Response to DBERR Renewable Energy consultation

biofuelwatch

This is the response to the Government's Renewable Energy Strategy Consultation from biofuelwatch. Biofuelwatch is a volunteer-led campaign group which receives no commercial or government funding. The aims of biofuelwatch are set out in the Biofuelwatch policy at http://www.biofuelwatch.org.uk/aboutus.php (adopted on 8th June 2007).

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Our response relates mainly to Chapter 6 (Transport) and Chapter 7 (Bioenergy)

Transport

A Introduction

1. The Transport sector is one of the hardest sectors to reduce Greenhouse Gas (GHG) emissions. The reason for this is that there is an existing infrastructure based on fossil fuel technology from which it is very difficult to migrate away from. The Governments policy to date has been almost exclusively to promote the development of additives to this existing infrastructure in terms of plant based biofuels. These can only comprise a small fraction of total fuel and literally are 'additives' as the underlying increases in fossil fuels have continued to rise until the credit crunch this year.

   It has now emerged that this policy has been very mistaken and destructive on several counts. For it has not made any real impact on emissions, in fact the recent science shows it is making them worse. It has had a major negative impact on food security – worldwide, the rush to biofuels have has forced up to 30 and 75million people deeper into poverty this year alone. It is causing major ecological and biodiversity destruction to crucial rainforest and peatlands that are essential for balancing the climate – if this continues, there will be no hope of stabilising the climate and precious carbon sinks will be lost for ever.

   Whilst non-liquid fuel technologies such a hydrogen or electric vehicles from truly renewable energy may have some benefits, it is extremely unlikely that they can be rolled-out in the timeframes necessary to prevent catastrophic climate change. There are huge barriers in terms of providing the necessary infrastructure for such vehicles.

   We, therefore, urge the Government in the strongest possible terms that there must be a massive reduction of use of all liquid fuels within the next decade. This is the only way to make significant emission reductions in the transport sector. The lack of any other viable technological solutions means

that this has to be based around a massive demand reduction for transport itself. For this reason, we include first a section (C) of proposals for demand reduction strategies. This is presented first because this is where the Government should be directing its policy focus first.

Whilst it is beyond our remit to develop these proposals into detailed policy plans, each of these is feasible, and with courage and political will could be initiated very rapidly. Such a set of initiatives is the only 'low hanging fruit' for reducing transport emissions within a decadal timescale.

We are approaching a time, not just of climate crisis, but also of resource crisis – both in the availability and costs of resources. This is already seen with the high price of Oil. This means that, alongside demand reduction, there will need to a major shift in social and economic structures. A key part of this will be building communities that are more localised for their essential material needs, and are resilient to rising costs for food, heat and other essentials, and also resilient to the increasing impacts of climate change. Local food and energy production will be essential. By taking the courageous step to start true demand reduction policies in transport, the Government will also be developing policy that will fit in the wider policies that will be needed to create stronger, resilient and more localised communities for the future.

Recommendation 1: The Government should focus its policy for transport sector GHG emission reductions on demand reduction strategies, first and foremost. Policy and resources should be directed to this before technological solutions.

B The ecological, biodiversity and climate and imperative for demand reduction

2. Catastrophic climate change is potentially imminent: atmospheric greenhouse gases are now at the level that could within a decade cause major social, economic and humanitarian disaster. This is not conjecture, but the emerging scientific consensus. For example, one of the UK Government's chief scientific advisers, Professor Bob Watson, said in August 2008 that active steps should be taken to prepare for and adapt to dangerous climate change given a potential $4^{o}C$[1] planetary heating. Or take the introduction to the September 2008 issue of Philosophical Transactions A of the Royal Society:

> *Today, the individually neutral words 'global' and 'warming' combine to provide an epithet whose consequences, already causing misery and premature death for millions, hold the prospect of unquantifiable change and potential disaster on a global scale for the decades to come. While the link between rising global temperatures and increasing atmospheric concentrations of CO2 has been known for more than a century, there is increasingly the sense that governments are failing to come to grips with the urgency of setting in place measures that will assuredly lead to our planet reaching a safe equilibrium. Today, the developed world is struggling to meet its (arguably inadequate) carbon-reduction targets while emissions by China*

[1] Climate change: Prepare for global temperature rise of 4C, warns top scientist, Guardian, 7th August 2008, **http://tinyurl.com/6g26mz**

> *and India have soared. Meanwhile, signs suggest that the climate is even more sensitive to atmospheric CO2 levels than had hitherto been thought.*

In this issue of Philosophical Transactions, the UK's leading scientific institution devotes an entire issue to considering 'Geoengineering' as a possible last resort to prevent climate chaos. Whilst, we are not supporting, or otherwise, either adaption policies being pursued as an alternative to mitigation or Geoengineering technologies here[2], the urgency of these words indicates a growing scientific and public consensus that preventing catastrophic climate change is the most pressing issue facing government at local, national and international levels.

3. Much of the focus of the climate change debate is in terms of reducing Greenhouse Gas emissions themselves. This is crucial. However, the question 'How do we reduce emissions?' is even more important 'By how much do we reduce emissions?'. Particularly, biodiversity and ecological integrity must be protected as emissions reduce because biodiverse ecosystems are essential for regulating the climate. We, therefore, oppose any solution that sacrifices biodiversity for short term carbon reductions. We, therefore, oppose large scale agriculture based on monocultures that has a drastic effect on biodiversity and therefore on the planet's ability to regulate and stabilise the climate. Large scale biofuels, biomass or biochar schemes all fit into this category of being ecologically and biodiversity destructive.

C Starting places – the low hanging fruit of demand reduction policies

4. Policies for reducing carbon emissions and protecting ecosystems must start with demand reduction. The consultation seems to agree in stating this '*The starting point for our energy policy is to save energy.*' (Executive Summary, bullet 25). Yet, having paid lip service here to demand reduction, the strategy only has policies for minimal and ineffective use of demand reduction, particularly in the Transport sector (section 2.2.11). Communication campaigns and the like, whilst worthy, are just scratching at the surface of the issue – what is needed to reduce demand for transport energy is a complete rethink of policy that will provide the structural and policy support for decarbonising transport.

This may only be achieved by a complete re-direction of funding from policies that generate transport sector emissions, for example road building and agro-biofuels, to policies that radically reduce emissions and build resilient, localised communities. The government's road building and expansion programme must be abandoned and there must be policies to drastically reduce air travel and shipping[3].

[2] Neither adaptation at 4°C or geoengineering are viable policy responses to the climate crisis. We have raised concerns to emerging biomass based geoengineering technologies, like biochar, that like agro-biofuels themselves are false solutions to climate change. For example, 'Press release: Biochar Conf. Promotes False Climate Change Solutions', September 8 2008, http://tech.groups.yahoo.com/group/biofuelwatch/message/2589

[3] A more detailed expansion of strategies to achieve this are submitted in a separate personal response from Dr Andrew Boswell

5. Further, with rising oil prices[4] and potential shortages of fertilizers[5],[6] and other agro-chemicals, settlements are going to require more locally grown, low chemical input (preferably organic) food. The Government should undertake a review of food security with an emphasis on supporting organic farming and localised markets that are going to be required in a low carbon economy. Reducing transport sector emissions related to food should be one of the key criteria.

6. The above recommendations and others would act to start the urgent demand reduction for transport energy that it needed and **must be prioritised over any technological or other solutions for reducing transport sector emissions.**

D Agro-biofuel targets[7] must be scrapped

7. We note that the consultation document predates the Gallagher report, the vote in the EU Environment Committee and the subsequent vote in the EU Industry (ITRE) committee.

8. Following the ITRE vote, biofuelwatch has issued the following statement on our website[8]: 'Biofuelwatch continues to support the campaign for an immediate EU moratorium on agrofuels from large-scale monocultures, including a moratorium on all targets and incentives, a call supported by over 200 groups from North and South.' The reasons for this are as follows:

D.1 The calls of many in the global South against agro-biofuels have been ignored by EU/UK politicians

9. There have been many calls from the global South for the EU (and UK) to cease its biofuels policy. Yet, these people, representing the people most affected by the agro-biofuels – those going hungry, and those communities losing their land and livelihoods – have not been stakeholders at either the deliberations of the EU commission or UK governments on this matter. This is immoral governance and biofuel and biomass policies are increasingly considered by many as new form of energy colonialism. Some statements from the South are summarised in the footnotes[9].

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[4] Peak Oil – see http://www.theoildrum.com/

[5] Peak Phosphorous - http://www.theoildrum.com/node/4275

[6] Essential nitrogen fertiliser is made from natural gas, which is approaching peak production in near decades. The issue is already a problem for ethanolproduction in Canada, see: 'Fertilizers, Ethanol and the Peaking of Natural Gas Production in Alberta', http://www.parl.gc.ca/information/library/PRBpubs/prb0749-e.htm

[7] With this we also include all incentives, research funding, direct subsidies and tax rebates that currently support the industry.

[8] http://www.biofuelwatch.org.uk/eupolicy.php

[9] As at http://www.biofuelwatch.org.uk/declarations.php

- Food is for People not Machines: Communique of the International Conference on Agrofuels supported by 16 African NGOs, Abuja, 13th August 2008
- Statement by Friends of the Earth Africa: Members of FoE Africa from Ghana, Togo, Sierra Leone, South Africa, Nigeria, Mauritius, Tunisia and Swaziland met for five days in Accra, Ghana reviewing issues that confront the African environment. A particular focus was placed on the current food crisis and agrofuels on the continent, 11th July 2008.
- Small farmers feed the world. Industrial agrofuels fuel hunger and poverty. Via Campesina Position Paper, 24th June 2008
- Civil Society statement on the World Food Emergency, 22nd May 2008 //Continued

D.2 Agro-biofuels accelerate climate change

10. *Land Use Change Emissions:* Section 6.2.3 of the consultation is a complete understatement in saying that

> 'The latest evidence on indirect effects suggests that these can be more significant than had generally been assumed (see below), and although they cannot always be quantified it is clear that they can make the difference between whether a biofuel is better or worse, in terms of its greenhouse gas emissions, than the fossil fuel it replaces.'

The climate science of emissions released from land use change is new – it is the emerging climate science that precipitated the UK Government to call the

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- Social movements and organisations do not accept the export of ethanol and other agrofuels (from Brazil) and say that the production of ethanol in Brazil is not sustainable: Signed by 28 organisations and networks in Brazil, 6th May 2008.
- Declaration Against RTRS Soya Greenwash: Social justice, indigenous and rural organisations and urban movements of Argentina, Latin America and other continents reject the "third roundtable on responsible soy" to be held on April 23 and 24 at the Hilton Hotel, Buenos Aires, Argentina. (March 2008)
- People's Statement on Climate Change: Jointly issued by Tamil Nadu Environment Council (TNEC) and EQUATIONS, India, it includes a demand to ban agrofuel monocultures and plantations, December 2007.
- Gender and Climate Change Caucus / MADRE statement on Agrofuels: December 2007
- 'Fuelling Concerns' - Statement on Agrofuels: Indian farmers, people's movements and NGOs, 4th December 2007.
- Declaration on Agrofuels: Issued by Friends of the Earth International, 28th November 2007.
- An African Call for a Moratorium on Agrofuel Developments: With over 38 signatories, November 2007.
- Madre Call for a Moratorium on Agrofuels:1st November 2007
- Declaration for Food and Energy Sovereignty: By 500 participants of the 1st National and Popular Conference on Agroenergy in Brazil, representing the movements of Via Campesina, environmentalists, worker's unions and pastorals, 31st October 2007.
- Report of the verification field trip on the expansion of African palm monoculture in northern Esmeraldas, Ecuador: Signed by members of 29 organisations, 2nd July 2007.
- Quito Declaration from the Communities Potentially Affected by Agrofuels: This declaration was read to the Minister of Energy of Ecuador, Quito, 29th June 2007
- Open Letter against GM trees for biofuels: Signed by 55 organisations from North to South, June 2007.
- Response by five African NGOs to UK biofuel targets : Africa Biodiversity Network, Kenya; Melca Mahiber, Ethiopia; Envirocare, Tanzania; Climate and Development Initiatives, Uganda; Nature Tropicale, Benin, June 2007
- "In defence of food sovereignty and biodiversity": Argentina, signed by Coalition of Popular Assemblies of the provinces of Chubut, Rio Negro and Neuquen, Patagonia, Public Workers Union (ATE), Argentine Central Workers Association (CTA), Provincial Teachers Federation (UNTER), University Teachers Union (ADUNC), Andean Regional Neighbour's Assembly Against Plunder, Pastoral Social Alto Valle (Catholic Church), Fvske Menuco Association (indigenous communities), Rural Women's Movement (Mujeres en Lucha), Theomai Network (academic), Grupo de Reflexion Rural Argentina, Citizen's Assembly against Plunder and Contamination, National Network of Ecologist Action (RENACE, over 70 environmental organizations of Argentina), Regional Human Rights' Observatory, May 2007
- "Official Declaration of Chake Ñuhá on the Agro-fuels and Environmental Services Traps" : Paraguay, signed by ALTER VIDA, ASAGRAPA, BASE IS, CCDA, CEIDRA, CMB, CNOCIP, CONAMURI, Federacion de Pueblos Guaranies, GRR (Arg), IDECO, Iniciativa Paraguaya de Integracion de los Pueblos, MAP, MCNOC, ONAC, SEPA, SERPAJ, PY, SOBREVIVENCIA/Friends of the Earth-Paraguay, Universidad Nacional de Pilar and others, April 2007
- Declaration of Nyeleni: Declaration signed by over 500 representatives of 80 countries in support of the right to food sovereignty. It includes a statement against "the 'Green Deserts' of industrial bio-fuel monocultures and other plantations". February 2007.
- "Full tanks at the cost of empty stomachs": Declaration on the Lula-Bush biofuels agreement, signed by Comissio Pastoral da Terra (CPT), Grito dos Excluidos, Movimento Sem Terra (MST), Servico Pastoral dos Migrantes (SPM), Rede Social de Justica e Direitos Humanos, Via Campesina, February 2007.
- "We Want Food Sovereignty, Not Biofuels"
- Open Letter to the European Union by Alert Against the Green Desert Network, Latin American Network against Monoculture Tree Plantations, Network for a GM free Latin America, Oilwatch South America, World Rainforest Movement, January 2007
- "Palm oil for biofuels increases social conflicts and undermines land reform in Indonesia": Open Letter to the European Union by Sawit Watch, Indonesia, January 2007
- "Biofuels: A Disaster in the Making": November 2006, signed by 98 organisations from North and South

Gallagher review. **When forests and grasslands are cleared to create agrofuel plantations (direct effect) or when agriculture is displaced by agrofuels (indirect effect – driving displaced agriculture deeper into carbon rich eco-systems), vast amounts of carbon are released.** This is most pronounced in tropical ecosystems such as rainforests and peatlands that store a massive 6200 billion tonnes ($GtCO_2$) of carbon dioxide[10]. Papers by Searchinger[11] and Fargione[12] in February 2008 highlighted the problem and defined the metric of ecosystem 'carbon payback time' (ECPT) – the number of years it takes to offset the emission created by clearing a biofuel plantation and by using the biofuel. They found that palm oil plantations could have an ECPT of up to 840 years. More comprehensive analysis by Gibbs[13] that accounts for some of the initial criticisms of the Searchinger/Fargione work – the potential effects of future yields and technology - finds still finds that converting tropical rainforests requires 30–300 years for carbon payback for all feedstock crops, and concludes that:

> *"rising biofuel demand may unintentionally increase greenhouse gas emissions to the atmosphere through increased pressure on carbon-rich tropical ecosystems, particularly over the next decade while we rely on current-generation technology. These increased emissions could be particularly problematic if they push our changing climate system closer to dangerous tipping points."*

The key point is that with land use change (LUC) emissions, the science is not showing impacts of just a few tens of percentage point's change for biofuel carbon cycles. Rather it is showing negative impacts that are orders of magnitude (ie 100 of times which equates to ten of thousands of percentage points) worse than any potential benefits.

These effects are most notoriously related to biodiesel from Palm Oil. We note that the Renewable Fuel Agency reporting figures, published to date, show in the two months since the Renewable Transport Fuel Obligation (RTFO) was introduced that up to 6.4% of biofuel came from Palm Oil from 'unknown' sources[14]. Such unknown sources are most likely to be those where deforestation and eco-system destruction has taken place to make plantations. *The huge greenhouse gas (GHG) emissions of this biofuel alone is more than sufficient to make the whole UK biofuel programme an agent in adding substantially more GHGs to the UK carbon inventory.*

11. *Nitrous Oxide emissions:* The science of nitrous oxide (N2O) emissions from fertilizers used in intensive agriculture is poorly understood. The best attempt to unravel this has been from Nobel Laureate Paul Crutzen who found that nitrous oxide emissions were sufficient to make any GHG balances negative for two

[10] Varying figures exist for this. We use some recent figure from Policy Exchange, The Root of the Matter, http://www.policyexchange.org.uk/images/libimages/419.pdf

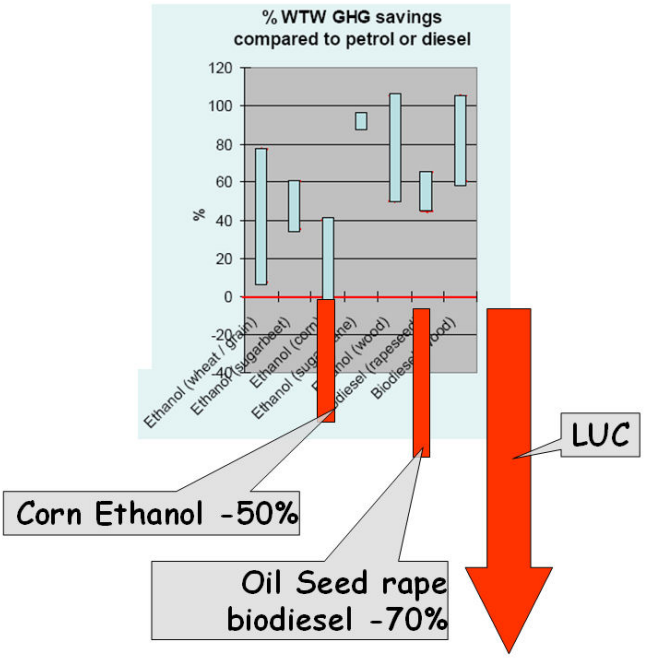
[11] Searchinger et al, 2008, "Use of US croplands for biofuels increases greenhouse gases through emissions from land-use change" *Science* 319 1238-40, http://tinyurl.com/247buh

[12] Fargione et al, 2008, "Land clearing and the biofuel carbon debt" *Science* 319 1235-8, http://tinyurl.com/5mrk3t

[13] Gibbs et al, "Carbon payback times for crop-based biofuel expansion in the tropics: the effects of changing yield and technology", 2008 *Environ. Res. Lett.* 3, http://tinyurl.com/6l4n2z

[14] http://www.renewablefuelsagency.org/reportsandpublications/RTFOreports.cfm

main biofuel feedstocks, corn and oilseed rape. As a result oilseed rape biodiesel can produce up to 70% more greenhouse gas (GHG) emissions than the equivalent fossil fuel diesel. These results contrast drastically with the data being presented by the DfT and the Low Carbon Vehicle Partnership, as shown below. The effects of Nitrous Oxide and LUC emissions are superimposed in red on the LowCVP diagram used at the September 2007 Bioenergy conference.

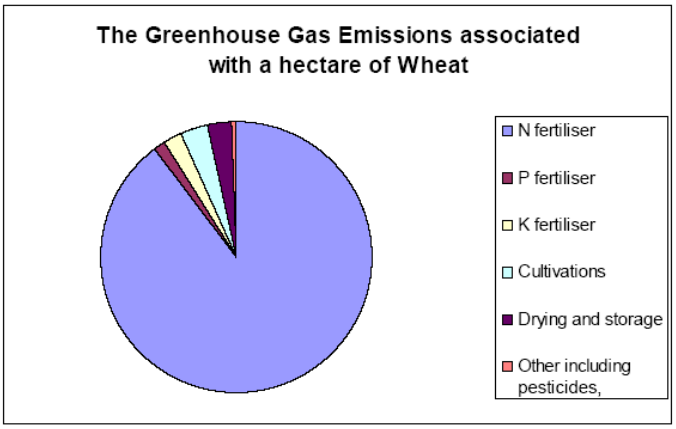


12. Oil seed rape is between 21% and 28% (as there is 7% unknown biofuel) in the UK mix in May/June 2008[15]. This indicates another significant part of UK biofuels that are almost certainly contributing to more greenhouse gases rather than saving them.

13. The UK is planning significant wheat to ethanol infrastructure (see below under food security). **There is an urgent need to quantify the nitrous oxide generated from such production.** It is reasonable to expect it to be significant and similarly negative to that for Corn Ethanol as Mortimer et al[16] report that emissions from nitrogen fertilizer use both from the carbon emissions in production and the nitrous oxide emissions in use form the majority of emissions in wheat production:

[15] http://www.dft.gov.uk/rfa/_db/_downloads/RFA_monthly_report_May_Jun_2008.xls

[16] Mortimer, N. D. Cormack, M. Elsayed, M. & Horne, R. (2003). Evaluation of the comparative energy, global warming and socio-economic costs and benefits of biodiesel. Resources Research Unit, Sheffield Hallam University.



An HGCA conference in January 2008 reported that only 20% reduction of nitrous oxide emissions was the maximum possible in industrial agriculture production[17]of wheat. Further, manufacturing nitrogen fertilisers cost about 45% of the total CO2 emissions.

Further the HGCA Greenhouse Gas Calculator[18] shows 'Ethanol Percent Reduction In Greenhouse Gas Emissions Relative to Petrol' as 14.2%. However, 21% of this made from 'co-product credits', so that the biofuel production itself is creates more GHG emissions that the equivalent fossil fuel. (Such co-products such as dried distillers grains with solubles (DDGS) are harmful to cattle's health and the environment in any case, see[19]).

Paul Crutzen's work extends the modelling of nitrous oxides and showed that the effects are worse than hitherto thought. **This and the large percent emissions from nitrous oxide in the wheat production call into complete doubt the GHGs balances for wheat ethanol – we recommend later that the plans for large scale wheat ethanol production in the UK is immediately banned.**

This probably explains why the industry is going to extreme lengths to try and create a 'positive' GHG balance for wheat ethanol. One company has announced that it will capture CO_2 and sell it to the food and beverage industry[20]. However, this does not sequester the CO2 – once, it has passed through an unnecessary soft-drink, it will be in the atmosphere. This dubious emission offset should not be allowable.

14. In general, current life cycle assessments (LCAs) for biofuels are usually limited to the carbon cycle involved in growing, harvesting and processing biofuels. The above research shows that this is just one small part of the agrofuel production life cycle. As a methodology, it is irrelevant and entirely misleading. This micro-lifecycle is the one most often quoted by industry analysts who measure the fossil fuel investments but ignore the wider effects

[17] http://www.fwi.co.uk/Articles/2008/01/30/109235/hgca-rd-conference-reducing-your-farms-greenhouse-gas.html
[18] http://www.hgca.com/content.output/2135/2135/Resources/Tools/Bioethanol%20Greenhouse%20Gas%20Calculator.mspx
[19] The discussion here for US Corn ethanol applies to the proposed UK wheat ethanol, http://tech.groups.yahoo.com/group/biofuelwatch/message/2182
[20] http://www.iht.com/articles/reuters/2008/06/23/business/OUKBS-UK-YARA-ENSUS.php

from agriculture and land use change, described above, and also the macro-impacts of increased greenhouse gas (GHG) emissions, accelerating deforestation, the loss of ecosystem functions and ultimately the triggering of irreversible climate feedbacks. These macro-impacts are so expansive and impossible to assess that there can be no accurate figure for agrofuel LCAs making agrofuel standards and certification impossible and irrelevant. We describe these below further.

15. We note that the figures given in table 6.1 of the consultation are an example of such micro-lifecycle analysis ie: they are irrelevant and entirely misleading.

D.3 Agro-biofuels are rapidly taking us to climate change tipping points

16. A corollary of the above is that the rapid roll out of agro-biofuels is accelerating the planet and humanity towards climate tipping points after which runaway climate change would occurs with climate chaos – mass human and ecological devastation. This is at several levels.

17. *The impact of rising GHG levels :* The increase in GHG emissions occurring with current agro-biofuel policies of UK and EU governments is contributing to rising GHG concentrations. Just in August 2008, one of the UK Government's chief scientific advisers, Professor Bob Watson, said that active steps should be taken to prepare for dangerous climate change of perhaps a 4˚C[21] heating. However, a 4˚C would unleash unprecedented dangerous climate feedbacks and it is insane to even consider preparing for adaptation whilst not taking every preventative action to avoid such catastrophe.

Climate feedbacks are already being seen in the Arctic with average global heating at around 0.8˚C. In September 2008, a 19-square-mile (size of Manhatten) and 4,500-year-old Markham ice shelf attached to an island in Canada's northern arctic for thousands of years broke away from land[22],[23].[24] - it will now melt into the Arctic Sea. Across a wider scale, a June 2008 study shows that this sea-ice contraction is most likely accelerating land mass warming and permafrost thawing the Arctic. This is concerning many scientists as Arctic soils are estimated hold at least 30 percent of all the carbon stored in soils worldwide and that this heating could lead to mass release of more CO2 and methane, a greenhouse gas with 25 times the heating potential of carbon dioxide. **This year's UN Environment Programme Yearbook identified Arctic heating and its associated climate feedbacks as a potentially devastating 'wildcard' and 'emerging challenge', particularly the release of methane emissions from thawing permafrost and marine deposits[25].** As less heat is reflected from loss of snow cover and advancing shrub and tree lines, there is

[21] Climate change: Prepare for global temperature rise of 4C, warns top scientist, Guardian, 7th August 2008, **http://tinyurl.com/6g26mz**

[22] 'Canadian Arctic Ice Sheet Nearly Size of Manhattan Breaks Off', Bloomberg News, http://www.bloomberg.com/apps/news?pid=20601082&sid=aAouw4NZSHH4&refer=canada

[23] Ice Shelf Loss along Canada's Ellesmere Coast, http://earthobservatory.nasa.gov/Study/Ellesmere/

[24] Photo 8 in http://www.guardian.co.uk/environment/gallery/2008/sep/23/climatechange.desertification?picture=337860271

[25] UNEP Yearbook 2008, UN Environment Programme, http://www.unep.org/geo/yearbook/yb2008/report/UNEP_YearBook2008_Full_EN.pdf

more regional heating leading to permafrost thawing and release of methane, Although methane has a shorter lifespan in the atmosphere of around 10 years, significant increases in its emissions now would accelerate dangerous climate change. In the Arctic and Siberia, there are at least 3 different mechanisms increasing methane emissions already including 'methane bubbling' from thawing lakes.[26]

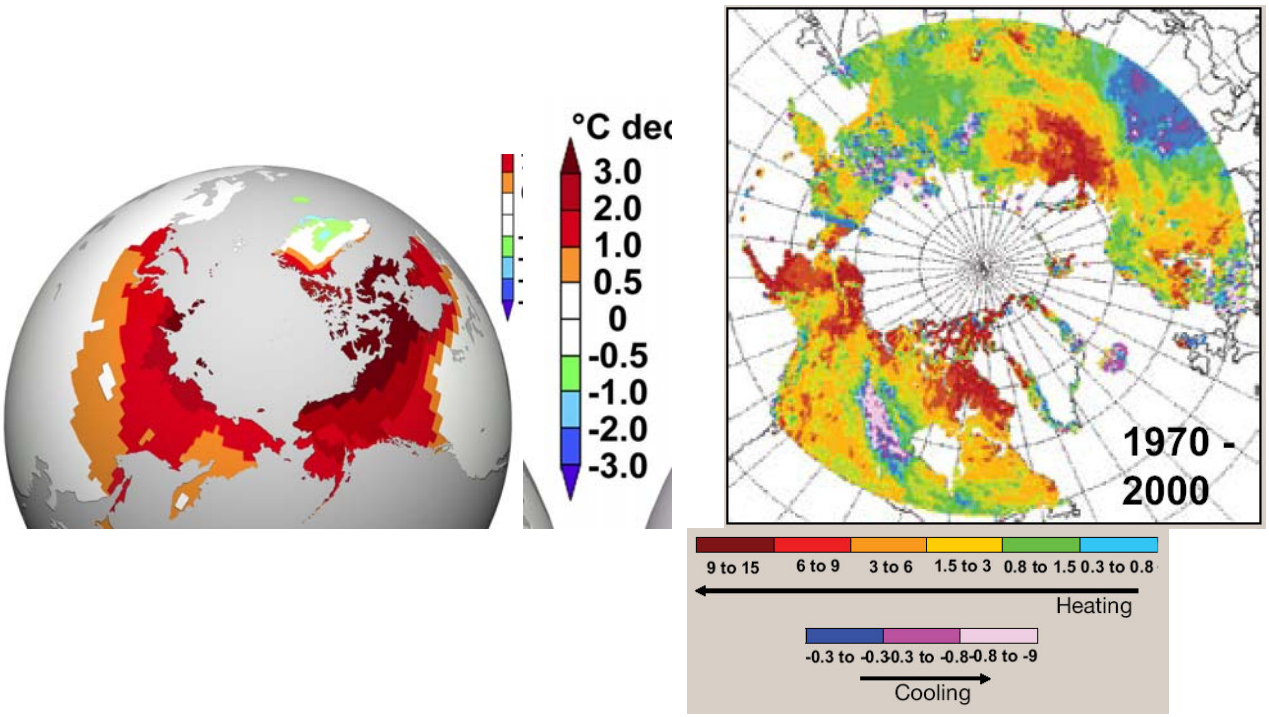


Figure: Changes in Arctic region heating. Left image shows predicted tripling of land mass temperature increases with Arctic Ice Melt[27]. Right image shows heating already occurred in 1970-2000[28]period from snow cover records.

Enormous amounts of methane is frozen into an icy material known as methane clathrates – storing more carbon than all the proven reserves of coal, oil, and gas – and found in the sediments of the world's oceans, including those of the Arctic Ocean. Vast releases of methane are thought to have been involved in previous dramatic climate changes such as in the Eocene, 55 million years ago, when the Earth experienced a sudden and rapid global heating[29]. Some reserves of methane hydrates are in the ocean depths and less likely to be affected by surface heating, but the Arctic is shallow and already heating rapidly.

The Independent on 23 September 2008 reported that Arctic scientists had evidence of massive deposits of methane melting in subsea permafrost by detecting bubbling to the surface[30].

[26] Walter, K.M., Smith, L.C. and Chapin, F.S., III (2007a). Methane bubbling from northern lakes: Present and future contributions to the global methane budget. Philosophical Transactions of the Royal Society A, 365, 1657-1676
[27] 'Permafrost Threatened by Rapid Retreat of Arctic Sea Ice', David Lawrence, National Center for Atmospheric Research, http://www.ucar.edu/news/releases/2008/permafrost.jsp
[28] Figure 5 from UNEP 2008 Yearbook, ibid …
[29] "Six steps to hell", Mark Lynas, http://www.guardian.co.uk/books/2007/apr/23/scienceandnature.climatechange
[30] The methane time bomb, http://www.independent.co.uk/environment/climate-change/exclusive-the-methane-time-bomb-938932.html

18. *Risk of forest die-back in Amazon :* Ecosystems being destroyed by direct and indirect displacement of land for Agrofuel production is at risk of their own climate-ecological tipping points. The Amazon is at particular risk that above a certain level of forest loss, reduced rainfall cycles will cause the remaining forest to dry out and catch fire leading to it becoming scrub and grassland. This die-back mechanism could destroy the entire Amazon ecosystem[31]. Such a feedback would happen rapidly with a devastating spiral of deforestation reducing rainfall, causing forest dieback, with massive carbon emissions from fires. This would further accelerate climate change, and further forest dieback. Such eco-system collapse emphasise the importance of maintaining large areas of intact tropical rainforest in the Amazon.

    Yet, the evidence of the ground is that Amazon deforestation is worsening - at the end of August 2008, it was reported that Amazon deforestation jumped 69 percent in the past 12 months with Brazil losing 2.7 percent of its Amazon rain forest in 2007[32] and 20% of the Amazon now cleared.

    In Brazil, the expansion of agrofuels production is causing soy plantations to be pushed into the Amazon, illustrating the "indirect" effects that agrofuels have on forests and their decimation[33]. A number of studies in Brazil have shown that demand for land for sugarcane is leading to the conversion of grasslands and wooded savannah for crops, releasing stored carbon dioxide, and displacing previous users like cattle farmers who move into tropical forests.

19. *Massive GHG release from Peatland destruction:* The millions of hectares of South East Asia's peat lands are another eco-system at extreme risk: they are being drained for oil palm plantations as most mineral soils areas have now been planted. These peat lands are one of the world's most important carbon sinks storing at least 42 billion tonnes of carbon, the equivalent of about six years of global fossil fuel emissions.

    Once the peat is drained, all of the carbon will eventually be released into the atmosphere through slow oxidation, with peat fires greatly speeding up that process. Fred Pearce reported that these biofuels are releasing up to 180 tonnes of CO2 released per year per hectare of destroyed peatland. The RTFO reporting system allows these emissions never be reported if the land was converted before 2005 so much of this damage is going under the view of the RFA. Despite the dire risks, the Government have refused to revise the carbon sustainability and reporting requirements for biofuels[34].

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[31] Da Silva RR et al., Regional impacts of future land-cover changes on the Amazon basin wetseason climate. Journal of Climate, 21(6): 1153-1170, 2008

[32] http://www.msnbc.msn.com/id/26472726/

[33] Brazilian Cerrado is being converted to sugarcane and soybeans, and the Brazilian Amazon is being converted to soybeans. See these references:
C. E. P. Cerri *et al.*, *Agric. Ecosyst. Environ.* **122**, 58 (2007).
P. M. Fearnside, *Environ. Conserv.* **28**, 23 (2001).
C. A. Klink, R. B. Machado, *Conserv. Biol.* **19**, 707 (2005).

[34] Parliamentary Questions and Answers, 21 July 2008, http://www.publications.parliament.uk/pa/cm200708/cmhansrd/cm080721/text/80721w0037.htm

20. In all, forests and peatlands are large-scale ecosystems that occupy worldwide about 4 billion and 400 million hectares of land respectively, and contain 4,000 $GtCO_2e$ (billion tonnes or gigatonnes) and 2,200 $GtCO_2e$ respectively[35]. Policy Exchange called in August 2008 for the UK Government to abandon biofuel targets and subsidies noting that halting deforestation and peatland destruction would be far more effective in reducing carbon emissions. Where Policy Exchange used the Government's claim that the RTFO would save 2.6-3.0$MtCO_2$/year at cost of £0.55billion to UK taxpayer. **We dispute that the RTFO makes any GHG savings at all on the basis of arguments above on nitrous oxide and Land Use Change emission not included in LCA calculations.** We support calls for immediate halt of deforestation and Peatland destruction, and also for eco-system regeneration.

21. Monocultures and massive land-use change (LUC) drive eco-system destruction.

> *"Mother Earth is the wellspring of life that must be cherished and respected rather than treated as a tradable commodity."*
>
> *Bolivia's indigenous president, Evo Morales*[36]

It must be understood that the climate crisis is linked to an emerging eco-system and bio-diversity crisis, and that any 'solution' that has impacts elsewhere is a false solution. Any solution that sacrifices biodiversity or eco-system integrity for short term carbon reductions is unacceptable.

The ecological services of rainforests are well understood. However, eco-system protection extends much further as other eco-systems also play a crucial role in regulating rainfall and temperatures. For example, according to a study by University of Queensland scientists, the destruction of native vegetation has played a major role in recent Australian droughts. They suggest that the 2002-03 drought was 2-3°C hotter because of vegetation clearing and that the same is likely to be true for other droughts[37]. Land-conversion to cropland, particularly using 'C3 crops' such as soybean, has been shown to result in significant regional warming and drying, for example in Mato Grosso, Brazil[38]. Such effects can be expected in themselves to lead to further climate feedbacks. Sept 2008 research shows that plant and soil can take up to two years to recover from an exceptionally hot year reducing their carbon sinking capacity[39].

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[35] Policy Exchange, The Root of the Matter, http://www.policyexchange.org.uk/images/libimages/419.pdf

[36] President Evo Morales speaking at U.N. Permanent Forum on Indigenous Issues - Leaders of the world's 370 million indigenous peoples are calling for the United Nations to include their voices in its future talks on climate change - http://www.ipsnews.net/news.asp?idnews=42103

[37] 'Land Clearing Triggers Hotter Droughts, Australian Research Shows', http://www.sciencedaily.com/releases/2007/10/071027180556.htm, Science Daily (Oct. 31, 2007)

[38] see: http://www.nasa.gov/centers/goddard/news/topstory/2006/amazon_crops.html

[39] 'Sinking feeling: Hot year damages carbon uptake by plants', http://www.terradaily.com/reports/Sinking_feeling_Hot_year_damages_carbon_uptake_by_plants_999.html

Further, the survival of species and ecosystems is therefore entirely interdependent. Simply, there can be no stable Climate without Biodiversity. As species are lost, ecosystems become less resilient and more vulnerable to collapse. According to the 2005 Millennium Ecosystem Assessment[40].

> *"There is established but incomplete evidence that changes being made in ecosystems are increasing the likelihood of nonlinear changes in ecosystems (including accelerating, abrupt, and potentially irreversible changes)… The increased likelihood of these nonlinear changes stems from the loss of biodiversity and growing pressures from multiple direct drivers of ecosystem change. The loss of species and genetic diversity decreases the resilience of ecosystems; this is the level of disturbance that an ecosystem can undergo without crossing a threshold to a different structure or functioning".*

A study of different extinction scenarios in a rainforest in Panama[41] concluded that selective logging of tree species with high wood density can reduce carbon storage by up to 70% but also warned that the impact of biodiversity losses on the ecosystem cannot be measured just in terms of carbon storage:

> *"Human domination of terrestrial and aquatic landscapes has made us increasingly dependent on a reduced number of species to provide critical ecosystem services. Given uncertainty in both the nature of extinction and the variety of ecosystem services required for human well-being, we may best be able to meet these demands by maximising the pool of species on which we depend."*

A large variety of studies illustrate the crucial role which biodiversity plays in allowing ecosystems to survive and thus to regulate climate, rainfall, soil metabolism, in other words, to keep the planet habitable. In line with the warnings from the Millennium Ecosystem Assessment, a large number of studies which look at marine as well as terrestrial ecosystems show that when species are lost, the decline in ecosystems can be severe and in many cases abrupt and irreversible.

For example, a study of deep-sea ecosystems shows that biodiversity losses can lead to an exponential decline in the ability of ecosystems to function[42] which is of serious concern since, as the authors stress "deep sea plays a key role in ecological and biogeochemical processes at a global scale [and]… are essential for the sustainable functioning of our biosphere and for human wellbeing."

[40] www.millenniumassessment.org/en/index.aspx
[41] "Species Loss and Aboveground Carbon Storage in a Tropical Forest", Daniel E. Bunker et al, Science, 11 November 2005, Vol 310. no. 5750, pp 1029-1031
[42] "Exponential Decline of Deep-Sea Ecosystem Functioning Linked to Benthic Biodiversity Loss', Danovaro et al., Current Biology (2008), doi:10.1016/j.cub.2007.11.056

A recent review of the literature on drivers of biodiversity extinction[43] illustrates how ecosystems can unravel if species loss triggers 'chains of extinction', with 'amplifying feedbacks' that can become impossible to stop. For example, overhunting of mammals in tropical forests has led to the local extinction of dung beetles. Dung beetles are essential for seed dispersal and probably for the control of parasites spreading to vertebrates and they help to recycle nutrients. Their disappearance, together with the loss of birds and mammals stops many trees from reproducing themselves.

22. All of the above indicates that we are close to ecosystem, biodiversity and climate breakdown, and all three issues interrelate. The policies for agro-biofuels and mass-scale biomass from the EU and UK will affect all of these. For this reason, we remain resolute that a moratorium on EU incentives for agrofuels and agroenergy from large-scale monocultures including tree plantations and a moratorium on EU imports of such Agrofuels is essential[44]. This should include the immediate suspension of all targets, incentives such as tax breaks and subsidies which benefit agrofuels from large-scale monocultures, including financing through carbon trading mechanisms, international development aid or loans from international finance organisations such as the World Bank.

23. Further, it is essential that the UK Government takes a pro-active lead to stop deforestation given forests key role in the earth's carbon and hydrological cycles, and biodiversity.

Governments and intergovernmental organisations, including the World Bank, have responded by submitting a number of proposals concerning 'Reducing Emissions from Deforestation' (RED) and, in the case of the Bank, a proposal to launch a Forest Carbon Partnership Facility. However, these proposals, especially those that argue that forests should be included in carbon markets as offsets, fall far short of what is needed to combat climate change swiftly and effectively. Carbon trading and offsetting are being used as a smoke-screen to ward off legislation and delay the urgent action needed to cut emissions and develop alternative low-carbon solutions. At the same time they encourage businesses, governments and people to continue with or even increase unnecessary polluting activities - reducing life to a commodity to be bought and sold[45].

Biofuelwatch signed the declaration 'Protecting the world's forests needs more than just money' at the UNFCCC Bali climate talks[46].

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[43] "Synergies among extinction drivers under global change", BW Brook et al, Trends Ecol Evol. 2008 Aug;23(8):453-60. Epub 2008 Jun 24"

[44] http://www.econexus.info/biofuels.html

[45] http://www.foei.org/en/campaigns/climate/kyoto-protocol/bali/forests-declaration/

[46] This calls for governments to:

* address the direct and underlying 'drivers' of deforestation and the destruction of biodiversity in other ecosystems which are also critical to climate stability by reducing demand for agricultural and forest products and energy; removing trade and investment liberalisation rules that fuel deforestation; and stopping corruption.

* ensure that all forest protection programs are based upon and uphold the rights of Indigenous Peoples (as laid down in the UN Declaration on the Rights of Indigenous Peoples), women and local communities, by prohibiting any actions that seek to exclude Indigenous peoples and forest dependent communities from 'conservation' areas. Outstanding land and tenure questions and the free and prior informed consent of affected communities should be addressed as a prerequisite, before the implementation of any such programs.

Recommendation 2: The UK Government should call for the stop to all deforestation and destruction of peatlands worldwide to protect ecosystems, biodiversity and future climate.

This position should be taken forward by UK ministers in the UN and international talks with urgency at the upcoming Poznan talks to move towards a ban on all deforestation at the Copenhagen climate talks. To facilitate this, the UK Government should respond to the detailed call for changes to policies that are driving deforestation and are laid out in the 'Protecting the world's forests needs more than just money' call from many NGOs from South and North at the Bali talks[47].

D.4 Agro-biofuels have a major impact on the capacity of millions to feed themselves

24. A leaked report within the World Bank[48] – which was so controversial that it was withheld! – concluded that biofuels have distorted food markets in three ways:
    - By diverting huge amounts of the world's grain crop to be used as fuel instead of food. About half of vegetable oils in the EU go towards the production of biodiesel, while more than a third of US corn is now used to produce ethanol.
    - By encouraging farmers to set land aside for biofuel production instead of food.
    - By stoking up financial speculation in grain crops.

    The World Bank found biofuels responsible for 75% of the increase in food prices, whilst earlier studies – like by the International Food Policy Research

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* **give the highest priority to halting the development, production and trade of agrofuels, and suspend all targets and other incentives, including subsidies, carbon trading and public and private finance related to the development and production of agrofuels.**

* keep forests out of carbon finance mechanisms, which are unpredictable, inequitable and discourage the reduction of emissions at source. This includes keeping forests out of the Clean Development Mechanism and all carbon trading initiatives; and rejecting the World Bank's Forest Carbon Partnership Facility (FCPF).

* ensure that developing countries are assisted in their efforts to protect their forests with well targeted, predictable and sufficient financial and other support, in the form of an international fund that rewards the complete rather than partial cessation of deforestation; supports policies that promote community-based forest management and reforestation, natural regeneration and ecosystem restoration; and finances a global forest fire fighting fund and expertise, to assist countries unable to prevent or stop out-of-control forest fires.

* redirect the very substantial amounts of public funds, tax exemptions and other forms of subsidies currently provided to the fossil fuel and agrofuels industries, into avoided deforestation assistance funds, the effective promotion of public transport and the development of solar, wind, geothermal, wave and energy efficiency technologies, (Government spending on energy subsidies currently totals US$250 billion per year.)

* ensure that funds are not used to compensate logging and plantation companies and others involved in large-scale deforestation.

* strengthen weak forest conservation policies and institutions, encouraging bans or moratoria on industrial logging and forest conversion, and addressing corruption and lack of enforcement.

* implement a moratorium on all public financing and subsidies of oil, coal and gas exploration, and rapidly phase in subsidies for clean energy alternatives with just transition programmes to phase out existing fossil fuel activities, whilst protecting ecosystems, communities and food production from agrofuels.

[47] http://www.foei.org/en/campaigns/climate/kyoto-protocol/bali/forests-declaration/

[48] Secret report: biofuel caused food crisis, Aditya Chakrabortty, The Guardian, July 4th 2008, http://tinyurl.com/6e3tew

Institute[49] – estimated that biofuels are responsible for a 30% increase. Oxfam calculate that the food crisis has pushed 100 million people into extreme poverty[50]. **So this year alone between 30 and 75 million people have been forced into extreme poverty and closer to starvation by US and EU biofuel policies.** The effect of biofuels on food prices is now 'mainstream' as further notes in the footnotes[51] show.

The only rational humanitarian response to this is to impose an agrofuel and agroenergy moratorium right now because these industries are causing environmental destruction and human suffering. The Agrofuels creating the food crisis are being produced now which is why a moratorium is required now. Yet, UK government targets and RTFO incentives are part of the driver for billions of dollars into biofuel schemes worsening the food crisis.

25. Hundreds of civil society organisation signed a statement on the Food Emergency earlier this year that contains the call[52]:

> *"We demand an immediate halt to the development of land for producing industrial agrofuels for cars, planes and energy production in power stations, including the use of so-called biomass "waste". The sudden sharp increase in large scale industrial Agrofuel production threatens local and global food security, destroys livelihoods, damages the environment and is a*

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[49] Biofuels, International Food Prices, and the Poor, Joachim von Braun, Testimony before the United States Senate Committee on Energy and Natural Resources, June 12, 2008 http://tinyurl.com/5rsqxk

[50] Another Inconvenient Truth: How biofuel policies are deepening poverty and accelerating climate change, http://www.oxfam.org/files/bp114-inconvenient-truth-biofuels-0806.pdf

[51] Only biofuel industry lobbyists deny that a significant factor the increase in prices of grains in the current food crisis are attributable biofuels production. Recent statements include:

• The US Department of Agriculture's chief economist in testimony before the Joint Economic Committee of Congress on May 1, attributed much of the increase in farm prices of maize and soybeans to biofuels production .

• John Lipsky, First Deputy Managing Director of the International Monetary Fund estimated that the increased demand for biofuels accounted for 70 percent of the increase in maize prices and 40 percent of the increase in soybean prices, speaking in May 2008 .

• Recent mathematical simulation estimates that about 60 percent of the increase in maize prices from 2006 to 2008 may have been due to the increase in maize used in ethanol .

• Mark W. Rosegrant from IFPRI in Testimony before the U.S. Senate Committee on Homeland Security and Governmental Affairs in May 2008 stated:

> 'In the short run, removal of ethanol blending mandates and subsidies and ethanol import tariffs, and in the United States—together with removal of policies in Europe promoting biofuels—would contribute to lower food prices.'

He estimated that had a moratorium on biofuels been imposed from 2007 that the prices of key food crops would drop more significantly by 2010 : 20 percent for maize, 14 percent for cassava, 11 percent for sugar, and 8 percent for wheat

The biofuels impact on food prices has to be seen in context of total world food stocks and declining reserves in 7 out of the last 8 years. Lester Brown of the Earth Policy Institute has documented that world grain consumption has exceeded production for 7 out of the last 8 years and World Grain stocks in days of available consumption are now at the lowest ever level. That's why diverting food land and food crops to biofuel production is a very dangerous path.

Glauber, May 1, 2008 - www.usda.gov/oce/newsroom/archives/testimony/2008/FoodPriceTestimony.pdf
Lipsky, May 8, 2008 - www.imf.org/external/np/speeches/2008/050808.htm
Collins (2008) www.foodbeforefuel.org/facts/studies/role-biofuels-and-other-factors-increasing-farm-and-food-prices
See 'World Grain Production, Consumption, and Balance, 1960-2007' table at: www.earth-policy.org/Updates/2008/Update69_data.htm and the chart below (from same page) that shows that World Grain Stocks (in days of consumption) are at the lowest ever level)

[52] www.viacampesina.org/main_en/images/stories/pdf/22-05-2008_csofoodemergency-en.pdf

significant factor in the steep rise in food prices. This new enclosure movement - converting arable, pastoral, and forest lands to fuel production - must be rejected."

26. Beyond, the emerging mainstream consensus, biofuelwatch highlight these four ways in which biofuels contribute to rising food prices:

Firstly, there is the additional demand for grains (and estimated 100 million tonnes in 2007) and vegetable oil, which is growing at a much faster rate than the global demand for food or animal feed.

Secondly, the competition between food and fuel effectively pushes up food prices if oil prices rise, beyond the level which could be explained by rising energy/input costs. The 2007 OECD report "Biofuels: Is the cure worse than the disease" warned: Any diversion of land from food or feed production to production of energy biomass will influence food prices from the start, as both compete for the same inputs."

Thirdly, food sovereignty is being further undermined and land on which communities in the global South depend for their livelihood is being turned over to agrofuel plantations – involving both food crops and non-food crops. The Indian government, for example, is planning to convert 11 million hectares of what are mainly community lands to jatropha plantations, threatening the livelihoods and food sovereignty of pastoralists, small farmers, indigenous peoples and forest communities, Fertile land in many other countries, including Tanzania and Ghana being appropriated for jatropha.

Finally, agrofuel production and investment are increasing the control of a small number of agribusiness companies, now in partnership with energy companies and joint venture enterprises over food production and food prices, and encouraging even greater speculative investment and profits.

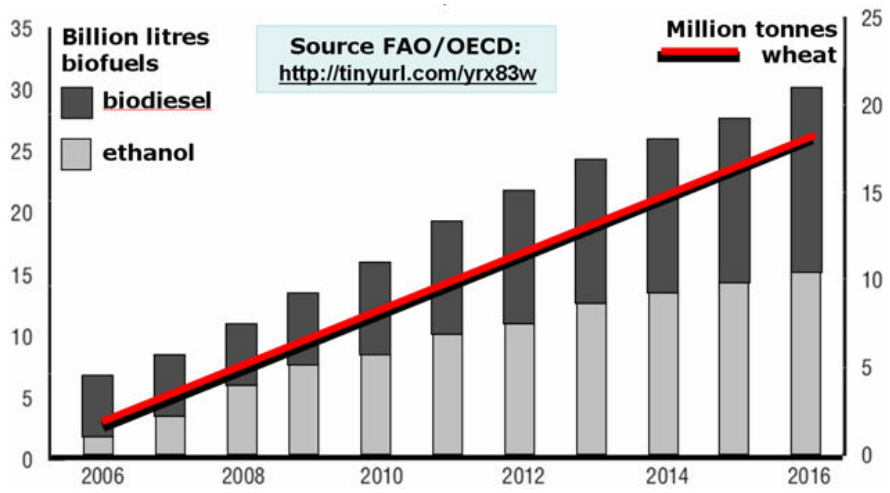
There are also structural reasons resulting from three decades of neo-liberal policy, see for example[53].

27. With respect to UK policy, we draw caution to the plans to turn much more wheat into ethanol - a 12-fold EU increase by 2016 (see graph below showing EU plans[54]).

The UK wheat surplus in 2007 was around 0.75 million tonnes. With planned current ethanol refinery expansion, we are headed for a 3 million tonnes deficit by 2010, unless there was a massive expansion of UK wheat production. Already, half of previously set aside land has been put into production, and further land conversion of intensification of agriculture will have disastrous impacts on biodiversity, soil and water quality and availability.

[53] GRAIN, http://www.grain.org/articles/?id=39
[54] OECD/FAO Agricultural Outlook 2007-2016, http://tinyurl.com/yrx83w

We have also highlighted above that wheat ethanol has poor LCA balances and that, when the effect of nitrous oxide emissions are fully understood, wheat ethanol will produce more GHGs than the equivalent fossil fuel.



The total wheat required by the refineries already approved/under construction in the UK is to be at least 3.91 million tonnes of wheat per year by 2010 on known plans[55].

Recommendation 3: The UK plans imminent large scale production of ethanol from wheat. This should be abandoned immediately on three grounds –

- *converting food crops to fuel impacts the food security of millions*
- *UK food security is also threatened at a time when we already rely far too much on imported food that has embedded fossil fuel costs and carbon emissions*
- *Production of ethanol from wheat makes no significant emission savings, and most likely is worse than fossil fuels.*

Recommendation 4: The UK should also lobby at the EU level to stop the wider use of wheat as a crop for ethanol and industrial scale biogas to prevent diversion of millions of European hectares of land from food production into fuel and energy production.

D.5 Agro-biofuels are impacting essential earth system resources

28. The mass industrial agriculture systems needed to produce mass consumer scale biofuels and biomass for energy are creating ecological damage in other essential areas: loss of habitats and biodiversity, water depletion, soil erosion, greater use of chemicals.

29. **Water :** At the 2008 Stockholm Water conference, British professor John Anthony Allan[56] said the effect of the growing use of biofuels "is too frightening to even begin to realize." Whilst the Presentation : 'Water for Biofuels, vs Water

[55] http://www.biofuelwatch.org.uk/foodcrisis.php
[56] Water expert slams biofuels at global conference, http://www.forbes.com/feeds/ap/2008/08/18/ap5333566.html

for food' at the Danida Development Days, 10 June 2008 conference[57] showed the following Water footprints for different energies:

Source:	DHI	UNESCO-IHE
Energy Type	Water consumed (m3/MWh)	
Wind	0.001	~0
Gas	1	0.4
Coal	2	0.6
Nuclear	2.5	0.3
Oil/Petrol	4	4
Hydropower	68	80
Bio-fuel (corn, US)	**184**	**66**
Bio-fuel (sugar, Brazil)	**293**	**90**

A recent study from the African Centre for Biosafety, *South Africa's Biofuels Strategy: greenwashing agribusiness interests*[58] looks at Water issues under the section 'Where will the water come from?' where it notes:

> *It is expected that by 2050 there will be water shortages in more than 70 countries, including 35 in Africa. Currently at least 11 African countries face a water scarcity, with South Africa being considered as water stressed. It is estimated that by 2020 between 120 million to 1.2 billion in Asia, 75 to 250 million in Africa, 12 to 81 million in Latin America may be affected from water stress and water shortages. By 2050 the total may have increased to more than 2.8 billion people. Agriculture, both rainfed and irrigated, is the largest consumer of water with "irrigation using more than two-thirds of the world's available freshwater resources". Agriculture uses 90 per cent of all "freshwater that is economically accessible." The development of an agrofuels industry or a shift from food production to agrofuel production will have direct implications for water resources.*

30. **Soil :** Growing plants for fuel will accelerate the already unacceptable levels of topsoil erosion, soil carbon and nutrient depletion, soil compaction, water retention, water depletion, water pollution, air pollution, eutrophication, destruction of fisheries, siltation of dams and waterways, salination, loss of biodiversity, and damage to human health[59],[60].

31. **Biodiversity :** There is wide concern and a wide literature on the devastating effects on biodiversity of monocultures and intensive agriculture[61]. Bill Sutherland, chair in conservation biology at Cambridge University, has said on biofuels and biodiversity[62] "We need to have the science ready before policies

[57] http://www.danidadevforum.um.dk/NR/rdonlyres/74CAFF3D-839A-474F-820E-5B154B3ED703/0/BiofuelsHenrikLarsen.ppt
[58] http://www.biosafetyafrica.net/portal/images/ACB/files/acb%20agrofuels.pdf and references within
[59] Tegtmeier, E, et al. 2004. External Costs of Agricultural Production in the United States. International Journal of Agricultural Sustainability Vol 2/1
[60] For detailed discussion, see 'Peak Soil: Why cellulosic ethanol, biofuels are unsustainable and a threat to America' http://www.culturechange.org/cms/index.php?option=com_content&task=view&id=107&Itemid=1
[61] Rainforest conversion to oil palm causes 83% of wildlife to disappear - Emily B. Fitzherbert, Matthew J. Struebig, Alexandra More, Finn Danielsen, Carsten A. Brühl, Paul F. Donald, Ben Phalan. How will oil palm expansion affect biodiversity? Trends in Ecology & Evolution, Volume 23, Issue 10, October 2008, Pages 538-545
[62] http://www.guardian.co.uk/environment/2008/mar/20/climatechange.endangeredhabitats

are made and products are on the market ... the necessary science was not done before the introduction of biofuels. In terms of the environmental consequences and societal concerns, we should have thought of all these things before. " Sutherland was speaking about his paper[63] on 'horizon scanning' exercise, drawn up a list of 25 novel threats and opportunities likely to affect biodiversity in the UK between now and 2050.

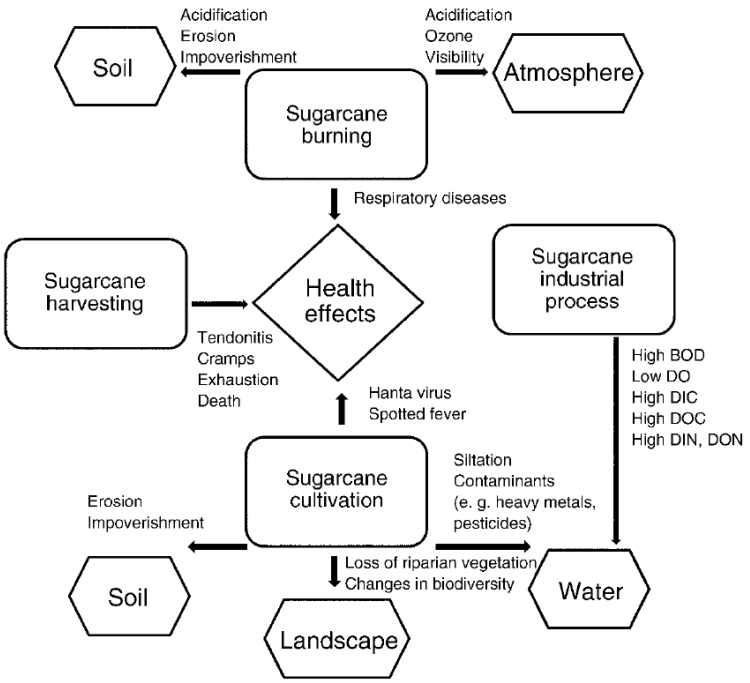
32. Emily Fitzherbert from the Zoological Society of London and University of East Anglia, in September 2008, published a paper showing that Conversion of primary rainforest to an oil palm plantation results in a loss of more than 80 percent of species. By compiling scientific studies of birds, bats, ants and other species, we were able to show that on average, fewer than one-sixth of the species recorded in primary forest were found in oil palm[64]. We have described above how rich species and biodiversity are the basis for the climate stabilisation function of forests. We have also raised concerns that 6.4% of UK biofuel came from Palm Oil from 'unknown' sources[65] after the introduction of the RTFO.

D.6 Agro-biofuels are creating major impacts on society and people worldwide

33. There is a wide evidence base that biofuels are generating poverty, land grabbing, land conflicts, human rights abuses, labour rights abuses, starvation and food insecurity, commodity prices and the global food crisis.

34. A recent Friends of the Earth International report 'Fuelling Destruction in Latin America'[66] on the rapid development of agrofuels in Latin America states that agrofuels are causing increased land conflicts, eviction of rural people, poor working conditions and environmental pollution. The Press Release[67] stated 'Working conditions are often very poor, akin to modern day slavery, and the use of child labour in some countries is common place. Land speculation is also forcing up land prices and there is evidence that agrofuel production is replacing food supplies for local populations. Rural communities are being displaced to make way for the plantations, with conflicts over land rights increasing in all countries. Agrofuel developments are largely taking place in a culture of little transparency and democracy, virtually no land use planning, weak governance and in some cases the use of violence and the involvement of paramilitary groups.'

[63] British Ecological Society: Future novel threats and opportunities facing UK biodiversity identified by horizon scanning (Journal of Applied Ecology 2008), http://www.blackwell-synergy.com/doi/full/10.1111/j.1365-2664.2008.01474.x
[64] Emily B. Fitzherbert, Matthew J. Struebig, Alexandra More, Finn Danielsen, Carsten A. Brühl, Paul F. Donald, Ben Phalan. How will oil palm expansion affect biodiversity? Trends in Ecology & Evolution, Volume 23, Issue 10, October 2008, Pages 538-545, AND http://news.mongabay.com/2008/0915-palm_oil.html AND http://www.terradaily.com/reports/Oil_Palm_Plantations_Are_No_Substitute_For_Tropical_Rainforests_999.html
[65] http://www.renewablefuelsagency.org/reportsandpublications/RTFOreports.cfm
[66] http://www.foeeurope.org/agrofuels/fuellingdestruction.html
[67] http://www.foeeurope.org/press/2008/Sep10_New_report_reveals_real_price_of_agrofuels_in_Latin_America.html



A recent paper[68] 'Expansion Of Sugarcane Ethanol Production In Brazil: Environmental And Social Challenges' highlighted respiratory problems due to sugar cane burning, exploitation of cane cutter including cases of early deaths amongst many issues with Brazilian Sugar cane production – see diagram above. Sugarcane expansion is leading to land conflicts, as rural communities are forced off land to make way for the plantations. Small-scale farming has become unviable in the plantation areas and many small farmers feel they have no financial choice but to sell up. Sugar plantations are displacing small farms, food crops and subsistence food systems - leading to food shortages and price rises[69].

35. Some 150,000 families in Argentina and 90,000 families in Paraguay have already been displaced by soya. The accelerating rate of soya expansion due to the agrofuel boom is associated with increasing frequency of evictions[70].

36. In Colombia[71], the government supports expanding land devoted to palm oil cultivation from 300,000 to 700,000 hectares over the next four years.311 Monoculture plantations of both oil palm and sugar cane are being massively expanded in various parts of the country, including the coastal, biodiversity-rich Choco rainforest. Reports indicate that soldiers and paramilitary groups are evicting and killing people to make room for plantations. 312 A 2007 report by the London-based NGO Christian Aid charges that, "there is an increasing body of evidence that state institutions are involved in this land grab. For example, the InterAmerican Commission for Human Rights has recognized the links between Urapalma [an oil palm plantation company], the paramilitaries, and the army." Some 300,000 hectares of land are cultivated by legitimate companies,

[68] Luiz A. Martinelli nd Solange Filoso, Ecological Applications, 18(4), 2008, pp. 885–898
[69] 'Sugarcane ethanol: a sweet solution for Europe's fuel addiction?',
http://www.corporateeurope.org/ethanolfueladdiction.html
[70] http://www.lasojamata.org/?q=node/94
[71] From http://www.unep.org/PDF/UNEPGreenJobs_report08.pdf, page 122 and references within.

but perhaps another 100,000 hectares are controlled by companies associated with paramilitary groups that have driven farmers off their land.

37. African is seeing huge investment in agrofuels resulting from global and EU policy[72],[73],[74],[75]. This amounts to a new colonial land grab and is forcing people of the land[76]. A range of African countries, including Benin, Ethiopia, Ghana, South Africa, Tanzania, Uganda, and Zambia, are planning to convert large tracts of farmland and forests to biofuels plantations[77]. In Tanzania, thousands of small-scale rice and corn farmers have been evicted to make room for sugarcane and jatropha plantations. A Swiss company has its eyes on some 400,000 hectares in the Wami Basin, where more than a thousand small-scale rice farmers face displacement.

As just one example, in Tanzania, a government agency has handed over 9,000 hectares of land on which over 11,000 people depend for their livelihoods to the UK firm Sun Biofuels plc, for a jatropha plantation. A recent Oxfam report[78] based on Oxfam's own research, including interviews and field visits, details the concerns of the local farmers. These include concerns over probable loss of waterhole that is essential in dry weather, the details of the land that has been conceded, and whether compensation payments will be adequate to allow families to access other land and go to all the families affected.

38. Losing Ground[79], an NGO investigation of the human rights impacts in Indonesia, notes that when oil palm companies seek to acquire land, they often "hold out the promise of providing employment for local communities and indigenous peoples. However, these promises often fall short and communities are left feeling deceived when it becomes apparent that many of the jobs created are temporary since plantation establishment requires much higher labour inputs than later plantation harvesting and management and that many of the jobs created are for casual day labourers who benefit from few of the protections afforded those with contracts. Additionally, wages for contracted work are frequently at or below the minimum wage, while the minimum wage itself often does not meet government's own standards for a decent living wage."

[72] In South Africa, the government plans to invest 437 million US dollars in five biofuel projects, and a conglomerate of commercial maize farmers plans to build eight ethanol plants (GRAIN, 2007:40). In Ghana, the government pledged US$2 million to assist a large-scale jatropha cultivation scheme in the centre of the country. Sugar cane and cassava in Nigeria, jatropha in Tanzania and Kenya, and palm oil in Cameroon have also been attracting significant investment from both public and private sectors. From http://dailynews.habarileo.co.tz/business/index.php?id=6586

[73] Chinese TSE to invest $1 billion in the Democratic Republic of Congo's (Congo-Kinshasa) in an immense 3 million hectare oil palm plantation with the aim to produce biofuels, http://biopact.com/2007/07/dr-congo-chinese-company-to-invest-1.html

[74] Italian ENI to invest $3 billion in the Republic of Congo's hydrocarbon and palm oil biodiesel sector, generating an expected equity production of 150 million boe, http://biopact.com/2008/05/eni-to-invest-3-billion-in-congos-oil.html

[75] Spanish Aurantia in several thousands of hectares of oil palm plantations in the Republic of Congo with the aim to produce biodiesel from the oil, http://biopact.com/2007/03/spanish-company-aurantia-to-invest-in.html

[76] The impact of growing for bio-fuels on access to land by the poor, August 15 2008, http://dailynews.habarileo.co.tz/business/index.php?id=6586

[77] http://www.unep.org/PDF/UNEPGreenJobs_report08.pdf, page 124 and references within

[78] see page 22, Box 4, http://www.oxfam.org.uk/resources/policy/climate_change/downloads/bp114_inconvenient_truth.pdf

[79] Friends of the Earth, LifeMosaic, and Sawit Watch, February 2008, http://www.foe.co.uk/resource/reports/losingground.pdf

39. Oxfam has warned that of those driven off their land "many will end up in slums in search of work, others will fall into migratory labour patterns, some will be forced to take jobs—often in precarious conditions—on the very plantations which displaced them[80]"

D.7 There is not enough land for Agro-biofuels

40. *Remaining food growing land is limited.* Two reports[81],[82] from the Rights and Resources Initiative (RRI), an international coalition of forestry governance and conservation groups warned that on current targets by 2030 the world is likely to need 515m more hectares to grow food and biofuels - twice the amount of additional land that will be available. The report shows that the rush for fuel, food and wood is creating a global land grab that will leave millions of forest people impoverished and homeless and governments and companies are likely to exploit confusion over ownership in rural areas to evict local people and divvy up their land. The reports make clear that there is only 200m hectares of land left without damaging ecosystems such a rainforest, and this must be reserved for food production.

41. *So called 'marginal lands' have value to local communities and to biodiversity.* EU agrofuel policy has sought 'marginal lands' around the world as a potential solution to growing agrofuels. One crop that is often cited as ideal for growing on marginal land is the oilseed bush Jatropha Curcas. However, there is no experience at present of growing jatropha on a large scale and little is known about it. Millions are being promised jobs, but there are real doubts about the actual performance of this crop. A recent report from the Gaia Foundation[83] 'The Myth Of The Marginal Lands' shows this EU/UK policy to be dangerous to millions of people because 'marginal land' is a vital resource to local communities worldwide often providing food, fuel, medicine and building materials. It is often collective or common land used by such communities for generations, even if they have no formal title to it.

    Sometimes it is the only land that women can access, because in many part of the world, women still have no property or inheritance rights. For them it can make the difference between life and death in hard years because they know where to gather food from it. Particularly in Africa, there are large areas of land used by cattle herders or pastoralists, who often follow the rains and fresh grass across huge areas without degrading fragile pastures. Research shows that converting such "marginal land" from pasture to crops will alter the climate, making some areas wetter and some drier, with more extreme floods and droughts.

42. *Biofuel Refugees.* It has been estimated that up to 60 million people worldwide could be displaced in the Agrofuel rush. At the UN Permanent Forum on Indigenous Issues Sixth session, New York, May 2007, forum chair Victoria

[80] http://www.unep.org/PDF/UNEPGreenJobs_report08.pdf, page 124 and reference 319 within
[81] 'Seeing People through the Trees', RRI, http://www.rightsandresources.org/documents/index.php?pubID=736
[82] 'From Exclusion to Ownership? Challenges and Opportunities in Advancing Forest Tenure Reform', RRI, http://www.rightsandresources.org/documents/index.php?pubID=790
[83] www.gaiafoundation.org/documents/Agrofuels&MarginalMyth.pdf

Tauli-Corpuz said that "Indigenous people are being pushed off their lands to make way for an expansion of biofuel crops around the world, threatening to destroy their cultures by forcing them into big cities". She highlighted that some of the native people most at risk live in Indonesia and Malaysia, which together produce 80 percent of the world's palm oil - one of the crops used to make biofuels. Although she said there are few statistics showing how many people are at risk of losing their lands, in one Indonesian province - West Kalimantan - the U.N. has identified 5 million indigenous people who will likely be displaced because of biofuel crop expansion[84],[85],[86].

Despite the presentation of the above report to the UN Permanent Forum on Indigenous Issues Sixth session over a year ago, as far as we know, the Malaysian and Indonesian governments have yet to make any statement in response.

Recommendation 5: The Government should ask the Malaysian and Indonesian governments for a response to the UNPFII report on biofuel refugees resulting from Oil Palm plantations.

D.8 The UK biofuels policy is an expensive waste of money

43. The UK biofuel policy, the RTFO, is due to cost the taxpayer £0.55billion in 2008/2009 – this is before tax discounts and funding for Agrofuel research is taken into account. We believe that the RTFO portion may prove to be even be higher than this as for May/June 2008, UK biofuels usage was approximately 0.5% ahead of the annual target of 2.5%[87]. If this trend continues, then the policy may cost closer to £0.7billion this year. We have detailed above how this policy is almost certainly not achieving any GHG savings, and may well be actually accelerating climate change, and the risks of catastrophic ecosystem destruction, biodiversity loss and runaway climate change. We have also detailed some of the social, ecological and food insecurity impacts that this policy is a part of causing. **The single conclusion that comes from this is that the UK biofuels policy is an expensive and hugely damaged waste of money.** The policy should be dropped immediately and its budget transferred into the transport demand reduction policies, and into building local and resilient UK communities that can survive climate change and energy power down, as outlined in bullets 1-13.

Recommendation 6: The Government should immediately suspend its biofuel policy including the RTFO, tax discounts for biofuels and direct subsidies given to agrofuel research and production. The savings from the RTFO budget alone

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[84] http://www.checkbiotech.org/green_News_Biofuels.aspx?infoId=14672
[85] http://www.un.org/esa/socdev/unpfii/documents/6session_crp6.doc
[86] On biofuel refugees and the UN report 'The speed with which this is happening we don't really realize in our part of the world,' Ida Nicolaisen, an expert in indigenous cultures and member of the U.N. forum, and who has studied violations of indigenous people in Sarawak, Malaysia said at a news conference. 'Because the technology we have today and the economic resources that are at stake are so big, it happens overnight.'
[87] Biofuel usage was at 2.92% against 2.5% target in http://www.dft.gov.uk/rfa/_db/_downloads/RFA_monthly_report_May_Jun_2008.xls

would be over £0.55billion and should be diverted into other true climate change mitigation measures.

Bioenergy

E Energy from liquid biofuels and vegetable oils

44. We first express deep concern about proposals to build a series of co-generation power plants in the UK which would exclusively run on vegetable oil agrofuels. Those would be subsidised by the UK government and taxpayer through the Renewables Obligation. The plans include a first plant with a 56,000 litre per day capacity to be built in Beckton, London, followed by seven similar plants. The Beckton plant has now received planning permissions. A media report states that the company, Blue NG, plans up to 43 vegetable oil power plants across the UK, which could amount to 2.4 million litres per day[88]

The UK must not follow the disastrous German example of using agrofuels on a large scale in CHP plants. In Germany, few providers of agrofuel CHP plants can afford any feedstock other than palm oil that we have already showed is disastrous for ecosystems and climate, and linked to the displacement of communities, increased land conflicts, human rights abuses, deforestation, and a loss of food sovereignty and food security. There is no reason why the same would not happen in the UK. Peat expert Professor Siegert of Munich University has described the climate impact of Germany's policy:

> *"We were able to prove that the making of these plantations and the burning of the rain forests and peat areas emits many thousands of times as much CO2 as we then are able to prevent by using palm oil. And that is a disastrous balance for the climate."*

Vegetable oil for German CHP plants is grown on an estimated 100,000 hectares in South-east Asia (palm oil), and 43,000 hectares in Europe (rapeseed). Creating a similar market in the UK in the name of 'green energy' is unacceptable and will exacerbate the social and environmental crises caused by agrofuels.

Using European feedstock is no answer either: Europe's use of rapeseed oil for bioenergy is one of the main reasons behind rising palm oil prices, as confirmed in a 2006 study by the UN Food and Agriculture Organisation[89]. As described above, rapeseed oil has been shown to be linked to up to 70% more greenhouse gas emissions than fossil fuel oil due to nitrous oxide emissions from fertiliser use, and rapeseed expansion in Europe, much of it on formerly set-aside land, is a major threat to biodiversity.

Europe's demand for vegetable oil is already unsustainable and must be reduced, not increased by using it for power plants or for biodiesel. There is no evidence that large-scale truly 'sustainable' sourcing of agrofuels is possible. In

[88] http://tinyurl.com/6f7fqv
[89] http://tinyurl.com/2o9bab

addition to our call for a moratorium on biofuels for transport, we call for a moratorium on agrofuels in the energy sector.

Recommendation 7: The Government should immediately suspend subsidies for industrial Agrofuels and vegetable oils for use in the energy sector via Renewable Obligation certificates (ROCs), and related tax discounts for such fuels and direct subsidies given to their research and production.

F Bioenergy from wood

F.1 Large scale plants

45. Figure 7.1 of the consultation shows a 'Simplified carbon cycle' for a large biomass plant. This indicates 'sustainable' forest sources proximal to the plant. However, this is very far from the truth for plants that are in planning or being built in the UK. The Port Talbot biomass plant at 350MW will be the largest wood burning plant in the world. We have described the devastating effect of large monocultures on biodiversity and ecological integrity and the ability to sink carbon. This project will require many hectares of such industrial forestry to support it with stockpiles of wood chips being transported from forests located in the U.S., Canada, Eastern Europe, and South America[90]. Such large scale burning of wood from these sources cannot be described as sustainable. Further, there will be significant transport emissions involved in the shipping.

46. A similar plant is now proposed at King's Dock, Swansea. 75% of the fuel is being sourced from abroad Canada, Texas, South Africa, Portugal and possibly Alaska[91]. The same applies. We also note that such massive timber exports can have a bad effect on local populations[92].

47. Further, these plants are at too large a scale to maximise the use of heat.

F.2 Co-generation

48. The same arguments on scale and source of biomass apply to co-generation of biomass with coal, oil or gas.

[90] http://ecotality.com/life/2007/11/27/largest-biomass-power-station-in-the-world/
[91] Personal communication, Almuth Ernsting
[92] Income inequality in the Kwa-Zulu Natal and the Eastern Cape, where almost 85% live below the poverty line, is vast and it is in these provinces where a majority of land has been sold to foreign business. A third of the population in South Africa relies on wood for heat production. This escalation of foreign land appropriation, cultivation and harvest for wood exports is forcing local communities into areas of protected forest – see Scwabe, C. (2004) Fact Sheet: Poverty in South Africa www.sarpn.org.za/documents/d0000990/index.php

F.3 Sustainability

49. Many of the arguments above for Agrofuels apply also to biomass for energy. A mass scale 'import' market as part of a global market (section 7.4) will create land use change emissions, land grabbing, displacement of indigenous peoples etc. Question 27 asks what can be done to ensure that UK use of biomass is sustainable. **The simple answer is that a moratorium on imported agro-energy feedstocks into UK and the EU is needed immediately. This is already stated in the Econexus hosted moratorium call[93] as part of our wider biofuels moratorium call.**

F.5 UK Bioenergy aspirations

50. The consultation sets an aspiration for 30% of the UK renewable energy to come from Bioenergy. We have indicated above deep concerns about Bioenergy from liquids, large scale wood biomass plants and small scale plants. It is essential that this aspiration is lowered because of its damage to ecosystems and biodiversity. Further, the UK must seek to develop its own resources of truly indigenous renewable energy ie wind, marine and tidal energies, at the same time reducing demand[94] by energy efficiency and insulation programs.

51. It is worth noting, or both biofuels and biomass, that humanity currently burns 400 years worth of historic biosphere as fossil fuel a year[95]. Attempts to replace large parts of transport sector energy or energy sector from biomass are ultimately going to fail to grow enough biomass.

G Bioenergy in the developing world

52. Agrofuels are biofuels grown as industrial scale crops grown in large monocultures, and when you 'take the agrofuels out of biofuels', there is very little left. However, of the part that is left, there is small scale bioenergy production in developing countries by communities for their community - for cooking, heating, lighting and electricity. This is potentially a powerful social agent for freeing women from collecting wood biomass and in protecting women's health from wood burning. It could help too as a more reliable energy source for low level power in communities not on the grid and for whom other renewables such as solar or wind may be far too costly.

However, these sorts of community based schemes have no chance of wide success given current mass scale agrofuels developments across continents. Thousands of farmers have no alternative but to accept to grow agrofuels for export as they need an income to support themselves till the next season. National and international agricultural policies imposed by international financial institutions and corportions have exacerbated the dependence of developing

[93] http://www.econexus.info/biofuels.html calls for an immediate moratorium on **EU incentives for agrofuels and agroenergy** from large-scale monocultures including tree plantations and a moratorium on EU imports of such agrofuels.
[94] We have made detailed suggestions for demand reduction in the transport sector.
[95] We are currently burning 400 years worth of biosphere production each year in fossil fuel, 'Burning Buried Sunshine: Human Consumption Of Ancient Solar Energy', Jeffrey Dukes, Climatic Change 61: 31–44, 2003, http://tinyurl.com/2zayrh

countries, leading to food crisis, extreme poverty, and hunger throughout the world[96].

EU and UK targets have also thrown governments into confusion about their own Agrofuel policy, for example, Matonga Mundia from Zambia[97] has written:

> *"There seems to be a lack of clarity over whether investment and targets are aimed at production of biofuels for the Zambian market or for export. It seems that companies such as D1 Oils may be promoting biofuels as a domestic energy strategy, in order to open the door to amenable legislation, while really intending to focus biofuel production on the export market".*

What is needed is for northern countries, the EU and corporations to step out of this issue. Small scale production and local consumption models will enable many around the world to support themselves, growing food and some energy for their communities. Explicit support from governments and institutions has been demanded[98], from civil society in the South, for the sustainable peasant-based model of food production and distribution, with its minimal use of energy, its capacity to create jobs, to respect cultural and biological diversity and its positive effect on global warming as fertile soils are the best way to capture CO2. A reorientation of global agricultural policies towards sustainable rural communities and livelihoods based on food sovereignty and genuine agrarian reform is needed.

Electric vehicles

53. The consultation asks about the potential for electric vehicles. We believe that there is some benefit in this, particularly with cities, given that demand reduction policies must always come first.

54. We note that Spain intends to introduce a million electric vehicles by 2014[99] and welcome Gordon Brown's recent announcement of plans for a major pilot programme for electric cars[100].

55. Vehicle-to-gird technology is also promising. We suggest that the introduction of such batteries should be considered into homes and offices outside of the vehicle debate. If batteries were developed that could storage reasonable amounts of domestic electricity, then this would be very useful in smoothing out supply as increasing true[101] indigenous renewables are introduced. This could lead to reduce the need to fossil fuel base load power.

[96] http://www.viacampesina.org/main_en/index.php?option=com_content&task=view&id=568&Itemid=1
[97] Report by the African Biodiversity Network, http://tinyurl.com/yoljmv
[98] 'Small farmers feed the world Industrial, agrofuels fuel hunger and poverty' http://www.viacampesina.org/main_en/index.php?option=com_content&task=view&id=568&Itemid=1
[99] http://www.businessgreen.com/business-green/news/2223025/spain-aims-million-electric
[100] http://www.independent.co.uk/news/uk/politics/brown-vows-to-rid-britain-from-dictatorship-of-oil-919302.html
[101] Wind, solar and marine

56. However, we urge caution with electric vehicles. This can only work in a truly renewable way with a massive increase in the renewable proportion in UK energy supplies. We consider that this is only viable **if resources like Desert Solar energy are investigated <u>as an addition</u> to the existing UK renewable Energy targets**.

H Desert Solar Energy

57. The Government should urgently investigate Desert Solar as DESERTEC[102] claim that it has the potential to:
    - generate as much electricity as the world uses on 1% of desert area
    - deliver 20GigaWatts to EU by 2020 (200Gw worldwide by 2020, and 10,000Gw worldwide by 2050)
    - to increase in resilience and security of Europe's electricity supplies whilst providing a low carbon energy
    - provide benefits to local deserts regions in water desalination and horticulture

58. Any adoption of CSP at EU or UK level must take into accounts these caveats
    a. *Desert Solar must provide benefits to the indigenous country and continent.* Simply, it mustn't be yet another energy colonalisation project from the North. Desert Solar can provide desalination and horticultural benefits regionally in Africa – these must be part of any EU/Mediterranean scheme for producer countries. Further Desert Solar could provide energy security to African nations – again, any EU/Mediterrean scheme *must involve energy going South as well as North*.

    b. ***<u>It is crucial that Desert Solar (ie imports from outside Europe) are not counted as either contributions to EU renewable energy targets or UK renewable energy targets.</u>*** Here, what we are suggesting differs from TREC who in their Draft response to the UK government's consultation on its renewable energy strategy[103] support Energy being used within Europe as being counted wherever it is sourced (see details below[104]). **The concern here is that allowing North African sourced renewables to count may slow the development of indigenous wind / marine / solar renewables within Europe.** The EU and UK must not slow down on renewables from indigenous sources. Desert Solar must

[102] http://www.trec-uk.org.uk
[103] At http://www.trec-uk.org.uk/resources/dberr.pdf but now removed.
[104] From Draft response by TREC-UK to the UK government's consultation on its renewable energy strategy, http://www.trec-uk.org.uk/resources/dberr.pdf, section 2.1
· "Renewable energy that is produced outside the EU and delivered to consumers that are outside the EU (eg wind energy in China) should not count towards any EU target for renewable energy.
· Renewable energy that is produced outside the EU and delivered to consumers within a given country within the EU should count towards the renewable energy target for that country.
We [TREC] agree with both points. By extension, we believe that it makes sense for renewable energy that is produced within one country within the EU and delivered to consumers in another country within the EU should count towards the renewable energy target for the country in which the consumers reside. Of course the trading of renewable energy between countries throughout the EU is implicit in the idea of a single European market for energy, something that is being strongly promoted by the European Commission and the UK government and is taking shape now. "

be considered, then, an additional source **over and above the EU existing plans to produce 20% RE indigenously**: that is, an extra bonus level of RE from outside Europe.

59. A key barrier to roll out of this technology is building the HVDC transmission lines and sourcing the metals to build them - apparently, this could be the economic and resource issue that could sink the whole project. Government investment and R&D efforts to solve these key issues is needed as soon as possible.

EU Renewable Energy Directive

A Introduction

60. The DBERR consultation and the UK renewables debate is occurring the context of the EU Renewable Directive (RED) which is currently passing through parliament, having been debated by the Environment and Industry committees.

61. We believe it is absolutely essential to the future integrity of eco-systems, biodiversity and climate, as outlined above, that the Agrofuel and Agroenergy components of the RED are dropped from the legislation. If this is not possible, following the Industry committee, then the RED itself should be dropped, and renegotiated from scratch so that it can be based on true indigenous renewables in Europe: wind, solar and marine energies.

Recommendation 8: ***The UK Government should immediately lobby with its EU partners for the dropping of all parts of the EU Renewable Energy Directive that are based on using Agrofuel (biofuel) and Agroenergy (Biomass/Bioenergy) technologies.***

If these parts can no longer be taken out of RED, then the UK Government should work in Brussels for the complete suspension of the RED legislation and demand that the EU Commission goes back to 'the drawing board' to rework RED based on true European sourced renewables from within Europe.

62. Much evidence has been presented in this response to the Government. If the UK Government fails to move to take mass scale Agrofuels and agroenergy out of its energy mix, then people from the Southern nations will rightly, in the future, hold us liable for the ecological and humanitarian debts associated with the increases in GHG emissions, deforestation and human rights abuses that we have catalogued above.

Appendix 1 – Summary of recommendations

Recommendation 1: The Government should focus its policy for transport sector GHG emission reductions on demand reduction strategies, first and foremost. Policy and resources should be directed to this before technological solutions.

Recommendation 2: The UK Government should call for the stop to all deforestation and destruction of peatlands worldwide to protect ecosystems, biodiversity and future climate.

This position should be taken forward by UK ministers in the UN and international talks with urgency at the upcoming Poznan talks to move towards a ban on all deforestation at the Copenhagen climate talks. To facilitate this, the UK Government should respond to the detailed call for changes to policies that are driving deforestation and are laid out in the 'Protecting the world's forests needs more than just money' call from many NGOs from South and North at the Bali talks.

Recommendation 3: The UK plans imminent large scale production of ethanol from wheat. This should be abandoned immediately on three grounds –

- *converting food crops to fuel impacts the food security of millions*
- *UK food security is also threatened at a time when we already rely far too much on imported food that has embedded fossil fuel costs and carbon emissions*
- *Production of ethanol from wheat makes no significant emission savings, and most likely is worse than fossil fuels.*

Recommendation 4: The UK should also lobby at the EU level to stop the wider use of wheat as a crop for ethanol and industrial scale biogas to prevent diversion of millions of European hectares of land from food production into fuel and energy production.

Recommendation 5: The Government should ask the Malaysian and Indonesian governments for a response to the UNPFII report on biofuel refugees resulting from Oil Palm plantations.

Recommendation 6: The Government should immediately suspend its biofuel policy including the RTFO, tax discounts for biofuels and direct subsidies given to agrofuel research and production. The savings from the RTFO budget alone would be over £0.55billion and should be diverted into other true climate change mitigation measures.

Recommendation 7: The Government should immediately suspend subsidies for industrial Agrofuels and vegetable oils for use in the energy sector via Renewable Obligation certificates (ROCs), and related tax discounts for such fuels and direct subsidies given to their research and production.

Recommendation 8: The UK Government should immediately lobby with its EU partners for the dropping of all parts of the EU Renewable Energy Directive that are based on using Agrofuel (biofuel) and Agroenergy (Biomass/Bioenergy) technologies.

If these parts can no longer be taken out of RED, then the UK Government should work in Brussels for the complete suspension of the RED legislation and demand that the EU Commission goes back to 'the drawing board' to rework RED based on true European sourced renewables from within Europe.

Appendix 2

On the eve of the RTFO, I published this article in the Eastern Daily Press that lists some of the warnings that the Government was ignoring in bringing in this legislation.

Saturday, April 05, 2008

Stillborn policy waiting to become a monster

Despite its insipid name, the Renewable Transport Fuels Obligation (RTFO) is dangerous new legislation being introduced on April 15 that forces biofuels to be blended into the UK fuel supply.

It is the policy child of wider EU plans to mandate massive amounts of biofuels into petrol and diesel across Europe. For four years, I and others have warned that these EU targets will wreak havoc on the climate and food supplies, and eco-systems and people in the global South.

Although the RTFO has had a long gestation, only now are these concerns being echoed by senior scientists and policy makers creating a quandary for the government.

So who would relish the jobs of Ruth Kelly, transport minister, and deputy Jim Fitzpatrick in implementing this legislation as the voices calling for a suspension of the 'law of compulsory blending' become stronger, louder and more persistent?

■ January 14 – a Royal Society report warned that biofuels could do more damage than fossil fuels by accelerating rainforest destruction.

■ January 15 – policy 'grandfather', EU environment commissioner Stavros Dimas, tells the BBC that "environment problems caused by biofuels are bigger than we thought", and suggests that targets might have to be put on hold.

■ January 20 – a group of MPs, the Environmental Audit Committee publishes a report 'Are Biofuels Sustainable?', that calls for moratoriums of UK and EU targets.

■ February 8 – peer reviewed scientific studies show that converting land for biofuel plantations creates a biofuel 'carbon debt'. It would take 840 years of biofuel production to repay the carbon debt in destroying peatland rainforest. Even for agricultural land reclaimed from US conservation land (similar to set-aside in UK), the figure is decades.

Asked by a journalist how policymakers might react, I replied that I could only imagine that London and Brussels were in panic. Within 10 days, Ruth Kelly announced the 'Gallagher Review' on the indirect impacts of biofuel policy – a desperate response to this research.

■ February 26 – the UN's World Food Programme warned that due to rising food prices, it is short of $0.5bn just to meet existing food aid deliveries. Its advisers estimate that the rush to biofuels is 30pc of the cause of these rising food prices.

Meanwhile, Europe plans for a 12-fold EU increase of wheat based ethanol refineries. Last year's UK wheat surplus was around 0.75 million tonnes, and ministers here plan an expansion in ethanol refineries specifically using wheat that will take the UK into a 3 million tonne deficit by 2010.

■ March 8 – the government chief scientist, John Beddington, warns that the rush towards biofuels is theatening world food production and the lives of billions of people.

■ March 24 – Prof Bob Watson, DEFRA chief scientist, says "it would obviously be insane if we had a policy to try and reduce greenhouse gas emissions through the use of biofuels that's actually leading to an increase in the greenhouse gases from biofuels." – a none too oblique reference to the RTFO.

Yet DEFRA will disregard its chief scientist, and the government carry on regardless, as when I asked DEFRA minister, Joan Ruddock, on the March 28 EDP 'On the Spot' online debate – her bland response "the advice of our chief scientist, Bob Watson, will of course continue to inform our future thinking on this subject."

On April 1, RTFO minister Jim Fitzpatrick gave the thin excuse to Parliament that the government could not suspend the introduction of the RTFO without tiresome debates in both Houses of Parliament. Well, yes, but isn't that what Parliament is for when it is clear that legislation is dangerously misconceived?

And how independent can the 'thinking' of Gallagher Review be, when it will be carried out by the Renewable Fuels Agency that was set up by the Department of Transport to roll out biofuels? It's rather like asking Dr Frankenstein to appraise his creation. In any case, its initial report is late June, two-and-a-half months after the RTFO starts on April Biofools Day.

The RTFO is a stillborn policy, for it is unviable as a mechanism to reduce UK carbon emissions and there is now little public confidence in it. Further, the RTFO is an irrelevance anyway as the EU plans to do away with any member country biofuel legislation after 2010 – they are seeking to impose European-wide legislation for much greater biofuel levels from then on. So the policy may be stillborn, but the monster still exists.

April Biofools Day will be marked by protests on April 15 including a demonstration outside Downing Street at 6pm, but the real work is in stopping the monster – see www.biofuelwatch.org.uk for details.