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Shining a spotlight on antibiotics

The recent E.coli outbreak - leading to more than a dozen deaths and hundreds of hospital admissions across Europe - and the emergence of a new strain of MRSA in the UK dairy herd have put modern food supply and production chains back in the spotlight.

Scientists' discovery earlier this month of the new - potentially deadly - MRSA bacteria in dairy cows (one almost identical to a strain recorded in human hospital patients) should be a particular cause for alarm. Strains of MRSA, which causes infections in humans and is resistant to many existing antibiotics, have already been found in pigs, poultry and cattle in several other European countries, but this is the first hard evidence of MRSA being discovered in UK farm animals.

Claims that the disease's emergence in the UK dairy herd could actually be due to 'routine' antibiotic use in modern farming are even more worrying. As the Ecologist recently reported as part of a special report into antibiotics there are increasing concerns about the spread of deadly antibiotic-resistant infections from animals to humans.

Health experts and campaigners say, with an ever growing pile of evidence to back them up, that the overuse of antibiotics in farming is contributing to the ever-increasing amount of antimicrobrial-resistance as bacteria evolve to withstand existing drugs.

This situation could have dire consequences for our current and future generation's ability to treat disease and illness and urgently needs tackling: by farmers themselves, policy makers and governments, retailers, and by consumers - the power of economic pressure should not be understated.

Our timely focus on antibiotics also included an investigation into the sometimes terrifying - and sometimes deadly - adverse reactions linked to ciprofloxacin, a commonly prescribed fluoroquinolone class of antibiotic. Victims who say they were poisoned by the drug are demanding urgent action to prevent others suffering serious side effects; they want more research into adverse reactions, greater education of health professionals and clearer warnings for consumers.

Our investigation revealed that the antibiotic in question has been linked to more than forty deaths in the UK in recent years and been the subject of hundreds of suspected adverse reactions. Whilst this number is tiny compared to the huge numbers successful treated - and lives saved - it makes the disturbing experiences of victims no easier to swallow and raises important questions about modern drug testing systems.

What's interesting is that some people poisoned by ciprofloxacin say their symptoms flared up when eating certain foods, usually meat. It could be no coincidence then that fluoroquinolones are used to treat diseases in poultry, pig and cattle farming, and traces of the drugs have been detected in meat samples. Although experts say this is unlikely to represent a health risk, in light of what we've uncovered it should probably be a concern...

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Siberian tigers under **threat as 'timber mafia'** devastate Russian forests

Criminal gangs are increasingly smuggling Russian timber into China for manufacture into baby cribs, picture frames and toilet seats sold in the west. Those trying to thwart them face violence and corruption. Sebastian Strangio reports from Vladivostok

High-value hardwood logs of highly uncertain origin at a small Chinese sawmill, close to the town of Dalnerechensk, in Far East Russia's Primorsky region. (Photo: Brian Milakovsky/WWF)

The Chinese city of Suifenhe sprawls amid the dun-coloured hills of eastern Manchuria, sitting astride the Chinese Eastern Railway at the point where it crosses the Russian frontier. Founded in the nineteenth century as an outpost of the Tsarist empire, the city is today a typical Chinese boom town of shopping centres and towering apartment blocks, some topped with onion domes in architectural homage to the city's origins.

The city remains an important point of contact between the two countries: each day, busloads of Russian day trippers cross the border to buy up cheap Chinese clothes and electronics; to accommodate them, many Chinese signs are echoed in the angular Cyrillic script.

The city is also the main transit point for a pernicious and largely unacknowledged international trade in illegal timber. Environmentalists say thousands of cubic metres of Russian hardwoods are being illegally exported by train through Suifenhe each day, prompted by a rising Chinese demand and a culture of official corruption and fear – a trade that also threatens the world's last

remaining populations of Siberian tigers.

In Suifenhe, signs of the timber trade are readily apparent. As the railway wends its way into the city centre, it passes through a seemingly endless series of timber yards piled high with uncut logs and milled timber planks. From the town of Pogranichny on the Russian side, about 15 kilometres distant, trucks rumble along towards the Chinese frontier, laden down with wooden planks.

In China, the timber is processed into finished consumer products such as baby cribs, picture frames and wooden toilet seats, which are then exported. Many of the products end up on the shelves of major retailers in the West – the innocuous endpoint of a damaging global market chain. Despite constant statements of concern from the Russian authorities, the Far East's logging industry is 'now beyond federal control, and overrun by criminal gangs', according to those behind Dark Forest, a recent TV exposé of the official corruption at the heart of the trade.

Most illicit timber originates in the conifer-broadleaved forests of the Sikhote-Alin Mountain Range, which extends northward from Russia's Primorksy region for more than a thousand kilometres. In a 2007 report the Environmental Investigation Agency (EIA) described the region as containing 'one of the most diverse assemblages of plant and animal species in temperate forests anywhere on the planet.'

Vital habitat

Known to environmentalists as the Ussuri taiga, the area is home to an unusual profusion of hardwood species, including varieties of ash, maple, elm and oak. It also supports the last remaining populations of Siberian tiger, the largest of the world's big cats, whose wild population now numbers in the hundreds. Denis Smirnov, the head of the forestry program at the World Wildlife Fund's Amur branch office, says that by destroying the food sources of tiger prey such as wild boar, illegal logging could endanger the existence of the Siberian tiger in the wild.

Siberian tiger in the taiga. (Photo: Vasiliy Solkin/WWF)

'There's a direct link between the damage caused by illegal logging and the state of the tiger population,' says Smirnov, a St. Petersburg native who has been working in the Far East on environmental issues for the past nine years.

Rogue timber operators gained a foothold in the Russian Far East following the fall of the Soviet Union, when many of the region's remote logging towns were hit by unemployment after the collapse of state support for the industry. Many jobless former loggers have since turned to illegal small-scale timber harvesting as a way of making ends meet.

'Providing their services to the "Forest Mafia" is often their only source of income,' states a recently leaked diplomatic cable from the US Consulate in Vladivostok, dated January 2009. 'Established companies are often finding it more profitable to use the services of these out-of-work villagers cutting down trees in unauthorised areas than to use legal, established channels.' Demand was also spurred by the opening of the Chinese border in the mid-1990s and the imposition of Chinese logging bans in response to flooding in northeast China in 1997.

Around 60,900 cubic metres of hardwoods are illegally exported from Far East Russia each year, according to lowball official figures, but the WWF puts the annual total at 'at least 1 million', a figure calculated by comparing the permitted amount of export logging with estimates of the actual exports. 'It's incomparable, the detected and the actual,' Smirnov says. 'According to our evaluation, the percentage of the share of illegal wood in this hardwood flow is up to 75 per cent.'

According to the WWF, an estimated 30 per cent of illegal timber originates from legitimate concession holders, who underestimate the amount of timber stock in their concession areas and then covertly export the remainder. A larger concern, however, are the small- and medium-scale operators who work beneath the official radar in protected areas. A widely-abused loophole is to apply for a license to conduct 'sanitary' logging – the removal, for maintenance purposes, of dead or dying trees – which is then used as legal cover for the

clear-felling of valuable hardwood. Rigorous customs inspections can easily be sidestepped through the use of forged legal documents or fraudulent declarations.

Undercover sting

In 2009, an undercover Russian documentary film crew sat down in a plush hotel lobby with Pyotr Diyuk, the head of the Primorsky region's forest management authority. The journalists, posing as timber merchants, chatted casually with Diyuk about the region's illegal logging problem, filming his responses with a concealed camera. Though they had taken care to conceal their identities as reporters, they probably had little expectation that Diyuk, a round-faced oligarch clad in a designer jacket, would give them such a brazen assessment of the official corruption at the heart of the Russian timber industry.

'Do you understand what logging means?' he asked the journalists, with an air of jaded resignation. 'It means everybody steals. They steal diesel, produce, chains, wood.' Diyuk went on to admit that the government planned to hold rigged auctions for ecologically-significant patches of woodland – even those protected under law. 'There is one remaining nut-harvesting zone, which is impossible to lease because the "greens" would raise hell,' he said. 'We just do intermediate logging there through the state logging enterprise. So, this year or the next, and the forest simply won't be there.'

Diyuk continued: 'Everybody is stealing, everybody! That's how we're brought up. To sit out the working day, take our wages and steal something.'

When the team's documentary, Dark Forest, was aired on the country's Rossiya TV channel in May 2010, it sparked public outrage. Primorsky governor Sergei Darkin was forced to remove Diyuk from his post, and Moscow promised investigations.

While they shocked the public, the film's allegations should not have come as a surprise to the federal government. In 2008, Valery Roshchupkin, head of the Russian Ministry of Natural Resource's Federal Agency for Forestry, had expressed concerns about the thinning of the Far East's forests. That year, he issued a report claiming that the country was putting in place a new national forest policy, including 'a tough customs policy', to staunch the flow of illegal timber.

Whatever Moscow's official expression of concern, the disincentives for illegal operators remain overwhelmingly weak: the cost of operating 'legally' in Russia, with its heavy burden of taxes and unofficial 'fees', makes on the books forestry largely unprofitable.

(Photo: Sebastian Strangio)

Anatoly Lebedev, a Vladivostok-based ecologist who has been campaigning against illegal logging since the early 1990s, alleges that officials at all levels are still on the take. 'This system is very specifically created by government officials – local, regional and national – and they get a good profit from this activity, and that's why they always defend this illegal business,' he says. 'This is the essence of Russian corruption.'

Again, the case of Diyuk provides a telling example. After the airing of Dark Forest, Diyuk was removed from his post with much pomp, but merely demoted to the position of his assistant. Smirnov describes Diyuk's demotion as a 'cosmetic' manoeuvre that left most of his practical power intact.

Battling such entrenched interests can be a risky endeavour. During the winter of 2008-09, the summer house of Yuriy Bersenev, one of Smirnov's WWF colleagues, was burnt to the ground by unknown perpetrators. A day before the fire, which followed a Russian TV story about the organisation's work, Smirnov said he was also the near-victim of a 'traffic accident' while on patrol in the countryside. Other colleagues have also been found dead in mysterious circumstances. 'The son of one of our colleagues died in quite a strange traffic accident, and it has still not been investigated,' Smirnov says.

In particular danger of retribution are the local informants that

Illegal timber is transported in the Tayozhniy Wildlife Refuge, Far East Russia, in 2010. (Photo: Michael Stuewe/WWF)

apprise activists of the situation on the ground. Smirnov says residents in one Primorsky settlement who sent a series of letters to the region's governor requesting action against illegal logging had the windows of their cars and houses shot out. Local police, he said, then 'discouraged' the residents from lodging any further complaints.

Scent of success?

In spite of the obstacles, activists they have scored some limited victories in fighting against the illegal timber trade. In 2007, WWF succeeded in getting two forest management officials fired and arrested for their complicity in helping loggers to operate in the Tayozhniy wildlife refuge, a key tiger breeding ground in the Khabarovsky region.

In a December 2007 report, the Environmental Investigation Agency turned its focus on US retail giant Walmart, claiming that many of its timber products were 'highly vulnerable to containing unsustainably and in many cases illegally-logged wood' from the Russian Far East. The report claimed that 85 per cent of Walmart's wood products were from Russian timber sourced in China, and that its American customers risked 'financing criminal timber syndicates and forest destruction through their purchase of basic home goods'.

It also noted, however, that the company was in a good position to weed out illegally-sourced timber. 'Wal-Mart's legendary control over its supply chain can be harnessed for positive change,' the report stated.

The following year, the US Congress passed an amendment to the Lacey Act, an existing anti-wildlife trafficking law, extending its prohibitions to the import of illegally-sourced wood and wood products. Given the amount of the timber that ends up in the American market – the US diplomatic cable cites estimates that up to 90 per cent of hardwoods from the Russian Far East reach the United States – campaigners have hailed the amendment as be another weapon in the fight against the illegal Russian timber trade. At the time the Lacey Act amendment was passed, EIA's executive director Alexander von Bismarck said it marked 'a new phase in the global effort to improve forest governance.'

Since the report's release, Walmart claims to have taken steps to address the issue. A representative said in an email that the retailer is part of the Wood and Paper Sustainable Value Network, which continues to focus on 'increasing the supply chain transparency of products in this category from the forest where the product is sourced to the point when it's placed on a Walmart or Sam's Club shelf'.

The representative said that 25 per cent of timber furniture and 35 percent of wooden picture frames sold by Walmart now carry third-party certification.

In practice, however, some say there are clear limits to enforcement from the US side. Lebedev says as many as ten trains arrive in Suifenhe from Russia each day, each bearing 60 loaded cars holding around 60 cubic metres of timber – much of it illegal.

Given the lack of regulation in China, untangling the dense web of suppliers, middlemen and manufacturers who deal with the timber between its arrival in Suifenhe and its export to the US could be an unsurmountable challenge. 'The middleman is China, and we have very little capacity to conduct serious control there,' Lebedev says.

There may also be a glimmer of hope from Moscow, where the Siberian tiger has a powerful friend in Russia's prime minister (and avid outdoorsman) Vladimir Putin. After the international Tiger Summit in St. Petersburg in November 2010, Putin signed into law a ban on the logging of Korean pine, a nut-bearing species vital to the tiger's survival.

Next year's APEC Summit, when the world's eyes will be on the host city Vladivostok, could also provide a spur for the government to investigate forestry crimes, with Moscow keen to transform the image of the Far East as a 'wild east' plagued by corruption and neglect.

'The Russian authorities are interested in maintaining the image of the Russian Far East as a good territory, a good area for foreign investors. It could be quite difficult to combine such an image with the image of an area with highly-developed illegal logging,' Smirnov says. For environmentalists, however, promises of 'comprehensive' investigations have a familiar hollow ring. 'The question is', says Smirnov, 'will it be photo campaign, or will it make real changes to the structure?'

Timber yards along railway lines in Suifenhe, China, the main export point for illegal timber from the Russian Far East. (Photo: Sebastian Strangio)

Egypt faces ‘environmental crisis’ following ousting of Mubarak

Egypt’s political future may be looking brighter, but what about the environment?

The political future of the Arab world’s largest country could look brighter following the recent uprising in Tahrir Square and beyond. But the country faces an ecological catastrophe - much of it tourism related - reports **Joseph Mayton** from Cairo

It is a warm and sunny April afternoon on Egypt's Red Sea coast. The sun is blazing down on dozens of lounging people, soaking up the rays from the yellow mass. Ironically, it is here where the ozone layer's hole peeks through. Burning is a major risk. Looking around at the sand, however, it quickly becomes apparent that Egypt has an environmental problem on its hands.

Plastic bags, empty cups and the remnants of sunbathers are strewn across would be pristine sands on the Red Sea coast. Environmental groups in the country have long lamented on the poor state of environmental awareness in the country, with campaign after campaign ending with little success. Now, with Egypt moving forward after ousting President Hosni Mubarak from three decades in power, there is growing hope that change will finally see the implementation of green policy, along the Red Sea coast, along the Nile River and throughout the Arab world's largest country.

It will take strong efforts from activists and environmental leaders to effect that change however, said Omar Radwan, a political activist who participated in the clean up of Cairo's Tahrir Square on a number of occasions during the 18-days of protests that forced out the dictator. He told the Ecologist that picking up trash and throwing it in a bin is only the first step on the path to a cleaner and better Egypt.

'When we picked up garbage on the streets during the protests and afterwards, the media was all over the story because it was something that we Egyptians had failed to do for so long,' he began. 'It is surprising, but now, after a few months since the protests, things have returned to normal, people are throwing their trash onto the streets and nobody seems to care about our land and making it better.'

He is hopeful that through efforts, with activists and others, the New Egypt will not fall victim to the ills that afflicted the old regime. 'People have to change,' he added.

Tipping point

The Red Sea has often been the tipping point in talking about Egypt's environmental degradation. It is currently facing a crisis that could see much of its marine life cease to exist. Continued polluting of water, constant oil spillage from offshore rigs and a lack of awareness in the country about the importance of maintaining vital ecosystems all contribute to the threat.

No longer is the Red Sea a pristine location to witness the spectacle of marine life and coral reefs. One of the main causes is the constant pouring of waste from hotels along the coastal areas, but the tourism industry more generally has done further harm by pumping chemicals and other waste products into the sea. Resolving these problems is proving extremely difficult.

Not only are coral reefs under threat, but other marine life, too. Offshore oil rigs have been in the Red Sea waters for decades, but little has been done to ensure the equipment is up to date. These rigs stream a constant pool of oil into the sea. An official from the Hurghada Environmental Protection and Conservation Agency (HEPCA) said earlier this year that much of the dolphin population has migrated further and further south as a result.

Already, in the past few years, Egypt has seen a number of areas become uninhabitable as a result of oil spillage, the official, who asked not to be named due to the organisation's discussions with the government on new green policy. The organisation has long warned over the oil that continually seeps into areas along the coast, including beaches, which have seen massive declines in usability in recent years. A major oil spill last summer showed the ugly face of offshore drilling - not only in the Gulf of Mexico, but here in the Red Sea.

The oil spread far and wide, according to reports, and even as the government claimed it had been contained, beaches continued to be flooded with it. Even today, the Egyptian Environmental Affairs Agency (EEAA) told the Ecologist that a number of the beaches are still 'unsafe for tourism.'

According to Mahmoud Ismail, the head of Egypt's Environmental Affairs Agency (EEAA), his organisation is responsible for the constant clean up of what he dubbed 'routine oil spills.'

'Our organisation is there so we can monitor and help to connect oil companies with the necessary means of clean-up during the routine oil spills that occur in the Red Sea. Just look at the most recent one, the beaches were completely cleaned in less than one week,' Ismail said.

But, he added that if Egypt is to move toward a sustainable future, it would take a combination of legislation and personal understanding and effort to maintain a better country.

'We have long been in the dark about the environment. People

have believed that they are not doing anything out of the ordinary, throwing trash and things into the water, but this is the number one cause of our poor state of affairs in the waterways and Red Sea in the country,' he added.

Revolution brings hope?

For many, life after revolution has returned to normal, and with it the pollution. Walking out of one of Cairo's upscale restaurants, a group of eaters toss a few napkins onto the ground before hopping in their Mercedes and BMW vehicles and speed off. Every napkin has a price, says Ahmed el-Fattah, a longtime environmental consultant at the ministry of environment who is attempting to implement a series of new regulations that he hopes will drive the country in a new direction.

That new direction, says Sudanese environmentalist Omnia Amr, who is also the founder and director of Eco Options Egypt – an environmental event planner, consultancy and content provider.

She said that 'what makes it extremely difficult to have a widespread environmental movement in the country is that people don't see the public domain as common space like they see their homes.'

Fattah is trying to break those boundaries, attempting to develop a strategy within the ministry that will bring about an understanding that all Egyptians are in this together and that without a concerted effort to succeed, the country's future is in jeopardy.

'Look around, what you see is pollution on a grand scale,' he said, 'and this is partly because of the former regime, but it is also a direct result of apathy among the people who didn't care enough to keep the streets, water and other things clean. It is killing this country.'

Last year, the ministry's climate unit reported that Egypt is the third most at-risk nation in terms of its vulnerability to climate change affects, which means action needs to be taken. Young activists are already getting underway to make this a reality, with at-home efforts to educate their family and friends on the importance of reducing trash, pollution and waste disposal.

'I have talked with officials from the ministry of environment and they have told me that change must start at home,' said Salma Nada, an activist who helped lead the clean-up efforts in Tahrir Square and who added that if Egypt is going to truly change, the environment must be a top priority.

'We have long been talking about the political change that is needed, but that change will be worthless if we don't create a better future for our children in terms of how we treat our surroundings,' she added.

More polluted than New York

The ministry said that their recent studies have shown Cairo is 100 times more polluted than New York City. Fattah believes that a number of initiatives already implemented can help bring about further success. He pointed to natural gas taxis that have entered the roads in the past year and a half as a possible solution.

According to him, these taxis reduce carbon emissions by as much as 50 per cent, and with stricter regulations on vehicles, and the promotion of public transit, 'Egypt can drastically limit the amount of GHG that enters the air.'

It may be too early to see major success, but with the conversation beginning to manifest, the young activists who took on a dictator could very well be the best hope for ending decades of environmental neglect.

But Egypt needs to be prepared for what is to come, Munqeth Mehyar, the director of Friends of the Earth Middle East (FoEME) said. 'Being left unprepared will affect not only economic, physical and environmental security, but national, regional and global security, if actions are not taken now to mitigate and adapt to, the projected impacts of climate change,' Mehyar said.

Creating a better world for the next generation can be an empowering challenge and one that most people are willing to make sacrifices for. As Mustapha Saleh of Egypt's Environment Quality International (EQI), 'we all have to do our part if we are to see the places we live in continue in the years ahead.'

This is what it comes down to, but if people are going to continue to push the environment to the back burner, there can be no hope for making peace with the environment and create a brighter future for our children. With revolution brings new possibilities, and there are already those who are fighting for that future that sees Egyptians and the environment function hand in hand.

Africa's Green Revolution 2.0: rejecting agribusiness, pesticides and GM greenwash

A pioneering campaign is challenging industrial agriculture in Africa, returning food sovereignty to the people and empowering women to lead a new movement that rejects the 'pesticide and loan culture' of the first Green Revolution. Chris Milton reports

A new movement is aiming to challenge the scourge of industrial agribusiness across Africa

A revolutionary new initiative in African farming was launched earlier this year as part of the annual International Fair of Animal Resources (FIARA) in Dakar, Senegal. It draws together twelve rural women's networks from across the west African countries of Senegal, Mali, Guinea, Burkina Faso and Ghana into a campaign entitled 'Nous Sommes La Solution! Célébrons l'agriculture familiale' - 'We Are The Solution! A celebration of family farming.'

The campaign's aims include gathering together the best in African farming knowledge and technology, acting as a bulwark against the needless industrialisation of the continent's agriculture and facilitating the empowerment of women within rural communities.

It will run for three years during which it will focus on building capacity at grass roots level in both traditional agricultural knowledge and the ability of women to shoulder the responsibilities they've had to in recent years as effective leaders.

The need for a women-led agricultural campaign in Africa was first discussed during 2007 and plans for a west African organisation were formally laid out during a 2009 meeting of the Network of West African Peasant

Producers (ROPPA).

Networks similar to ROPPA have been springing up across Africa recently, creating what Tanya Kerssen, Research Fellow at Food First/Institute for Food and Development Policy and a major international supporter of We Are The Solution!, describes as 'a broad constellation of political alliances that form the growing African food sovereignty movement.'

New activism

'What is astonishing,' she says 'Is the great convergence of these movements that has occurred over the past few years.' We Are The Solution! is part of this convergence of small community based networks into larger campaigns, bringing a new activism to what was previously a higher level campaign.

However, despite this recent gathering of pace, the problems the movement seeks to solve date back nearly half a century. During the 1960s and 1970s the face of farming around the world was changed by a Green Revolution through which intensive farming, pesticides and fertilisers were introduced to countries in South America and Asia.

In the meantime, many African countries were encouraged to take out loans from the World Bank in order to modernise their agricultural economies and participate in the global commodity market. This modernisation saw the diversity of traditional farming methods replaced with monoculture cropping and countries' markets opened up to foreign food imports.

Danielle Nierenberg, co-director of the Worldwatch Institute's Nourishing The Planet project, believes this approach was always going to be unsuccessful.

'World Bank projects set up people to fail by focussing on cash crops and commodities rather than traditional crops,' she says, explaining that small African farmers could never have competed on price with the heavily subsidised agro-industrial complexes elsewhere in the world.

The market liberalisation also meant traditional foods were undercut in price by cheap imports. So, when communities' crops failed to sell because they were too expensive, they were left with no food to eat and no income to buy food.

International aid agencies stepped in but food sovereignty, the ability of a community to be in control of its own food and nutrition, had been lost. Rural communities became locked into a cycle of poverty compounded by climate change, unable to farm for a living and dependent on aid to survive.

Population growth

However, the fact that Africa faces by far the largest population growth in the next 50 years has now led to a desire to reverse the chronic underinvestment in agriculture caused by market liberalisation. This will help to provide food security for the continent and therefore the world.

We Are The Solution! has the specific aim of re-establishing Africa's food sovereignty through the traditional agricultural species and techniques which have been sidelined for decades.

When it was launched in February, the campaign published a statement of intent, known as The Dakar Declaration, which outlines the initiative's aims and ambitions.

Chief among these is the rejection of the Alliance for a Green Revolution in Africa (AGRA) in favour of an agroecological model of farming.

AGRA is global initiative funded by the Gates and Rockefeller foundations which has become one of the main players in this new push to develop African farmland. It takes its name from the Green Revolution of the 1960s and 1970s. However, while the original Green Revolution certainly increased production there is deep concern about whether it is the model Africa should be following.

'The Green Revolution was never meant to be a long term solution,' says Danielle Nierenberg. 'It definitely saved a lot of lives but the over use of pesticides has led to millions of deaths and the contamination of groundwater.'

Tanya Kerssen agrees: 'Farmers' organisations are very concerned about the long-term negative effects,' she says, giving ecological degradation, contamination or loss of local seeds, farmer indebtedness and the concentration of land and resources into fewer hands as examples.

Rejecting GM

In addition, a new technology has since emerged which is also being championed by AGRA: genetically modified (GM) seed.

Like fertilisers in the original Green Revolution, GM seed is being hailed as a 'silver bullet' which will cure all Africa's agricultural problems. Many believe it was the over reliance on such cure-all technologies which led to the destruction of ecosystems and rural communities seen today. This is why The Dakar Declaration ends with the ringing cry 'No to GMOs, No to the patenting of life. No to agribusiness!'

However, We Are The Solution! is

not a technology or investment free zone. The difference between AGRA and the agroecology The Dakar Declaration embraces is not what you use to improve farming, but how it's used.

Agroecology is a science driven blend of agronomy and ecology. Its foundation is the understanding that farmers gain specific knowledge through the generations about how to use their local ecosystems improve soil quality and combat pests.

It is this knowledge which is then used to drive technology and investment, in contrast to AGRA where the technology is used to drive farming practices.

An example Danielle Nierenberg cites is the ability of communities to store grain from one harvest as seed for the next crop. Some communities have perfectly adequate methods of seed storage, while in others they are prone to attack from mould and fungi.

One solution would be for the farmers to buy GM seed every year which had been made resistant to these mould and fungi. However, an alternative would be to invest in modern seed storage facilities within which the grain could be protected.

New business

Danielle Nierenberg goes on to point out how this would have a profound impact upon local economies. 'Investing in these kinds of things brings better resilience both in agriculture and economics' she says. 'It creates new businesses, such as selling and storing seeds, and leads to a professionalisation of the agricultural community.'

Many of these arguments are highlighted in a recent report by Olivier de Schutter, the United Nations' Special Rapporteur on the Right to Food. In Agroecology and the Right to Food he argues that agroecology is the solution for Africa because it fulfils all three key objectives for food production:

- Meeting escalating needs: while both industrial agriculture and agroecology can be scaled up to produce more, cutting down on waste and redirecting food crops away from livestock feed and biofuels are likely to have a bigger impact;
- Increasing the benefits to smallholders first: agriculture is twice as effective at reducing poverty as any other industry, but only where local farmers are able to purchase from local suppliers;
- Preserving the ability to produce food from the same land in the future: avoiding, for example, the destruction of biodiversity, the pollution of soil and water sources, and the destabilising of markets.

The report concludes by recommending that countries should support decentralised organisations which are focussed upon the exchange of sustainable practices.

This is precisely what We Are The Solution! has been set up to do. The Dakar Declaration isn't just about protecting and enhancing the diversity of African farming practices. It also strongly emphasises the need to nurture and encourage the growing empowerment of women in rural Africa.

Empowering women

Rural communities in Africa have been traditionally male dominated and women have often struggled to have their voice heard. This is now changing, sadly through the devastation AIDS has wrought and the way poverty is driving many men from their villages to seek work in the cities.

'Women are forced to take on more responsibilities,' explains Tanya Kerssen, 'While wielding little control over the land, resources and the products of their labour. So women do a lot with very little to feed their families and communities, and as such their empowerment is paramount to advancing African food sovereignty.'

Between 70 and 80 per cent of food produced in rural Africa is produced by women. We Are The Solution! seeks to bring networks of these women together, not only to share agricultural knowledge but also to share advice on gaining resources, influencing communities and becoming effective leaders.

'We Are The Solution! is a political call to action to engage in the structural transformation of local, national and global food systems,' says Tanya Kerssen. 'There is a spirit of discontent across the continent about African governments that are unaccountable to their people and beholden to foreign interests,' she continues. 'In sub Saharan Africa there have been numerous large-scale protests that threatened the political legitimacy of governments .. these rebellions were cast as "food riots," but in fact they indicate a much deeper dissatisfaction that is being expressed in various democratisation movements, of which food sovereignty is very much a part.'

So We Are The Solution! is more than a straightforward anti-agro-industrialisation campaign. It is all about Africans taking back their sovereignty as well as their food from western politicians and investors. And should it take hold, who knows how the next chapter of

‘Britain’s rainforests’ under threat from gardeners love affair with peat

MP Barbara Keeley is a critic of proposed peat extraction at Chat Moss.

While the proposed sell off of UK forests attracted a chorus of criticism, the destruction of peat bogs continues almost unnoticed. Sam Campbell reports from current flashpoint Chat Moss, near Manchester

‘Lowland raised bogs are an internationally and nationally important habitat which supports many rare and threatened species’, David Crawshaw, Mossland Campaign Manager at the Lancashire Wildlife Trust, told the Ecologist. ‘These include Merlin, Curlew, Lapwing, Whimbrel, Snipe, Soprano Pipistrelle (a type of bat), Brown Hare, Common Toad, and Water Vole. Also, they are highly important for their invertebrate populations.’

But Britain’s peat bogs are in serious danger - centuries of drainage for farming and digging for fuel have damaged or destroyed over 90 per cent of the UK’s lowland bogs, according to environmentalists, who say they are irreplaceable.

As demand for fuel wanes and ecological awareness increases, the few remaining peat bogs might be expected to have been granted a reprieve. But bogs now face a new

Peat extraction at Chat Moss before the planning permission lapsed (photo courtesy of the Lancashire Wildlife Trust)

threat; gardening. According to the Department for Environment, Food and Rural Affairs (DEFRA), the UK currently gobbles up 3 million cubic metres of peat every year for horticulture. While 30 per cent is used by professional growers, the majority, 69 per cent, is destined for amateur gardeners, predominantly as multi-purpose compost and 'grow bags'.

The Government has tried to step in, advising a complete halt on peat use in the UK. Many bogs are already protected by legislation dating from the 1990s, but others, mainly those not deemed important wildlife habitats, remain at risk. In a recent consultation on peat extraction, DEFRA suggested the phase out of peat in Government and the public sector by 2015, in the amateur gardener market by 2020, and by 2030 for professional growers of fruit, vegetables and plants.

'The horticultural industry has made real progress in reducing peat use, but I want to see peat eliminated from the amateur gardener market by 2020,' said Natural Environment Minister Richard Benyon in December. 'This will be challenging, but more sustainable and good quality peat-free alternatives are already available, and I believe it is achievable for peat to be phased out in all markets before 2030.'

These goals are voluntary, however, and a previous Government-set voluntary target for industry to reduce peat in compost by 2010 has already been and gone. DEFRA estimates the UK market is still only 57.5 per cent peat free, far below the target of 90 per cent.

The National Farmers Union says it wants to see peat replaced by sustainable alternatives but argues that a complete phase out in the horticulture sector by 2030 is unachievable.

Harvesting

Perhaps one of the most significant barriers to curbing peat usage is the public perception that UK bogs are no longer being harvested. The majority of peat used in the UK, 57 per cent, is imported, mainly from the Republic of Ireland and the Baltics, according to DEFRA. But that still leaves a significant 43 per cent sourced from the UK's hard pressed bogs.

One of the sites where controversy about peat extraction rages is Chat Moss, close to Irlam, a non-descript suburb just off the M60 ring road north of Manchester. Irlam is the last gasp of Manchester and Salford's grey sprawl, and at the northern edge of the town, gritty council estates abruptly give way to a bucolic plain of verdant pastures. Deep drainage ditches crisscross the large, flat fields, drawing off the water that once saturated this former bog.

Between grassland, turf farms and arable crops, just a few fragments of the black, fertile land remain uncultivated, including Chat Moss. Depending on who you speak to, Chat Moss is either a barren black bed of valuable peat, or a potentially perfect paradigm of regeneration and rebirth.

After planning permission for peat extraction from Chat Moss expired in 2010, William Sinclair Horticulture, one of the UK's leading producers of commercial horticulture and branded garden products, applied to Salford Council to extend extraction for a further 15 years until 2025.

In its planning application, obtained by the Ecologist through a freedom of information request, William Sinclair stresses that it 'is committed to continually strive to reduce... negative environmental impacts,' including a promise 'to harvest peat from areas of low current conservation value.' The company has pledged to turn Chat Moss over to amenity usage after extraction halts in 2025.

Mark Way of William Sinclair Horticulture told the Ecologist that peat extraction may have actually helped protect Chat Moss. 'Ironically, without [peat] extraction at Chat Moss, the land would already be farmland - which will not support bog land species—as can be testified by looking at the

adjoining land.'

Even the Lancashire Wildlife Trust's David Crawshaw conceded that, due to previous peat extraction, Chat Moss currently has 'little or no ecological value.'

'The site is currently bare peat and there is no trace of the bog vegetation that once thrived on it, and is intensively drained,' he said. 'However, its importance lies in that it can be restored to lowland raised bog.'

Nevertheless, Barbara Keeley, Labour MP for Worsley and Eccles South, told the Ecologist that many locals were against further peat extraction. 'My constituents do not believe that peat extraction should continue for another 15 years and I agree with them,' she said. 'Chat Moss contains the largest block of semi-natural woodland in Greater Manchester. Such woodland can support rich and rare wildlife communities … [and this] rare and declining habitat can only be found on peat substrates. This land is one of the UK's rarest and most valuable habitats. Ending peat extraction on Chat Moss means that work can begin on returning the land as a natural habitat.'

Although Chat Moss has been 'scraped clean', the site can be restored by blocking drainage channels to flood the land, followed by the re-introduction of species from other wetland sites. In fact, nearby mossland remnants already support a wealth of wildlife.

'Over 1,000 species of invertebrate have been found on Astley Moss,' said Dave Crawshaw. Astley Moss, which is designated as both a Special Area of Conservation under European law and a Site of Special Scientific Interest under UK law, is less than 1 mile from Chat Moss and is one of the last refuges in Greater Manchester for the Common Lizard (Zootoca vivipara).

Ecology vs economics

Peat is sometimes referred to as a renewable resource (such as in Finland), but this is true only in the loosest sense. Peat deposits grow by only a millimetre a year, laid down by the organisms that inhabit bogs, such as mosses. A 10-metre-deep peat bed that takes around 9,000 years to form can be completely stripped in a few decades.

William Sinclair Horticulture stress in the Chat Moss planning application that 'sufficient depth and quality of peat would be retained on completion of the proposed extension to enable the restoration of an active bog.' Yet, the extraction of 1.5 to 2 metres of peat will delay the proposed regeneration of Chat Moss, say environmentalists.

MP Barbara Keeley noted that Salford Council has already outlined its intention to return Chat Moss

Sphagnum moss, just one of the many species supported by lowland peat bogs (photo courtesy of Dr Chris Miller)

to its original form as a natural habitat, ending peat extraction. 'Granting an extension to continue peat extraction will run counter to the Council's plan and Vision for the Mosslands,' she said. 'Salford City Council should hold firm on its plan to restore the land at Chat Moss back into a mossland and a vital green lung for people in Worsley and Eccles South and the wider community in Salford.'

Dave Crawshaw also urged a halt to further extraction at Chat Moss. 'Peat extraction destroys an immensely valuable, rare habitat ... and leads to the destruction of a unique archive of our environmental and cultural past,' he said. 'Lowland raised bogs provide breathing space and a sense of place for millions of people. Also, due to the acidic, waterlogged conditions, lowland raised bogs preserve a broad range of archaeological monuments and artefacts to an extent that is rarely encountered elsewhere.' He noted that 'Lindow Man', the leathery remains of a 2,000-year-old human sacrifice, was discovered in 1984 close to Chat Moss.

'Lowland Raised Bogs are a very rare habitat,' Crawshaw added. 'In Greater Manchester 92 per cent, or 3,793 hectares, of Lowland Raised Bog habitat has already been destroyed. Of the remaining eight per cent, over half is made up by peat extraction sites.'

Chris Findley, Salford City Council's Assistant Director Planning and Transport Futures, said the council will endeavour to balance the 'legitimate demand for an economically valuable mineral resource against the long term environmental impact that it could have.'

'Over recent years the importance of the latter has become much more significant as our knowledge of the impacts of peat extraction on climate change and the environment has advanced, and as peat free products have been developed for use by the horticultural industry,' he said.

William Sinclair Horticulture's Mark Way pointed out that peat extraction is a viable business providing employment in a moribund economy. 'Thirty-three people are employed directly and indirectly in peat extraction at Chat Moss,' he said. 'Extension of the planning permission would safeguard these jobs.'

Dave Crawshaw suggested that peat extraction could be replaced by more sustainable employment. 'Yes, there would be a few jobs lost on the site itself, but these jobs would be replaced by the expansion of the peat alternatives market, which is much more sustainable in the long term than peat extraction. In addition several jobs have

Rich ecosystems still survive clsoe to the barren peat beds of Chat Moss (photo courtesy of the Lancashire Wildlife Trust)

already been created connected to site restoration and management.'

Barbara Keeley also stressed the other possible uses of Chat Moss. 'If the land is restored it could be used for social and leisure uses again,' she said. 'I understand there are very few jobs involved in actual extraction—I only saw one or two employees there—and alternative jobs could be provided by this firm if it developed alternative horticultural products.'

Mark Way replied that the UK demand for peat is likely to be met by imports instead, likely causing a net loss of jobs. 'If planning permission is revoked for Chat Moss we will be forced to import peat from Ireland,' he said.

Sphagnum moss, photo courtesy of Dr Chris Miller)

Forgotten timebomb

Imports raise another issue—the carbon emissions associated with peat, called by the National Trust the 'forgotten climate change timebomb.'

'As well as being important for their biodiversity lowland raised bogs are major stores of carbon, and in good condition, can actively remove carbon dioxide from the atmosphere,' said Dave Crawshaw. 'However, when drained, they become vigorous sources of carbon dioxide.'

Bogs in the sparsely populated regions of the UK, such as Scotland, could still be acting as carbon dioxide sinks, locking away carbon dioxide emissions. But those closer to industrial heartlands like Manchester may already be saturated. Some claim that restoring peat bogs like Chat Moss (and thus reinstating their carbon dioxide sequestering potential) could soon become instrumental in efforts to curb Britain's carbon dioxide emissions.

The National Trust has stated that that peat stores an estimated twice as much carbon as forests worldwide. The UK alone emits around 420,000 tonnes of carbon dioxide every year from peat extraction, according to DEFRA. The National Trust Carbon Flux from Peak District Moorlands 'Moors for the Future' Research Note No. 12 estimates that the peat dug up in Britain releases the annual equivalent of 100,000 cars on the road.

William Sinclair Horticulture's Mark Way was dubious about some of these claims. 'With regard to the carbon dioxide argument, the science is extremely complicated, and we are unqualified to judge whether peat is a significant contributor to the problem. If it is, then the Government might decide to ban its use in horticulture and probably restrict drainage on wetland, [although] historically, much of the wetland drainage was done with the aid of Government grants.'

Simply banning UK peat extraction may not actually result in a reduction in emissions, he warned. 'If the object of the exercise was to reduce the carbon footprint, the policy in practice has had the opposite effect.'

'Restriction of planning permissions on peat extraction has resulted in a situation where in the last 20 years approximately the same amount of peat, 3 million cubic metres, has been sold each year in the market. … Twenty years ago, 70 percent of [peat] originated in the UK. Now only 40 per cent of it is UK sourced, with the majority coming from Eire, which requires greater haulage.'

In their application, the company claim that 'the carbon footprint associated with sourcing peat from outside the UK would be greater than if extracting peat locally at Chat Moss.'

Derek Antrobus, the Lead Member for Planning at Salford City Council, declined to discuss the Chat Moss application. However, he explained that Salford City Council is party to the Minerals Development Plan, a document being jointly drawn up by the 10 authorities in Greater Manchester. 'My deputy Councillor Mashiter and I have argued strongly on the joint committee for a tightening of the policy on

Sphagnum moss, (photo courtesy of Dr Chris Miller)

peat extraction because we feel that Planning Policy Statement 1 (Supplement on Climate Change) makes it clear that climate change mitigation and adaptation is at the heart of the planning system,' he said. 'As such, we believe that peat, because of its importance as a carbon sink, should only be worked when it is essential to restore peat bogland.'

MP Barbara Keeley was more specific. 'Peat bogs like Chat Moss have an important role to play in combating climate change because they affect carbon dioxide levels,' she said. 'Commercial peat extraction cannot be carried out unless the peat bogs are drained, thus releasing the carbon dioxide back into the atmosphere. Allowing the continued extraction of peat on this site is causing thousands of years worth of stored carbon to be released, thus worsening the affects of climate change. Allowing peat extraction to continue on this site is, therefore, adding to climate change.'

Salford City Council's Chris Findley maintained that ecological and environmental factors 'will play a very important part in arriving at a balanced judgement, both in relation to protection of an existing ecological asset, potential for long term restoration to a national priority habitat and the impact on an existing carbon sink.'

'The council's role here is as local planning authority considering a planning application and any potential breach of planning control,' he said. 'At a broader level, ... we are seeking to protect the mosslands from exploitation for peat because of climate change and environmental impacts. But we have to consider individual planning applications on their planning merits, and in a lawful way.'

Jumping the gun?

While the squabble over extraction drags on, William Sinclair has already begun preparations for extraction without permission, according to the Lancashire Wildlife Trust. The Trust alleges that the company restarted peat extraction at Chat Moss on Good Friday, and a visit by the Ecologist to the site over Easter appeared to confirm the allegations, with heavy machinery kicking up a fine mist of black soil.

Mark Way of William Sinclair Horticulture's Corporate Communication did not respond to questions about the alleged unauthorised activity at Chat Moss. However, the company has told the BBC it was forced to resume work during favourable weather to protect its investment.

The Lancashire Wildlife Trust's Chief Executive Anne Selby has publicly lambasted William Sinclair's 'illegal activity and blatant disregard for due process shown.'

Perhaps in response to the Lancashire Wildlife Trust's appeal for intervention, Salford City Council issued a 28 day temporary Stop Notice on May 9, with instructions liberally posted at the extraction site to stop all further

operations.

But sources claimed that Sinclair's was ignoring the notices as of the morning of May 11. 'Not only is peat milling continuing, but the stockpiled peat that has accumulated on the site is being removed as rapidly as possible,' said Dave Crawshaw. 'I have made further representations to Salford City Council and asked them to pursue this breach of the Stop Notice.'

As Salford City Council's Assistant Director of Planning and Transport Futures Chris Findley told the Ecologist, '[A] situation which on the face of it may seem simple may have complexities associated with it.' Still, considering that Salford City Council 'has absolutely no financial interest in the site, or in the extraction of peat' and that 'there is no income to the council from Chat Moss', many ask why such a controversial planning request should be granted.

Cheap and best?

Indeed, with critics like Anne Selby clamouring that peat 'has had its day,' why don't companies use a less controversial alternative? Put simply, Mark Way said, 'peat is both the best and the cheapest growing medium.' William Sinclair believes only a ban or a tax can substantially reduce horticultural peat use, he added. '[L]ittle investment has, or will be made into alternatives until it is obvious that a demand exists.'

Those claims were disputed by Dave Crawshaw. 'There are now numerous peat free composts available,' he said. 'Sinclairs themselves produce an award winning brand called New Horizon. The top three performing composts in the 2010 Garden Which Report were all peat free, and the worst performing was 100 percent peat. The companies, like Sinclairs, should be given credit for the research and development that has made this possible. No-one should now be claiming that peat free composts do not perform well. They actually perform better than peat.'

Peat divides the horticultural community like nothing else. Some gardeners, like Alan Titchmarsh and Bob Flowerdew, have recently claimed that there is no substitute for peat, while others, like Monty Don and Charlie Dimmock, have thrown their weight behind a campaign to eliminate peat.

Mark Way explained that, while many peat alternatives perform worse, some are better. 'For example, nearly a year ago, William Sinclair announced it had developed a unique, ground breaking growing media that performs as well as peat and has the potential to enable the horticultural industry to meet the Government's 2020 peat free target. The new product, called SuperFyba, has similar qualities to peat, namely: good water retention qualities, a low nutrient level, it is nitrogen stable, lightweight, it even looks like peat and is made from entirely renewable sources.'

However, he stressed that commercial considerations, such as an insufficient volumes of alternatives, mean peat the best available material. 'This is only likely to change if the Government introduces a legislative framework that encourages the use of alternatives,' he said. 'William Sinclair has spent several millions of pounds developing a new technology that resolves all the problems of using green compost for peat replacement … [using] civic amenity green waste that currently is very difficult to use and frequently becomes a problem material that requires disposal. … However we would need to build about 40 of these facilities to replace all the peat used in the UK at a cost of around £50 million, and the end product would be slightly more expensive than peat.'

Despite the well-publicised ecological impacts of peat-based compost, it remains popular—over 40 per cent of compost used in the UK contains peat. Perhaps, as DEFRA has stated, 'external costs of peat are not reflected in the costs of extraction or the market price, and Government intervention is needed to facilitate the shift to peat-free alternatives.'

Mark Way said that an integrated approach would be most sensible. 'If Government believe the environmental argument is valid, it has a duty to create a framework that supports investment needed to replace peat.'

Consumers have been reluctant to turn to alternatives, and companies slow to label compost containing peat; the industry norm is to state when a product contains no peat, rather than the other way round. There is as yet no reliable test for peat content, although a test on carbon 14 content shows promise.

When consumers don't know or don't care, and some producers are already expecting a ban or tax, the onus seems on proactive Government oversight.

'We need to go further if we are to protect our natural environment and reduce greenhouse gas emissions,' Natural Environment Minister Richard Benyon has said of peat extraction. Environmentalists are hoping action, rather than words, can save the few remaining peat bogs and safeguard their rich ecosystems of unique flora and fauna for the future.

The Really Wild Show: Namibia's pioneering conservancies

From the endless red dunes of the south to the teeming game reserves of Damaraland, Namibia is home to some of the world's most important eco-systems. **Ruth Styles** went to find out how local people are helping to preserve them

The Namib: the dunes at Sossuvlei are part of the world's oldest desert

Hearts in mouths, we watch as a group of elephants emerge from a clump of euphorbia bushes onto a patch of gently waving grass. Shining emerald leaves are forced aside to reveal ochre soil as the enormous animals blunder through the foliage. All of a sudden, one moves aside and a tiny baby appears, swinging its trunk with gusto. So new is the little creature, it's the first time our guide, Johann, has seen it.

Tails flicking lazily, the elephants settle down to contented chewing while we exchange glances and smile excitedly, elated at having seen one of the world's most iconic and endangered animals – the desert-adapted African elephant – in the wild. 20 years ago, we wouldn't have seen anything at all. Poaching in the 1980s saw Namibia's elephant and black rhino populations hunted almost to extinction, saved only by the likes of the WWF along with far-sighted politicians and local people. A solution was duly found. That solution is the conservancy.

Currently unique to Namibia (although the system is being trialled in Zambia), the Community Based Natural Resource Management (CBNRM), or conservancy, programme adopted by the Namibian government with the help of local safari companies, has seen startling results. Since 1990, the black rhino population has tripled in size, making it the largest in the world according the IRDNC, the Namibian government's main conservation body. Taken together, conservancy areas and government reserves now make up a whopping 36 percent of Namibian territory including 100 percent of the coastline, the entirety of the Namib desert and a big chunk of the Kalahari.

And it doesn't end there. According to the Predator Conservation Trust, an NGO dedicated to the preservation of the world's big cats, the lion population of the Namib witnessed an annual increase of 30 percent during the first half of the last decade. The springbok population too has seen astonishing growth with the IRDNC figures pointing to well over 70,000 today, up from a paltry 2000 in the early 80s. So what's the driving force behind these incredible results? The answer is people power.

Making use of the classic poacher-turned-gamekeeper concept, safari companies and local people have clubbed together to give Namibians a financial incentive to preserve their unique eco-systems. The conservancy system means taking locally owned land such as Damaraland's Torra Conservancy and turning it into an ecotourism venture, run by safari operators but controlled by local people who own both lodges and land.

'Communities are afforded the dignity of rising out of ultra-poverty upon their ancestral land,' says Wilderness Safaris' Rob Moffatt. 'Governments revel in unexpected returns from protected areas, helping to justify their commitments to biodiversity conservation and Wilderness Safaris alone creates thousands of jobs and livelihoods. Lives are changed and everybody benefits.'
'The reason that the Namibian model [of conservation] has been so successful is because of community

Dawn in Damaraland: home of the desert-adapted African Elephant

buy-in,' says Drew McVey, African Species Officer at WWF UK. 'Communities see rhinos and other game as imperative for the success of tourism which provides jobs. One of the best things about it is that the wildlife itself, and the benefits it brings, belong directly to the people.' And what wildlife it is.

Damaraland, home of the Torra Conservancy and the Damaraland Camp, supports animals like the black rhino, desert-adapted elephants, Hartmann's mountain zebra and a plethora of antelope species including gemsbok, springbok, kudu and oryx. Some are unique to the area, many are endangered and most are rare.

Located in the heart of the Huab River Valley, 90 kilometres from the Skeleton Coast and possessing spectacular views of the Brandeburg Mountains, the Damaraland Camp is an open-air affair built local style from natural materials such as local grasses and dead wood. The camp manager, Maggie, grew up in the nearby village and returned to Damaraland after stints in other Wilderness camps in Sossuvlei, Etosha and Caprivi. And she's not alone. The majority of the camp staff, from chefs to guides, are locals, passionate about the rugged Damaraland vistas and the wildlife it hosts. People from the nearby village, the owners of the camp, are also involved in green projects such as an Environment Club to teach children about the importance of conserving their panoramic surroundings, and Wilderness-led projects such as Children in the Wilderness; an initiative that brings disadvantaged Namibian children to the camps to learn about their natural heritage.

Further south, the story is repeated at Wilderness' Sossuvlei camps, Little Kulala and Kulala Wilderness Camp. Although situated in a government reserve rather than a conservancy, once again, the input of locals is what's making the difference; in this case for the breathtaking ruby dunes of the Namib desert. '[Projects like these] can help place a value on conservation,' says Justin Francis, co-founder of award-winning eco-travel website, ResponsibleTravel.com. 'This has a knock on effect within the local community too. When done well, such projects working alongside local people provide an opportunity for locals to earn an income and help facilitate a respect for the land and the wildlife connected with that land.'

Little Kulala, with its chic, pale interiors and private outdoor showers, offers a base for travellers who like a little luxury with their lions, while the Kulala Wilderness Camp is more family friendly but no less comfortable. What both have in common, besides local staff and panoramic views, is an impressive environmental ethos. Both have space for only limited numbers and both work hard to reduce water and power consumption, while minimising waste and eliminating litter. This, says Justin, is exactly

Damaraland is home to the inspirational Torra Conservancy

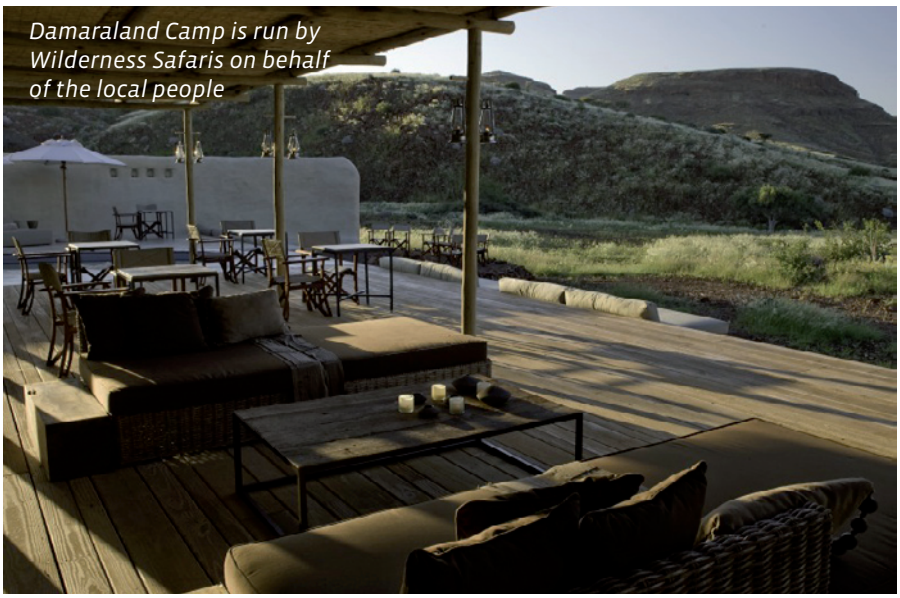
Fragile eco-system: dunes and grassland at the edge of the Namib Desert

The conservancy system has seen the Springbox population increase

how ecotourism should look. 'By hosting limited numbers of tourists, as opposed to large numbers that put a strain on natural resources, at any one time; eco lodges and conservancies can ensure that they minimise any negative environmental impact. This low density, low impact tourism is, I believe, the best and most responsible approach.'

Out in the rosy lunar landscape of the Namib, there's a haunting sense of isolation and connection to nature, facilitated by the broad horizons, thyme-scented air and the endless expanse of ochre sand. The oldest desert in the world, the Namib is home to an array of species, including ostriches, antelope, desert foxes and hordes of birds, all surviving in one of the most delicate eco-systems on the planet. In the midst of the dunes, cracked, pale yellow clay pans offer silent testimony to the baking temperatures and lack of water, both of which have led to the evolution of some very special wildlife.

In Damaraland too, a place where rivers appear in the morning and are gone by midday, the flora and fauna living in the rocky landscape are uniquely adapted to desert life and are all the more precious for that. Namibia is the only country in the world where desert-adapted elephants can be found and it's one of the few where the black rhino can still be seen in the wild. Thanks to its network of conservancies and reserves, and the efforts of responsible safari companies such as Wilderness, their future looks assured.



Damaraland Camp is run by Wilderness Safaris on behalf of the local people