

# CARBON - THE NEW CASH CROP?

While the 2010 Copenhagen climate talks spectacularly failed to reach an agreement on emissions cuts, the summit did see agriculture's role in climate change mitigation officially considered for the first time. Far from being cause for optimism, however, HELENA PAUL argues that agricultural carbon offsets will result in higher emissions and undermine global food security, biodiversity and ecosystems.



Could carbon offsets for agriculture lead to more energy intensive farming?

Following Copenhagen the message is clear: if we do not act swiftly, industrial agriculture could soon claim large rewards from carbon trading by being recognized as a carbon sink. We know that climate change has the potential to irreversibly damage the natural resource base on which agriculture depends. But we also know that industrial agriculture is a major cause of climate change, so how can rewarding it with carbon credits help reduce its climate impacts?

The journalist Dan Welsh writes: "Offsets are an imaginary commodity, created by deducting what you hope happens from what you guess would have happened".<sup>1</sup> Offsets were originally developed in the US and set out in its 1990 Clean Air Act, as part of its acid rain programme. Limits to sulphur dioxide emissions were set and if an installation kept its emissions below these levels, operators received an emissions allowance which they could use in one of three different ways: to offset another installation with higher emissions, to keep for the future, or to sell to another company. Larry Lohmann of Corner House notes that in Los Angeles "industry successfully lobbied local government to replace existing and proposed air quality regulations with a trading programme."<sup>2</sup>

In 1997, the Kyoto Protocol was adopted, which imposes binding targets upon nations to reduce their emissions of greenhouse gases. In response to US pressure, it includes procedures, notably the Clean Development Mechanism (CDM), which allow high emission countries to buy permits to carry on emitting from others who are reducing (or claiming to reduce) their own emissions. It also permits regional schemes such as the European Emissions Trading Scheme. Lohmann comments:

"In 1997, through skillful politicking, US elites and their allies were able to insert special clauses in the Kyoto Protocol which allowed northern countries to meet part of their emissions targets by trading carbon dioxide with each other. The cover story was that this would make cutting emissions more efficient."<sup>3</sup>

Thus carbon was turned into a commodity for trading internationally as carbon offsets. And having deftly turned the climate discussions into a commodity market, the US then declined to ratify the Kyoto Protocol. Now some countries are trying to

destroy the protocol and with it all mandatory emission reduction targets for industrialized countries, while transferring the market parts of the protocol to the Climate Convention (the United Nations framework for international climate negotiation), which does not impose binding targets.

## Offsets Delay Emission Reductions

It is clear that we are not just dealing in a virtual commodity that provides staggering opportunities for creative accounting and the risk of a sub-prime carbon market. Worse still, trading in offsets is delaying emission reductions in industrialized countries while rewarding polluting industries in the South. For example, Steffen Böhm in *The Land* 7, reported how a highly unsustainable and land-hungry paper mill in Uruguay is being subsidized, through the Clean Development Mechanism, because the waste from the mill is used to generate "zero carbon" energy.<sup>4</sup> According to an article in *Euractiv*, 22 April 2009, "The EU's emissions trading scheme has so far failed to deliver any reductions in CO<sub>2</sub> emissions while at the same time strangling energy-efficiency investment in the electricity sector, according to a former European Commission official."

This means that, as far as climate change is concerned, offsetting (remember the prompts from airlines to offset your emissions by planting trees?) is possibly the most destructive activity we could undertake, because it hampers action to reduce emissions. This fact was highlighted by a report from the UN and World Bank-sponsored International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) which emphasises that emissions cuts, as opposed to offsets, are the most effective way to protect the natural resource base on which agriculture depends: "the earlier and stronger the cuts in emissions, the quicker concentrations will approach stabilization."<sup>5</sup>

However, countries with large, powerful agricultural sectors such as the US and Australia are going in the opposite direction.

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Carbon Offsets are, according to many, tantamount to Carbon Farming; farming purely for the incentive of offset payments.

They are considering domestic offset programmes that would use their own agriculture to offset their own industrial emissions – without even requiring the agriculture sector to reduce its overall emissions. Australian journalists Guy Pearse and Gregg Borschmann, covering the Copenhagen talks, noted that such a programme could be:

“enough, some say, to make Australia ‘carbon neutral’ for the next three or four decades. And all that without having to impose a nasty tax, set up a complicated emissions trading scheme or clean up a single polluting pipe.”<sup>6</sup>

Now it appears that the EU is also considering whether land use activities should count towards its greenhouse gas reduction commitment. Such programmes could further marginalize the CDM. So much for the idea that carbon trading will assist the global south.

### Undermining the UN Process

At Copenhagen, attempts to develop initiatives such as the Copenhagen Accord among a small group of countries, and foist them on the rest, led to a major breakdown of trust. On 16 December 2009, the Global Research Alliance on Agricultural Greenhouse Gases was launched by US Agriculture Secretary Tom Vilsack. The US Department of Agriculture (USDA) will

play a major role in contributing research to this alliance, and a glance at the leading members and the stated priorities suggests it will promote trading in industrial agriculture and soil carbon. The New Zealand government, which hosted the first full meeting in April 2010 spoke of the advantages of working outside the UN.

Back in 1997, parties to the Kyoto Protocol originally ruled that soil carbon sequestration and the prevention of deforestation were not eligible for credits under the Clean Development Mechanism. Furthermore, afforestation and reforestation (a term misleadingly applied to industrial tree plantations) are currently only eligible for one per cent of offsets. Over recent years however there has been increasing pressure from, among others, large scale agri-business to remove all these limits to offsetting and make soil carbon sequestration and agriculture eligible for carbon trading.

There are already several agricultural methodologies under the CDM, and offsetting projects do exist, though they may not be quite what you’re expecting. In 2007, half of all CDM projects in Mexico involved industrial pig farms which were deriving biogas from manure, while in Malaysia, 90 percent benefited palm oil companies using their effluent to generate electricity. Such projects merely give a green tinge to large, rapidly expanding and destructive industries. And this is a situation which is set to worsen. CDM methodologies for agrofuels, for charcoal from industrial tree plantations and for pig-iron production, have recently been adopted by the CDM Board and new ones are constantly being proposed. Thus it appears that the CDM is neither clean, nor about development, but a mechanism for continuing business as usual and rewarding existing polluters.

### The Primary Suspects

The following are some of the activities and technologies which the agribusiness industry hopes will qualify for carbon subsidies and serve as a vehicle for governments to offset their fossil fuel carbon emissions.

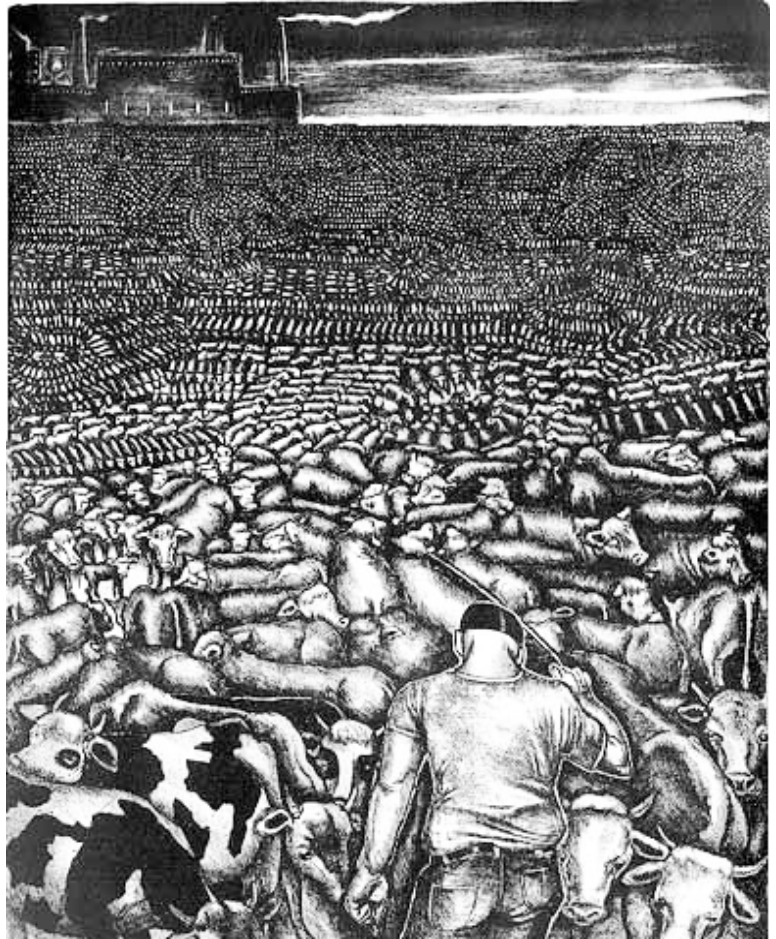
**No-till agriculture** (also sometimes misleadingly called “conservation agriculture”) Soil carbon emissions are supposedly reduced by not tilling the soil. Instead of being ploughed in, weeds are generally killed off through the application of herbicides. Genetically modified (GM) crops tolerant to herbicides obviously lend themselves to this approach. Existing no-till systems across South America and the US, covering millions of acres, have been shown to have a harmful effect upon biodiversity, ecosystems, health and climate. Furthermore, according to the IPCC and Rothampsted, the superior carbon sequestration capacity of no-till soils compared to other management systems is not proven. Emissions of the greenhouse gas nitrous oxide could increase under no-till to the point that they negate any savings made through carbon sequestration.

**Agrofuels.** After initially being promoted as the answer to emissions from transport, agrofuels are increasingly questioned. Nonetheless they continue to attract subsidies and are supported by targets in the EU, US and other countries. We are now told that the next generation of agrofuels, using the whole plant or tree, will address concerns about competition with food production, since they will be produced from non-food crops; but these “advanced agrofuels” are dogged with uncertainties and require large areas of land.

**Biochar** is fine-grained charcoal containing pure carbon. The International Biochar Initiative (IBI) argues that turning large volumes of biomass into charcoal and burying it in the soil would create a reliable and virtually permanent carbon sink, mitigate climate change, and make soils more fertile. However, even studies by scientists who are members of the IBI indicate high levels of uncertainty and the need for a lot more research. For example, what percentage of carbon would remain in the soil, for how long, and how much would be turned into CO<sub>2</sub> and emitted again? The production of biomass for both biochar or agrofuels was long assumed to be “carbon neutral” because greenhouse gas emissions during combustion are supposedly offset by CO<sub>2</sub> absorption during new growth. This assessment is now widely rejected. Among other things, it ignores the emissions from conversion or degradation of large areas of land needed to produce the quantities of biomass required. However, the fact that both biofuel (energy) and biochar (carbon) can be derived from the same biomass and thus operate as co-products, attracting more support and increased income or subsidy from the carbon trade, makes them attractive to business, regardless of whether or not they are effective.

**Industrial livestock production** is a major emitter of greenhouse gases, mainly nitrous oxide and methane. Grain feed production (such as no-till GM soya in Argentina) currently uses one third of global cropland and often relies on the chemical fertilizers that are responsible for a significant proportion of anthropogenic nitrous oxide emissions. Yet commentators, ranging from the UK government to the Food and Agriculture Organisation and the UN Framework Convention on Climate Change, advocate further intensification and enclosure of animal production in industrial feedlots to mitigate climate change. They note that the waste from the animals can be used to power biogas digesters and describe the whole process in terms of inputs, outputs and efficiency. A study commissioned by Meat and Livestock Australia claims a reduced carbon footprint for feedlot beef. Researchers from New Zealand propose genetically engineering clover to reduce methane emissions from cattle.<sup>7</sup> But subsidizing measures such as these will only serve to increase meat consumption, when the imperative is to decrease meat consumption in rich countries to sustainable levels.

**The GM biotech industry** sees climate change as a welcome opportunity for expansion and is lobbying for GM to be recognized as offering solutions to climate change problems though



Feedlot by Sue Coe

Confined Animal Feed Operations the future of environmentally sensitive farming?

they have not yet been formally proposed as such. As well as being used in no-till systems, hundreds of patent applications have already been made for so-called climate ready GM crops. Ideas include extending the geographic and climatic range of crops and their capacity to tolerate salt, drought, heat and floods, as well as engineering crops to use less fertilizer. In fact, such crops have been heralded since the 1980s as a means to combat hunger, but none have yet appeared. Other projects include trying to genetically engineer algae for fuel production as well as micro-organisms and enzymes to help to break down biomass into agrofuels and other fossil oil substitutes, although the consequences of their potential escape and multiplication in the environment are incalculable. There are ambitious plans to develop a new “bioeconomy” based on using biomass to produce fossil oil substitutes in giant biorefineries.

### Land Grabs for Offsets

Projects such as agrofuels, biochar and enterprises such as paper mills and palm oil plantations require large areas of land. Carbon offset markets advertise themselves as focusing on initiatives located on “marginal”, “degraded” or “waste” land, suggesting that there are millions of hectares just begging to be turned to good productive use. However, what is described as marginal land is often used by marginalized and economically weaker sectors of communities, especially women. It may be communal land, used collectively for centuries by people who frequently have no legally recognized title, even though for them it is a vital resource for water, feed, food, medicines, fuel

and income. Such land is also essential for biodiversity, water supplies, soil and ecosystem regeneration.

The pressure for agricultural offsets is also partly responsible for a worrying increase in international land-grabbing since 2008. Private and state-owned enterprises in China, India, Korea, Vietnam and many oil-producing nations are competing to acquire land in Africa to supply food and agrofuels. Countries targeted include Ethiopia, Mozambique, Zambia and Tanzania as well as conflict-torn Sudan and the Congo. Even though some deals may fall through, the impacts on local people are likely to be serious and potentially irreversible.

### What Is the Alternative?

In addition to threats to their land, and policies that are hostile to their interests, small farmers also face further erosion of the resources they depend on through climate change. Yet their practices and knowledge can help to stabilize climate, conserve water, protect soils and secure food supplies. The IAASTD report emphasises the multifunctional role of agriculture and the importance of empowering, not marginalizing, farmers, especially women farmers, and the need to recognize them as producers and managers of ecosystems. Resilient ecosystems are fundamental to addressing climate change, water scarcity and food insecurity. Yet increasing numbers of farmers are forced off their land, and once the link between communities and ecosystems is broken it may be impossible to restore.

The right kind of agriculture could help to stabilize climate as well as feeding us. In the 1980s, peasant farmers in South America, many of them indigenous people, produced around 40 percent of food consumed on that continent. Many of them still use mixed cropping systems (for example, combining peanut with sorghum or millet) which give greater yield stability in drought than monocultures. They have also been shown to have higher yields than equivalent monocultures. They maintain rather than deplete resources, build topsoil and retain nutrients and moisture in the soil. They also enhance crop genetic

diversity, a crucial insurance against climate change and seasonal variability. Such systems still account for close to 20 per cent of the world's food supply, in spite of all the attempts to marginalize and suppress them.

Biodiversity and resilient ecosystems are vital for a stable climate, and small-scale, diverse farming within an ecosystem approach is the best way forward. Instead of being lost or expropriated and patented, agricultural biodiversity must stay in the hands of those who make their livelihood from it, and its erosion must be halted. Farmers need the freedom to use biodiversity without patent barriers and they should decide the direction of research, not be the victims of it. Information that concerns them should not be withheld by corporations on the grounds that it is commercially sensitive. On-farm conservation, involving traditional knowledge, participatory plant breeding and community seed banks, is vital. The collective right of farmers and small breeders to seeds, breeds, land, water and soil should be legally recognized. Policies should endorse the multi-functional nature of agriculture and embrace a broader, richer concept of productivity.

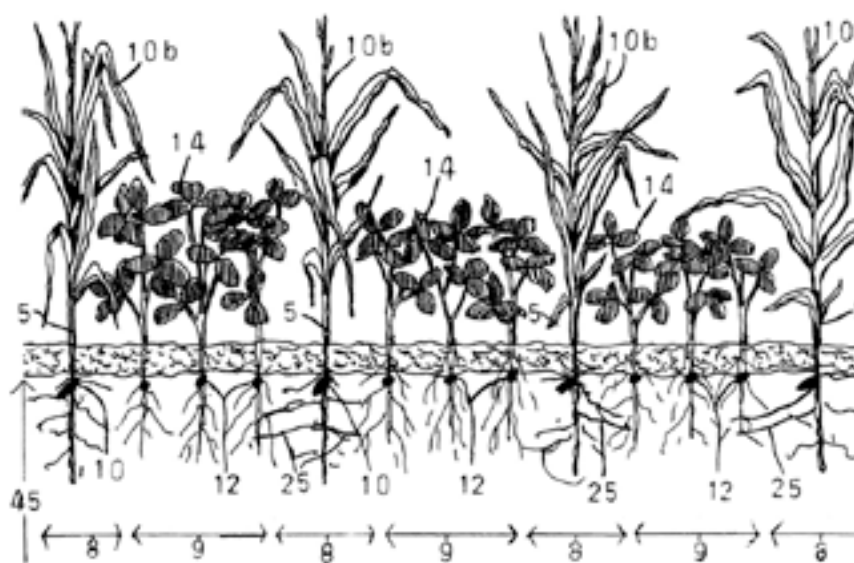
There are some who argue that carbon trading would yield useful funds for sustainable farming activities, claiming that since organic farmers sequester more carbon than others, they should be rewarded for this. However, it is more likely that the large corporations, with their influence and economies of scale, based on massive assumptions about how much carbon their industrial systems can sequester, would seize most of the benefits.

Industrial farming degrades soils and destroys ecosystems, livelihoods and biodiversity, including the huge range of crop varieties that people have developed over millennia. It is hungry and thirsty, devouring soil nutrients and accounting for some 70 percent of global water-use. It is currently compounding the impact of climate change and destroying the natural resource base aggressively. Yet, industrial farming methods could soon claim large rewards from carbon trading by being recognized as carbon sinks — unless we are vigilant.

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Intercropping soyabeans and maize has the potential to exploit different growing niches, increasing yields and undermining the need for intensive monocropping, as illustrated here in a promotional leaflet from the Jamaican Ministry of Agriculture.