Flying food

Workshop report

A report of a civil society workshop on 4th April 2008

FOOD ETHICS COUNCIL

Contents

We would like to acknowledge the support of the Network for Social Change in making this project possible.

Network for Social Change

Key points

- Despite the intractable differences that underpin the 'food miles' / 'fair miles' debate, for example over models for development and the allocation of greenhouse gas (GHG) emissions, it is possible to find **shared criteria** by which environment, development and consumer groups will judge retailers' behaviour on air freight.
- Compared with other food sector sources, air freight makes a small contribution to GHG emissions, accounting for 0.3% of total UK emissions against the 8% associated with meat and dairy production. Business initiatives to reduce emissions will be judged on how they address **absolute GHG hotspots**. Businesses should be wary of 'carbon hypocrisy', where air freighted goods are replaced with even more carbon-intense substitutes.
- Opinion is divided over whether the contribution of air freight to overall emissions is significant. For those who are concerned, the key problem is that air freight is **projected to expand**, locking exporters into unsustainable trade practices.
- Some kinds of air freight are **better** for development, and **less harmful** to the environment, than others. While rules of thumb can be developed to help identify these, the complexity of the issue defies hard and fast benchmarks based on criteria such as country of origin.
- While products from poor countries are better placed than those air freighted from wealthy countries to benefit economic development and social justice, **country of origin** is not agreed to be a simple indicator of development benefit, any more than 'food miles' are agreed to be simple indicators of environmental harm.
- By contrast, maximising flight efficiency is a widely agreed priority, though freighting products in the **bellyhold** of passenger flights might not always be more efficient than dedicated freight.
- Another widely shared priority is to limit the use of air freight for **'emergency' top-up** to guarantee continuity of supply. This is because the practice can be associated with high pressure, short term contracts, contributing to labour exploitation. This challenges current retail and consumer expectations on the availability of fresh produce.
- Requiring GHG-intensive supply chains to meet development-related **standards** may have a role but is self-defeating if it creates barriers to market access. Sharing standards and spreading of the audit burden could reduce this risk.
- Retailers should be explicit about how they see themselves as **'partners for development'**. Just as the environmental harm of air freight needs to be seen in the context of GHG hotspots and the sector's growth trend, so should development benefits be approached strategically. Brand-level codes on GHG reduction and development may help achieve a higher development return per unit of environmental cost.

Introduction

The question of air freight has raised the temperature of the 'food miles' versus 'fair miles' debate. Greenhouse gas (GHG) emissions of flying are pitted against benefits for poverty alleviation in poorer countries that produce fruit and vegetables for the UK market.

The public face of the debate about whether air freight is a force for good or bad has become polarised, fuelled by some deep differences in values that we will not resolve here. But while the debate is seemingly at an impasse business goes on, so industry and policymakers have grappled with the problem in the face of mixed messages from civil society. Arguably, the results have done little *either* to reduce emissions *or* to alleviate poverty.

On 4th April 2008, the Food Ethics Council held a workshop designed to identify shared messages on handling the air freight dilemma *in spite of* ongoing differences. This would inform a report offering practical guidance aimed particularly at food retailers. The workshop brought together people from civil society, working on environment, development and food issues, who have played a key role in shaping the air freight debate.

We are very grateful to all who attended, and especially our speakers – Rose Bridger (independent consultant), Tara Garnett (Food Climate Research Network), Bill Vorley (International Institute for Environment and Development) and Ken Hayes (Soil Association) – who contributed considerable knowledge of the sector and the issues and impacts surrounding the debate and set the tone for the subsequent productive exchange of ideas. Speakers' presentations are included in an appendix to this report.

This report outlines points raised during the meeting. Contributions are not attributed. The report was prepared by Lucy Alston and Ruth Segal, with Paul Steedman and Tom MacMillan. It represents the *Food Ethics Council's* synthesis of views which should not be ascribed to any specific individual or organisation who attended the workshop.

What's flying, how?

Although a wide variety of products are flown, the air freight of food, especially fresh fruit and vegetables (FFV), has come in for particular scrutiny by environmentalists. Accounting for approximately 15 % of global air freight by volume, perishable goods requiring temperature control represent one of the largest and fastest growing air freight sectors (increasing by approximately 10% annually). FFV, along with fish and ornamental plants, form the most significant part. This fresh produce is part of a bigger, interlinked web of food-related air freight that also includes prepared foods, animal feed and non-perishable products. Agricultural and industrial equipment is sometimes transported on incoming flights to exporting regions.

Around two-thirds of freight is carried in the bellyhold of passenger aircraft

but this pattern is changing. Although bellyhold transport is itself set to increase, there is a shift towards greater use of dedicated freight planes. These vehicles tend to be older and less efficient than passenger craft.

Climate change

The climate change impact of aviation has recently assumed a much higher public profile, aided by civil society campaigning including last year's Heathrow-based 'Camp for Climate Action'. Aviation is the most GHG intensive form of transport – it tends to dominate all other life cycle impacts for air freighted food. Current figures suggest that less than 1% of all food is imported by air but it is responsible for 11% of total food transport CO2 (including car trips). There are indications that the true level of air freighted goods reaching the UK is under-reported. Although industry-wide figures are available, there is a lack of clear and accessible corporate reporting at the airport and carrier levels. As a result, the true picture is unclear: for example, at present products which are air freighted into mainland Europe then transported to the UK by truck would not be counted in UK GHG emissions from air freighted food. Additionally, some products undergo multiple connecting flights, e.g. fruit salads composed of products from 'more than one country of origin'. Even allowing for this, perhaps a maximum of 2% of imported food is air freighted.

The total carbon impact of flown food is bigger than the flights alone. The supporting infrastructure and chill-chain have potentially significant carbon emissions too.

Lock-in

For critics of air freight, the sector's growth trends in emissions and energy use cause greatest concern. Air freighted food is growing rapidly (according to Defra's revised statistics, food air miles rose 11% in 2005-6). Industry projections predict freight traffic will increase by 6.1% per year over the next 20 years. This seems to go against the grain of current scientific advice on the emission levels required to limit global average temperature change to less than 2°C.

Growth in the air freight of food is underpinned, and in part driven, by infrastructure expansion. In many countries, this expansion is heavily backed by investment from governments, international financial institutions and corporate interests. As well as airports, runways and freight terminals, this infrastructure includes 'agricultural aligned export zones' – land around airports/transport hubs dedicated to export agriculture. Given this level of investment – high both in absolute terms, and relative to other types of infrastructure – the worry is that supply chains could become 'locked in' to air freight even as less GHG intensive, more energy efficient and more resilient forms of distribution become available. Air freight may be

particularly exposed to high 'post peak' oil costs.

This concern over lock-in is one reason critics argue that, regardless of whether the volume of air freighted produce should be reduced, it should not increase. This argument is not discussed further here.

Development benefits

The controversy over air freight exists because, whilst being GHG and energy intensive, it has opened up opportunities to access lucrative export markets for some producers in developing countries, especially in Sub-Saharan Africa. Over 100,000 rural Africans are employed in the FFV export sector in Sub-Saharan Africa, roughly split 50/50 between small-scale farmers and employees on larger farms. It is estimated that a further 100,000-120,000 people are employed in support services for these producers and employees. And, arguably, there are further 'spillover' benefits, in terms of technology, food safety, improved access to inputs, credit and extension services, though the extent of these is contested.

Production for export can also have development downsides, for example poor labour standards and working conditions on some farms. Much bigger questions, beyond the scope of this work, also remain about the place of export horticulture in development strategies. Some argue that, at least under current trade rules, it is an extractive approach that continues to divert resources from the global South to the North and threatens local food security.

Equity and allocation

The picture is further complicated by disagreement over where and to whom the carbon emissions from these FFV supply chains should be allocated.

The concept of ecological space helps to frame this dilemma: to stabilise levels of atmospheric CO2, global per capita carbon emissions need to be a maximum of 2.2 T per annum, decreasing to 0.32 T by 2030. Yet the current per capita carbon footprint in Kenya is 0.2 T, while in UK it is 9.2 T and this discrepancy is longstanding. In broad terms, the developed world is in major carbon debt to Least Developed Countries (LDCs). Ethical principles – respect for freedom, fairness and wellbeing – suggest that developing countries should be able to use their own ecological space for their development.

Developing countries have been encouraged to add value to primary products as a means of escaping the historically low commodity price treadmill. In some cases adding value has depended on the capacity to air freight processed goods such as cut fresh pineapple. Air freight has provided entry to markets that would otherwise be inaccessible. The importance of preserving global market access for developing country producers remains a key issue, although these views themselves meet some sceptical voices, posing 'food sovereignty' as a more appropriate basis for

development. This is not an argument that can be resolved here.

If carbon emissions from African FFV are allocated to Kenyan producers, Kenyan emissions per capita would still be tiny in contrast to those of UK consumers.

Yet in the absence of a post-Kyoto framework that includes developing countries, allocating emissions to producers is in itself problematic in the medium term, since it allows for uncapped carbon growth in developing countries.

Responsible retail

The benefits, risks and viability of air freight hinge on major policy developments that affect such factors as the allocation of emissions and the terms of market access. Yet the most immediate and far-reaching day-to-day decisions affecting air freight are made by retailers. This discussion focused on how civil society will judge what retailers do about air freight.

The most visible response by some retailers to the dilemmas around air freight has been to apply labels to air freighted fresh produce, allowing consumers to 'make an informed choice'. It is not clear that the labels have delivered this outcome. Evidence, both statistical and anecdotal, suggests that sales of labelled products have changed little, while consumer understanding of the labels has been patchy. Some consumers have understood the label to indicate that the product is speedily delivered and hence especially fresh. The development benefits or carbon costs of flying are not explicitly raised by the label.

At the same time, the move to label products poses some ethical questions about retailers' responsibilities to producers and consumers. If the labels had led to a drop in sales of – for example – Kenyan green beans, did retailers have plans to soften the landing for vulnerable suppliers? And, in any case, is it fair for retailers to shift the burden of decision making in this contested area onto shoppers?

Our starting point is that retailers could do better for the environment, development and consumers. The rest of the report explores how. As supermarkets compete on sustainability and seek to build more resilient supply-chains, meeting expectations on air freight should also benefit their business.

Hotspots & hypocrisy

A strategic aim for retailers must be to reduce the carbon footprint of the food system as a whole. So if retailers are seeking to develop policies on air freight they must also address – with at least as much vigour – other areas of the food system that are bigger GHG hotspots.

Meat and dairy, for example, account for 8% of overall UK GHGs (on a consumption basis), in comparison with fresh fruit and vegetables' 2.5%, and air freight's 0.3%. While meat and dairy consumption may seem a challenging

issue to raise with consumers and suppliers, its importance in terms of carbon emissions is little disputed and there are fewer development trade-offs.

Crucially, any responses to air freight must avoid 'carbon hypocrisy', whereby air freighted goods are replaced with even more carbon-intense substitutes. It is inadequate to scrap air freighted green beans on the grounds of climate change, simply to replace them with 'local' hot-housed ones, with a higher carbon footprint.

Policies on air freight – or other carbon-intensive activities – should also take account of their implications for wider ecological issues beyond climate change, such as water extraction, biodiversity and other forms of pollution.

Having put air freight in context, we should not throw the baby out with the bathwater. Air freight *is* a disproportionate emitter of GHGs compared to other modes of transport, and on current growth trends will only become more important. Yet to be perceived as more than tokenistic, policies must be part of a strategic approach that takes account of the expected growth in air freight and potential for locking developing countries into an unsustainable system. Taking a longer term view entails questioning what the system might look like in 5, 10 or 15 years time.

More than this, the air freight issue can be seen as a lens which brings global supply chains, power relationships and development issues into sharper relief. It is leading to a wider debate on how retailers (and others) can develop more coherent policies on producer-consumer relationships, and has begun to generate thoughtful discussion on what it might mean for a retailer to say they are a 'partner in development'.

Evaluation criteria

In this context, are some kinds of airfreight better or worse for development and the environment than others? What criteria can retailers use to focus any efforts to promote or limit air freight on social or environmental grounds?

For example:

- Is air freighting non-food products worse than flying food?
- Is it more acceptable to fly goods that are highly perishable than those that are relatively durable?
- Does the country of origin make a difference? Is air freight from rich countries less acceptable than that from poor countries?
- When it comes to 'value-added' products, does it make a difference whether the processing – as well as the primary production – takes place in a developing country?
- Is it more acceptable if the transported items are 'essentials' rather than 'luxury' goods?
- What about if the type of agricultural production system used to grow produce in the first place is relatively low impact?

- Is it better if a product flies in the bellyhold of a passenger plane, rather than aboard a dedicated freight plane?
- Can imposing ethical trading standards tip some air freight from being worse to being better?
- Is 'top up' air freight especially problematic?
- Is it relevant whether fresh produce is in season at the point of consumption?

None of these criteria can give a straight answer about whether one example of air freight is better or worse than another. Combined, however, some of them can point in the right direction.

Origin

It is difficult to use country of origin as a straightforward indicator for 'better' air freight because it is too blunt an instrument for identifying air freight that delivers socially-just economic outcomes. Fruit flown from rich countries – strawberries from the USA, for example – may benefit poor people in need, while the profits from vegetables from developing countries may flow mainly to the wealthy.

Country of origin may not be sophisticated enough to be used as an evaluative tool, but there is consensus that the underlying thinking – that 'better' air freight should deliver socially-just economic outcomes – is sound. Retailers need to be clear how they can assess and demonstrate that their activities – especially where there are other downsides such as high levels of carbon emissions – are 'pro-poor', wherever they are sourcing from.

Efficiency

At first glance it might seem that food travelling bellyhold might be preferable to dedicated freighting. After all, would passenger planes not be 'going anyway'? Further, bellyhold freight can be a way into export markets for value-added produce for countries that cannot afford to develop dedicated freight facilities. Add to this the fact that freight-only aircraft tend to be older and require more dedicated infrastructure, and it seems a watertight case.

However, a policy of insisting on bellyhold-only produce might produce some perverse incentives. In aviation, tourism and trade are closely interwoven: freight currently subsidises passenger flights by up to 15%. Insisting on bellyhold could mean carriers flying more passenger routes, or encouraging less efficient use of seats (e.g. flying more half-full planes). Such a policy might also be more likely to hit specific communities of poorer growers who depend on freight-only facilities.

Bellyhold versus dedicated freight is therefore perhaps something of a red herring; the key is to ensure use of more efficient aircraft and to utilise planes that are flying as efficiently as possible (e.g. through full loading).

Given current trends for the expansion of aviation and associated infrastructure, with the concomitant risks of 'lock-in', further work is needed to disentangle the subsidy relationships between passenger and freight flights, and to understand what makes the difference between whether an extra plane flies or not – and indeed whether new airport facilities are built or not. Further, if aviation as a whole needs to cut its emissions – and potentially restrict its growth – there needs to be a clear-eyed assessment about the relative costs and benefits of flying people versus flying things, if there has to be a trade-off.

Finally – and this is a point that goes well beyond the aviation debate – if regulatory or fiscal intervention is needed by the state to encourage positive change (for example, to further incentivise the most carbon-efficient forms of flying or even to halt expansion) then retailers should actively support its introduction and not lobby against it.

Standards

The Soil Association consultation on aviation and their organic standard has highlighted the potential for using ethical trading standards as a way of identifying 'better' air freight. But it has also highlighted the risk that standards can be self-defeating if the costs of accreditation, certification, verification, etc. are so high that they exclude large numbers of poorer suppliers from the market altogether.

If retailers wish to use standards – such as Fairtrade – to drive their air freighted goods towards the 'better' end of the spectrum, by supporting socially-just economic outcomes, it is essential that the costs of meeting them are not passed on to poor producers. Retailers should be transparent about how they ensure any standards are met in ways that minimise barriers to market access.

Some starting points for thinking on this include: options for spreading the costs of sustainability accreditation / certification throughout the supply chain, picked up by all who benefit; a central financial pot subsidising smaller players to enter a certified market and publicly funded mechanisms to make Life Cycle Analysis (LCA) cheaper.

The burden of standards and reporting requirements should be minimised by, for example, not demanding complex LCA to be conducted by primary producers or setting multiple private standards (i.e. one owned by each of the supermarkets).

Availability

A key challenge is how retailers should work with consumers to both meet and question their expectations, in order to deliver environmental and social benefits. The issue of 'top-up' air freight is an important illustration of this challenge.

Air freight's high cost means that it is rarely the first-choice option for transporting products. However, a significant use of air freight is in

'emergency' top-ups, in order to guarantee continuity of supply for relatively short periods when products cannot be sourced from more 'local' suppliers or transported by ship, rail or road. In these cases, there may be social as well as environmental disbenefits. The pressures on suppliers created by spikes in retailer demand, with exceptionally short lead times, especially if outside long-term buyer-supplier relationships, sometimes create or heighten exploitative practices among developing country producers and processors.

Avoiding the need for emergency top-ups will require some significant rethinking, however. It poses a challenge to the low-stockholding 'just-in-time' model at the heart of the modern supermarket and requires more committed relationships with suppliers. Potentially, and even more radically, editing out 'emergency' air-freighted fruit and vegetables may challenge the accepted notion that every type of produce should be available on the shelf all the time. This would require significant work to explain the change to shoppers, and significant changes of view within industry incentive structures too. Ongoing campaigns by retailers to change perceptions of aesthetically-imperfect fruit and vegetables, demonstrate how consumer expectations can change hand-in-hand with retail buying policy.

If retailers (and consumers) place a lower premium on constant availability, the broader question of 'seasonality' comes into view. The role of seasonality in the air freight debate needs further discussion. Nonetheless, the possibility of more seasonal eating alerts us to the fact that some of the oft-cited horticultural dilemmas (greenhouse-grown UK tomatoes versus trucked Spanish ones in winter) may be too simplistic. Studies showing that flying in roses from Kenya can be less carbon intense than shipping them from hothouses in Netherlands, distracts us from asking whether we should use in-season outdoor-grown UK flowers instead.

Partnership

The big post-Kyoto question is what genuine partnership for development, that takes account of historical carbon debts, could look like? In practice, what should supply networks do to be better in development terms and where do retailers (and other institutions and commercial interests) fit?

Retailers could make a positive contribution to the debate by being open and explicit about how they characterise their role as a partner in development. Some prompts for underlying principles and approaches might include:

- Analysing value chains to ensure sufficient money is returning to the primary producer. This may include favouring supply chains where processing takes place in the country of production and – if the evidence supports it – where the means of production are owned by the local community, and/or

worker-owned and cooperatively run farms.

- Introducing labour standards (and bearing the costs) and/or price premiums or thresholds.
- Adopting strategies that lead to an incremental decrease in oil dependency over time.

Equally, it could be possible to agree a set of principles on carbon, addressing the broader issues discussed above, which could be developed into a carbon code that retailers could sign up to.

To address the problem in a genuine way, any such codes would require strict reporting standards and proper enforcement.

Codes for 'good development' and responsible supplier partnerships, as well as 'good carbon management' could help in devising a metric by which pro-poor economic benefits could be weighed against environmental harm, in the manner of 'socially-just economic benefits per tonne of carbon'. Such a metric might help further in identifying 'better' air freight.

Conclusions

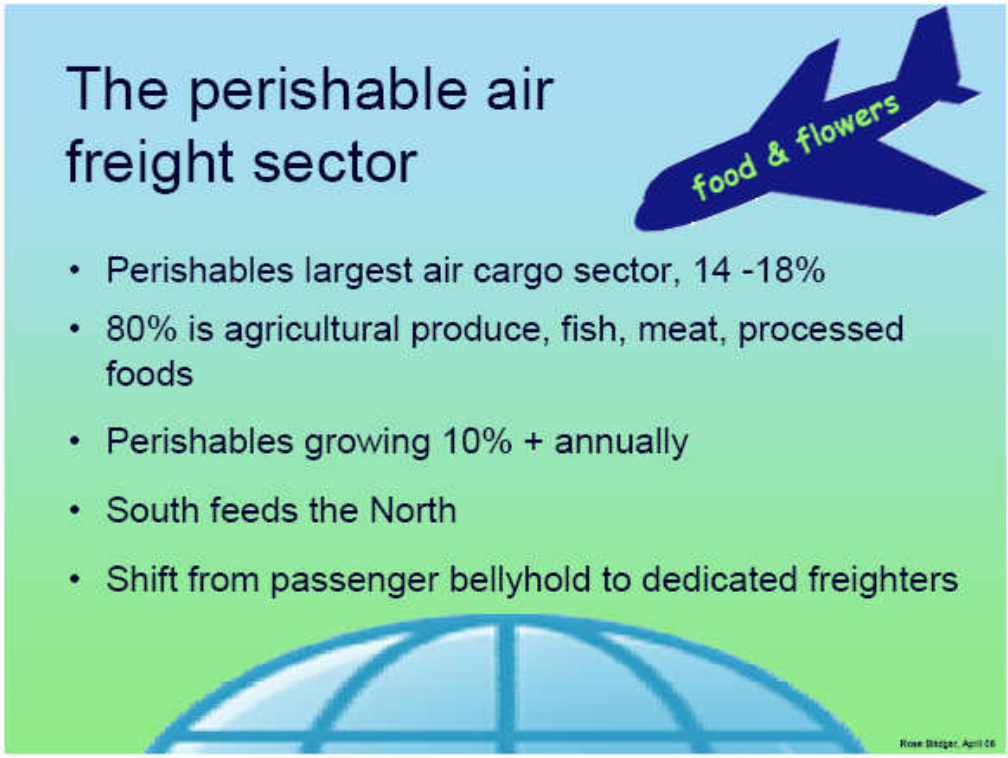
The debate over air freight has matured quickly over the past year. While deep-rooted differences in worldview remain between some of the most influential protagonists in this debate, those differences pose a diminishing barrier to practical interventions that promise to benefit the environment, development *and* consumers.

Civil society has a key role to play in setting the benchmarks for credible business action on the environment and development. Retailers should expect increasingly clear guidance from civil society on the relative environmental costs and development benefits of different kinds of air freight. Over and above this, retailers' performance will be judged on their success in taking a strategic approach to environmental and development issues at a brand level. This must clearly demonstrate that they are partners in development, building resilient supply chains fit for an uncertain future, and that they are providing solutions to match the scale of the environmental challenges that we face.

Based on this meeting and on subsequent discussions with retailers, the Food Ethics Council will publish a separate report that makes recommendations for business and policy in relation to the air freight debate.

Appendix: workshop presentations

This report owes a debt of gratitude to the work done by those who gave presentations at the workshop. Their original slides are presented below, in the order in which they were delivered at the workshop.



Many types air cargo – consumer goods and components for their manufacture, mail, hazardous, heavyweight e.g. construction materials, oil & gas…

All kinds food - bananas, wine, whisky, confectionery, pet food…

Specific segment - perishable air freight sector

• Perishable means temperature sensitive - largest sector, 14 -18% of air cargo by volume

• Chemicals, medicines. 80% = agricultural produce (fruit, veg, ornamental plants - cut flowers, also foliage, border plants, fish, meat, prepared foods.

• Perishable is fastest growing air cargo sector 10% + annually – industry estimates, globally

• South feeds the North. Up to 80% of some African and South American countries' air freighted exports are perishable produce (World Bank, 2006). Growing exports to ME, Asia/Pacific, substantial exports from wealthy countries e.g. Scandinavian fish. Australian veg.

• Shift from bellyhold of passenger flights to dedicated freighters (OECD 2006), capacity 100+ tonnes

Air freighted food hot topic, what's actually going on at airports?

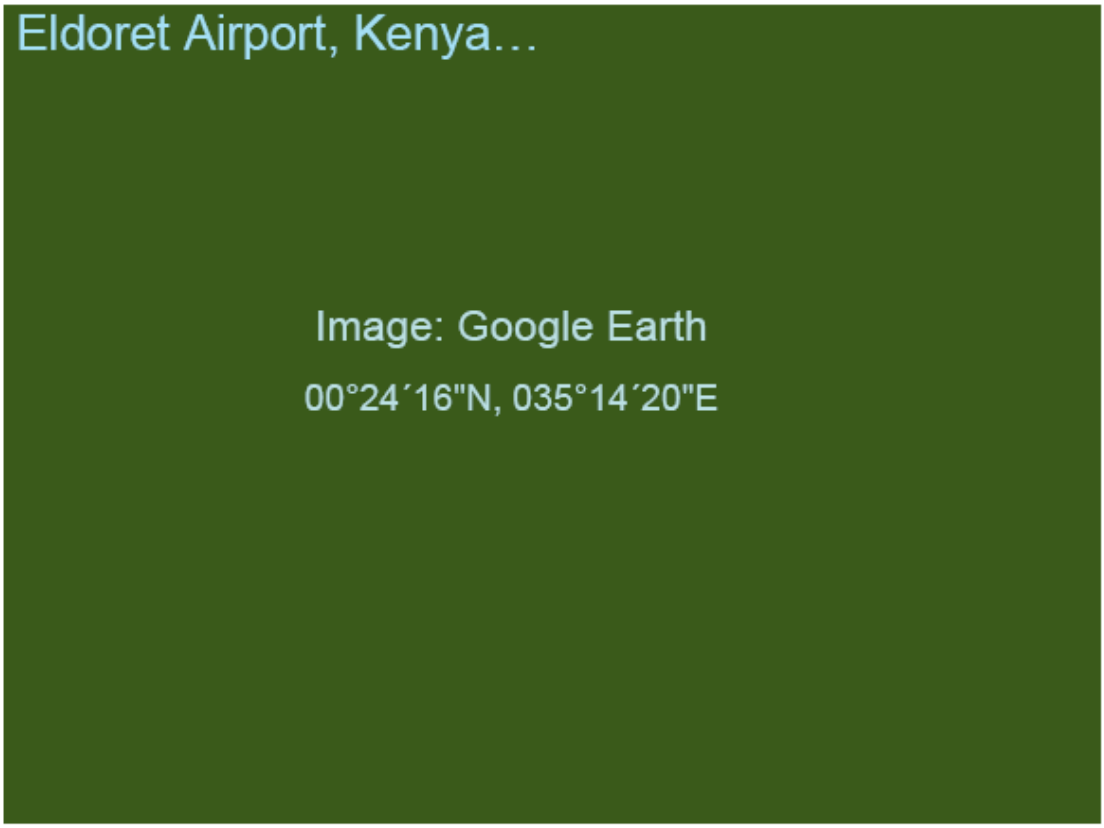
Imports up 31% in 2006 (Defra, Oct 07) revised to 11%

- Heathrow – BAWC 2006 115,000 tonnes - fruit, veg, fish, other carriers e.g. Virgin
- Stansted - a lot trucked to Heathrow
- Gatwick – "
- Kent – 20,000 tonnes + 2006
- Manchester – including on short haul from Spain & Turkey?
- Humberside - fish from Iceland, export processed products
- Robin Hood – import flowers from Florida, export lobsters to Spain
- Glasgow Prestwick – exports include seafood products, whisky

Small amounts, several other airports, 68 in UK registered for freight,

Multimodal, air imports to mainland Europe – Germany, Netherlands, France etc. some of it trucked here.

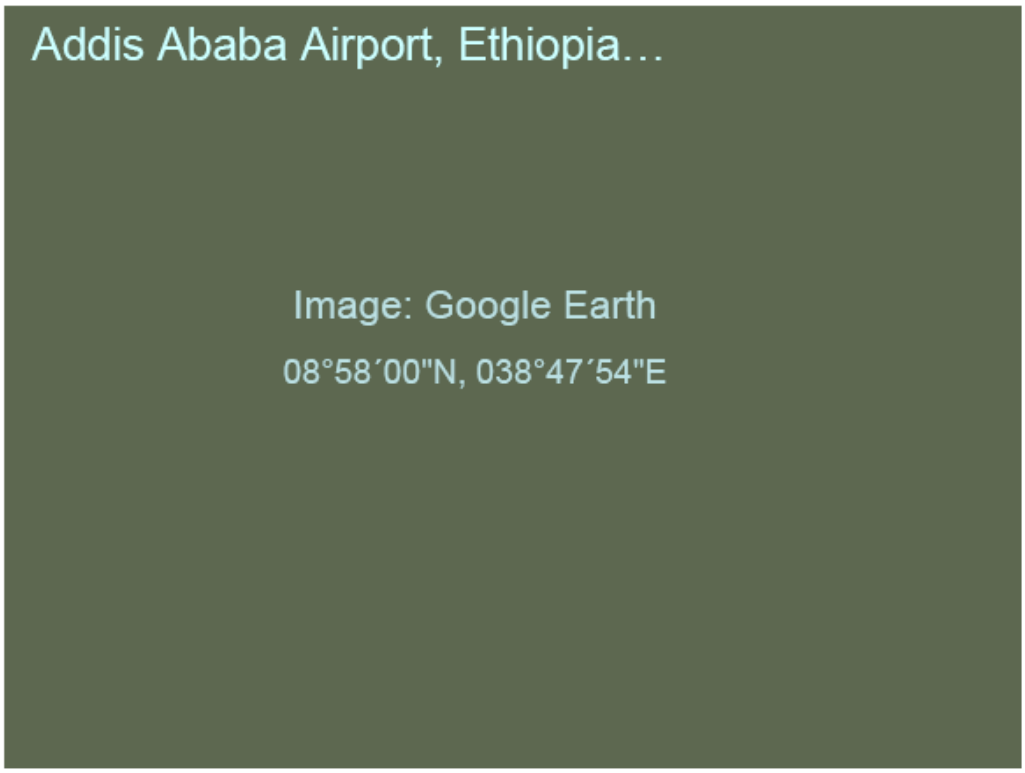
Where from? Kenya, still. In recent conflict freight flights held up better than tourism, armed guard for trade corridors. Not just from Nairobi, Mombassa



Eldoret Airport, Kenya, Rift Valley conflict

150 tonne cooler, first flights flowers to Europe in Feb 08

What about requisite infrastructure at expanding and new airports?



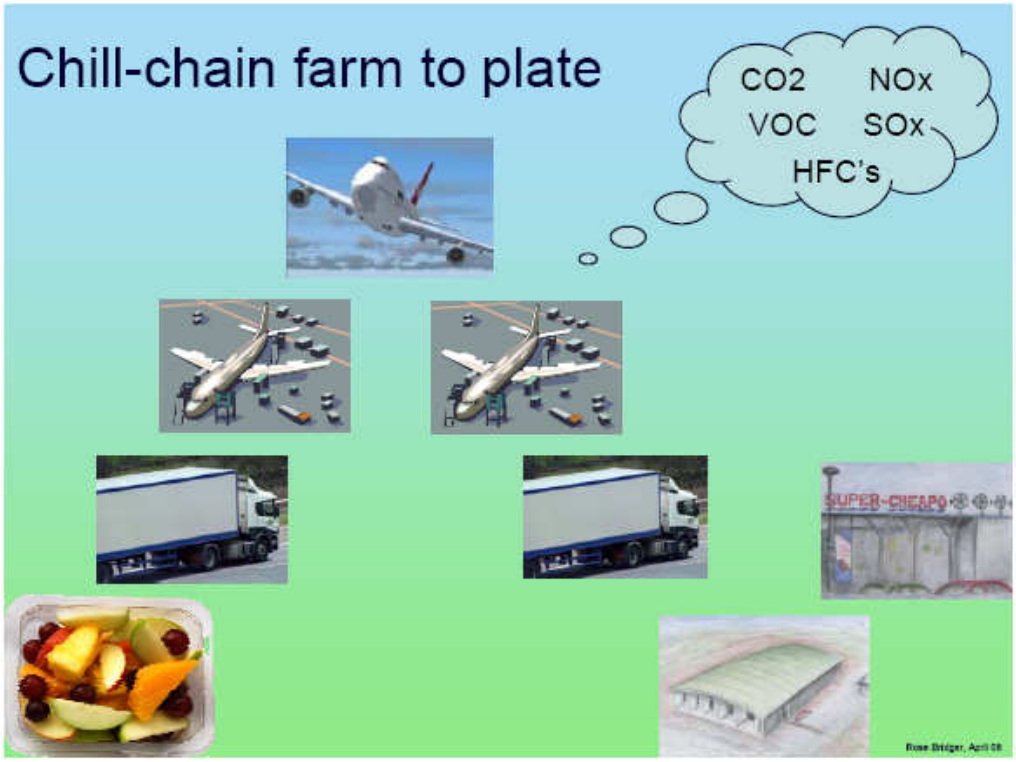
Addis Ababa Airport, Ethiopia cargo terminal – Flowers, UK 2nd biggest market for roses. Also growing quantities of veg, fruit.

Another P export terminal? EHPEA target $1.4 billion within 5 years. Fertile land around airport designated for export. Subsidies, incentives, tax breaks - 750 ha free to investors, free water …

Kenya and Uganda, farms threats of relocating. Lowering production costs a concern. Firms chasing comparative advantage in the form of incentives.

Looking globally at new & expanding airports perishables is widespread & prominent. UK often a key target market, e.g. Thai shelf-ready perishable products flown to Europe, 60% sold in UK supermarkets (Bangkok Post, Sept 2007).

Export infrastructure regardless of oppressive regimes, conflict, displacement of people, unreliable weather reducing agricultural yields. All of which impacting on food security and hunger.



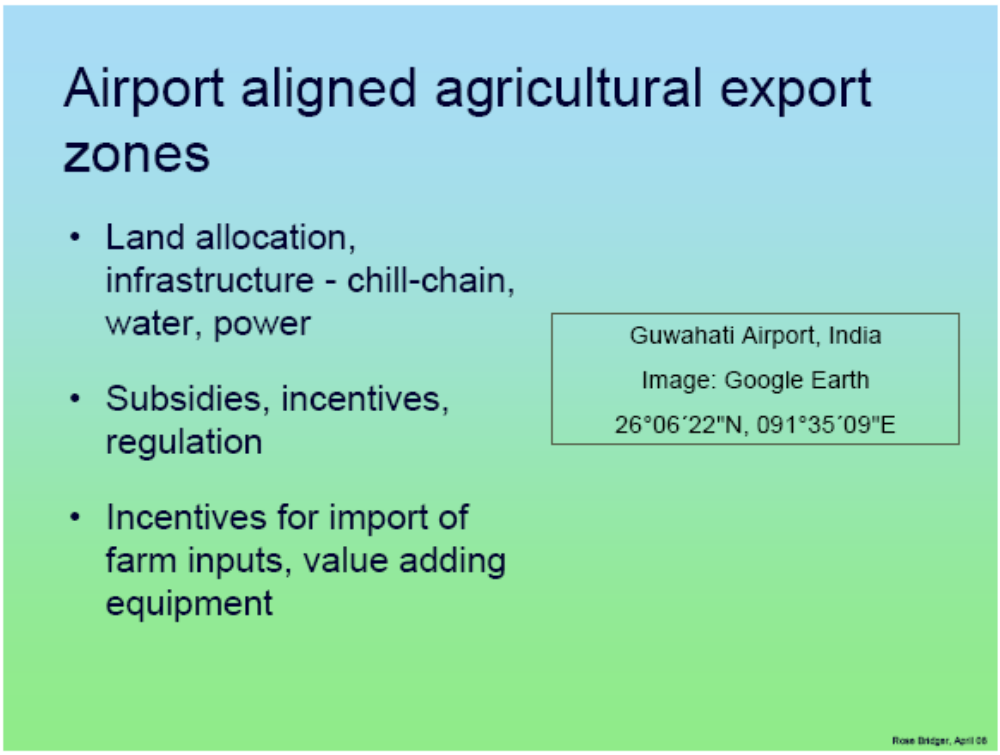
Not just airport facilities. When walk into refrigerated aisles at SM, chill-chain extends around the globe.

Temp control on plane, or planes, interconnecting flights x ? via Dubai, Cairo, Delhi, Sri Lanka, Jamaica…

Fruit salads, mixed veg – labelled 'produce of various countries', multiple connecting flights.

"Weather proof pipeline" – contributor to climate chaos outside … Fossil fuel dependent, refrigerants potent GHG's

Industry estimates 30-35% thrown away, pre-consumer.



Along with chill-chain, airport centric development – 'Airport aligned agricultural export zones'

Designated, adjacent to airport or via dedicated trade corridors. e.g. Sri Lanka, Gambia, Tanzania, India. Effectively part of airport complex. Can be multimodal.

• Allocation of land - resources, power, water funnelled into developments.

• Supported by soft infrastructure – subsidies, regulatory infrastructure. E.g. Guwahati Airport -India designated export hub, up to 50% or 90% subsidy on internal air freight costs of some types of produce for export from Mumbai or Delhi, where monthly volumes of perishable exports more than doubled compared to previous year (Cargo Talk, March 2008)

• Incentives for imports for export supply chain - farm inputs, value-adding e.g. packaging & processing.

What's flown around?

Trace airborne food chain further back than the farm.

Return flights – often almost empty to Kenya (World Bank 2006)

or…

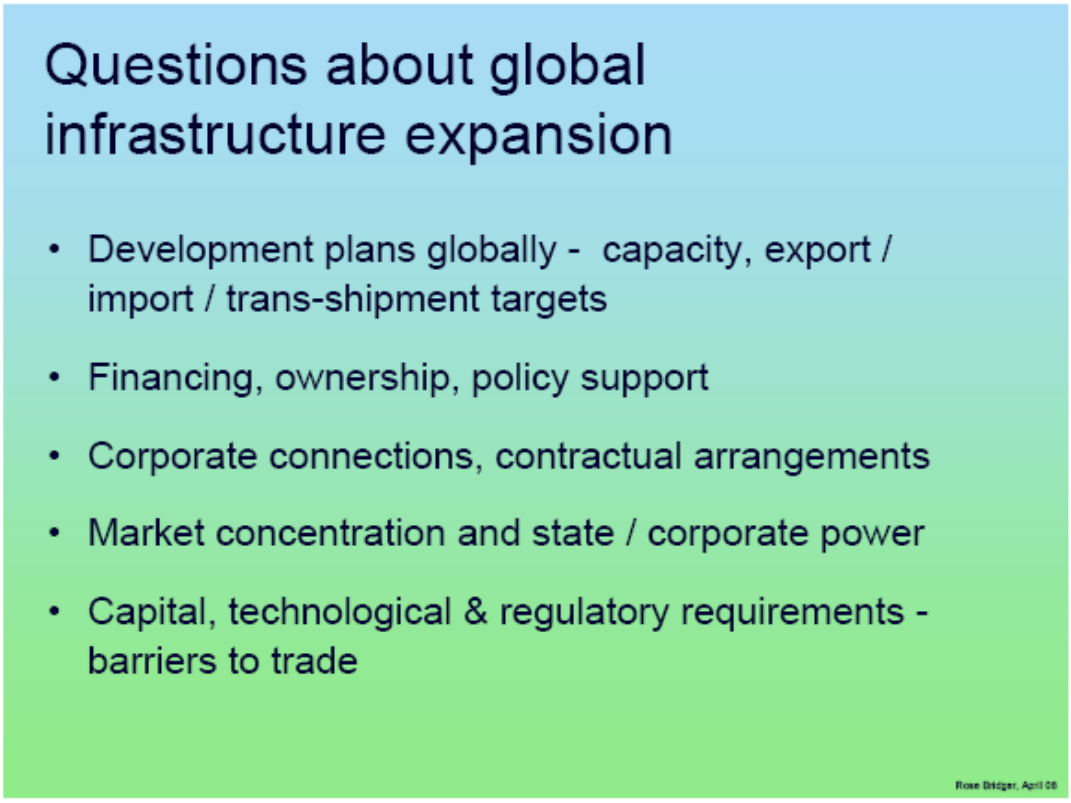
Can be flown in:

Livestock, veterinary products, full complement farming inputs, agrochemicals, seeds… export horticulture can be input intensive.

Heavy equip – farming, refrigeration equipment. Grown in the sun? India, Kenya, Colombia, Ethiopia being plastered in plastic greenhouses.

Food aid, back to countries exporting fresh produce.

Incoming flights frequently oil exploration and extraction related e.g. Ethiopia, Sri Lanka, Ecuador. Several key carriers heavily involved in both perishable and oil equipment cargo sectors e.g. BAWC, Etihad. Development of air freighted export horticulture can be complementary to oil based industrial development.



What we need to know about the global expansion

• Trends and drivers, start with development plans –capacity, types of produce, trade flows, export / import / trans-shipment targets. Concurrent expansion of trans-shipment and import capacity, does it match? Export over-capacity?

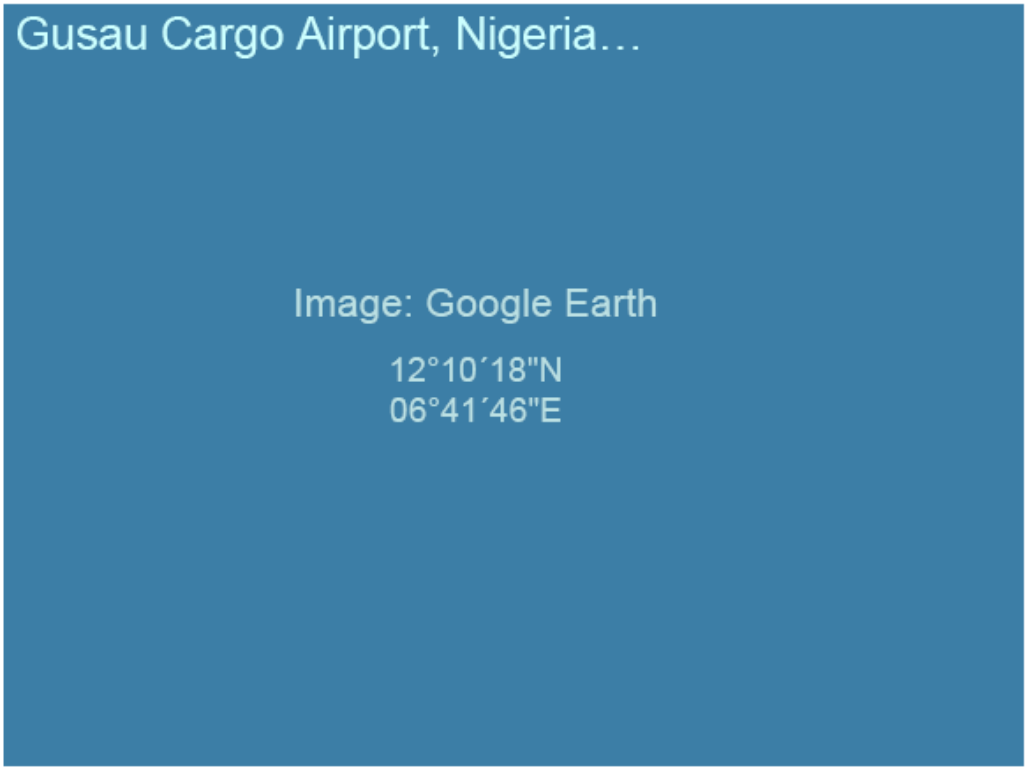
Questions about supply chain power:

• Financing, investment, ownership – brings control. International agencies, FDI, many kinds of firms, governments. Policy support – planning, subsidies, regulation.

• Supply chain often aligned with major supermarkets - corporate connections. Contractual arrangements e.g. bilateral trade deals - exchange resources for infrastructure.

• Market concentration & corporate/state power. Flag carriers dominance, state corporations e.g. Icelandair into Humberside, Emirates SkyCargo.

• Capital, technological & regulatory barriers to trade. Big scale, expensive kit, upgrade path.



What's happening at all the development sites e.g.:

Gusau Airport, Nigeria's largest runway, meat, veg to ME, Europe, Canada…

Similar in other Nigerian states

So many countries, food riots - Egypt, new airport, privately owned, cold storage, 16 sq km for organic agriculture.

As well as big picture of global trends, what's happening on the ground?

Food and Climate Change

The significance of air freight

Tara Garnett

Food Climate Research Network

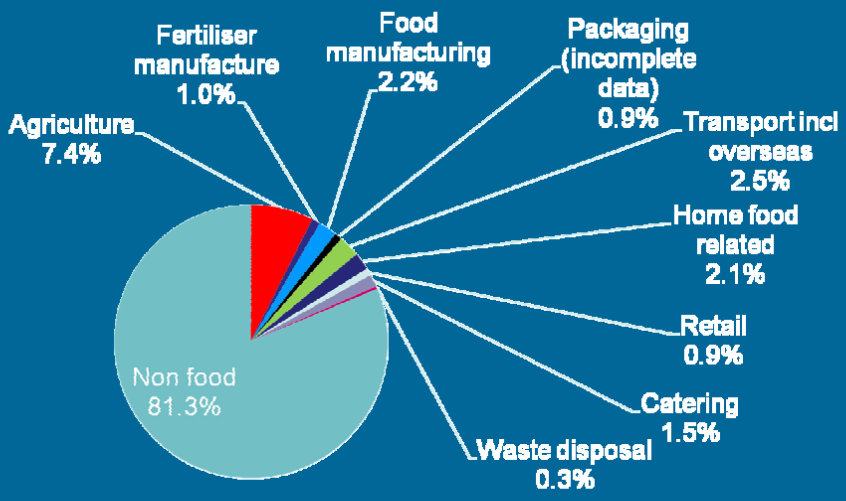
FEC - 4 April 2008

This presentation

- Food and GHG emissions: an overview
- Environmental impacts of aviation
  - Food by air – how important?
  - Basic impacts and second order impacts
- Some issues for further investigation & conclusions

1. Food and GHG emisssions

UK GHG emissions – how does food contribute?



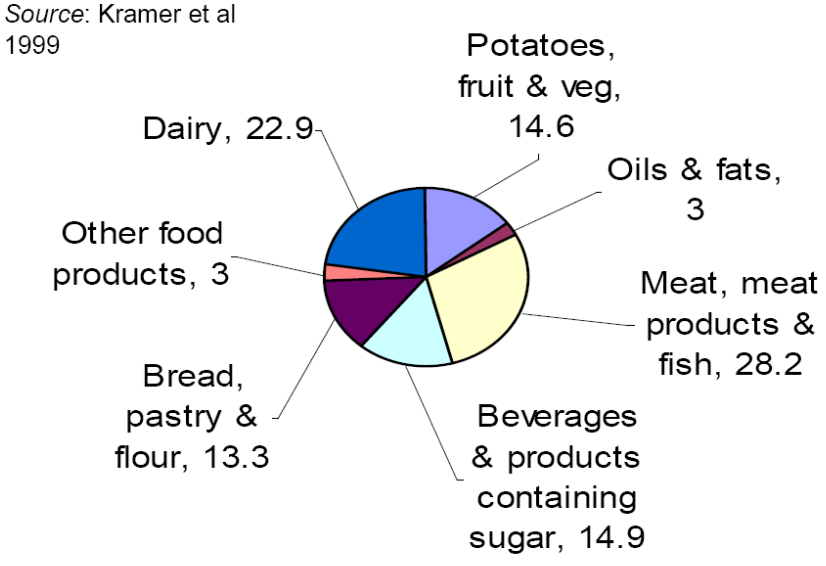
FCRN work in progress 2007

Impacts by food type: FCRN work so far

- **Meat and dairy – about 8%**
- Fruit and veg - about 2.5%
- Alcoholic drinks – about 1.5%
- This is of the UK's TOTAL GHG emissions
- Similar to this Dutch study…

Contribution of food groups to Dutch GHG emissions KG/CO2e

Source: Kramer et al 1999



2. Aviation & air freight

How important?

General aviation: projected impacts

- If 60% CO_2 cuts on1990 levels by 2050 (550 ppm)
  - Aviation = 25-51% total
- If 90% cuts (450ppm)
  - Aviation = 51-112% total
- Big uncertainties - depends on assumptions re technological improvements
- Best cases assume ACARE 50% improvements in efficiency & economic instruments
- *Source*: Bows & Anderson 2007

Food air freight impacts

- The most GHG intensive form of transport
- Less than 1% all food carried by air but = 11% total food transport CO_2 (including car trips)
- Most greenhouse gas intensive form of transport – if tends to dominate all other life cycle impacts for air freighted food
- Fruit and veg largest air freighted commodity – food and non food

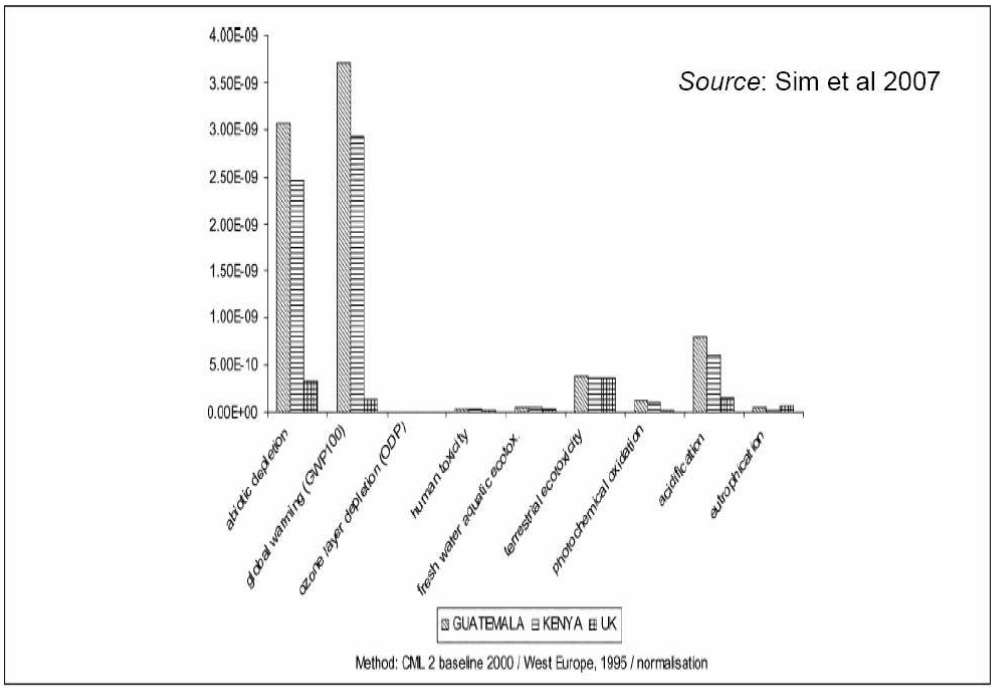


Fig.2: Normalised impact assessment for runner beans sources from Kenya, Guatemala and the UK – accounting for radiative forcing of aircraft emissions for the Kenyan and Guatemalan supply chains

But how significant in *absolute* terms?

- Food transport in total: 2.5 – 3.5% of UK GHG emissions (incl imports)
- Food air freight: approx 0.3% UK GHG emissions
- Air freighted fruit and veg transport approx 0.2% GHG emissions
- If I was a policy maker what ought my focus to be?
  - Low relative, high absolute impacts?
  - Or high relative, low absolute impacts?

Irrational thinking?

- Why not same focus on luxury products such as alcohol?
  - Not needed
  - Higher overall impact than air freighted foods
  - Production doesn't really help poor people
- Why not **much greater** focus on livestock related impacts?
  - Single largest source of food GHG impacts
  - Global consumption set to double by 2050

Second order significance of aviation

- Growing trends – 20 year forecast:
  - 6.1% more freight
  - 4.9% more passengers
  - Dedicated freight planes are old (less efficient) passenger craft
- Rapid regional air trade (eg. Asia)
- Investment in infrastructure – improves cost effectiveness – cheaper to fly

Freight-bellyhold relationship?

- Freight movements account for only 3% air movements at UK airports
- BUT 64% freight is in passenger bellyhold AND
- Passenger airlines get 15% revenue from bellyhold freight– so passenger travel (and emissions) subsidised by freight
- Freight – tourism relationship?
- So trends and second order impacts need a closer look

Won't technology solve the problem?

- ACARE efficiencies already built into best case scenarios.
- Have to take long life time of fleet into account
- Some potential for modal shift to sea – being investigated
- Tesco commitment to no more than 1% by air suggests things can be done

Climate change impacts on food supply: relevance to air freight

- Agriculture will be affected by climate change
- Southern countries will be worst affected
- Poor countries will be hurt most
- But picture mixed :
  - SS Africa may see higher rainfall levels
  - Southern Africa – much drier
- Implications for air freight?
- Greater unpredictablility of supply – therefore increasing reliance on emergency top ups (by air)?

3. Some issues and conclusions

Issues

- Need to look more at the relationship between tourism and freight aviation
- Need to explore aviation's projected second order, infrastructural impacts
- Intra-regional air freight needs more investigation
- Alternative ways of transporting highly perishable goods (and environmental implications)?

Conclusions

- The poor will suffer most from climate change. It is essential to find ways of promoting economic development that is actually helping them in the long term.
- But we need to keep the bigger food picture in mind – livestock the key priority

Thank you

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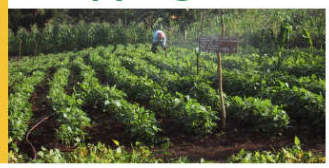
Air freight and Africa: trading off environment and development??

Bill Vorley

Food Ethics Council workshop on Air-Freighted Food, 4 April 2008

48-72 hours from field to shopping basket



A hardening of attitudes, battle of 'killer facts'

'We have never agreed with those who say we should punish African farmers because they don't like the emissions… If you take green beans, studies have shown there are fewer emissions from growing green beans in Africa than producing them in the European Union. The way to reduce carbon emissions is to get a post-Kyoto global deal, not penalise Africans who then can't get their goods to market… Putting aside the question of whether air-freight is a good thing or a bad thing, if economic drivers led retailers to stock fewer air-freighted products how would they fulfil their (ethical) responsibilities to producers and consumers?'

Gareth Thomas

'The concept of food miles is **unhelpful and stupid**,'

Adrian Williams, Cranfield University

"The Government needs to ask the question, "Why is Africa feeding the already overfed and why is Britain not feeding itself?" We are using Africa as a **neo-colonial** food system.'

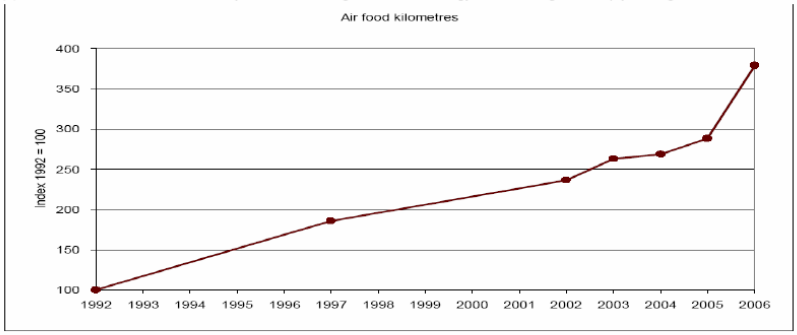
Tim Lang, City University

The Observer, March 23 2008
Evening Standard, 11 March 2008

The food transport indicators

Indicators of the External Impact of Food Transport for UK Consumers	1992	1997	2002	2003	2004	2005	2006	change 2005 to 2006
Indicator 1[a]								
UK Urban food kilometres (millions)	10,677	12,058	11,470	11,903	12,130	13,162	14,039	+7%
Index 1992 = 100	100	113	107	111	114	123	131	
Indicator 2[b]								
HGV food kilometres (millions)	7,862	8,412	8,121	8,066	9,104	9,209	8,965	-3%
Index 1992 = 100	100	107	103	103	116	117	114	
Indicator 3								
Air food kilometres (millions)	10	18	23	25	26	28	36	+31%
Index 1992 = 100	100	186	236	263	269	288	379	
Indicator 4								
Carbon dioxide emissions (kilotonnes)	15,044	16,494	16,747	16,369	17,839	17,948	18,862	+5%
Index 1992 = 100	100	110	111	109	119	119	125	

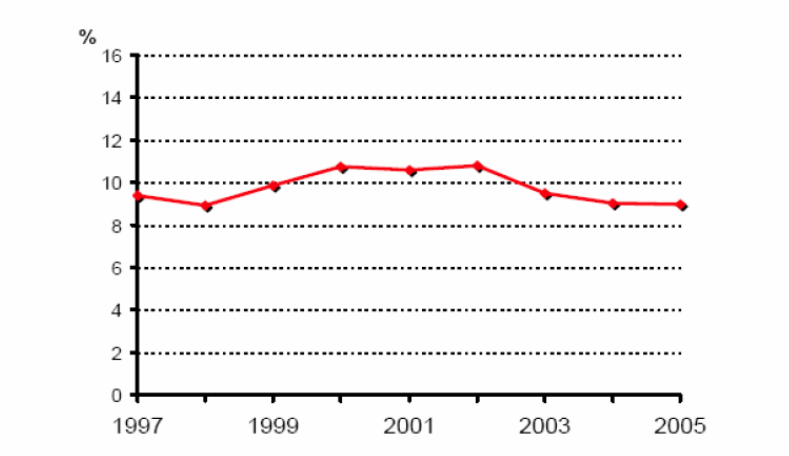
(a) The car data for 2002, 2003 and 2004 may be under-recorded due to the method of data collection in those years.
(b) The rise between 2003 and 2004 may be due to a change in the methodology for calculating HGV empty running.



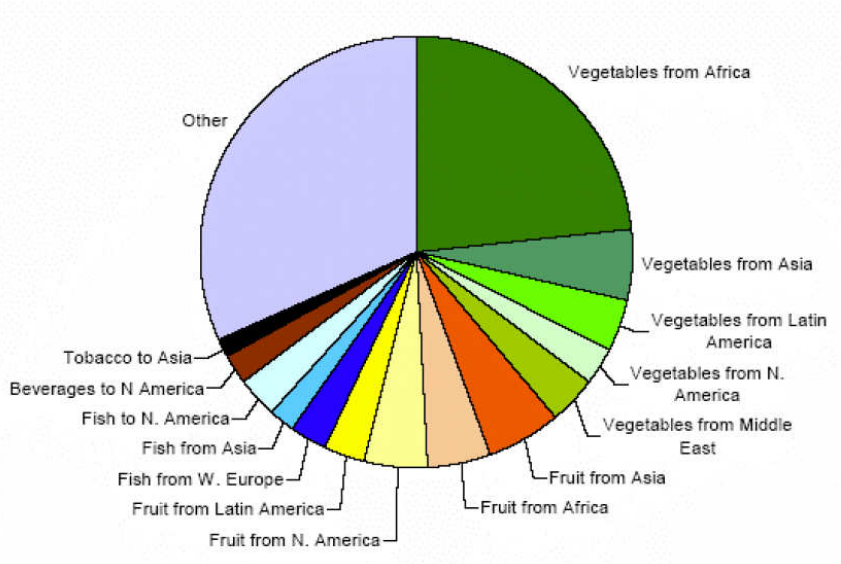
Source: Food Transport Indicators to 2006: Experimental Statistics
http://statistics.defra.gov.uk/esg/index/list.asp?i_id=180

Air freight's share of fruit and vegetables imported to the UK from African countries

Source: DEFRA



UK air imports by food type and source/destination



Comparison of selected impacts of production of green beans in Kenya and the UK for sale in the UK

Criteria	Kenya	UK
Food miles	4500 miles	<100 miles
Energy – transport	58 MJ/kg	<5 MJ/kg
Energy – production	1.7 MJ/kg	1.1 MJ/kg
Water	5.4m³/kg	N/a

Emissions and equity

Per capita carbon load:

- Kenya **0.2T**,
- UK **9.2T**
- 0.62 – 2.2T for stable CO2, falling to 0.32 by 2030
- Kyoto Protocol recognises the need for equity and economic development for developing countries in the transition to a low-carbon future.

Allocation of emissions

If the carbon emissions from importing fresh fruit and vegetables (FFV) from Africa to the UK were allocated:

- entirely to the **UK's** emissions budget, they would add an extra **0.1%** per cent of total emissions for the UK. Per capita emissions would rise to 9.22 tonnes (512 per cent of natural carbon sink capacity)
- entirely to **Kenya's** emissions budget, they would account for an extra **4.8%** of total emissions for Kenya. Per capita emissions would rise to 0.42 tonnes (23 per cent of natural carbon sink capacity)

Open questions

- **What to include?**
  - Systems boundary
- **Data accuracy**
  - energy consumption for airfreight for Kenya-UK: 58MJ/kg? 103MJ/kg? 205MJ/kg?
- **Emissions attribution**
  - emissions from aircraft currently not included in national inventories, EU Emissions Trading Scheme, or a binding part of the Kyoto Protocol
  - Exporter or importer? Producer or consumer?
  - Passengers or bellyhold freight?
- **Drivers of airfreight**
  - by UK consumers not eating imported FFV, would fewer planes will fly today or into the future?

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Sustainable Development OPINION 2006

Fair Miles? The concept of "food miles" through a sustainable development lens

James MacGregor and Bill Vorley

The concept of "food miles" presents an argument to buy goods which have travelled the shortest distance from farm to table, and to discriminate against long-haul transportation, especially air-freighted goods. The long-distance transport of food is associated with additional emissions due to increased transportation coupled with greater packaging, as well as negative impacts on local rural communities, and a disconnection between the public and local farming. Furthermore, "food miles" encapsulates (and is at the vanguard of) the climate change debate in the UK. In light of growing international concern over the speed and scale of climate change, the concept of "food miles" has captured public attention and apparently is changing some consumers' behaviour, although only around one-third of shoppers know of the concept.

The implications of the "food miles" debate are considerable. Much high-value produce from Africa, especially flowers and horticulture, are air-freighted, and are being singled out as the epitome of unsustainable consumption. But from a development and poverty reduction angle, the inclusion of sub-Saharan Africa in these high-value markets has been a success story. Food miles as a concept is blind to these social and economic benefits associated with trade in food, especially from developing countries.

UK consuming African fresh produce

Nowhere are UK consumers more persistently engaged with rural Africa than through food consumption choices. A wide range of fresh fruit and vegetables (FFV) are imported to the UK from sub-Saharan African countries (SSA – excluding South Africa). UK consumers spend over £1 million at retail every day on FFV from this region. Furthermore, the UK is consuming more produce today from Africa than ever before, and it is growing.

Yet this trade is dependant on the UK consumer, and also on air-freight, bringing climate change impacts of this trade squarely into the development equation. In total, 40% of air-freighted FFV imports to the UK are from SSA. Indeed, poor African countries rely on the UK market to support their domestic industry.

How much 'ecological space' do African nations have?

'Ecological space' is the individualised (per capita) right to natural resources for utilisation such as energy, food, land and water. The concept of equitable ecological space translates well into "per capita carbon dioxide emissions" and the "per capita right to emit carbon dioxide". Currently, carbon dioxide emissions are unequal and the gap widening; global, 3.6 tonnes; the UK, 9.2 tonnes; Africa, 1 tonne. Furthermore, African figures are skewed towards oil-rich countries, and only two countries exceed the global average. Hence, SSA countries have considerable and growing reserves of "ecological space" compared with industrialised countries.

There is also inequality of impact and adaptive capacities of climate change. Many African countries are feeling the force of climate change impacts, the root cause of which was produced in developed countries. Poorer countries have fewer disposable financial resources to commit to adapting to these impacts.

The Kyoto Protocol recognises the need for equity and non-restrictive economic development for developing countries in the transition to a low-carbon future. Under current calculation of a sustainable carbon future, equitable ecological space per capita is 1.8 tonnes. This represents the estimated absorptive capacity of natural carbon sinks, both land and sea – currently absorbing half of anthropogenic emissions. Yet this per capita space is falling owing to projected warmer climate accelerating decay of carbon in soils coupled with projected population increases.

The strong relationship between the level of industrial economic development of a country and its carbon emissions remains a worry.

KEY MESSAGES:

- Nowhere are UK consumers more persistently engaged with rural Africa than through food consumption choices
- Over one million livelihoods in Africa are supported by UK consumption of imported fresh fruit and vegetables
- African nations have considerable "carbon credit", unallocated aviation emissions could accrue to African countries in a bid to stimulate trade
- Not buying fresh produce air-freighted from Africa will reduce UK total emissions by less than 0.1%
- Economic development for the poorest in a low carbon future necessarily means expanding emissions for some

Published by the International Institute for Environment and Development (IIED)

Development upsides

Employment

- Over 100,000 rural Africans are employed in the FFV export sector in SSA, roughly split 50/50 between small-scale farmers and employees on larger farms
- Estimated 100-120,000 employed in support services for these producers and employees

Spillover

- Technology, food safety, improved access to inputs, credit, extension services

Development downsides

- **Labour standards** in export horticulture called into question
  - crowded facilities, no employment contracts, handling dangerous chemicals without proper protective equipment, sexual harassment, no maternity leave, overcrowded housing, low pay
  - purchasing practices encourage precarious employment
  - Kenyan Flower Council Code of Practice
  - GlobalGAP, FT
- Costs to suppliers – exclusionary impact of standards

Costs to suppliers

- GlobalGAP
- Retailer-specific standards
- The Carbon Trust and the British Standards Institute -- new standard for measuring the carbon footprint of products

Concluding remarks

- Food miles is a legitimate citizen interest (cf Cranfield "unhelpful and stupid")
- Understand the GHG 'hot spots' of entire food system
- Development and ecol. space arguments are powerful counterweight when based on legitimate data
- If environmental harm is to be weighed against developmental gains, it is essential that (1) the degree of harm is quantified and put into the context of other food choices, (2) the degree of harm is put into the context of Africa's current use of 'ecological space', and (3) the degree of development gain is quantified, to demonstrate whether this trade really benefits those living in poverty.
- Best practice needs to be developed in..
  - Measuring and minimising the environment impact of export horticulture
  - Measuring and maximising the development impact of export horticulture
  - Reducing the carbon footprint of airfreight

air freight and organic

Ken Hayes – Soil Association
KHayes@soilassociation.org

organic air freight

- 96% fresh fruit and veg
- Key for UK retailers in bringing year round supply and continuity
- Estimate less than 1% of organic imports into UK are air freighted
- Over 3/4 produced in developing countries
- 21,500 people depend on the trade

why look at air freight?

- Growing public concern over carbon emissions from food transport
- Air freight seen as the worst offender
- Contradiction between organic environmental principles and organic air freight

consultation

May 2007 launched 4 month public consultation with the aim of:

- addressing concerns over air freight's contribution to climate change
- better understanding the social and economic benefits of organic air freighted fresh fruit and veg
- finding out people's expectations of organic standards, food distribution and climate change

Who we spoke to

- We received over 200 written submissions
  - over half were from the general public
  - 24 submissions from NGOs
  - 28 responses from industry
  - 5 responses from government and international agencies

- Proactively going to talk to those with a view
  - we spoke to roughly 100 representatives from industry, NGOs, government and international agencies
  - some individually and some at our summit

What we learnt

- We need to think critically about air freight
  - Rapid growth rate
  - In the context of GHG from all food, from farm to fork
- We need to acknowledge the social and economic benefits of organic farming in developing countries
  - significant environmental and human health benefits for local people
  - inclusive global organic market nor curb the
  - high value goods and unique opportunities to add value
- Action must be proportionate and equitable

Standards Board recommendations

- All air freighted organic food should deliver genuine benefits for farmers in developing countries.
- Guarantee and communicate these benefits through **Soil Association Ethical Trade** or **Fairtrade** certification
- Businesses should have a plan for reducing their reliance on air freight wherever possible
- Look at how we can reliably and fairly assess the full carbon footprint of all organic products

Next steps

- Second round public consultation on the recommendations in March – May 2008
- July – Standards Board agree any changes to Soil Association standards, based on the consultation responses
- Any changes to the standards published in Jan 2009 with a timetable for implementation

Why not carry on as normal?

- Proactively address consumer concerns
- Maintain market access
- Highlight potential risks
  - Growth of air freight
  - Long term viability of air frieght

Monitoring air freight

- Aim – better information on what and how much is air freighted
- Challenge – transport mode is not always clear
  – more paperwork

Reducing air freight

- Aim to minimise the use of air freight by organic producers by, for example:
  - developing shipping alternatives through technology innovations and infra structure improvements [Organic Farm Foods]
  - improving planning and flexibility to reduce air freight [M&S 'Plan A']
  - supporting initiatives which promote growth of more local organic markets in exporting countries [Egypt]
- For a small handful of organic producers this will take time
- Managed reduction as part of a move towards food supply that isn't heavily dependent on fossil fuels

Assessing and communicating the benefit

- Transparent guarantee that socioeconomic benefits are optimal.
- communicate the benefits of trade in air freight to those critical of it's carbon footprint
- aim to look at labelling carbon of all organic products when a suitable scheme is available

Thank you

Second round of the consultation

6th March – 30th May 08

www.soilassociation.org/airfreight

About the Food Ethics Council

The Food Ethics Council is the independent advisory body on the ethics of food and farming. We:

- Help guide the way through difficult issues by analysing problems, challenging accepted opinion and creating a space for dialogue; and
- Build tools to put ethics at the heart of decisions about food in business, policy and civil society.

Our Council members include bioethicists and moral philosophers, farmers and food industry executives, scientists and sociologists, academics and authors.

Our work has covered topics including the personalisation of public health, the control of food research, the use of veterinary drugs and the growing challenge of water scarcity.

Find out more about our work, including the members of the Council, our exclusive Business Forum, and our must-read magazine, Food Ethics, on our website at www.foodethicscouncil.org.

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