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## Charcoal disguised as “biochar” sold as another profitable climate tech-fix

According to a growing, vocal and very well-connected group of scientists, entrepreneurs and lobbyists, the best if not the only way of humanity surviving climate change and solving the food and energy crisis is to plough billions of tonnes of charcoal into the soil every year. They call charcoal used in this way “biochar” and claim that it will lock up carbon for thousands of years, provide energy through the same process which produces the charcoal, greatly increase plant yields and stop deforestation (caused, according to many of them, mainly by small farmers who slash and burn forests because they cannot keep their soil fertile). However bizarre and unfounded these claims may be, they are being taken very seriously in high-level policy circles.

A keynote speaker at the 2008 conference of the International Biochar Initiative (IBI), which is the main biochar lobbying forum, was the Australian Tim Flannery. He chairs the Copenhagen Climate Council which is organising the World Business Summit on Climate Change in May, '09, which will put forward business and pro-business leaders' 'recommendations' to UNFCCC. Many IBI members and supporters are similarly well-connected and able to influence high-level policy decisions.

The IBI achieved major successes at the Poznan UNFCCC Conference: Following a UNCCD submission in Poznan, biochar has been included into the “dialogue for the post 2012 climate regime”.<sup>1</sup> Furthermore, the government of Micronesia proposed that biochar should play a vital role in mitigating climate change. Post-2012 CDM credits for biochar could be formally approved at Copenhagen.

If it is endorsed then a statement made by Flannery about “biochar” might well prove correct: “With the appropriate ...promotion and adoption, it will change our world forever”, though, there is every reason to reach the opposite conclusion regarding the second part of his sentence: “and very much for the better”.<sup>2</sup>

Fine-grained charcoal is a by-product from biomass pyrolysis, a form of bioenergy production which yields two types of fuel; bio-oil and syngas as well as the charcoal. Both can be used for heat and power and they can also be further refined into second-generation agrofuels, i.e. into fuel for cars and potentially planes. It thus fits in perfectly with the push for biorefineries and tree plantations to fuel cars, but it does not depend on those. Pyrolysis for heat and power could be rapidly scaled up, provided that ‘market hurdles’ can be overcome. If pyrolysis companies could earn money from turning the biochar into patented fertilisers (with plantation expansion guaranteeing high profits from fertilisers), and if, on top of that they could attract carbon credits, the industry could take off very quickly. For companies such as Best Energies, Eprida, Dynamotive and Biomass Energy and Carbon, getting biochar included into carbon trading could make the difference between possible bankruptcy or, as Best Energies put it “win[ning] the current land grab in next-generation fuels”<sup>3</sup>.

IBI lobbyists promote an image of a future industry which primarily benefit small farmers and other villagers, through small pyrolysis units and charcoal-making cooking stoves, yet many of their spokespeople call for “biochar” ‘carbon sequestration’ targets which would make half a billion

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hectares of biochar plantations sound conservative.

“Biochar” thus fits in with other false climate solutions based on large-scale plantations and land-grabbing, from agrofuels to ‘carbon sink’ tree plantations and GE trees. The scientific rationale for “biochar” is even shakier than for many other false solutions: Agrofuels, however harmful, can at least power cars. Applying charcoal to soils, on the other hand has not been shown to reliably sequester carbon or make soil more fertile on its own. The ‘evidence’ for the claims is based primarily on terra preta, ancient soils in Central Amazonia, formed hundreds or even thousands of years ago. Terra preta was created by small farmers who, over many generations, mixed charcoal as well as compost, animal and fish bones, river sediments, manure and diverse biomass residues into the soil. There is no evidence that carbon-rich, fertile soils can be recreated simply – or quickly – by applying large quantities of charcoal to fields.

So far only one “biochar” field study has been published in peer-reviewed journals. Researchers found that, charcoal additions to soil made synthetic nitrogen fertilisers work better. Yields for plants grown with char and fertilisers were still considerably lower than for plants grown solely with chicken manure. Using nothing but charcoal, however, resulted in zero plant growth after two harvests. This is why a lot of the ‘biochar research’ actually involves an ammonium bicarbonate fertiliser, of which char is only one component. At least during this short-term study, most of the carbon remained in the soil, but other studies indicate that even this is not guaranteed.

A study in Kenya showed that over the first 20-30 years after biomass burning, soils lost 72% of the carbon contained in charcoal.<sup>4</sup> Initial results of a Colombian field study show that plots with charcoal had higher yields but lost 60% more soil carbon than control plots over two years.<sup>5</sup> This makes claims about biochar having the potential to sequester carbon on a geo-engineering scale little more than hot air.

The push for “biochar today can be compared with that for agrofuels around 2002: Unfounded promises to solve the climate crisis and poverty with one stroke, while, behind the scenes, a massive lobbying effort is paving the way for artificial markets through state support. By the end of this year, the biochar lobby could well succeed in getting “biochar” into the CDM and other carbon trading schemes from 2012, possibly with ‘double credits’, as well as gaining other state support. Once this is in place, major industry investment and plantation expansion will follow. Several Indonesian pulp and paper companies, the executive director of the Indonesian palm oil association, Embrapa in Brazil, the Bolivian agribusiness firm DESA in Santa Cruz and Shell are amongst those already promoting the idea. The question is whether civil society groups and movements will be able to organise quickly enough and succeed in stopping the push for industrial biochar and, above all, carbon trading in charcoal as a soil amendment (“biochar”). If we fail this year then we could soon find ourselves fighting against another wave of land-grabbing and forest and other ecosystem destruction.

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References:

For fuller information see in particular Section 4 of “Climate Geo-engineering with ‘Carbon Negative’ Bioenergy”, [www.biofuelwatch.org.uk/docs/cnbe/cnbe.html](http://www.biofuelwatch.org.uk/docs/cnbe/cnbe.html)

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