met with the site's wedding planner, I believe this could be the perfect wedding location. With its pool and spa, restaurants and kids' club, you can see why there have been a few celebrity weddings here – and if it's good enough for them...

The next day was very, very exciting for me – though I'm not so sure about Sophia. We headed off to see a tree that boasts the biggest nut in the world, which only grows naturally on Praslin and one other island. Now this is the kind of thing that really excites me these days.

On the way we stopped off at the humble Bon Bon Plume beach restaurant, and I can say with hand on heart that I had one of the best curries I'd ever tasted. A must stop in Praslin.

Vallée-de-Mai Nature Reserve was declared protected in 1966, and hosts the largest concentration of Coco de Mer trees in the world. This palm is endemic to the islands of Praslin and Curieuse and reminded me of Jurassic Park: huge trees, huge leaves and even huger nuts. Sophia could only just pick one up. The nuts take six to seven years to grow and a further two years to germinate, with the largest fruit recorded to date weighing in at 42 kg. The mature seeds weigh up to 17.6 kg and are the world's heaviest.

Conservation priorities here are the continued protection of populations, the enforcement of regulations and effective fire control. Firebreaks also exist at key sites in an effort to prevent fires from sweeping through and devastating populations. Cultivated palms are grown on a number of other islands and are widely present in botanic gardens – though the collection of seeds for this purpose may be a further threat to the natural examples.

This ancient forest is also home to the indigenous black parrot, the population of which has declined to about 200–300 birds, with fewer than 100 breeding pairs. When our guide mentioned this to Sophia and began mimicking the parrots' mating call, Sophia joined in – only to become disappointed when none immediately appeared. To lift her spirits, I asked if she had asked the angels and nature spirits to guide her to see the black parrot.

'Hello angels, would you please guide me to find and see the black parrots before we leave?', she said.

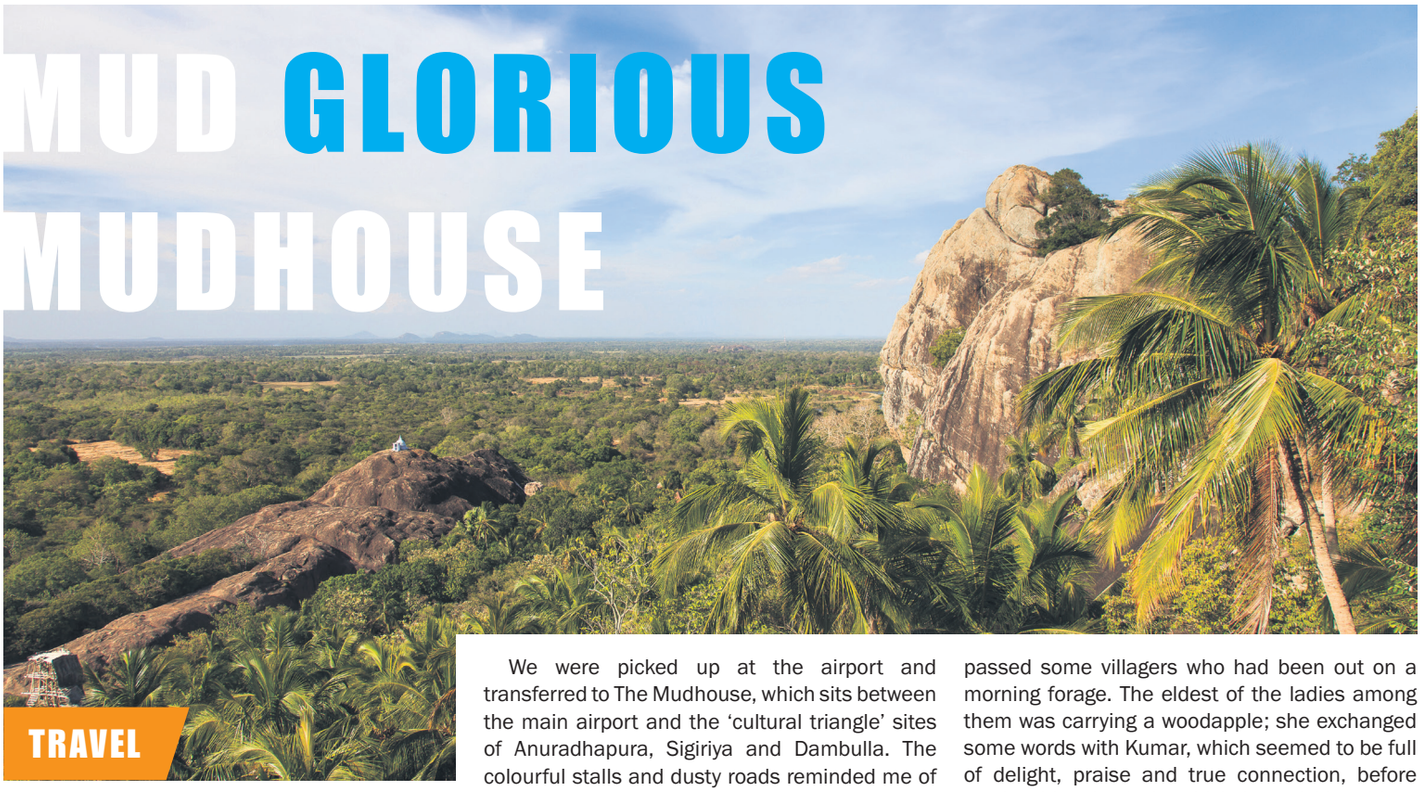
Within seconds, our guide cried 'Look!' and pointed to a mating pair of parrots, one of the rarest of sights with these birds. Not just one, but two birds showing their love for each other. 'Wow!' I said to Sophia, 'That just shows what you are capable of! See, you are an earth angel.' If all of our children believed this, perhaps the world would be a different place to live in.

Oh, and by the way – I still don't know if those shark nets were real or not. I have a sneaky feeling that, even if they were used back then, they'll have been pulled in since due to the damage caused to marine life (it was 1975!).

> *"I understand there is a market for luxury tourism, but why does it have to be at the expense of the natural world? What about working with what's already there, and building around the trees to allow people and planet to co-habit together, using the trees and rocks as part of the building's story?"*

To plan a trip to the Seychelles and explore the natural beauty for yourself, have a look at the tour operators listed on www.seychelles.travel.com.

MUD GLORIOUS MUDHOUSE



TRAVEL

JARVIS SMITH ON THE JEWEL IN SRI LANKA'S CROWN

It was my birthday and it had to be eco tourism! Following many fun and inspiring conversations about ideas and places, an email dropped in from the love of my life. 'How about this...?' was the title. I was caught up in the middle of a day's work, but decided to take a break and have a peek.

The Mudhouse. Funny name, I thought, but the images of the tribal, primitive huts spoke to my heart and ticked all the boxes for the kind of break we wanted. I wondered where it was; ah Sri Lanka - perfect choice darling, I thought. Somewhere new and exciting for us both - plus the Guardian had ranked the resort among the 50 most romantic places in the world.

Sri Lanka has been off the tourist list as a result of 27 years of civil war, which devastated the environment and its people. The Tamil Tigers were defeated in 2009 and the bloodshed had stopped (BA re-opened the flight path and scheduled three flights a week from March 2013), but had the dust settled?

I'd always heard good things about Sri Lanka, but wanted to do a little digging around for myself. All the feedback was good so I decided to contact The Mudhouse directly and see if our dates would work. One of the partners - an English guy, Tom - came back to me very quickly. No, they were full for the summer holidays but might have some space for us just after the kids were due back at school. Perfect. We booked in and landed at Colombo airport on my birthday. We flew with Sri Lankan Airways as that seemed to be the best option for us, all things taken into consideration. The airline has won numerous awards for sustainability programmes and we had to fly in what precious time we had.

We were picked up at the airport and transferred to The Mudhouse, which sits between the main airport and the 'cultural triangle' sites of Anuradhapura, Sigiriya and Dambulla. The colourful stalls and dusty roads reminded me of India, but calmer; the people seemed happier and had such warm, infectious smiles. The sun was shining bright, as it always does in that part of the world. We couldn't resist the fresh coconut water stall along the way and, proving generous with money as well as smiles, our driver wouldn't let us pay for it.

I wondered what kind of experience this was going to be.

We finally arrived at a light, dusty road with a few beautiful rock hills. We were well off the beaten track and our driver was grinning: we'd arrived - but it didn't look like it. All I could see was a thick mass of low trees with a very narrow

path, and a smiley man pushing a bike towards us.

'I'm Kumar - welcome! Ha ha ha', he said, with a laugh so big we had to join in. I had no idea at this time how much I was going to learn from this guy.

Kumar, the owner, is the inspiration behind The Mudhouse; the visionary, the creator and the expert on sustainability and environmental management. I later found out he was also a hero to his people. He'd been coming to this area since he was a young child and felt a complete affinity with the land and its residents, his people. On an early morning birdwatch (more on that later), we passed some villagers who had been out on a morning forage. The eldest of the ladies among them was carrying a woodapple; she exchanged some words with Kumar, which seemed to be full of delight, praise and true connection, before tossing him the fruit, which he quickly told us would be prepared warm for us, as a sort of Sri Lankan afternoon tea. This guy was hugely respected in the community; he hired local staff, bought goods from his neighbours and protected the land. A kind of local, yet extremely humble, lord or king.

'Come! Ha ha ha', he said with joy, 'Lets go!' And, like children, we sort of skipped behind him.

Winding through a narrow path or two, we arrived at an open building - thatched with low, hip-height walls made from a deep red mud. Inside (though it was difficult to distinguish inside from out) were two hammocks and two mosquito net-covered lounging spaces. No hut, no room. What was this place? My poor mind couldn't assimilate exactly what it was, so I ended up concluding that this was the reception. A courteous, smiling man greeted us with two fresh lime juices. Yes, this was the reception. I looked around and thought wow, what a lovely idea! So many hotel receptions are so full on, but this was different. Simple but exquisite, natural yet luxurious.

'Welcome to your room sir, madam'. 'Our room?!', shouted my head - and then, more quietly, 'Oh, this is our room.' I started to look round again. Yes: a sink, beds, a fridge, a dining table - it started to fit into my limited mind shapes. It reminded me of seeing a Nicole Kidman film, where all the actors played out this full gangster moll feature with real sounds - doors opening and closing, cars pulling up and driving away - yet there was absolutely no set. Nothing. Just a stage and actors, lines and sounds. It blew my mind. With hindsight this was a ridiculous response, but the impact of what occurred was memorable and worth a mention.

Kumar lead us to the shower, along a beautiful little stepping stone path winding away from the main dwelling and into a raised stone open plan floor, with a little wall for soap dishes and a tap - but no shower. He turned on the tap and there, like magic, came a flow of warm water straight from the tree. 'Ha ha ha!', we all laughed together,

like a huge symphony of joy!

'One more thing to show you', and off to the toilet we went. Set behind the main area (sorry, I'm still not sure what to call this place), the 'toilet' was again open plan with a roof and low walls to conceal you when sitting down to business. There is nothing like a wee or a poo in nature; it seems so, well, soooo natural.

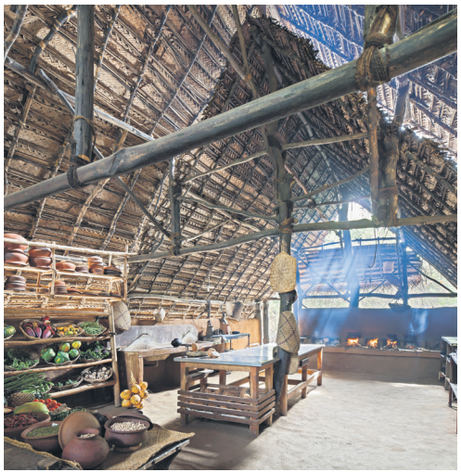
Kumar then told us when and where dinner would be served and waved some general directions. He introduced us to our mode of transport for the week, two very cool bikes, and off he trotted. Within seconds he had disappeared into the bushes; we could hear his steps disappearing into the forest until, eventually, we were alone. We giggled and jumped into each other's arms, discussing how overdressed we were (well, we had clothes on - that was overdressed here). We slipped into our birthday suits (it was my birthday, after all) and then scoped the place out. We explored each thing and then looked at each other full of joy, bursting once more into laughter. The hammocks, the beds, the large, low, windowless walls with great big cushions to laze on... It was perfect. We decided to go and test the utilities - my beloved the open shower and myself the royal throne.

We both showered and fell asleep, waking up to a dusky light, a sweet, woody smell and a deep and sensitive 'Halloo...? Halloo...?' Looking up, we saw a man's silhouette and a small fire. 'Come in', we shouted. In? That was funny. It was hardly 'in', but into our private space all the same.

The man had come to light the oil lanterns, as there was no electricity in this space at all. We hadn't even noticed before.

He lit about six lanterns and off he went; it was around 19.30 so we started to get ready for dinner. Should we walk or bike round? We had no idea how far it was but decided it may be a little too dark on our return, so walk we did. We knew we were heading in the right direction and, after a few minutes, we saw lights and kept walking. It was all so mystical and magical: our path was lined with oil lamps that illuminated an otherwise pitch black route. It certainly set the mood for dinner.

When we arrived, there was a large group of English adults and children sitting in a



completely open, unwalled restaurant; it was large and could easily seat 20. We, however, were ushered out onto the grass, where a private dining arrangement had been made (unbeknown to me, by my darling and scheming Katie with the help of our new friend, Kumar). We sat down next to a large but gentle fire, which danced in the stillness of the surroundings. It was mainly dark all around, but the moon shone some light and the stars - oh my, it had been a very long time since I had seen this many. The starters came out within minutes and were followed by dish after dish. Each was eloquently explained and made from local, seasonal Sri Lankan produce. 'Star fruit? Loooong beans?', our waiter asked as he stared into my eyes with joy and sincerity. I grew to love the way this guy behaved over the week, because he served us with such pride and care; this was his part in the great dance of life, and the very essence of his role ensured every other part of creation would flow perfectly from this moment.

There is something magical about sleeping in nature, listening to all the rustles, the movement of the night and the unusual sounds of frogs and birds. Sometimes the odd but distant screech or roar filtered through, but we felt totally safe and secure in the comfort of a deep inner knowledge that everything was exactly as it was meant to be.

We were stirred by an almighty and high-pitched chirp which went on for a few minutes; it was a natural alarm calling us to get up and enjoy the day. We'd slept for 12 hours straight and this little squirrel was having none of it. 'If you're here, you will enjoy our company', he seemed to be saying.

There is so much to do at The Mudhouse and in its surrounding environment; every day could have been filled with activities (and the staff were very eager with suggestions). However, we chose a morning or afternoon activity for each day and just chilled for the rest of the time. The most beautiful lake stretched out towards our hut and Pani, a member of staff there, guided us to another just a 10-minute bike ride away. He brought along a few beers and some local chilly chaat snacks, which were gratefully knocked back as we sat by the lake before jumping in for a swim (kayaks are also available). The fantastic chef welcomed us into his kitchen and taught us how to cook a few Sri Lankan dishes, which were proudly served up for dinner and shared with the handful of guests there. A first-time experience for me, but an early morning birdwatch is a must; Kumar's knowledge of the birdlife and wildlife, the flora and fauna, made this an extraordinarily interesting and stimulating trip. I was spotting my own kingfishers, bulbuls, sea eagles and bee-eaters in no time.

The medicinal value of the local herbs, bushes and trees is awesome. Kumar pointed out an abundance of natural remedies growing at every step, which we picked, tore, rubbed and tasted. The Mudhouse owns a farm, where most of the fruit and vegetables for meals are grown - all organic and cleverly cultivated with ancient local methods. No wonder the food tasted so good; the love and care put into the vegetation was nurtured like a newborn child by its mother.

We went offsite just a few times over the week; we visited the local monastery to share a prayer and climb the huge rock that overlooks The Mudhouse grounds, and gazed upon the ancient and sacred land. We visited a spiritual site where a huge prayer is carved into the stone in a Sanskrit-like font, just above the most beautiful, lily-filled lake. It was a truly magical place, and at that very moment we started to ask questions about buying land and having our own little mudhouse built nearby. Perhaps we could become part of this community forever!

Of course, practicalities rarely allow for such wild dreams — but an annual visit to an environment that revolves around the way I'd like to live seemed perfect. We have already made enquiries to return and have asked for our favourite room (yes, I've finally arrived at calling them 'rooms' — each of the five is beautifully unique with its very own space, look and feel). The Mudhouse caters for all - couples, families, the elderly and the young — all with one thing in common: they want to feel what it's like to be truly at peace with human being-ness. If you struggle to reconnect with what's natural, relax and let go with one deep breath — come here and you soon will.

For more information on The Mudhouse, including activities and accommodation, have a look at www.themudhouse.lk. For information on Palpatha, visit www.palpatha.com/experience/.

WILPATTU NATIONAL PARK SAFARIS

We were told a safari was must while in Sri Lanka, but to go to Wilpattu - which only recently reopened to the public and is much more wild and free. We were reluctant to leave The Mudhouse even for a night, but Kumar assured us that he knew a good eco lodge, Palpatha, and that we should go. 'Go see the leopards! Ha ha ha', he said. A few hours on the road and we arrived at Palpatha, a lodge established from the heart of family togetherness. Palpatha is a family project put together by three school friends; they needed a place to escape to with family and friends, where they could enjoy each other's company, have a laugh about the good old days and give their children space and time to enjoy nature at its best.

A lovely foundation and a premise we soon found to be true. We shared our evening meal with the family of one of the owners; it was a huge, fun-filled family affair, and we tasted and shared their favourite foods (no cutlery allowed).

I'm still on the fence about safari parks, but protection of wild animals, roaming freely and protected, can't be a bad thing, can it? The park was full of wild animal treats: elephants washing in the waterhole, eagles posing for photos and lots of birds, wild boar and leopards. We didn't see the leopards that day, and actually were very pleased that the leopards weren't obliged to indulge us with a sighting (though we were sure they'd seen us). Our deep-seated respect for them, and our gratitude for being allowed onto their territory, was enough; the respect went both ways — or that was our story, anyway!

COMPETITIONS

SPRING 2014

There are some incredible products on the market from companies and individuals that don't want their work to cost the Earth. Some you might have heard of, some you might not. Perhaps you're using them already - or perhaps you don't want to take a gamble.

We're running competition giveaways that will help you explore, experiment and enjoy these green pearls from ethical companies. We think that they (and the companies that produce them) are fantastic and that's why we want you to give them a shot. But whether you'll be converted or left unconvinced is entirely up to you. Either way, it's worth a go (for free), isn't it? And at least that way you get a real choice and aren't restricted to the same old brands that are stocked by your local 'super'market.

For more information on how to enter our competition giveaways, visit our brand spangling new website: www.mygreenpod.com. Here's a little taste of what's on offer:

Pure Lakes gift packs

Pure Lakes has a 'Detox in a Box' gift pack (£42), selected by *Marie Claire*, to give away to one reader. It comes with everything you need to draw out toxins and smooth away any lumps and bumps that might have appeared (or grown) over winter.

Two runners up will receive a 'Gardeners' Gift Bag' (£17), a perfect gift for hard working hands.

Visit www.mygreenpod.com for information on how to enter.

A year's supply of Simply Washing

The ingredients in Simply's eco-smart washing and dishwashing systems are all biodegradable. They contain surfactants that ensure the detergent biodegrades aerobically and anaerobically, so ingredients are quickly broken down into substances that won't harm our rivers or oceans.

Simply is offering a year's supply of washing powder and dishwasher tablets. Visit www.mygreenpod.com for more information.

SOAK Yourself for seven months

Concerned about both the number of chemicals we ingest through our skin and the lack of relaxation time we afford ourselves, new British brand SOAK Yourself has developed a bath ritual recipe kit — containing 100% natural and mostly organic ingredients — which come with permission to take time out.

One lucky winner will receive all seven of SOAK Yourself's bath ritual recipe kits: one per month for the next seven months. Each kit contains enough ingredients to make four guilt-free soaks. To be in with a chance of seven months of indulgence, visit www.mygreenpod.com.

Mio: the GPS device that gets you lost - then brings you home

Mio's Cyclo 305 HC is a full-on navigation system for cyclists riding for fun or competing more seriously. It will get you from A to B or let you follow set routes, but the Cyclo 305 HC also has a surprise route option that takes you a set distance from your starting point.

If you can't get on your bike and need help finding your way on four wheels, Mio's new in-car SatNavs also have some great new features.

We've got a Mio Cyclo 305 HC and a Mio Spirit 697 LM to give away; for details on how to get your hands on one, visit www.mygreenpod.com. For more information on Mio products, and to see what the company's doing for the environment, visit the Mio Facebook page, www.facebook.com/miotechnologyuk and Twitter page, @miotechnologyuk.

Kind2Skin Keep It Kind deodorants

As over 50% of kids experience puberty at the age of 10, Kind2Skin Ltd has introduced Keep It Kind (KIK), a new, innovative range of deodorants designed at the pre- and early-teen market. Meeting huge demand by mums and kids alike, these deodorants have natural bases and provide 24-hour protection against body odour.

The deodorants are available from over 500 Boots stores across the UK and can be purchased from www.boots.com. For information on how to win a year's supply of roll-ons, visit www.mygreenpod.com.

THTC T-Shirts

We've got our hands on two THTC T-shirts to give away, including the soon-to-be-printed 'Get Rich or Die Trying' design from Mau Mau, which will be printed on recycled T-shirts. For information on how to enter, visit www.mygreenpod.com. For more information on THTC, have a look at www.thtc.co.uk. More of Mau Mau's work can be found on the cover of this issue and at www.mau-mau.co.uk.

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