Food, Tourism & Sustainability

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A world to feed

Food productivity under climate change

Fig. 2. Global impacts of climate change on crop productivity from simulations published in 1994 and 2010. (Top) The 1994 study (22) used output from the GISS GCM (in this example) with twice the baseline atmospheric CO₂ equivalent concentrations as input to crop models for wheat, maize, soybean, and rice that were run at 112 sites in 18 countries. Crop model outputs were aggregated to a national level using production statistics. (Bottom) The 2010 study (27) simulated changes in yields of 11 crops for the year 2050, averaged across three greenhouse emission scenarios and five GCMs. [Reprinted by permission from (top) Macmillan Publishers Ltd. (22); (bottom) World Bank Publishers (27)]

11 billion people by 2000

Food production is at the heart of sustainability!

- Water use
- Sewage
- Energy use
- Land use
- Emissions ($\text{CH}_4$, $\text{NO}_x$)
- Animal rights
- Packaging & transports
- Pesticides
- Agroengineering
- GMOs
- Global market concentration
- Human rights
- Global value chains
- Waste
Water

From South Africa to Germany: 1 kg grapes = 2 kg of fuel (Jet A1)

Global market concentration

- **Animal feed**: market share top 10 enterprises: 16%
- **Livestock breeding**: market share top 4 poultry production: 99%
- **Seeds**: market share top 10 enterprises: 74%
- **Fertilizer**: market share top 10 enterprises: 55%
- **Pesticide**: market share top 10 enterprises: 90%

**Trade**
- soy and crop market
- Market share top 4 enterprises: 75%

**Food processing**
- market share top 10 enterprises: 28%

**Retail**
- market share top 10 enterprises: 11%

Waste

- UK food hospitality waste going to landfill in 2009: 598,000 t, of this avoidable: 67%.


Photograph:
Food waste after breakfast, Tangaloo Island, Australia
Food consumption in tourism: 1900-2050


27% of total “tourism additional”
Tourism and climate change: 
\[ \text{CO}_2 \text{ emissions 1900-2050} \]

CO$_2$-emissions from tourism and sustainable planetary boundaries

Food and Tourism

• Tourists: 75 billion meals consumed per year, 200 million per day (data for 2005)
• Higher protein food; greater quantity; more wasted than at home
• Purchases at lowest cost, usually sourced from world markets

A hotel manager’s voice

Everything I fly. Even the coffee I fly. In terms of fuel, this hotel is terrible. We place the order for Christmas stuff now: it will be coming from Dubai, by container. If I order now, I don’t have to fly it here. Christmas for me is August latest.

General Manager, five-star hotel, Seychelles
What tourism should do

• Use greater quantities of sustainable foods (locally sourced, organic, vegetarian)
• Create linkages to local producers to improve value chains
• Reduce food waste
• Present regional, organic food choices as quality choices to tourists
The 3 Ps of food management in hospitality
Purchases
Purchase rules

• Buy locally, from small producers
• Avoid foodstuffs grown in heated greenhouses, transported by air, or high in the food chain (chicken > pork > lamb > beef)
• Avoid specific foods (giant prawns, lobster), and products (aluminum foil)
• Use greater amounts of vegetables, potatoes, grains, pelagic fish or chicken

Preparation
Preparation rules

• Create attractive menus with vegetarian options, or reduced amounts of meat (train staff in vegetarian cooking)
• Reduce number of overall choices (waste)
• Don’t be afraid to run out of individual offers
• Adjust portion sizes ‘right’, offer doggy bags
• Use energy-efficient cooking routines
• Handle waste (reduce, reuse, recycle)

Presentation
Presentation rules

• Avoid buffets
• Place meats in the backgrounds
• Present vegetarian alternatives
• Present smaller quantities
• Provide small plates
• Train staff to recommend low-carbon dishes
• Avoid single use packaging
• Highlight regional and organic choices

Conclusions

- Food highly complex and highly relevant aspect of (tourism) sustainability
- Tourism is jeopardizing global environmental sustainability!
- Tourism’s negative environmental impacts cannot be weighted against its developmental benefits
- Tourism has a huge potential to contribute to global sustainability
- Sustainability requires leadership on all political and business levels
- There is a WIN-WIN in sustainable food in tourism