

Woodchips With Everything

Latest utopian catastrophe: solve climate change with biochar

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Whenever you hear the word miracle, you know there's trouble just around the corner. But however many times they lead to disappointment or disaster, the newspapers never tire of promoting miracle cures, miracle crops, miracle fuels and miracle financial instruments. We have a bottomless ability to disregard the laws of economics, biology and thermodynamics when we encounter a simple solution to complex problems. So welcome, ladies and gentlemen, to the new miracle. It's a low-carbon regime for the planet which makes the Atkins Diet look healthy: woodchips with everything.

Biomass is suddenly the universal answer to our climate and energy problems. Its advocates claim that it will become the primary source of the world's heating fuel, electricity, road transport fuel (cellulosic ethanol) and aviation fuel (bio-kerosene). Few people stop to wonder how the planet can accommodate these demands and still produce food and preserve wild places. Now an even crazier use of woodchips is being promoted everywhere (including in the Guardian(1)). The great green miracle works like this: we turn the planet's surface into charcoal.

Sorry, not charcoal. We don't call it that any more. Now we say biochar. The idea is that wood and crop wastes are cooked to release the volatile components (which can be used as fuel), then the residue - the charcoal - is buried in the soil. According to the magical thinkers who promote it, the new miracle stops climate breakdown, replaces gas and petroleum, improves the fertility of the soil, reduces deforestation, cuts labour, creates employment, prevents respiratory disease and ensures that when you drop your toast it always lands butter side up. (I invented the last one, but give them time). They point out that the indigenous people of the Amazon created *terras pretas* (black soils) by burying charcoal over hundreds of years. These are more fertile than the surrounding soils, and the carbon has stayed where they put it. All we need to do is to roll this out worldwide and the world's problems - except, for the time being, the toast conundrum - are solved. It takes carbon out of circulation, reducing atmospheric concentrations. It raises crop yields. If some of the carbon is produced in efficient cooking stoves, it reduces the smoke in people's homes and means they have to gather less fuel, curtailing deforestation(2).

This miracle solution has suckered people who ought to know better, including the earth systems scientist James Lovelock(3), the eminent climate scientist Jim Hansen(4), the author Chris Goodall and the climate campaigner Tim Flannery(5). At the UN climate negotiations beginning in Bonn on Sunday,

several national governments will demand that biochar is eligible for carbon credits, providing the financial stimulus required to turn this into a global industry(6). Their proposal boils down to this: we must destroy the biosphere in order to save it.

In his otherwise excellent book, *Ten Technologies to Save the Planet*, Chris Goodall abandons his usual scepticism and proposes that we turn 200 million hectares of “forests, savannah and croplands” into biochar plantations. Thus we would increase carbon uptake, by grubbing up “wooded areas containing slow-growing trees” (that is, natural forest) and planting “faster-growing species”(7). This is environmentalism?

But that’s just the start of it. Carbonscape, a company which hopes to be among the first to commercialise the technique, talks of planting 930 million hectares(8). The energy lecturer Peter Read proposes new biomass plantations of trees and sugar covering 1.4 billion ha(9). The arable area of the United Kingdom is 5.7m hectares, or one 245th of Read’s figure. China has 104m ha of cropland. The US has 174m. The global total is 1.36 billion(10). Were we to follow Read’s plan, we would either have to replace all the world’s crops with biomass plantations, causing instant global famine, or we would have to double the cropped area of the planet, trashing most of its remaining natural habitats. Read was one of the promoters of first-generation liquid biofuels(11,12), which played a major role in the rise in the price of food last year, throwing millions into malnutrition. Have these people learnt nothing?

Of course they claim that everything can be reconciled. Peter Read says that the new plantations can be created across “land on which the occupants are not engaged in economic activity”(13). This means land used by subsistence farmers, pastoralists, hunters and gatherers and anyone else who isn’t producing commodities for the mass market: poorly-defended people whose rights and title can be disregarded. Both Read and Carbonscape speak of these places as “degraded lands”. We used to call them unimproved, or marginal. Degraded land is the new code for natural habitat someone wants to destroy.

Goodall is even more naïve. He believes we can maintain the profusion of animals and plants in the rainforests he hopes to gut by planting a mixture of fast-growing species, rather than a monoculture(14). As the Amazon ecologist Philip Fearnside has shown, a mixture does “not substantially change the impact of very large-scale plantations from the standpoint of biodiversity”(15).

In their book *Pulping the South*, Ricardo Carrere and Larry Lohmann show what has happened in the 100m ha of industrial plantations planted around the world so far(16). Aside from trashing biodiversity, tree plantations have dried up river catchments, caused soil erosion when the land is ploughed for planting (which means the loss of soil carbon), exhausted nutrients and required so many pesticides that in some places the run-off has poisoned marine fisheries.

In Brazil and South Africa, tens of thousands of people have been thrown off their lands, often by violent means, to create plantations. In Thailand the military government that came to power in 1991 sought to expel five million people. Forty thousand families were dispossessed before the junta was overthrown. In many cases plantations cause a net loss of employment. Working conditions are brutal, often involving debt peonage and repeated exposure to pesticides.

As Almuth Ernsting and Rachel Smolker of Biofuelwatch point out, many of the claims made for biochar don't stand up(17). In some cases charcoal in the soil improves plant growth; in others it suppresses it. Just burying carbon bears little relationship to the complex farming techniques of the Amazon Indians who created *terras pretas*. Nor is there any guarantee that most of the buried carbon will stay in the soil. In some cases charcoal stimulates bacterial growth, causing carbon emissions from soils to rise. As for reducing deforestation, a stove that burns only part of the fuel is likely to increase, not decrease, demand for wood. There are plenty of other ways of eliminating household smoke which don't involve turning the world's forests to cinders. None of this is to suggest that the idea has no virtues; simply that they are outweighed by hazards, which the promoters have either overlooked or obscured. Nor does this mean that charcoal can't be made on a small scale, from straw or brushings or sewage that would otherwise go to waste. But the idea that biochar is a universal solution which can be safely deployed on a vast scale is as misguided as Mao Zedong's Great Leap Backwards. We clutch at straws (and other biomass) in our desperation to believe that there is an easy way out.

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14. Page 228.

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