

PALM OIL & BIOFUELS SEMINAR

I'm going to talk about Biofuels from the point of view of climate change, deforestation, and food production.

I will then talk about Biofuelwatch and why we formed and what we do.

The government's chief scientific advisor, David King has said that climate change is a far greater threat to the world than international terrorism. Tony Blair still talks about climate change in terms of the biggest long-term threat and latterly David Attenborough has been talking about climate change in terms of our grandchildren.

I believe the threat is far greater and much more prescient. Climate change is the single greatest issue that has ever faced mankind.

Carbon dioxide in the atmosphere has risen by a third since the Industrial Revolution to approximately 380 ppm. Scientists predict that CO₂ levels have not been higher for 20 million years. From ice cores we can see that CO₂ is at the highest levels for 800,000 years. During that period it took 1,000 years for CO₂ to rise by 30 ppm. They have risen by 30 ppm in the last 17 years.

There is some debate as to what is a safe level of CO₂ in our atmosphere. What is agreed is that if the globe warms to 2°C above Industrial Revolution temperatures it may

reach a tipping point that triggers Runaway Global Warming. At this point there would be no going back. Positive feedbacks would add to global warming, which would cause further global warming. One example of this would be die-back of the Amazon. 2°C would lead to 3°C, which would lead to 4°C and so on.

The globe had warmed by 0.8°C by 2000. We are already committed to a further 0.6°C of warming due to the lag effect of CO₂ in the atmosphere.

CO₂ is rising at 2 ppm per year. The Climate Change campaigning journalist Mark Lynas argues that if we are to have a 75% chance of preventing a 2°C rise we must limit CO₂ to 400 ppm.

This gives the world until 2015 to stabilise greenhouse gases at this level.

Where do biofuels fit into combating global warming?

Well biofuels are often referred to as being carbon neutral as burning them simply releases the CO₂ that the plant has already absorbed during its growth. And they are seen as a renewable fuel source because you can re-plant after harvesting.

On this basis the EU has introduced the EU Biofuels Directive and the European Biomass Action Plan and the UK as part of this will initiate the Renewable Fuel Transport

Obligation. This will be implemented by 2008 whereby 5.75% of fuel will include biofuel by 2010. Farmers are given EU subsidies to grow biofuel crops. Similarly power stations can use biomass under the Renewable Fuels Obligation.

Is it reasonable to state that biofuels are carbon neutral? If we look at how they are grown and manufactured we can see that this is in fact not the case.

1. CO₂ is released from the soil as it is tilled;
2. CO₂ is released if an ecosystem is converted to agriculture.
3. Nitrous oxide a greenhouse gas 200 times more powerful than CO₂ is released if nitrogen fertiliser is used. This process is magnified in the tropics.
4. N₂O is released during fertiliser production.
5. CO₂ is emitted from farm machinery and transport vehicles.
6. CO₂ is emitted from energy used in distilleries and refineries.
7. Nitrous oxide is still emitted from exhaust pipes as with petrol or diesel.

Farming less intensively and using renewable energy during manufacture would reduce most of these.

What does all this mean?

Well we have to look at the carbon lifecycle to see how green biofuels really are – the most efficient crop growth in Europe is oil seed rape and this has an efficiency of 53%.

In the USA, corn which is grown for bioethanol, according to one study only has an efficiency of 13% if the by-product is used as animal feed. If it is not, which is often the case; there is no greenhouse gas emission savings at all.

Deforestation

Deforestation accounts for as much as 25% of global greenhouse gas emissions. This figure is largely ignored as we normally discuss fossil fuel emissions. Does anyone recognize when this percentage is more usually used regarding greenhouse gas emissions?

There is another source of global warming which is even less well known. It was not even considered in the IPCC 2001 TAR. It is peat destruction which is currently greatest in Indonesia, which holds 60% of all tropical peat.

In the 1990s, drainage of peat for rice expansion was a major reason for peat destruction, particularly through the Mega Rice Project in Kalimantan. Suhartos plan was an unmitigated disaster as the soil was unsuitable for growing rice. In recent years, the expansion of oil palm and timber

plantations, together with illegal logging have been identified as the driving forces of the destruction.

Between 1987 and 2000, almost 18% of Indonesia's peat was destroyed by drainage and fires. In an average year peat fires release on average the equivalent of 15% of total human greenhouse gas emissions. In 1997, this figure was 40%, when peat fires released up to 2.57 billion tonnes of carbon. By comparison, the Kyoto protocol aims to reduce global emissions by 188 million tonnes. If my maths is correct these peat fires are responsible for 14 times as much emissions as Kyoto reductions.

When the delegates met in Nairobi this year to try and agree what will follow Kyoto, the Peat fires were raging in Kalimantan and Sarawak giving rise to the choking brown haze which afflicts South East Asia from Malaysia to the Philippines reducing the harvest, altering the monsoon season and killing up to a million people each year from respiratory disease. The fires were not even on the agenda.

75% of fire hotspots were on oil palm plantation land as fire is routinely used by oil palm plantation owners to clear land. The laws which prohibit fire-raising are not enforced.

We are all aware that the US is the biggest emitter of CO₂. Climate change is often referred to as the elephant in the room. It would appear that the S.E Asia's peat fires are another elephant, which like the rest of the huge

biodiversity in the rainforest are threatened with extinction before our leaders open their eyes.

Not only does peat and forest destruction release massive quantities of carbon, it also destroys one of the planet's most important carbon sinks, meaning that less of our other CO₂ emissions can be absorbed by the biosphere.

Indonesia's peat holds an estimated 50 billion tonnes of carbon. An additional 50 billion tonnes raise a significant risk of global temperatures of more than 2°C above pre-industrial levels. This is the dangerous level I talked about at the beginning. Avoiding dangerous climate change is the purpose of the Kyoto Protocol and is a stated commitment of the EU.

Where do biofuels fit into all this?

As soon as the European Biofuel Directive was passed, both Malaysia and Indonesia declared their intention to become major providers of biodiesel made from palm oil. This will require funding for 11 refineries by 2010 and the conversion of another 6.5 million hectares of rainforest to oil palm plantations. The funding could well come from the Clean Development Mechanism of the Kyoto Protocol. Biomass projects already account for 63% of all CDM funding in Indonesia.

In Malaysia 87% of deforestation from 1985-2000 can be attributed to oil palm expansion. In Sumatra and Borneo up

to 10 million hectares of rainforest have been destroyed by plantation owners. At current trends oil palm plantations will triple in size by 2020.

Food Production

After Brazil, America is the biggest manufacturer of bioethanol, for which it uses nearly one sixth of its corn harvest but this will supply only 3 percent of its automotive fuel. These figures exceed Canada's entire annual grain production.

The amount of corn used in U.S. ethanol distilleries has tripled in five years

In Iowa if all the planned ethanol plants are built, they would use virtually all the corn grown in Iowa. In South Dakota ethanol distilleries are already using over half of the corn harvest.

The US supplies 70 percent of world corn exports. You can see why these countries might be worried about corn ethanol.

Biofuel crops read like a supermarket shopping list: Rice, corn, wheat, sugar beat, sugar cane, soy, palm oil. Our food which is traded around the world as commodities now has another group bidding for it - suppliers of distilleries and refineries where the end product goes to petrol stations.

The grain required to fill an SUV petrol tank with ethanol will feed one person for a year. The grain it takes to fill the tank every two weeks over a year will feed 26 people.

Brazil, the world's largest sugar producer and exporter, is now converting half of its sugar harvest into bioethanol. With just 10 percent of the world's sugar harvest going into ethanol, the price of sugar has doubled.

Rising grain consumption is expected to outstrip production for the second straight year. World grain reserves are at their lowest since 1972.

For the 2 billion poorest people in the world, many of whom spend half or more of their income on food, rising grain prices can quickly become life threatening. This year, wheat prices will have increased by 14 percent and corn prices, by 22 percent from last year's.

There are currently 800,000 people in our world who are permanently malnourished. There are currently, 800 million car owners. (Most of this information on food production comes from the Worldwatch Institute and can be found on the Biofuelwatch website)

So how much land would we need for biofuels?

To achieve the EU directive we would need about a quarter of Europe's agricultural land. To keep the UK's transport on the roads, we would need to use 4.5 times our arable land.

The UN Millennium Assessment Report warns of the catastrophic impact on all ecosystems of increasing agriculture. Expansion of the biofuel market, will compete with agricultural land, or intensify land use or expand the area of land used for agriculture.

Global warming will reduce agricultural output. The UN has predicted, in a globally warmed world, by 2050, 7 billion people could face water scarcity. The population of the world is predicted to rise from 6.3 billion to 9.3 billion by 2050.

According to a UN Environment Programme Press Release 'Climate Change: Billions Across the Tropics Face Hunger and Starvation as Big Drop in Crop Yields Forecast', global warming may reduce tropical grain yields by 30% over the next 50 years. According to another report, rising temperatures could reduce the yields of rice, wheat, corn, beans and potatoes and increase dependency on food aid. A temperature rise of 1 degree Celsius above the historical average during the growing season, could lead to a 10 percent decline in grain yields.

James Lovelock has said: "if we burn crops grown for fuel this could hasten our decline. Agriculture already uses too much of the land needed by the Earth to regulate its climate and chemistry."

I would suggest that the current biofuels market presents us with a moral dilemma...