By Meghan Sapp

In order to reach the world's goals of reducing greenhouse gas emissions through intensive increase in the use of biofuels, by 2100 more than half of the world's forests will be destroyed. The use of second generation cellulosic biofuels will push for high rates of land use change, but twice as much indirect land use change, so that the 'hot spots' for biofuel production in Latin America and Africa will lead to major forest destruction and loss of biodiversity.

There's even a map to prove it.

Oh but you've got to see this map. It's a real crowd pleaser. For any person or organisation who wants to ensure the end of biofuel production knowing full well that the average public would be too distracted by the pretty colours to question the science behind it, this is an early Christmas present. The 'science' behind it is almost laughable, but that doesn't matter, because the author of the study that led to the map is a well-known US researcher. He gets published in *Science* magazine and gets his travel to Europe picked up by the German Marshall Fund, so he must be legit.

At last week's joke of a seminar at the European Parliament in Brussels looking at issues related to indirect land use change, the biofuel and environment lobbies flocked to the event despite it being Armistice Day, despite it being a public holiday, all so they could hear the very famous Tim Searchinger, Father of Indirect Land Use Change.

But instead of a barrage of questions directed of Searchinger over his latest controversial article in *Science* magazine disputing the carbon calculations of global emissions trading schemes including the Kyoto Protocol— the one in which he paints a worst-case scenario that biofuel crops could replace all existing land cover on the planet without being penalised—the map stole the show. By far.

The map demonstrates what Jerry Melillo from The Ecosystems Center at the Marine Biological Laboratory in Woods Hole, Massachusetts describes as "the deforestation" scenario. Using "linked economic and terrestrial biogeochemistry models" he outlines "projected direct and indirect effects of a cellulosic biofuels program over the 21st century."

In this model, he projects that of the 41 million square kilometres of forest in 2000, by 2100 only 24.4 million square kilometres will be left due to direct and indirect land use changes resulting from increased cellulosic biofuel production. According to his figures, zero square kilometres were used for cellulosic biofuel production in 2000 but by 2100, 21.6 million square kilometres would be used for cellulosic biofuels. The big jump in production wouldn't come until between 2030 and 2050 however. Over the course of the same period, global pastureland would reduce by 3 million square kilometres and food cropland would increase by 8 million square kilometres.

So here's the rub. This map is based on cellulosic ethanol production, not on "biofuels" as the study suggests. So this is high tech, expensive technology that doesn't yet exist on a commercial scale. In the map, there's very little and almost no cellulosic production in the US. Funny, since almost all of the research is being done there with the idea that corn stover, stalks and agricultural plant waste as a whole will be used as feedstock for cellulosic ethanol. But it's Africa where there are the most "green spots," the indicators of high concentrations of cellulosic ethanol production and inevitably the most deforestation because the land has been underutilised. So looking at the map, it's obvious that countries like Ethiopia and Guinea Conakry are going to be major producers of cellulosic ethanol.

Ethiopia and Guinea Conakry? A country who controls its foreign exchange so tightly that domestic entrepreneurs can't hardly import technology even when they want to? Or a country that regularly has coups that kill or displace its head of state? Respectively speaking, of course. These are the countries where there's going to be such major investment in cellulosic ethanol that it will cover the entire country?

Well yes, of course. According to the map.

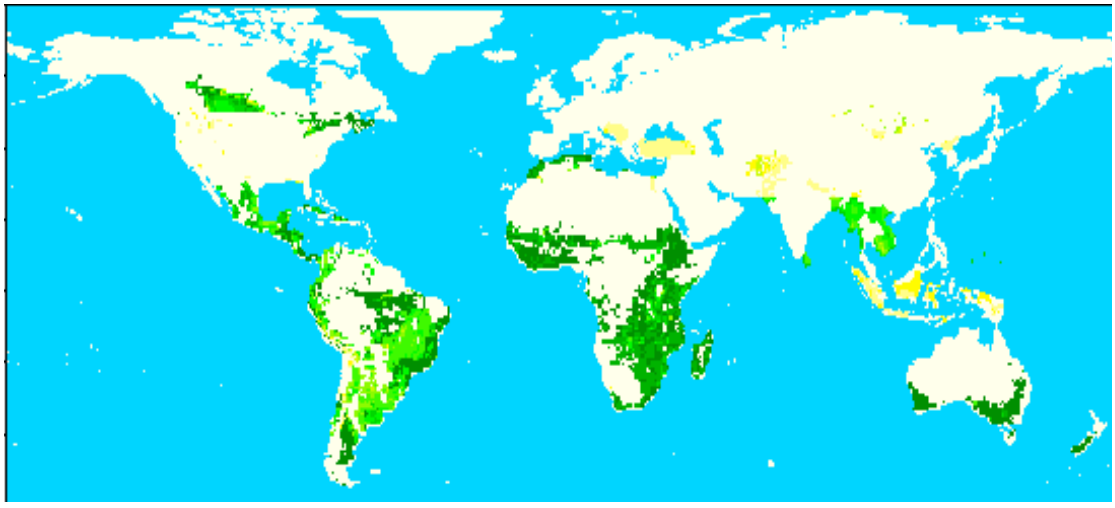
The map has a lot of cellulosic ethanol production destined for Kenya all the way south in a major swath that leads down to Durban. There will be no other economic activities in this huge area other than cellulosic ethanol production it seems. The huge remaining rainforest in Congo seems to be pretty untouched, so at least the world doesn't have to worry about that kind of deforestation. Almost all of southeastern Africa has been left untouched by the dirty hand of deforesting cellulosic ethanol too, so that's encouraging.

It's funny how countries where ethanol production is happening on a large-scale or will be within the next couple of years, like Sudan and Angola, have no indications of cellulosic ethanol production at all yet countries that most investors would think 143 times before investing huge amounts of not-even-commercial-yet technology seem to be hot spots. Did these "linked economic and terrestrial biogeochemistry models" include things such as policy, investment climate, country risk, anything that would make the map even somewhere close to reality?

No.

That was the entire answer that the study's author had when I asked him the direct question about Guinea Conakry and Ethiopia.

So. Right. *Science* has published this data and the German Marshall Fund is paying for this guy's travel to feed information to the masses that is by all estimations impossible. Oh don't even get started on the Brazilian map. According to Melillo's map, the Brazilian government's sugarcane zoning programme and other policy mechanisms to protect the Amazon etc. don't exist (see answer as to why above) so basically cellulosic ethanol is going to force the near-complete destruction of South American forests by 2100. Don't believe me? Here's the map.



The dark bits are where there will be intensive cellulosic ethanol production and the colours get lighter the less intensive the production is. But these are the kinds of tools that anti-biofuels campaigners will be using for years to come because it has been published in a globally-recognised scientific journal. Despite the fact that it's completely wrong.

How can anyone expect to ever attract investment that will lead to better and more biofuel production and trade if policymakers are presented this kind of "data" as indications of the aftermath of their pro-biofuel decisions? If the global biofuel industry, as a whole, wants to ensure its survival then it needs to find ways to counteract blatant lies that no one bothers to even pretend is plausible. It must demand real research and be proactive in its communication rather than being subjected to onslaughts by expensive, and inaccurate information that consumers and policymakers will swallow whole.