

Lecture 3: Socio-Ecological Problems

Episode 1: Macro Level

Prof. Dr. Frank-Martin Belz
Technische Universität München
TUM School of Management

 Universität Bremen

 **ZMML**
Zentrum für Multimedia
in der Lehre

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Deutsche Bundesstiftung Umwelt



Lecture 3: Overview





Lecture 3: Overview

Episode 1: Macro Level

Episode 2: Micro Level

Episode 3: The Story of Stuff



Learning Objective

You will understand the main socio-ecological problems on a macro level.



Structure of the Episode

- Introduction
- Iconic Picture
- IPAT Formula
- Implications



Neo, the Matrix and Marketing



Source: <http://boscosgrindhouse.com/2012/07/30/boscos-franchise-collection-the-matrix-trilogy/>



Iconic Picture



Photo: NASA Goddard Space Flight Center
Source: http://visibleearth.nasa.gov/view_rec.php?id=2429



IPAT Formula

$$\text{Impact} = \text{Population} \times \text{Affluence} \times \text{Technology}$$

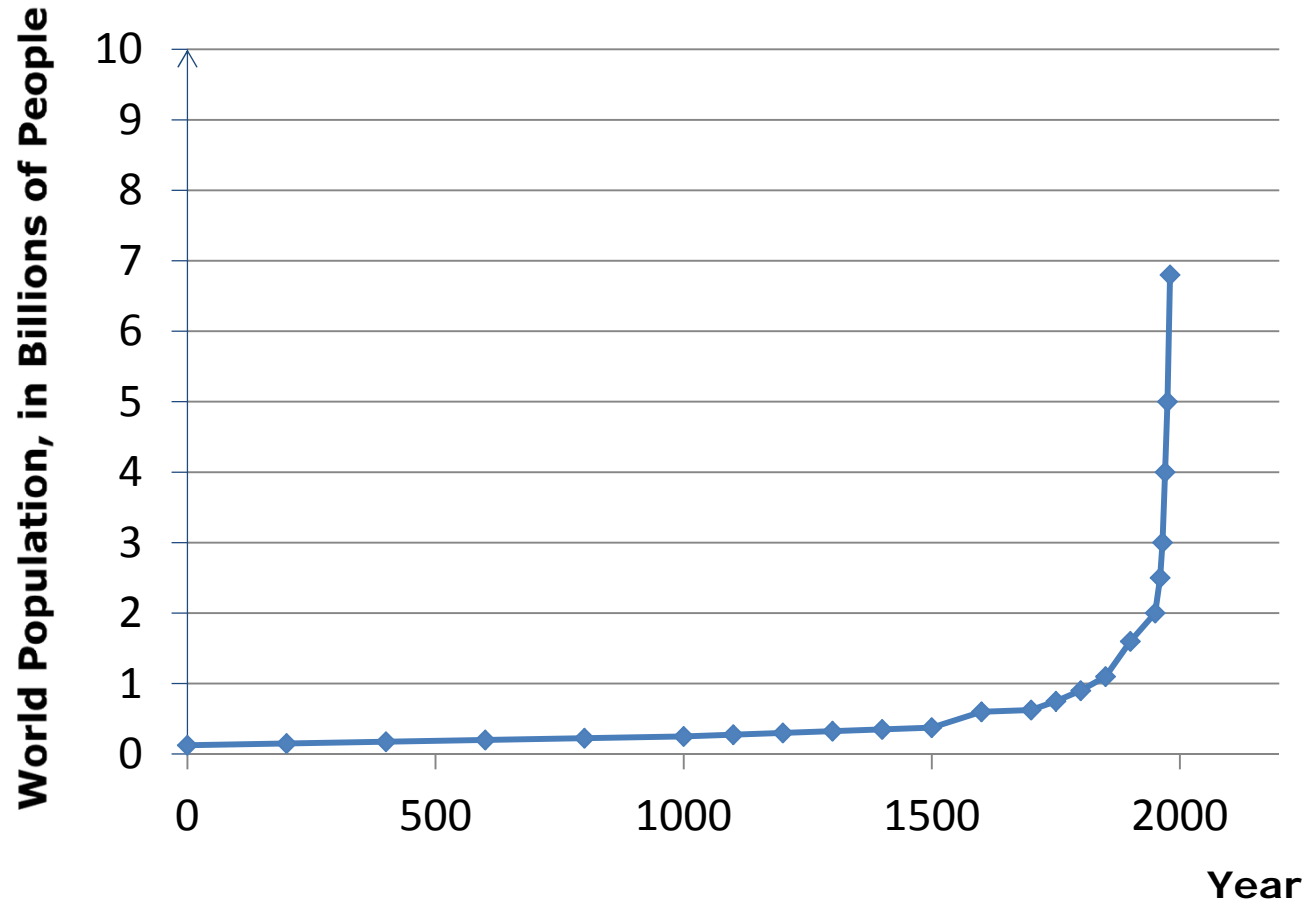


IPAT Formula

Population



IPAT Formula



Source: Graph based on data in *The world at six billion*, United Nations Population Division (1999)



IPAT Formula

Affluence



IPAT Formula

110



IPAT Formula



Author: Ukko

Source <http://upload.wikimedia.org/wikipedia/commons/7/73/Weizenbier-ukko.jpg>





IPAT Formula

2



IPAT Formula

80



IPAT Formula



Photo: Scott Bauer Source: <http://en.wikipedia.org/wiki/Pig>



IPAT Formula

5

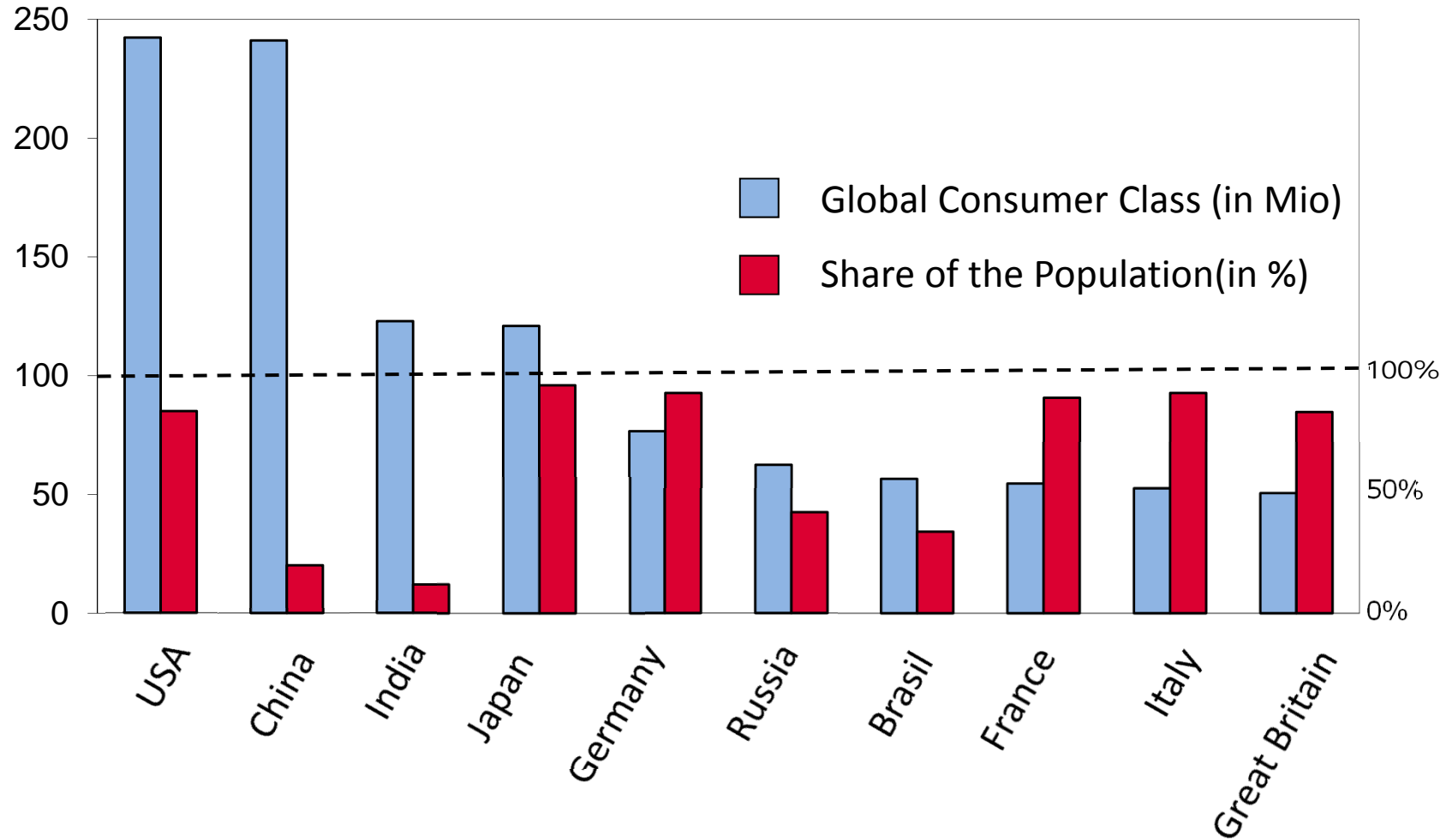


IPAT Formula

Category of Consumption	Poor	Middle	Affluent
Housing	Huts, shanties	Moderate Buildings	Climate-controlled Buildings
Diet	insufficient grain, unsafe water	grain, clean water	meat, packaged food, soft drinks
Transport	walking	bicycles, buses	private cars
Materials	local biomass	durables	throwaways



Global Consumer Class



Source: Reproduction from Bentley, M. (2003): Sustainable Consumption: Ethics, National Indices and International Relations, PhD Dissertation, American Graduate School in Paris



IPAT Formula

Technology



IPAT Formula

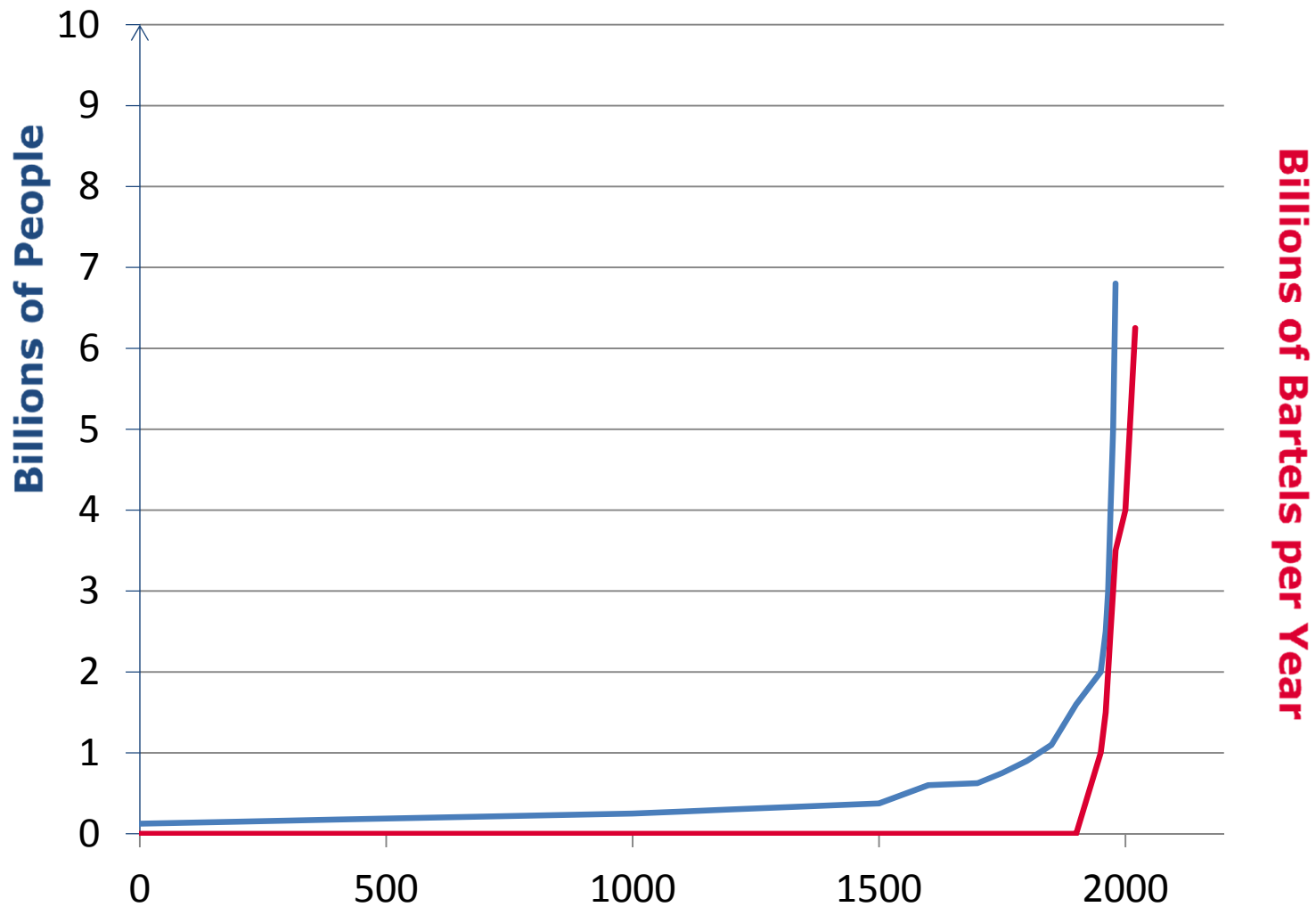


Photo: Joe Mabel

Source: http://commons.wikimedia.org/wiki/File:Barrels_JM03.jpg



World Population and Oil Consumption



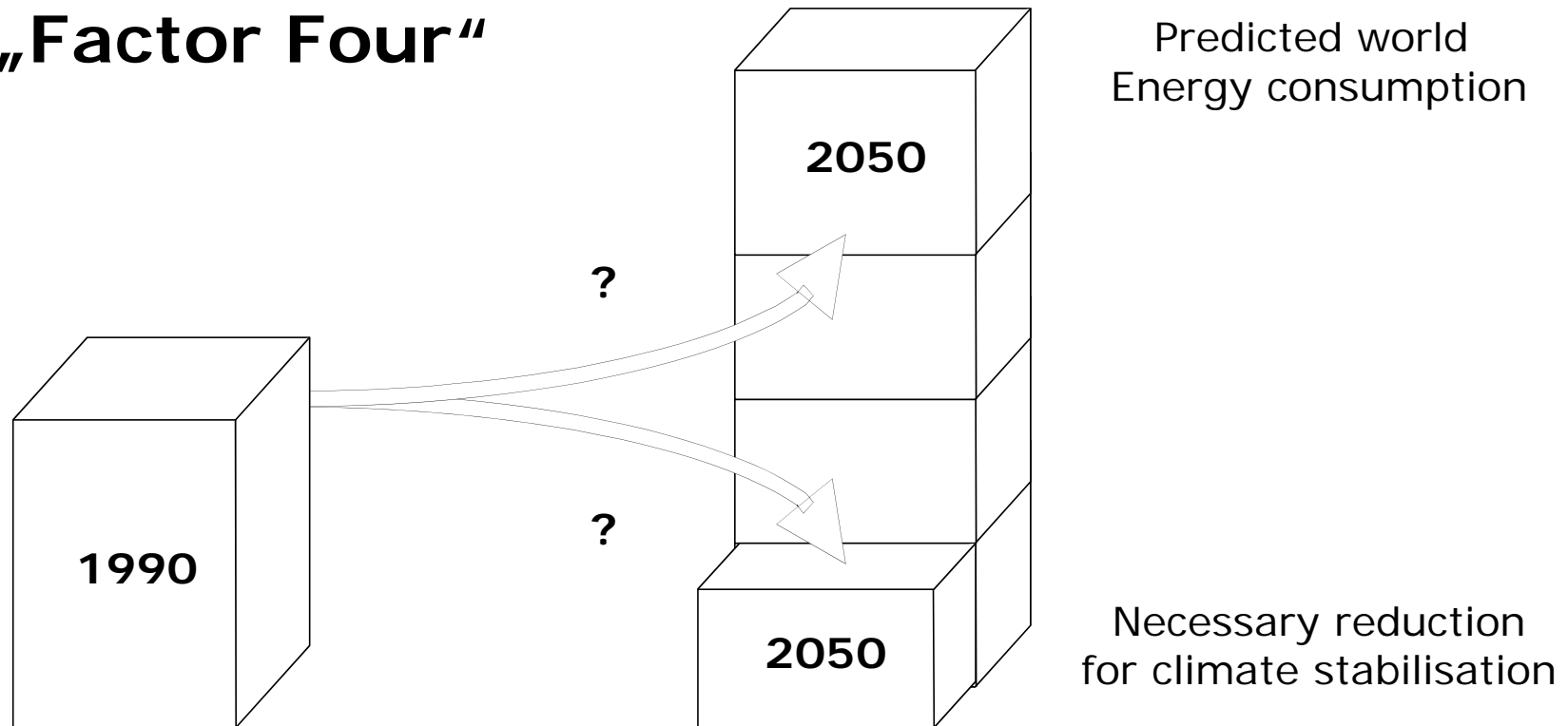
Source: World population from US Census Bureau, overlaid with fossil fuel use (red) by Vaclav Smil from Energy Transitions: History, Requirements, Prospects.





IPAT Formula

„Factor Four“



Source: Von Weizsäcker, E., Lovins, A.M. & Lovins, L.H. (1998): Factor Four. Doubling Wealth, Halving Resource Use, London: EarthScan



IPAT Formula

Impact



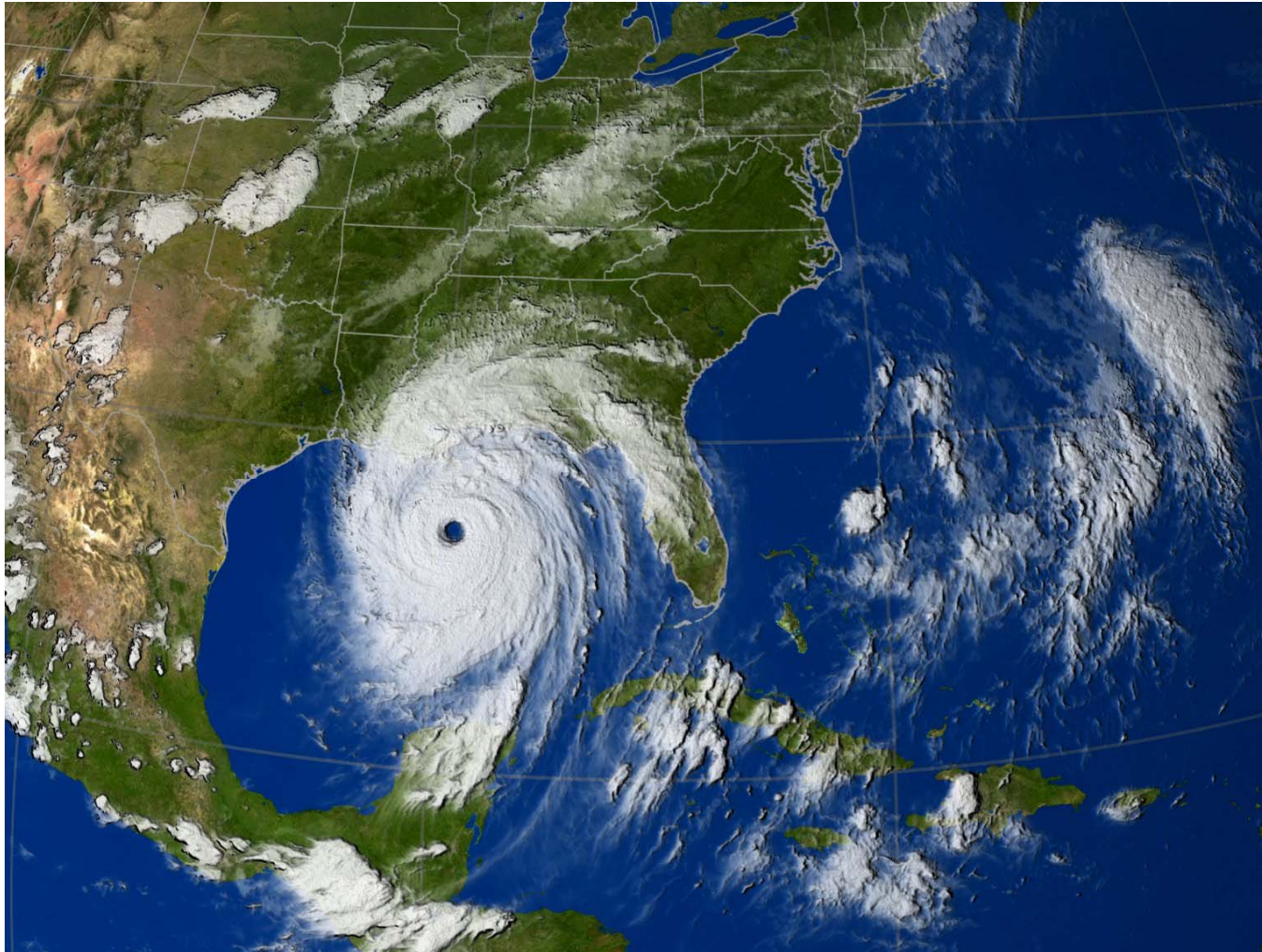
IPAT Formula



Photo: Hannes Grobe
Source: http://commons.wikimedia.org/wiki/File:1991_polar-bear_hg.jpg



IPAT Formula

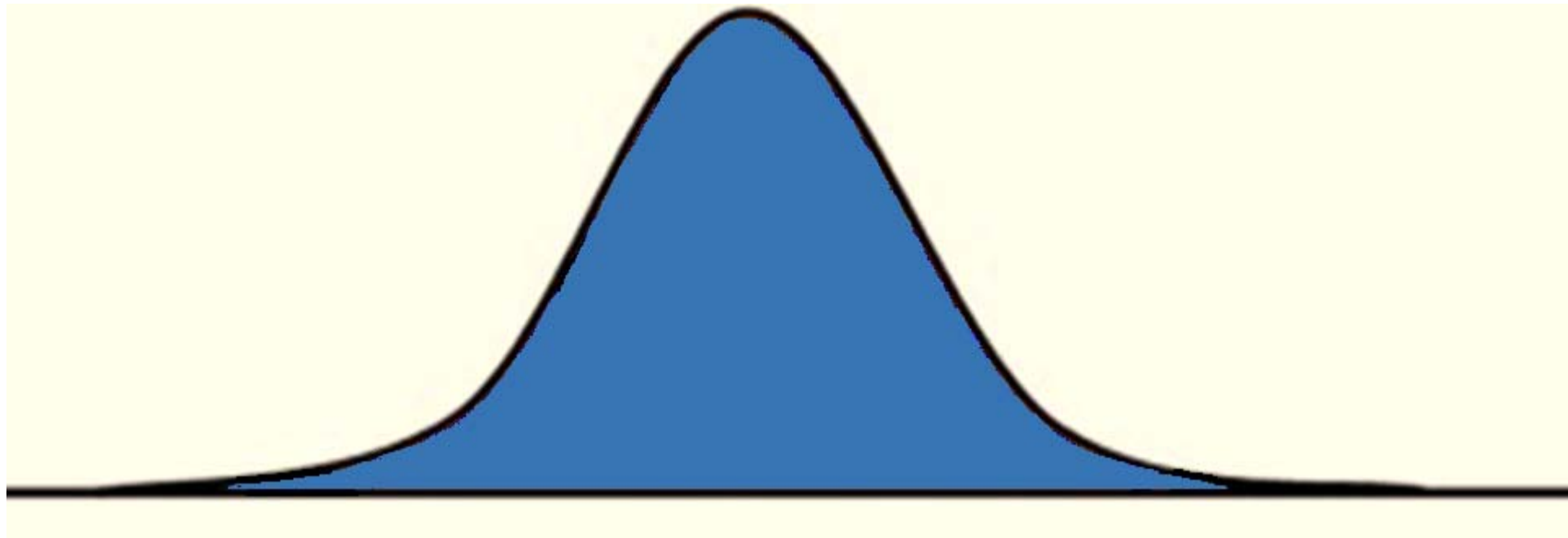


Source: NASA/Goddard Space Flight Center Scientific Visualization Studio



IPAT Formula

Peak Oil





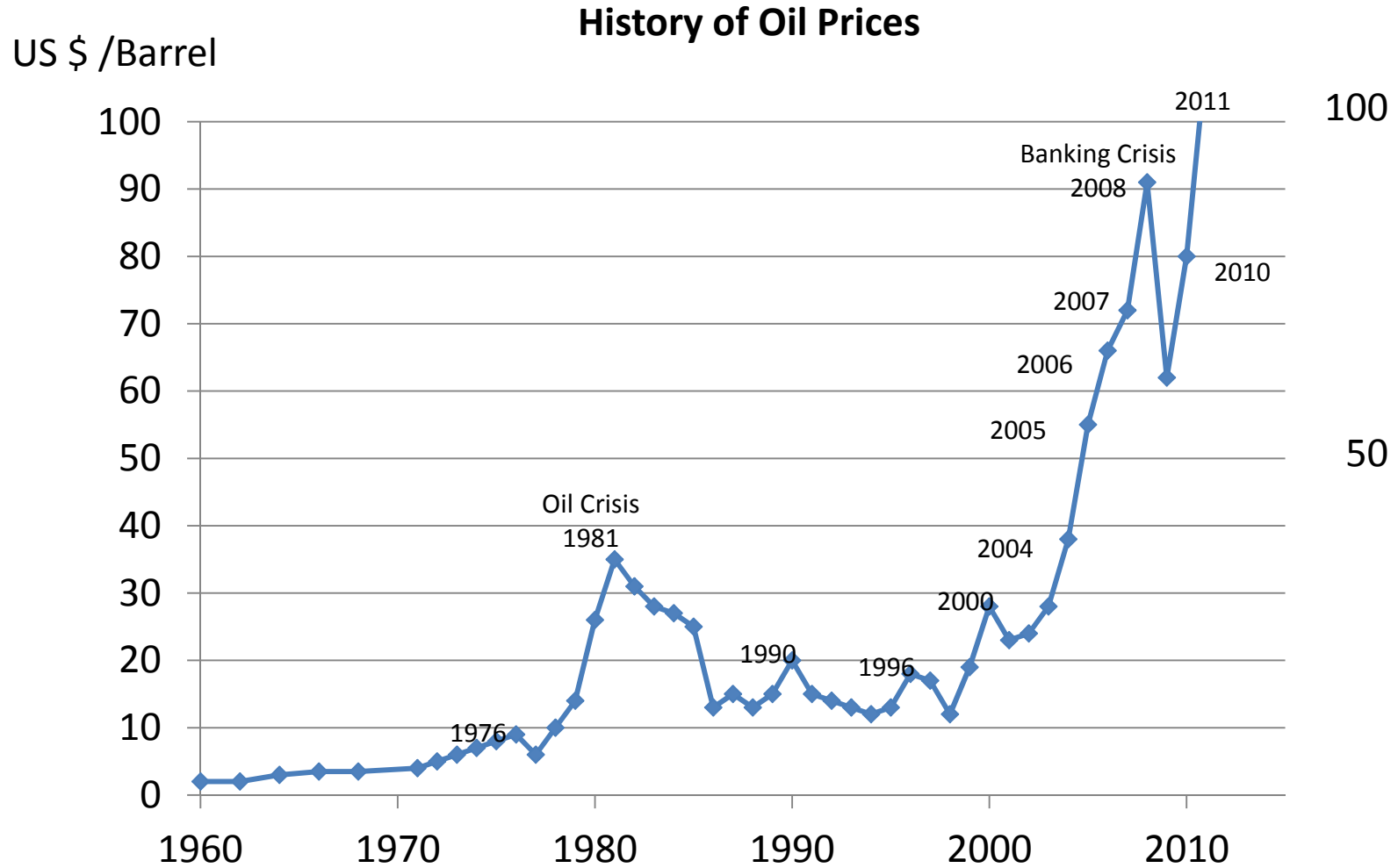
IPAT Formula



Trailer: A Crude Awakening: The Oil Crash
Source: <http://www.youtube.com/watch?v=Or-TyPACK-g>



IPAT Formular

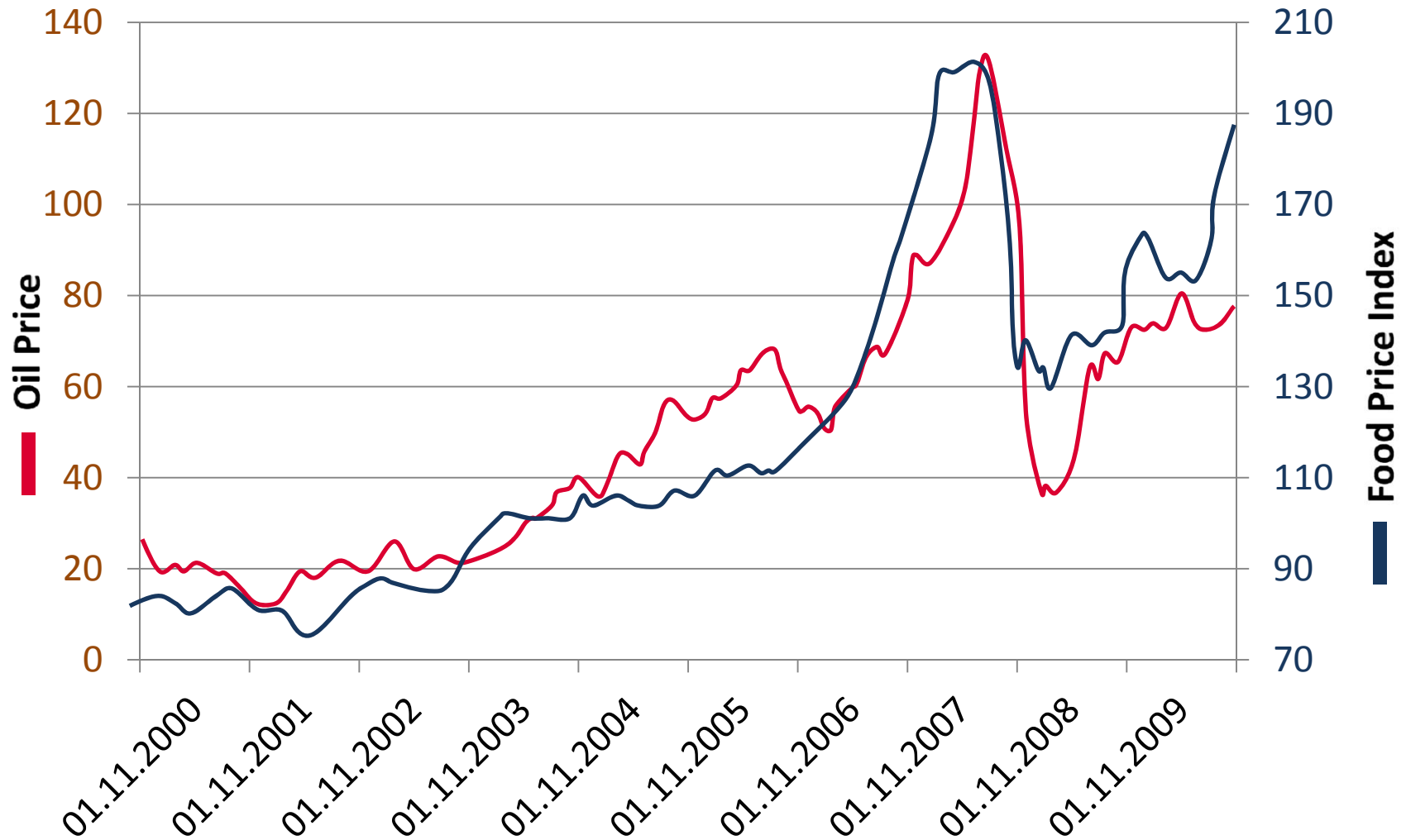


Source: Data based on www.tescon.de





Oil and Food Prices



Data: Nov 2000 to Nov 2010 by EIA, FAO. Chart courtesy Paul Chefurka



IPAT Formula



Photo: Vinod Panicker
Source: <http://photos.doniv.org/v/rann/43-design-of-the-rann.jpg.htm>



IPAT Formula

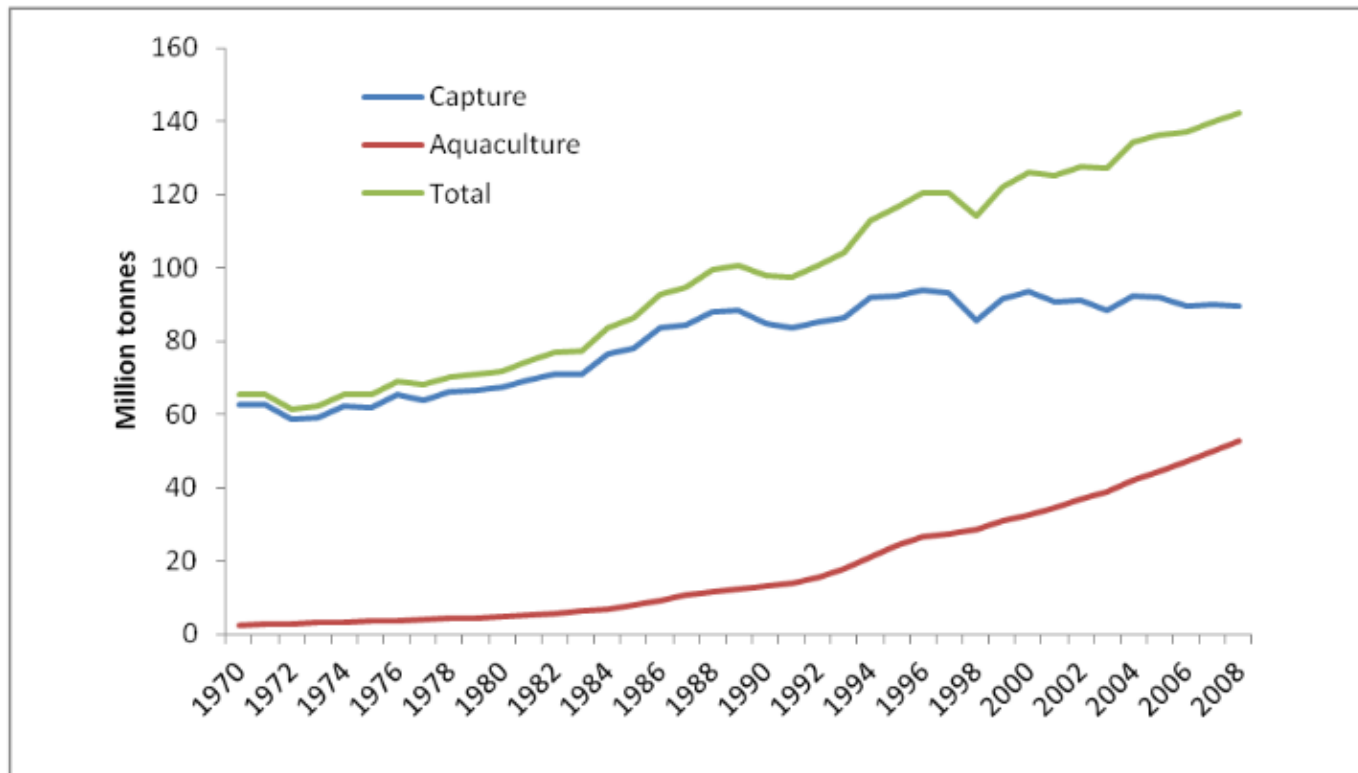
Peak Water



Photo: Jaques
Source: <http://de.wikipedia.org>



Peak Fish



Source: Data based on FAO



Implications

Impact = Population x Affluence x Technology



Review and Discussion Questions

1. What does the IPAT formula say? What is the link between the IPAT formula and marketing?
2. Why is the ecological question also a social question of resource equity in a world with limited resources? Discuss!



References

- Belz, F.-M., Peattie, K. (2012): Sustainability Marketing: A Global Perspective, 2. ed., Chichester: Wiley, p. 51-61.
- Durning, Alan (1992): How much is enough? The Consumer Society and the Future of the Earth, New York: W.W, Norton Company.
- Von Weizsäcker, E.U., Lovins, A.M., Lovins, L.H. (1998): Factor Four: Doubling Wealth, Halving Resource Use, London: Earthscan.



In Cooperation



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