From declarations to actions: How can tourism reduce its impact on the atmosphere?

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Two hypotheses

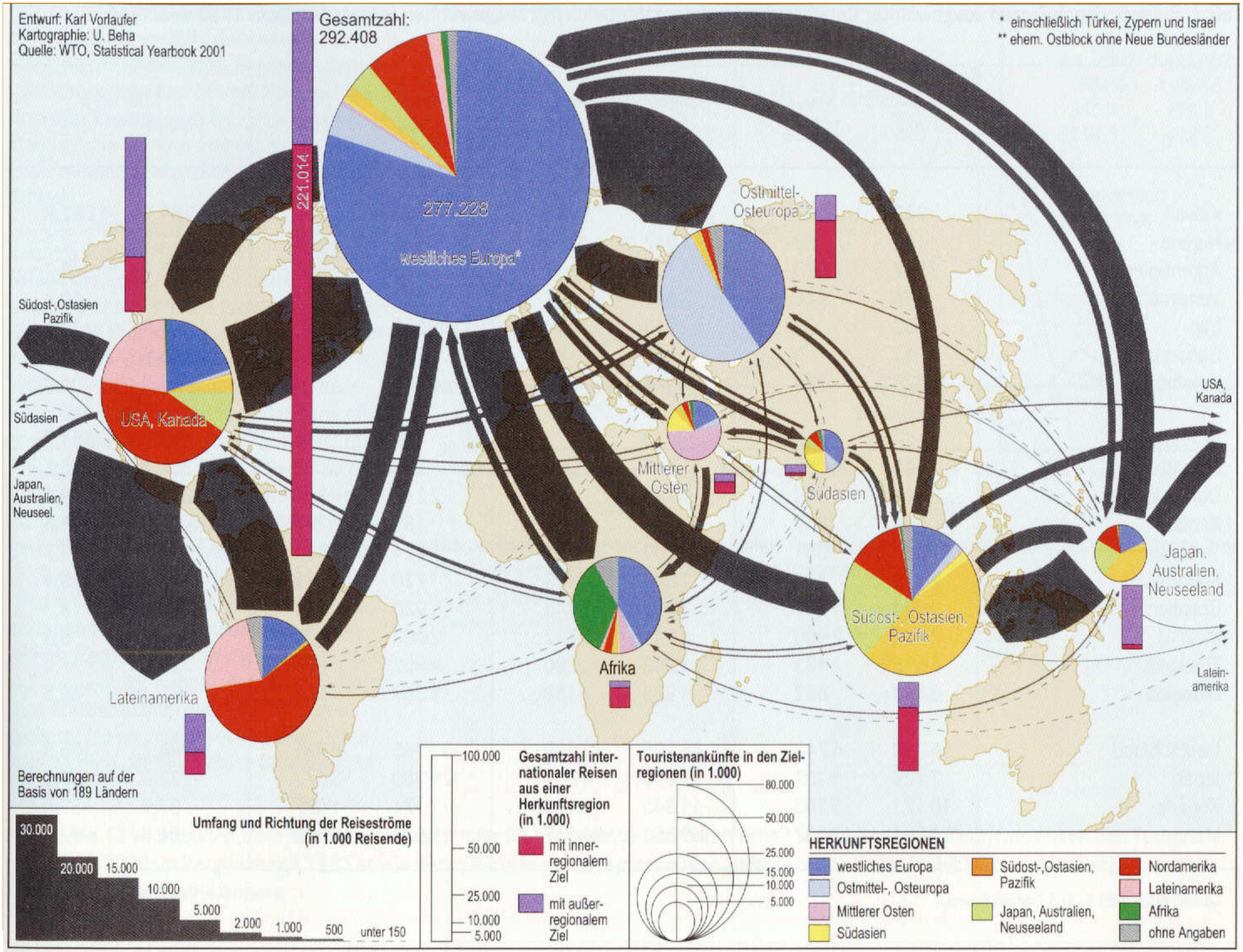
1. Tourism management will be increasingly about the economic bottomline
2. The triple bottomline is dead.

   The new economic bottomline includes environmental and social issues

Why is mitigation relevant?

Tourism accounts for only 5% of global emissions, but:

- **Emissions are largely caused by aviation, and non-CO_2 emissions are not accounted for in this calculation**
- **The share of tourism in emissions is higher in industrialized countries – large parts of humanity do not participate in tourism**
- **The sector shows considerable growth**


Entwurf: Karl Vorlaufer
Kartographie: U. Beha
Quelle: WTO, Statistical Yearbook 2001
Gesamtzahl:
292.408
* einschließlich Türkei, Zypern und Israel
** ehem. Ostblock ohne Neue Bundesländer
277.228
westliches Europa*
221.014
Ostmittel-
Osteuropa
Südost-,Ostasien
Pazifik
Südasien
USA, Kanada
Japan,
Australien,
Neuseel.
Mittlerer
Osten
Südasien
USA,
Kanada
Japan,
Australien,
Neuseeland
Südost-, Ostasien,
Pazifik
Afrika
Latein-
amerika
Lateinamerika
Berechnungen auf der
Basis von 189 Ländern
Umfang und Richtung der Reiseströme
(in 1.000 Reisende)
30.000
20.000
15.000
10.000
5.000
2.000
1.000
500
unter 150
100.000
50.000
25.000
10.000
5.000
Gesamtzahl internationaler Reisen aus einer Herkunftsregion (in 1.000)
mit innerregionalem Ziel
mit außerregionalem Ziel
Touristenankünfte in den Zielregionen (in 1.000)
80.000
50.000
25.000
15.000
10.000
5.000
HERKUNFTSREGIONEN
westliches Europa
Ostmittel-, Osteuropa
Mittlerer Osten
Südasien
Südost-,Ostasien, Pazifik
Japan, Australien, Neuseeland
Nordamerika
Lateinamerika
Afrika
ohne Angaben

CO_2 emissions from Swedish tourism

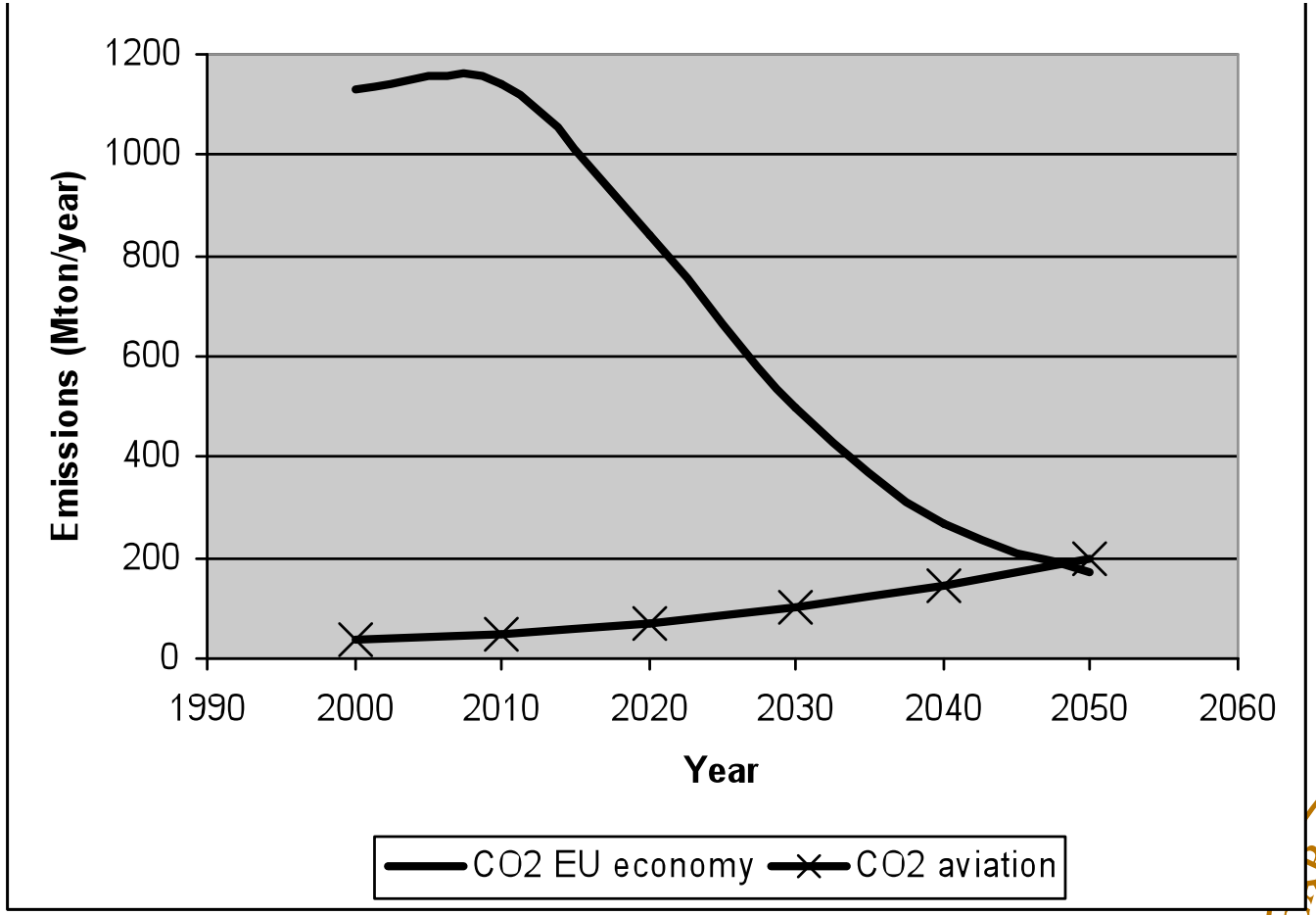
Table 7: Swedish tourism scenario 2001-2020*

	Transport modes					Accomm.** (growth bed nights)	Activities** (growth trips)
	Air	Car	Train	Coach	Ferry		
Change in pkm (%) Fuel efficiency** (%)	41 20	21 19	41 19	41 19	- -	-	-
Net increase (%)	12.8	-2.0	13.8	14.3	-	30.0	30.0
Absolute increase (Mt CO_2)	0.246	-0.041	0.004	0.01	-	0.141	0.255
Fuel use 2000/2001 (Mt CO_2)	1.925	2.043	0.029	0.070	(0.324)	0.469	0.85
Fuel use 2020 (Mt CO_2)	2.171	2.002	0.033	0.080	-	0.610	1.105

2001: 11% of Swedish emissions
2020: 16% of Swedish emissions

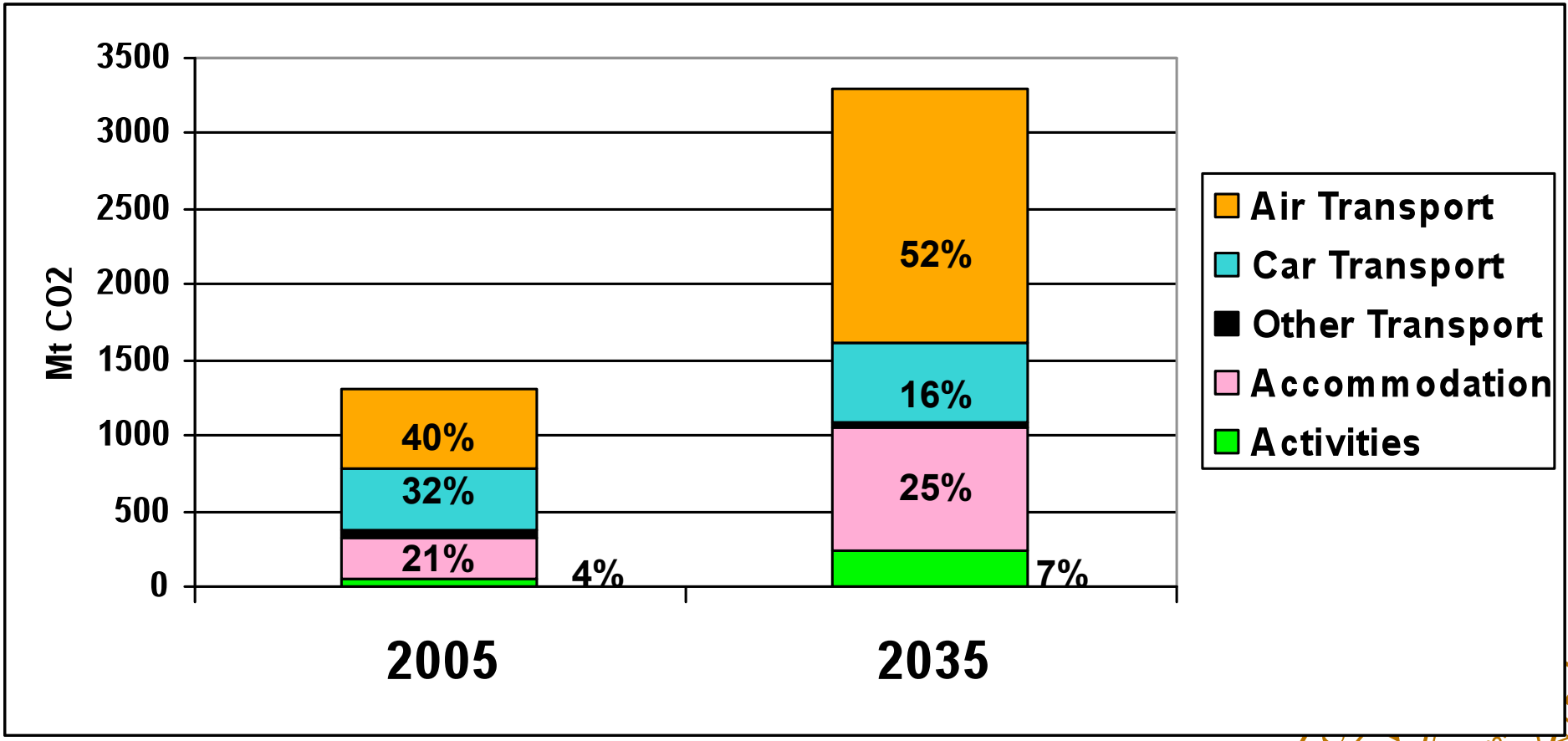
Source: Gössling, S. and Hall, C.M. 2008. Swedish tourism, climate change and Kyoto – an emerging conflict? *Scandinavian Journal of Hospitality and Tourism 8(2): 141-158.*

Will EU climate policy solve the problem?



Source: Bows, A., Anderson, K. and Upham, P. (2006). Contraction and Convergence: UK Carbon Emissions and the Implications for UK Air Traffic, Technical Report, Tyndall Centre Manchester, UK.

‘Business as Usual’ Projection of Future CO_2 Emissions from Tourism

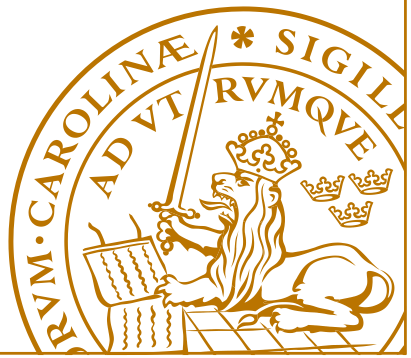


Source: UNWTO-UNEP-WMO (*United Nations World Tourism Organization, United Nations Environment Programme, World Meteorological Organization) (2008) ‘Climate Change and Tourism: Responding to Global Challenges’. Madrid, Spain.*

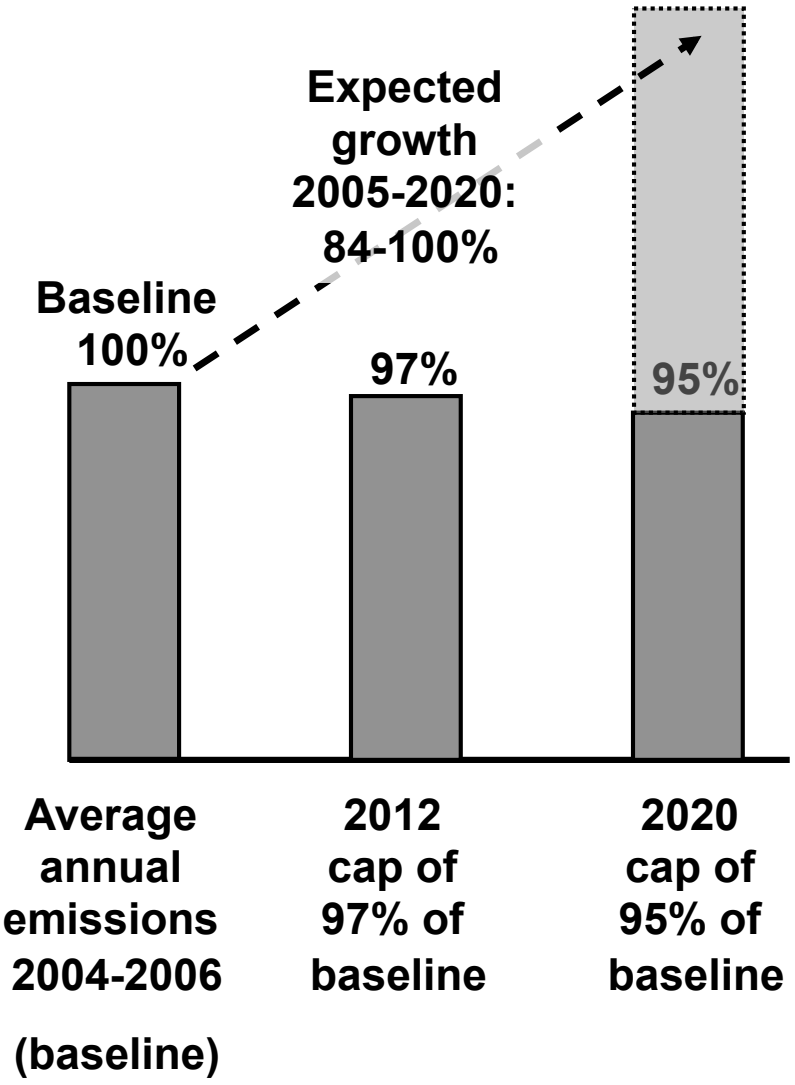
But is this really relevant?

NO, because this is not about profits. The (new) economic bottomline is about this:

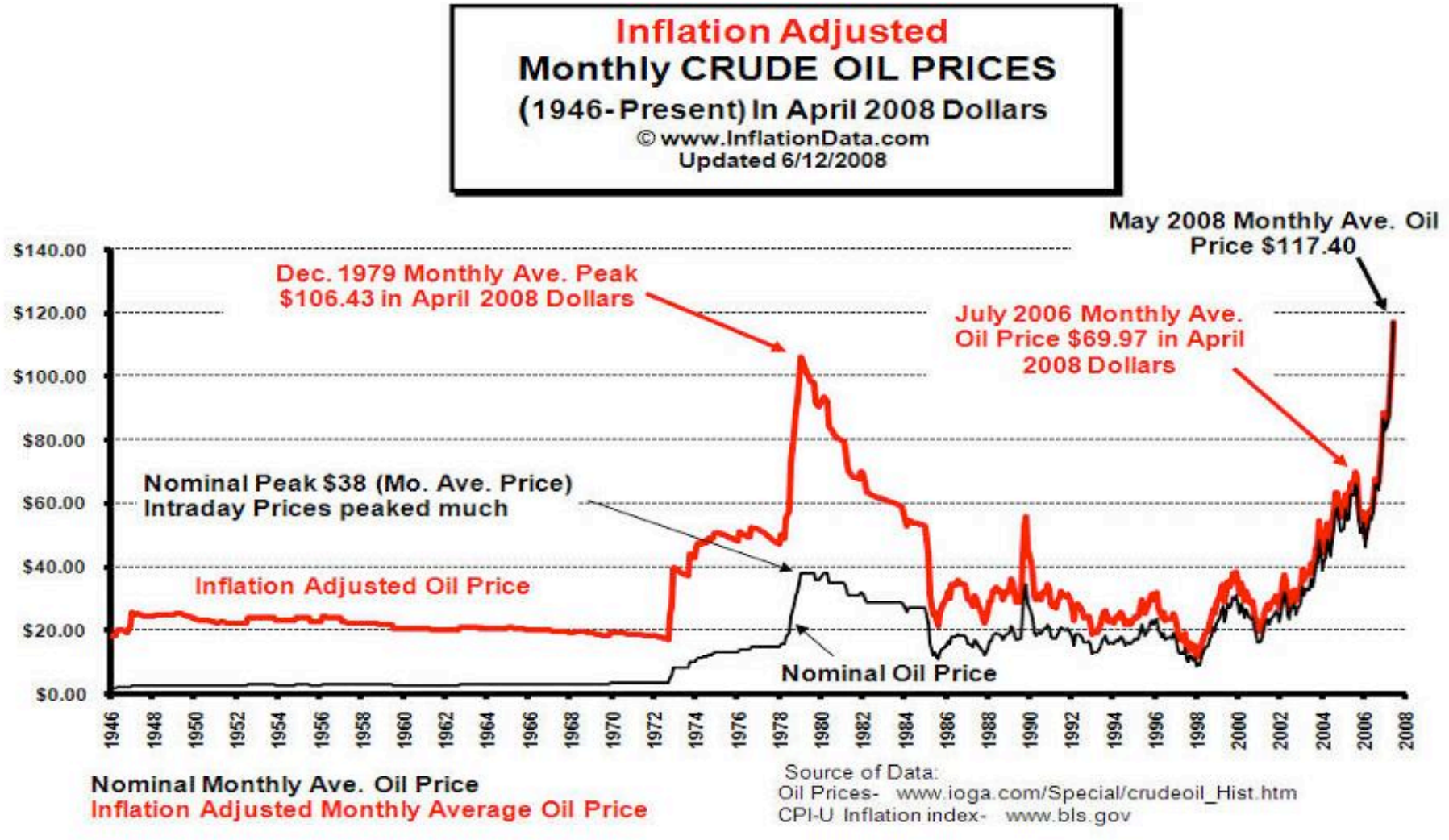
- **EU ETS**
- **Oil price developments**
- **Consumer perceptions**
- **Upcoming: carbon labelling & individual carbon quotas**



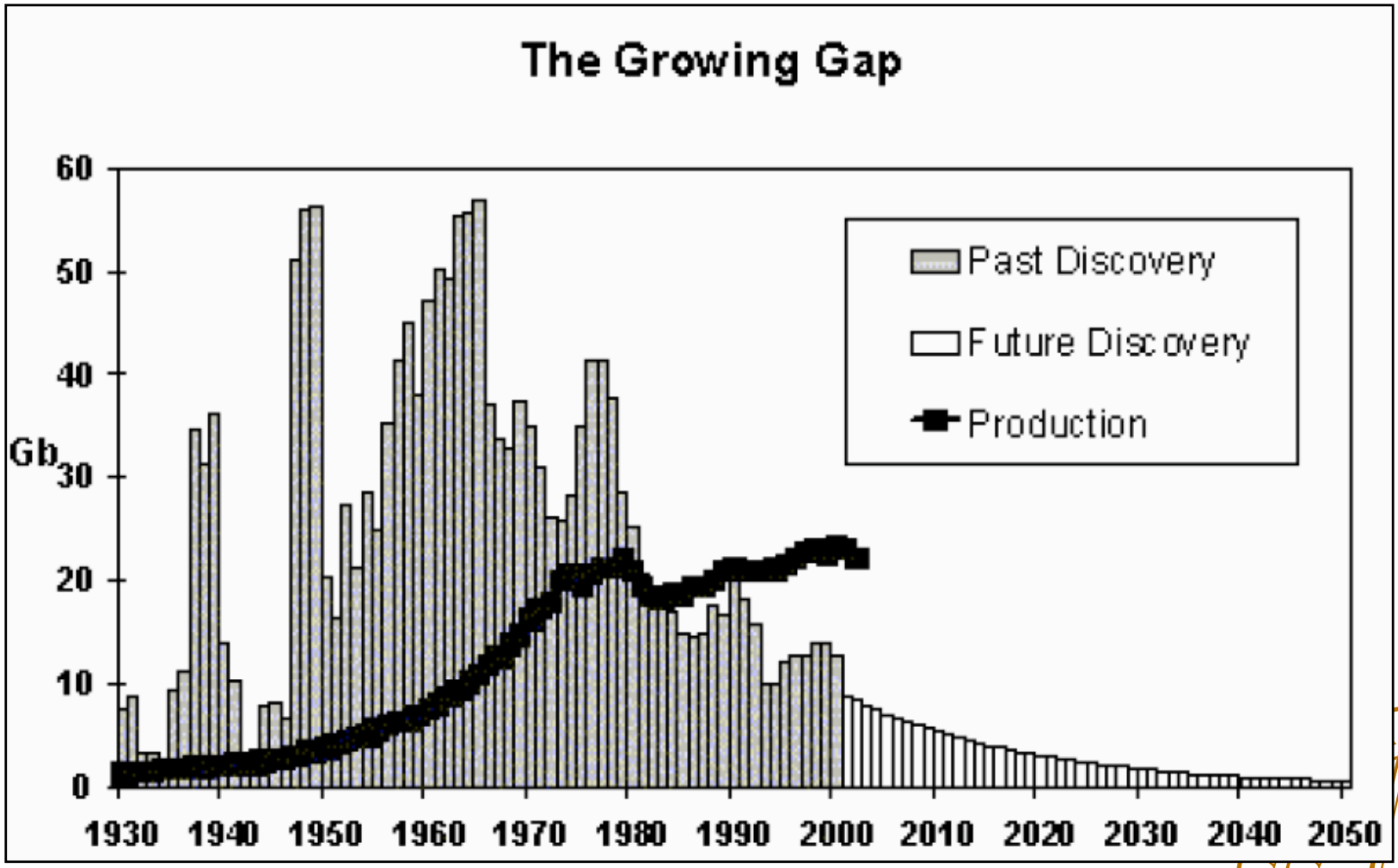
EU Climate Policy 2008-2020: Aviation



Oil Price Developments



Peak oil?



Source: The Association for the Study of Peak Oil and Gas, 2008

Customer perceptions

A - Perception of environmental impact of air travel

Britain

(DEFRA 2001)

- 65% agree transport in general is a contributor to climate change

(National Statistics Omnibus Surveys - 2002, 2006)

- 2002 - 62% believed air travel harmed the environment
- 2006 - 70% believe air travel harmed the environment
    - Those who flew more frequently were more likely to consider air travel harmful to the environment than those who had not flown at all in the last year or had flown once
    - Those in managerial/professional occupations and with higher income levels were particularly likely to strongly agree air travel harms the environment
- 64% agreed that “the current level of air travel has a serious effect on climate change”

(Nunwood 2007)

- UK consumers in general overestimated carbon dioxide emissions from aviation (as % of UK emissions)

Canada

(Dawson et al. 2007)

- 69% believed that *“air travel is a contributor to climate change”*

Customer attitudes

B - Support for policies to reduce the environmental impact of air travel

Britain

(World Environmental Review 2007)

- 46% think the government should impose a carbon tax on all domestic and international flights

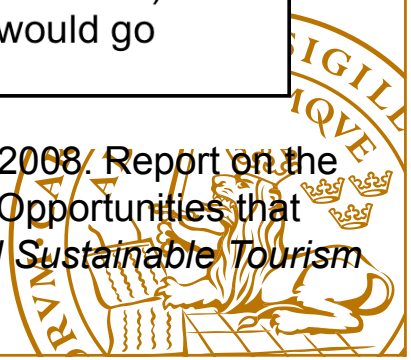
(National Statistics Omnibus Survey – 2003, 2005)

- 2003 - 78% agreed people should be able to travel by plane as much as they want to
  - Agreement fell to 17% if "air travel harms the environment", then 59% were against unrestricted air travel
  - More frequent travellers are more likely to support unrestricted travel even when potential environmental consequences are considered
- 2005 - agreement that "people should be able to travel by plane as much as they like" fell to 70% (from 78% in 2003)

(Ipsos MORI 2006)

- Between 37% and 58% support policies aimed at slowing down growth in air travel
- Support was higher for airlines paying higher taxes (55% to 65%) to reflect the environmental damage done by aircraft than higher passenger duties (47% to 57%)
- Support for passenger taxes on air travel was highest when the revenues would go toward improving the environment (71% to 74%).

Source (even previous and following slide): Simpson, M.C., Gössling, S. and Scott, D. 2008. Report on the International Policy and Market Response to Global Warming and the Challenges and Opportunities that Climate Change Issues Present for the Caribbean Tourism Sector. *Caribbean Regional Sustainable Tourism Development Programme, Caribbean Tourism Organization, Barbados.*



Willingness to take action

C - Willingness to take personal action to reduce the environmental impact of air travel

Britain

(World Environmental Review 2007)

- 18% claim to have cut back on air travel in the last year
- 13% say they would be willing to cut back on air travel in the future

(Taylor Nelson Sofres 2007)

- 14% said they would opt for a tour or holiday tour operator which is involved in a carbon offsetting scheme
- Only 4% reported to make a payment to offset their travel over the last year

(Travel Insurance Web 2007)

- 61% of tourists would pay a "green tax" (of an unspecified amount) to help balance impact air travel has on the environment

(National Statistics Omnibus Survey – 2006)

- Respondents who agreed air travel harms the environment were asked if they would be willing to pay extra on the price of their ticket or nothing extra at all:
  - 2006 - 24% would not be willing to personally pay any more for a plane ticket to reflect environmental damage caused by flying; 55% willing to pay 15% more, 35% willing to pay 20% more
    - Female travellers willing to pay more than males (56% would pay more, 40% pay an additional 20%) and the male figures were (43% and 31% respectively)

USA

(Travel Horizons Survey 2007)

- More than 50% said they were more likely to select an airline, rental car or hotel that uses more environmentally friendly products
- 50% said they would be more likely to use an airline if they knew it took the initiative to offset carbon emissions
- 13% said they would be willing to pay higher rates for demonstrated environmental responsibility (56% said they might)

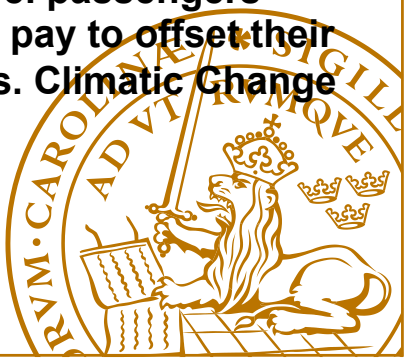
Multi-national

(Poverty Reduction and Environmental Management Program 2007)

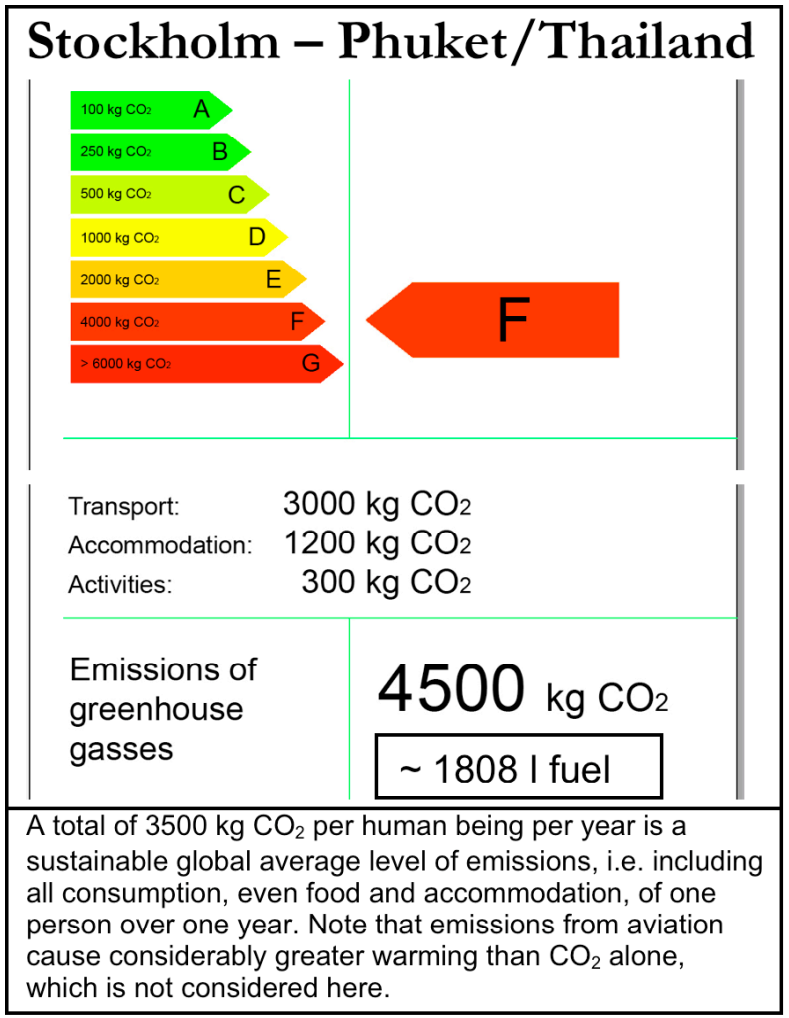
- 75% were willing to pay a carbon tax on air travel (80% of Europeans, 75% of North Americans and 59% of Asians)
  - Only 14% protested against paying, mainly due to the disbelief that a carbon tax will have any real positive benefit for the environment.

‚Funds in the order of 23 billion Euro could be generated annually to finance CC mitigation activities'

Brouwer, R., Brander, L., Van Beukering, P. 2008. „A convenient truth": air travel passengers' willingness to pay to offset their CO_2 emissions. Climatic Change 90: 299-313.

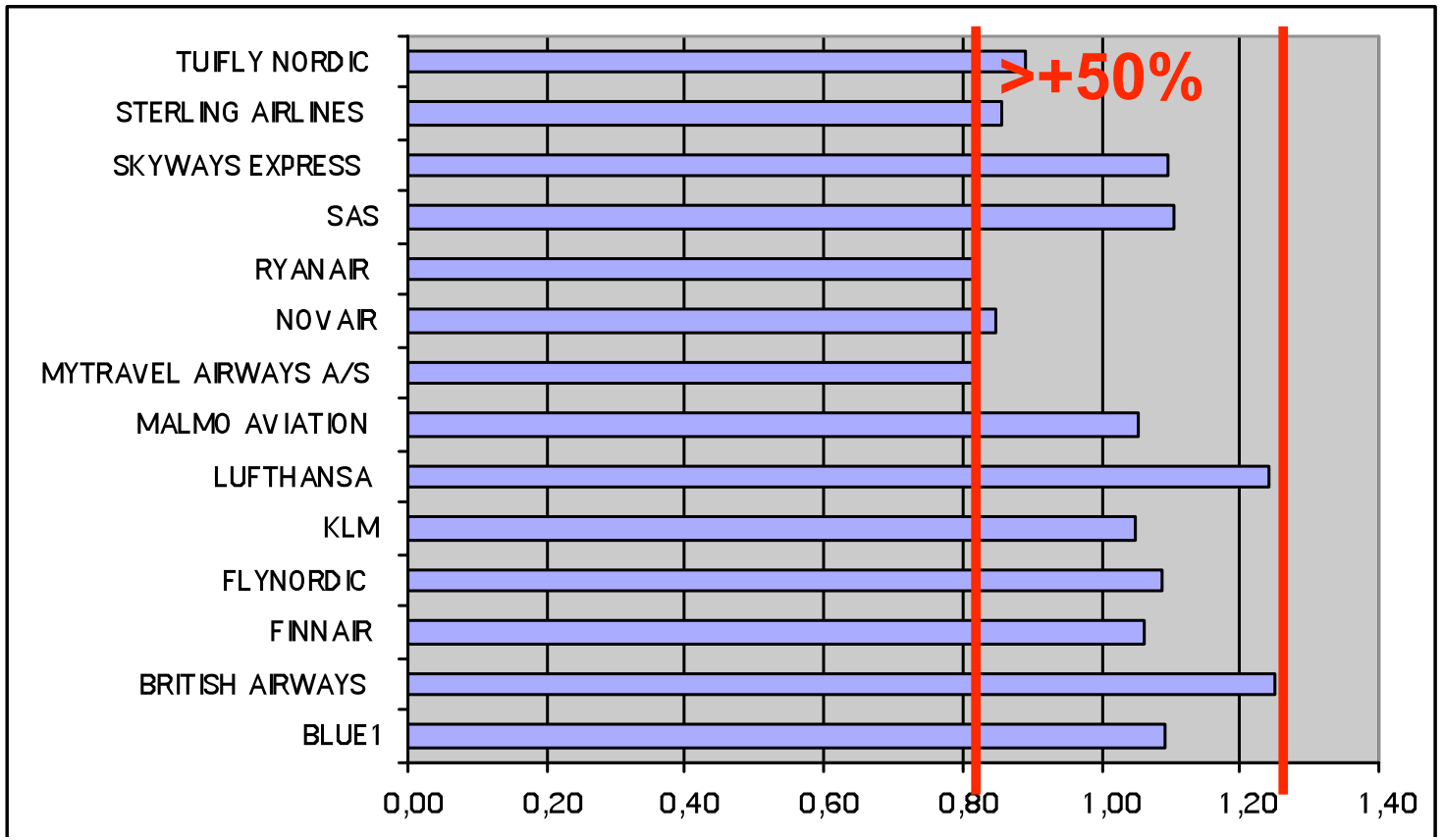


A look into the future…



Carbon labelling

Transports: Carbon Labelling



Fleet weighted and seat density corrected average energy consumption per seat-kilometre (MJ)

Source: Peeters, P., Gössling, S., and Lane, B. 2008. Moving Towards Low-carbon Tourism: Opportunities for Destinations and Tour Operators. In Gössling, S., Hall, C.M., and Weaver, D. (eds) Sustainable Tourism Futures. Routledge: London, New York, forthcoming

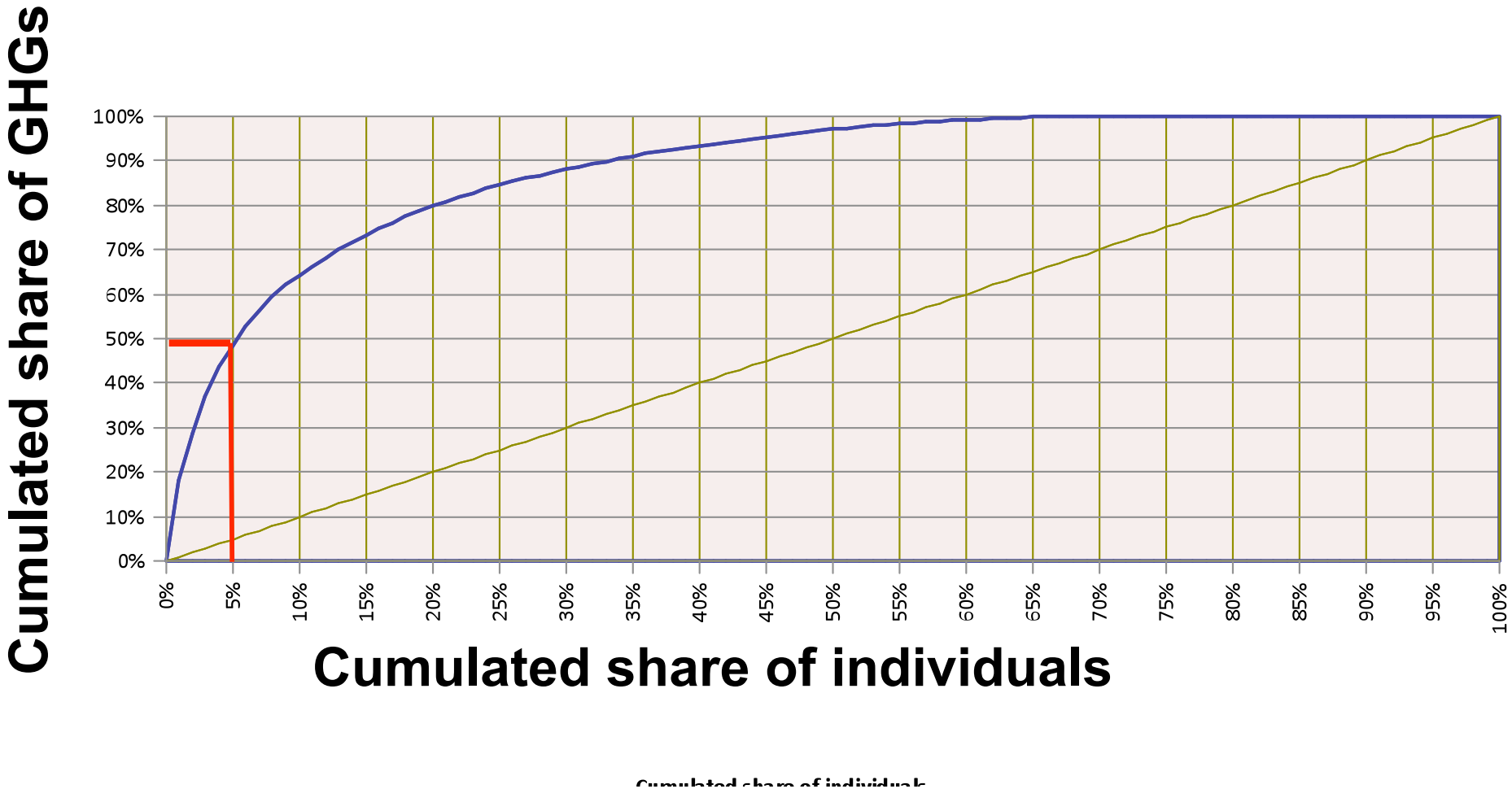
Individual Carbon Quotas – soon to come?

***The Guardian* about short-break long-haul travel:**

„... You see, the environment isn't a paramount issue when you are chained to your desk for 14 hours a day, single and earning over $400,000 a year. ... How long before Spearmint Rhino installs a fully functioning lap-dancing club in the upper deck of the aircraft so that the gas-guzzling yuppies can jiggle while the planet burns?"

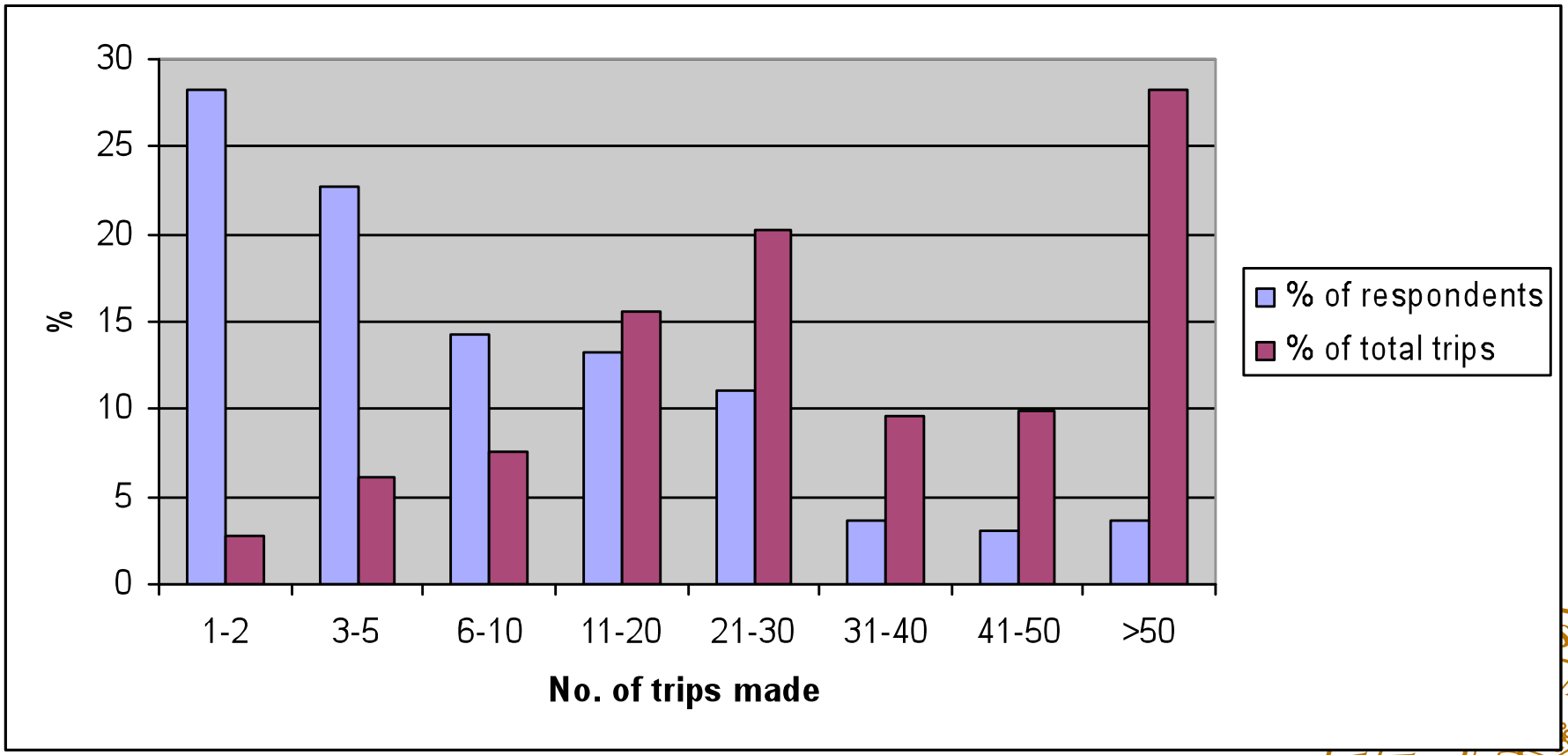
Simon Mills, The Guardian Weekly 21-03-2008

Transport emissions: the case of France



Source: Dubois, G. and Ceron, J.-P. 2009. Carbon labelling and and restructuring travel systems: involving travel agencies in climate change mitigation. In: Gössling, S., Hall, C.M., and Weaver, D. (eds.) Sustainable Tourism Futures. Routledge: London, New York, forthcoming.

Relationship between air traveller and trip number shares



Source: Gössling, S., Hultman, J., Haglund, L, Källgren, H. And Revahl, M. 2008. Voluntary carbon offsetting by Swedish Air Travellers: Opportunities and Obstacles. *Current Issues in Tourism*, in press.

Conclusion:
Mitigation is Adaptation!

Now how to decarbonize tourism?

Global Tourism Emissions in 2005: CO_2

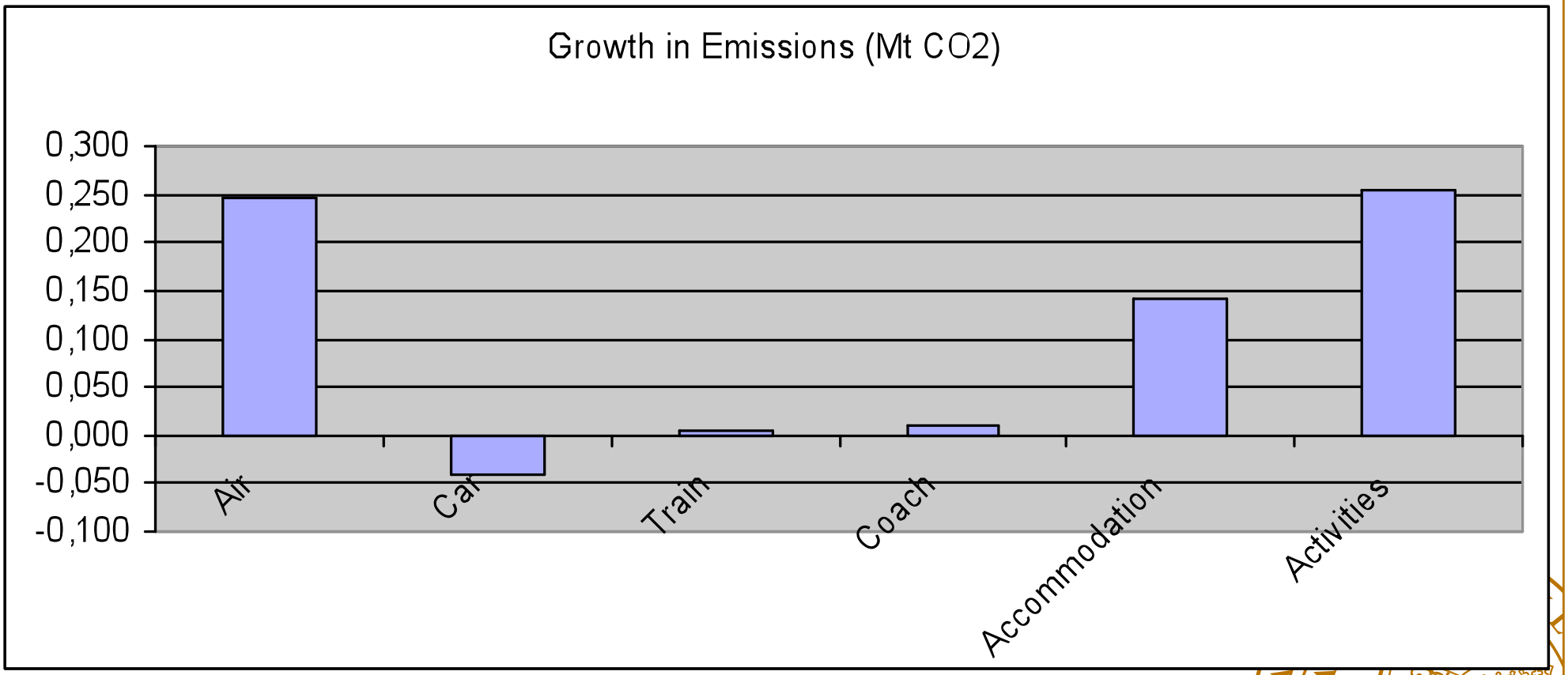
Sub-Sectors	CO_2 (Mt)	
Air transport *	522	**40%**
Car transport	418	**32%**
Other transport	39	**3%**
Accommodation	274	**21%**
Activities	52	**4%**
TOTAL	1,307	
Total World **(IPCC 2007)**	26,400	
Tourism Contribution	4.95%	

Transportation of Tourists = 75% of Sector Emissions

* - does not include non-CO2 emissions and impact on climate

UNWTO-UNEP-WMO (***United Nations World Tourism Organization, United Nations Environment Programme, World Meteorological Organization) (2008) 'Climate Change and Tourism: Responding to Global Challenges'. Madrid, Spain.***

Net growth in emissions, Swedish tourism 2005-2020



Source: Gössling, S. and Hall, C.M. 2008. Swedish tourism, climate change and Kyoto – an emerging conflict? *Scandinavian Journal of Hospitality and Tourism 8(2): 141-158.*

Structural changes needed

- From shorter to longer stays
- From distant to closer destinations
- From aircraft & car to train & coach
- From „wrong“ spending to „right“ spending
- From low profit to high profit

Mitigation potentials*

	Incoming tourism		Outgoing tourism	
	leisure	business	leisure	business
Air travel				
• Short haul				
• Medium haul				
• Long haul				
Car				
Train				
Coach				
Accommodation				
Activities				

* **Mitigation potential assessed as a function of feasibility of restructuring as well as amount of emissions that can be reduced.**

Who can realize this potential?

- Airlines
- Railway systems
- (Coaches)
- Tourism organizations
- Tour operators/Travel agencies
- SMEs
- Policy makers
- Tourists

Airlines

- **Honesty! We have a problem!**
- **Support pro-climate policy!**
- **Rethink volume growth! The new economic bottomline is about profit, not volumes!**

- **Reduce supply**
- **Become financially involved in train systems**

Best way to deal with the problem?

Danger CO_2W

Climate change is a real problem and airlines are partly responsible.

Air transport produces 2% of global CO_2 emissions. But it might surprise you to know that this is actually less than the CO_2 produced worldwide by cattle.

Nevertheless, we're working hard to limit the environmental impact of flying by investing in new, more fuel-efficient aircraft and pushing for shorter routes and improved air traffic control.

Flying's a wonderful thing

IATA | enviro.aero

This advertisement is supported by Airbus, The Boeing Company, Pratt & Whitney and Rolls-Royce

It's growing. But it'll still be small in 2050

People love to travel. So it's no surprise that air transport is growing.

Aviation contributes 2% of global CO_2 emissions. This is a figure that we are working hard to limit with new, fuel-efficient aircraft, shorter routes and better air traffic control.

So, even as more people see more of the planet, our share of emissions will remain small. The UN calculates that our contribution will be 3% by 2050.

Flying's a wonderful thing

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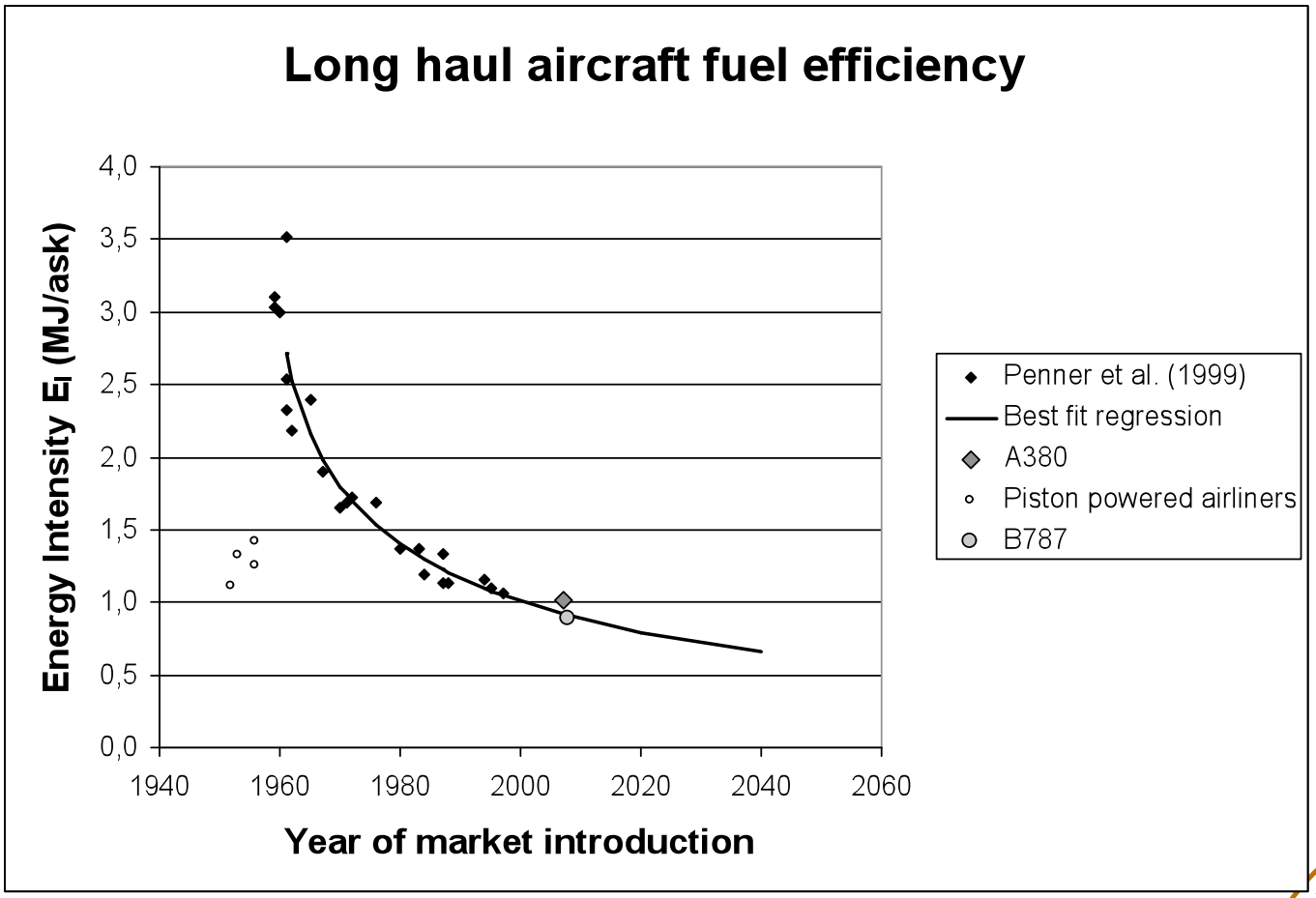
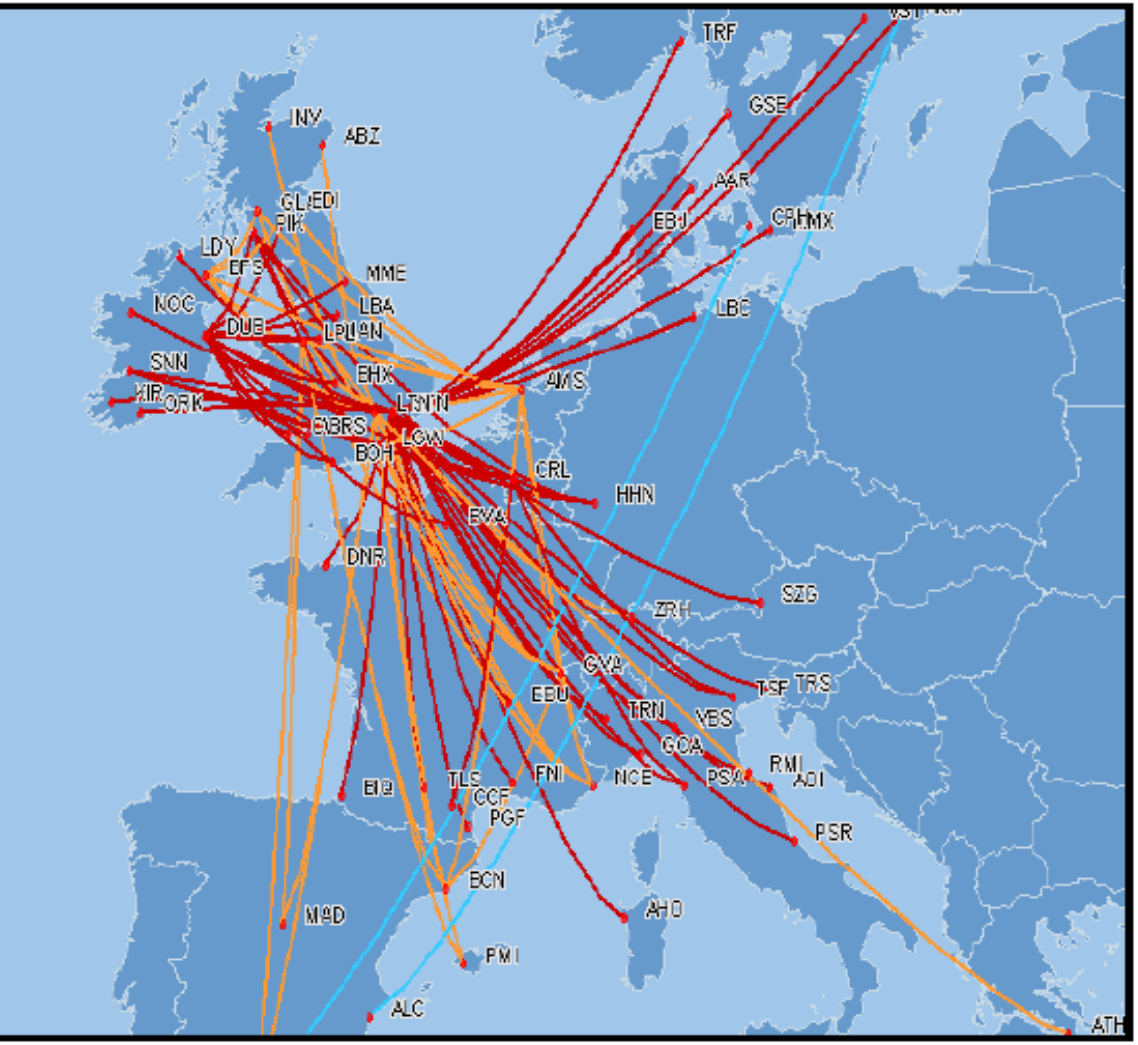
Efficiency gains aviation



Source: UNWTO-UNEP-WMO (*United Nations World Tourism Organization, United Nations Environment Programme, World Meteorological Organization) (2008) 'Climate Change and Tourism: Responding to Global Challenges'. Madrid, Spain.*

2001

2005



Development of low cost travel, 2001-2005

Transports: trains

- $3T^3$: Three Times Train Travel
- Fully renewable
- Service Management!

Accommodation

- **Engage in Environmental Management System**
- **Re-think energy use, become carbon-neutral (mind the gap in the public perception of „green“ and nuclear power!)**
- **Re-think food**

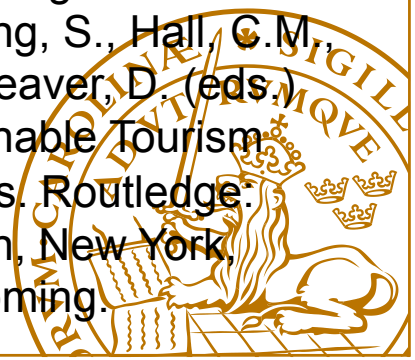
Scandic ska minska koldioxidutsläppen med 100 % till 2025

3e oktober 2007 presenterade Scandic sitt nya miljömål. År 2025 ska våra fossila koldioxidutsläpp vara noll. Ett delmål är att utsläppen 2011 ska ha halverats jämfört med 1996.

Timeline for the implementation of an environmental management program

Stage	Time, months	Actions
1 – the development of the reporting tool	6-8	Defining the scope and form of the environmental management program and reporting tool Consultation with company representatives, external consultants Development of the program and supporting materials Testing the software
2 – introduction of the program and reporting tool	1-2	Introduction of the concept of environmental reporting and monitoring (its benefits and limitations) by the top management Presentation of the environmental program and reporting system Nomination of environmental champions at all business units Installation of the reporting system at all units (or providing the necessary support materials)
3 - training	2-4	Two training sessions for the users (personnel): 1. detailed presentation of the system (data sources, data acquisition methodology, reporting procedure, output reports, possible limitations of the tool), either classroom-type workshop or interactive training 2. time for the users to get acquainted with the tool, verify if they have access to all the required information within the time limit specified in the system, etc. 3. classroom-type Question & Answer training session 2-3 weeks after the first meeting (virtual conference meeting also an option) lead by the tool developer
4 – creation of the reporting culture	3-6	Careful monitoring of the data quality provided by individual hotels and their reporting status Regular reminders of the need to report on time Crucial to offer the individuals support and encouragement Management support for the initiative
5 – data collection	Up to 12	Constant collection of data in the system Environmental program and training can be initiated If centralised data available – this can be uploaded to the system to speed the process
6 – initiation of resource saving program	When 12 months of data available	Setting of environmental (resource reduction) goals (with the past 12 months as a base year) The tool used to monitor progress and performance of individual units

Source: Bohdanowicz, P. 2009. Theory and Practice of Environmental Management and Monitoring in Hotels. In: Gössling, S., Hall, C.M., and Weaver, D. (eds.) Sustainable Tourism Futures. Routledge: London, New York, forthcoming.



Restaurants & Food

- **Tourism could be leading in delivering sustainable food to tens of millions of people every day.**

But it isn‘t:

- **Enormous amounts of food are thrown away every day (even though fully eatable)**
- **There is hardly any use of organic/local food**
- **There is considerable use of food that is highly problematic for the environment (e.g. tiger shrimps)**
- **There is hardly any use of renewable energy**
- **There is a massive use of problematic materials (e.g. aluminium)**

Tourism Organizations

- Incoming tourism: re-think markets
- Re-think attractions
- Re-think average length of stay

Eco-efficiency by source market for Amsterdam, 2002

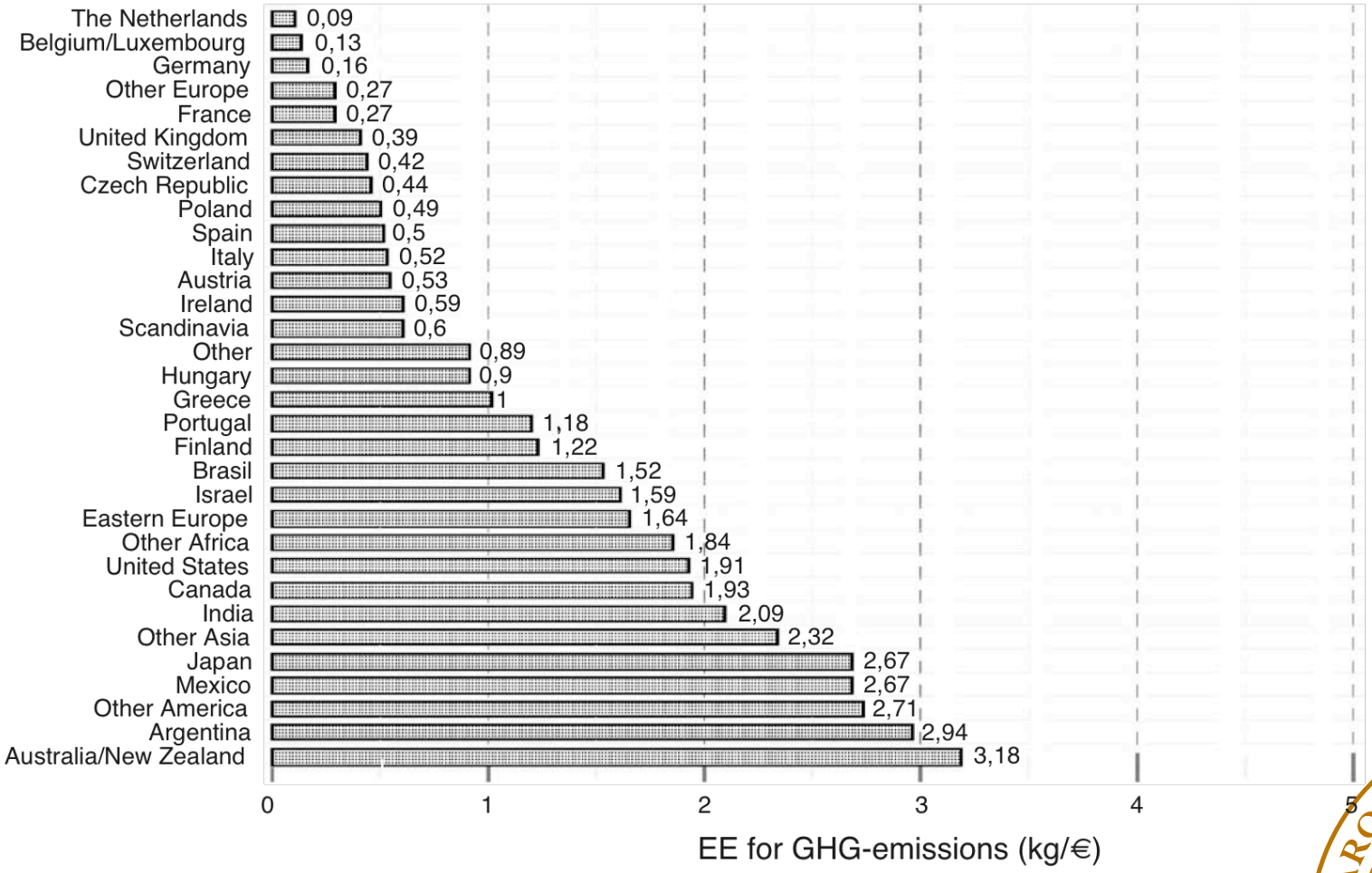


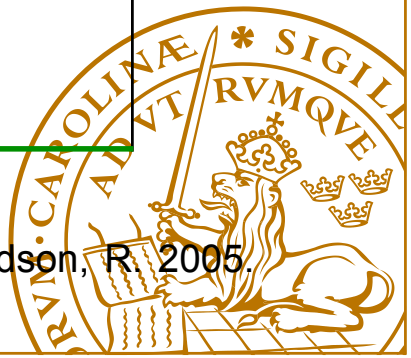
Fig. 2. Eco-efficiency by source market for Amsterdam, 2002.

Source: Gössling, S., Peeters, P., Ceron, J.-P., Dubois, G., Patterssson, T., and Richardson, R. 2005. The Eco-efficiency of tourism. *Ecological Economics 54(4): 417-434.*

Suggestions for future marketing of Amsterdam

	Large market	**Small market**
Unfavourable eco-efficiency	*Less marketing:* USA	*No marketing:* Japan Australia/New Zealand Canada Asia
Favourable eco-efficiency	*Current marketing:* United Kingdom Netherlands	*Strong marketing:* Germany Belgium France Austria Switzerland

Source: Gössling, S., Peeters, P., Ceron, J.-P., Dubois, G., Patterson, T., and Richardson, R. 2005. The Eco-efficiency of tourism. *Ecological Economics 54(4): 417-434.*



Climate neutral destinations

Costa Rica: 2021
Norway: 2030
Sri Lanka
New Zealand
Scotland
...

Measuring

↓

Decarbonizing

↓

Offsetting

(Focus on Gold Standard Certified Emission Reductions!)

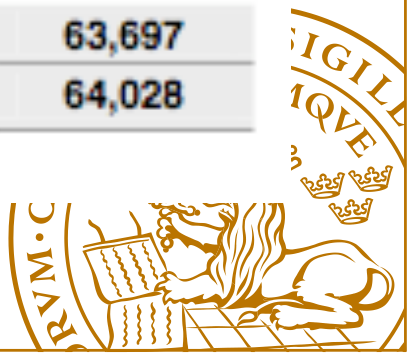
Source: Gössling, S. 2009. Carbon neutral destinations: a conceptual analysis. *Journal of Sustainable Tourism, in press.*

The value of the Voluntary Carbon Market, 2007

Transaction Volumes and Values, 2006 and 2007

Markets	Volume ($MtCO_2e$)		Value (US$million)	
	2006	2007	2006	2007
Voluntary OTC Market	14.3	42.1	58.5	258.4
CCX	10.3	22.9	38.3	72.4
Total Voluntary Markets	**24.6**	**65.0**	**96.7**	**330.8**
EU ETS	1,044	2,061	24,436	50,097
Primary CDM	537	551	5,804	7,426
Secondary CDM	25	240	445	5,451
Joint Implementation	16	41	141	499
New South Wales	20	25	225	224
Total Regulated Markets	**1,642**	**2,918**	**31,051**	**63,697**
Total Global Market	**1,667**	**2,983**	**31,148**	**64,028**

Source: Ecosystem Marketplace, New Carbon Finance, World Bank



Tour operators/Travel agents

- Create attractive low-carbon products
- Develop closer destinations – de-market distant destinations
- Provide incentives to customers choosing low-carbon products/closer destinations
- Increase average length of stay
- Optimize trips, favour direct flights
- Combine air-train/coach offers, where flights are unavoidable
- Introduce carbon labelling

fritidsresor.se

Start | Våra resor | Boka/Sök pris | Erbjudanden | Inspiration | Min resa

- Blue - Våra bästa hotell
- Sol & bad
- Aktiv semester
- Endast flyg eller hotell
- Storstadsresor
- Tågsemester
  - » Blue Train - Tågcharter
  - » TEMA Train- Tågrundresor
- Speciellt för familjen
- Bilsemester
- Kryssningar
- Grupp och Konferens

Tågsemester - sommar 2008

Vår tågcharter Blue Train blev förra sommarens stora succé. Medveten närvaro och långsam njutning blir allt viktigare när vardagen blir allt mer stressfylld.

Blue Train tar dig med på nya spännande resor i Europa. Förutom förra årets orter vid Gardasjön utökar vi med **tre nyheter i Italien: Grado, Malcesine och Sirmione**.

Conclusions

- **We need to re-think and re-structure the tourism system – climate change is an issue that will demand continous action over the next 20 years or more**
- **We need to increasingly focus on low-carbon, high-yield tourism strategies, based on the new economic bottomline**

The way ahead?

"The industry does not work closely with academic researchers. **Sustainable tourism originated through commentators, critics and thinkers – not through the industry. Effective links between industry and academic research are rare. Many academics do not understand the needs of the industry; much of the industry is afraid of researchers who may uncover commercial knowledge."**

Source: Lane, B. 2009. 30 years of Sustainable Tourism. In: Gössling, S., Hall, C.M., and Weaver, D. (eds.) Sustainable Tourism Futures. Routledge: London, New York, forthcoming.

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