Prayer guide for the care of creation

May 2010

They said to one another: Come, let us build ourselves a city and a tower with its top in the heavens and make a name for ourselves . . .

(Genesis 11,3)

"The Devil took (Jesus) to a very high mountain and showed him all the kingdoms of the world in all their glory. 'All these,' he said, 'I will give you if you will only fall down and do me homage.' But Jesus said, 'Out of my sight, Satan! Scripture says: You shall do homage to the Lord your God and worship him alone."

(Matthew 4. 8-10)

What the Devil is offering is a dream – a fantasy of endless power and control. 'Forget God and reality and truth,' says Satan to Jesus. 'I can give you the illusion of mastery.' And Jesus says to Satan, 'The world is not like that.'

(Archbishop Rowan Williams)

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Saturday May 1st

A climate change summit in March 2009 concluded: "Atmospheric CO_2 concentrations are already at levels predicted to lead to global warming of between 2^0 and 2.4^0 C. Current global temperatures are 0.8^0 above pre-industrial levels and, because of the time lag between greenhouse gas emissions and their full effect, we are committed to a further rise of 0.6^0 plus a further rise of 0.5^0 when particulate pollutants in the atmosphere become dispersed." These figures show that it is not enough just to reduce emissions. We must also extract greenhouse gases from the atmosphere and store them permanently. How?

Sunday 2nd May

Father, help us to understand that we and all your creation depend for our existence on you and on one another. Teach us how to be good stewards of all that you have given us to tend, and help us to banish from our thinking and actions all greed, selfishness and short-term views.

Monday 3rd May

In order to store permanently large amounts of CO_2, vast engineering works have been proposed, such as carbon capture and storage from power plants, and seeding the ocean with iron filings to increase the activity of marine algae etc.

However, the costs, side-effects and efficiency of these methods have yet to be proved. The only proven method was practised for hundreds of years in parts of the Amazon before Western diseases wiped out the inhabitants. These areas are called "terra preta do indio" (Indian black earth) and the method used is called Biochar.

Tuesday 4th May.

Plants, through photosynthesis, capture CO_2 from the air as they grow. When plant matter is burnt in the absence of oxygen – a process called "pyrolysis" – the resulting charcoal can be used as a fuel, so releasing the gases into the atmosphere, or else buried in the ground. "Biochar" is finely-crushed charcoal buried in the soil permanently, with two objectives:

1. To store greenhouse gases in order to avoid the worst effects of global warming,
2. to bring degraded land back to fertility and to increase yields.

For developing countries, the second objective is paramount, and there are ongoing trials throughout the world to establish the best feedstocks for different soils.

Wednesday 5th May

According to the Worldwatch Institute, by simply using waste materials for biochar, such as forest thinnings, rice husks, groundnut shells and urban waste, we could store 600 million tonnes of CO_2 equivalent each year, and far more biochar could be generated by planting and converting trees. In developed countries, municipal green urban waste could be converted locally into biochar and distributed by the sackful.. In developing countries, every village would need a biochar stove such as the ICPS (Improved Charcoal Production System) developed by Chris Adam in Germany. Above all, there is an urgent need for a Biochar Assessment body capable of setting standards – as is already done for organic farmers.

Thursday 6th May

Study of terra preta in the Amazon suggests that a key advantage of biochar is its ability to retain moisture. There are other advantages:

- It loosens compacted and heavy soils
- It provides surfaces for micro-organisms to make nutrients available to plants
- It stabilises nutrients in the soil, making applications of artificial fertilisers unnecessary.

Changes in farming practice are unlikely to happen without secure land rights. In Thailand, where degraded land has been transformed by smallholder farmers, strong government measures have guaranteed the farmers' land rights.

Friday 7th May

Virtually all food production and distribution depends on oil or natural gas. Cheap oil has allowed us to bring food to our plates from anywhere in the world – provided nobody in the distribution chain goes on strike and the global economy, trade practices, volcanoes etc. are sufficiently stable to allow us to import food. But a break in the chain can happen at any time. Our supermarkets have no storage space, so are dependent on just-in-time deliveries.

Cuba's oil supply was suddenly curtailed in 1991. Now, most of Havana's food is grown in private plots of less than 0.1 of a hectare and sold from stalls outside the growers' homes, at street corners and under covered walkways.

Saturday 8th May

Phosphorus is essential to all living things and has no synthetic alternative. In just over a year the price of rock phosphate has jumped more than 700%. China has reserves, but is holding on to them. US production has dropped by 20% since 2006 and the country imports phosphorus from Morocco, which holds one-third of the world's supply. Research at Newcastle University suggests that, without phosphates, yields of wheat could drop by 60% by 2040. Yet bone meal, a rich source of phosphates, is no longer available since animal bones have to be incinerated.

Most of the phosphorus consumed by humans is secreted in urine. Sweden is pioneering Ecosan toilets that separate urine at source. Biochar needs to be activated with nutrients before it is stored and urine is one of the best ways of doing this.

Sunday 9th May

"The main danger to the soil, not only to agriculture but to civilisation as a whole, stems from the townsman's determination to apply to agriculture the principles of industry."

(E.F. Schumacher)

Father God, you have placed us in a world which can supply all our needs for food, water and shelter. Hear our prayers for all on whom we depend for our food, for the management of the countryside and for the husbanding of its resources. Grant wisdom and integrity to those entrusted with far-reaching decisions on the use of the land. May Christian voices be heard loud and clear as we face a future full of danger and opportunity.

Monday 10th May

Biochar has three main benefits:

- It can sequester CO_2 from the air
- It can improve soil fertility
- Pyrolysis can provide useful by-products such as fuel.

Unfortunately, it is this last that will command the highest monetary value in an age of scarce and expensive oil. James Bruges in "The Biochar Debate" comments: "Only strong regulatory control will prevent the drive for profit sidelining the critically-important benefits of

biochar in storing carbon and improving soil fertility."

Tuesday 11th May

Carbon trading was introduced under the Kyoto Protocol in the belief that commercial incentives were necessary to secure a reduction in CO_2 emissions. Participating nations pledged to reduce their emissions by 5.2% by 2008. They failed to honour that commitment and many of the claimed reductions in poor countries did not take place. Instead, greenhouse gas emissions increased by 2.1% a year from 2001 to 2006 and by 2.2% in 2007.

The European Emissions Trading Scheme has proved no more effective.

Bruges proposes two solutions:

Firstly, an international cap on the amount of coal, gas and oil mined – regardless of the global economy or the needs of different nations. There are only about 500 extraction companies and regulating these would be easier than regulating the output of billions of chimneys and exhausts. This system is called Cap-and-Share. The need for fair shares would be met at international level by giving an equal entitlement to everyone on the planet.

Wednesday 12th May

The other solution proposed by Bruges is to monitor the amount of carbon in plants, roots, cut-wood, litter and soils, using remote satellite sensing, coupled with annual surveys using soil sampling techniques. New Zealand's Land Use & Carbon Analysis System (LUCAS) has been carrying this out every 5 years. The UN FAO has already prepared a Global Soil Database with much of the information required. A Carbon Maintenance Fee, funded by auctioning extraction permits for fossil fuels, would be paid to each country for maintaining the carbon content of its biomass and soil. Any increase would attract additional payments, while any decrease would incur a penalty for every tonne lost. Any gain from the use of biochar would simply add to a country's carbon store, without the need to assess the value of the biochar itself.

Thursday 13th May

The challenge for governments is to find ways to enable all its citizens and businesses to sequester carbon. The use of biochar, together with sustainable agriculture, is the best and possibly the only way to achieve this. The challenge for individuals is how to incorporate biochar into their gardens, allotments and smallholdings. Anila stoves are a possibility, but it would be better (says James Bruges) if ready-made biochar was available at garden centres or provided by local authorities. "If Government provided the incentives, it would be re-imbursed many times over by a Carbon Maintenance Fee."

Friday 14th May

From April 1st, householders, businesses, communities, farms, schools and hospitals can earn a tax-free bonus for generating green electricity from solar PV panels, micro-wind turbines, water turbines and anaerobic digesters. The Clean Energy Cashback scheme (or Feed-in Tariff) is predicted to provide 2% of UK electricity by 2020. FoE claims that an even stronger scheme could see 6% of UK electricity generated in this way by 2020 – equivalent to the output of the massive Drax coal-fired power station.

At the same time a Renewal Heat Incentive will provide tariffs for generating heat from solar hot water panels, ground source heat pumps and wood pellet burners, to be introduced next year.

Saturday 15th May

A survey carried out for Renewable UK suggests that 80% of people support the expansion of onshore wind generation, while just over half the parliamentary candidates agreed that this policy is necessary if the UK is to reach its target for renewable energy. Each of them were asked to sign a WIMBY (Wind In My Back Yard) pledge and say whether they are happy to have a wind turbine built near their home.

Sunday 16th May

Almighty God, who alone canst order the unruly wills and affections of sinful men, grant unto thy people that they may love the thing which thou commandest, and desire that which thou dost promise, that so, amongst the sundry and manifold changes of the world, our hearts may surely there be fixed where true joys are to be found, through Jesus Christ our Lord. (Common Prayer)

Monday 17th May

The Irish Government has announced a programme of grants and exemptions from vehicle tax for electric car owners beginning next year. 3,500 charging points will be installed by December 2011 in all major cities. The Government's target is for 10% of all vehicles to be electric by 2020. Eamon Ryan, Minister of Communications, said: "Ireland will be one of the first countries to have a nationwide electric charging network which will offer opportunities for enterprise and job creation, as well as the obvious environmental benefits of ultimately having a decarbonised transport fleet. Irish motorists can look forward to the cash, cars and charging points that will make the electric car the smart choice for Irish motorists."

Tuesday 18th May

The heat needed to mix road asphalt is currently 170^0 C. A project spearheaded by the Carbon Trust and supported by market leaders such as Tarmac is seeking ways to reduce the heat needed for the process, and so slashing the industry's carbon emissions by 39% by 2020. Cooler asphalt would harden faster, so reducing the delay between laying it and having a road surface suitable for vehicles. The report "Industrial Energy Efficiency Accelerator – Guide to the asphalt sector" is available at: www.carbontrust.co.uk/publications

Wednesday 19th May

BP has been considering a major investment in extracting oil from the highly polluting Alberta tar sands – a mixture of bitumen, sand, clay and water – which effectively give Canada the world's second largest oil reserves after Saudi Arabia. At last month's AGM, BP announced a postponement till 2011 of any decision on the investment. John Sauven of Greenpeace comments: "With US climate legislation in the pipeline and a growing coalition of powerful groups gearing to fight exploitation of Canada's tar sands, BP executives are having second thoughts. The risks involved in the project are enormous and shareholders are justified is asking for more transparency from a company that now shares their concerns."

Thursday 20th May

A key element in the relief sent to earthquake-hit Haiti is the provision of portable solar-powered water purification units. Made by GE Water & Process Technologies, each Sunspring purification unit can produce 19,000 litres of drinkable water by processing water from remote rivers, lakes, wells and recycled rainwater, and by removing pathogens,

particulates and turbidity. The first such unit is up and running at the SOS Children's Village in Port-au-Prince, while five more are to be commissioned by UNICEF on arrival in Haiti. Said Jim Imrie, the firm's manager: "Our long-term goal is to build partnerships with international relief organisations prior to crisis that will enable us to provide services such as water purification more quickly to communities affected by disaster."

Friday 21st May

Around 7% of global oil and gas is consumed in plastics manufacture, producing more than 150 million tons a year. Biodegradable plastics currently use food crops such as corn and sugar beet. Now a degradable polymer is being made from lignocellulosic biomass such as fast-growing trees, agricultural and food waste. Pioneered at Imperial College by a team of scientists from the Engineering & Physical Sciences Research Council, the new polymer allows the plastic to dissolve in water, so it can be composted at home and used to feed gardens. Because it can be made from waste products, it is cheaper than plastics made from increasingly expensive oil and gas.

Saturday 22nd May

"By Cloud and Fire – Spiritual Journeys to Climate Safety" is the theme of today's meeting of Operation Noah at Friends' Meeting House, Euston Road, London from 11 to 5. Leading speakers include Michael Northcott, author of A Moral Climate, Mary Grey, author of Sacred Longings, and Paul Bodenham, chair of Christian Ecology Link. The day is designed to help us all to name and share our insights, influences and experiences and to voice the unspoken difficulties in making changes that are necessary if we are to respond to the grave threat of climate change. Places may be booked at: info@operationnoah.org or on 0207 324 4761.

Sunday 23rd May

Lord, lead us into the darkness that we may find what lies concealed;

That we may confess it towards the light;

That we may carry our truth into the centre of our heart;

That we may carry our cross wisely and bring harmony into our life and our world.

(Michael Leunig)

Monday 24th May

Britain has many contaminated industrial sites. Researchers at Teesside University's Contaminated Land & Water Centre has experimented with 4 types of non-food plants (willow, miscanthus, reed canary grass and switch grass) to establish the best type for growing on contaminated land. The conclusion is that reed canary grass (Phalaris arundinacea) can be turned into excellent fuel for biomass power stations and boilers in schools and hospitals. It reaches maturity in 2 years, when it is harvested and baled up before being turned into bricks and pellets. Gardeners will be pleased that the weed known as "Gardeners' Garters" has found a purpose in life.

Tuesday 25th May

The UK population, now 61 million, has been growing at its fastest rate since the 1960s and is projected to exceed 70 million by 2029 – equivalent to 10 more Birminghams. The average density of new houses has risen from 25 per hectare in 2001 to 44 per hectare today, making it ever more difficult to provide the green spaces we all need. Yet, as CIWEM points out, "green infrastructure such as parks, commons,

open land, woodland, private gardens, street trees and green roofs, as well as 'blue' spaces such as wetlands, ponds and flood plains, help to increase resilience to climate change, enhance biodiversity and promote human health and well-being." The continued treatment of gardens as "brownfield sites" suitable for development runs counter to this, though a Government review is looking to see whether there is a problem with this.

Wednesday 26th May

CIWEM in its manifesto calls for recognition of green infrastructure as an integral part of every sustainable community, providing a wide range of benefits for quality of life and the environment. It should be built into all regeneration and development schemes from the outset. In particular, funding for most public parks and green spaces is declining. Government is urged to prevent future cuts in funding and to ensure that this vital resource is maintained, valued and harnessed for its environmental, social and economic benefits.

Thursday 27th May

According to the Optimum Population Trust, the 10 million more people expected to populate Britain in the next 22 years will have the carbon footprint of 220 million Malawians. A You Gov poll last year showed that 70% of people are concerned that our population growth is causing serious environmental problems, 50% want a smaller population than we have now, and only 8% actually want any growth at all. Yet the political parties have little or nothing to say on the subject.

Friday 28th May

According to the Pesticides Action Network (PAN), the ten foods most likely to contain pesticides are flour, potatoes, bread, apples, pears, grapes, strawberries, green beans, tomatoes and cucumbers. The supermarkets actively trying to reduce pesticide residues are the Co-Op, Marks & Spencer and Sainsbury's. M & S has a 5-year plan to become the world's most sustainable retailer by 2015. Its "Field to Fork" farm assurance scheme prohibits the use of 70 agrochemicals and severely restricts the use of 38 more. It invests in new pest reduction practices such:

- "Blow-off", where pests are blown off crops with high-velocity 'hair-dryers' pumping out hot air at 100^0C.
- Pheromone-based trapping, where traps are baited with natural sex attractants to lure pests to their death.

Saturday 29th May

The new 24-bed Malvern Community Hospital, due to open this autumn, will use geothermal energy for heating, cooling and hot water. Ground-source heat pumps will harness solar energy and a combined heat and power plant will generate low-carbon electricity, The chief executive of Worcestershire PCT said: "By generating its own green power, the hospital will save £8,700 a year on energy bills and save 15 tonnes of carbon emissions a year, equating to the planting of 1,500 trees."

Sunday 30th May

Entrusted with an earthly home
our minds did not create or build,
We live as visitors and guests
until our years have been fulfilled.

Through centuries, without concern for all the grandeur and the grace,
We've taken beauty from the earth
and left it poor – a barren place.

Our carelessness has clogged the streams
which once were clear and sparkling strands.
Our industries have blacked the skies
and left a smog on all our lands.

O God, we've been ungrateful guests
upon this earth, which you designed;
Within our time, help us restore
our blighted world for all mankind.

(Jean Carriott)

Monday 31st May

Copenhagen's Crown Plaza hotel has installed electric bikes in all its 366 rooms, so that guests can generate electricity while exercising tired limbs. Ten minutes cycling at 30 mph not only produces renewable energy, but also cuts the hotel's carbon emissions. Guests who produce 10 or more watts are entitled to a free meal. From June onwards they can compete with other guests in a bid to produce more electricity than the hotel's solar panels. The experiment, if successful, will be rolled out across the UK in 2011.

Sources:

"The Biochar Debate" by
James Bruges (Green Books)
CIWEM Business News
www.edie.net

If you would like to receive the prayer diary each month by email (free), please email prayer-guide@christian-ecology.org.uk

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Picture on front cover: Anemone Hortensis at Kew Gardens.
by Poppy Pickard.

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Additional Prayers