

Updating Concepts of 'Sustainable Development' for use in the 21st Century?

For a symposium organized by the
Zeppelin University European Center for Sustainability Research

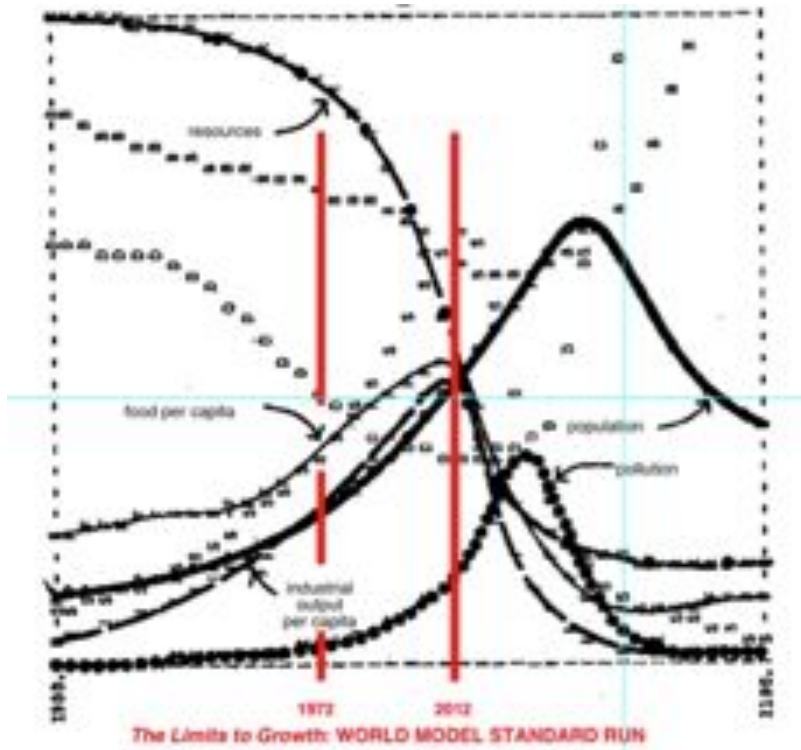
Dennis Meadows

Berlin, Germany

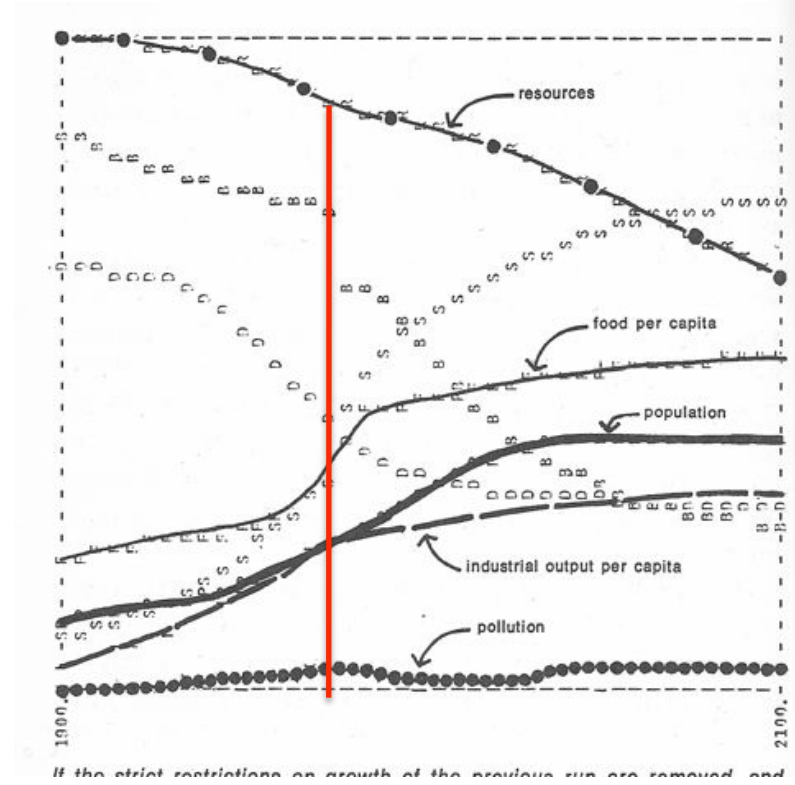
1. December, 2012

Main Ideas for this Session

- In 1972 there were two future paths for global society – overshoot and sustainable development.
- We followed the overshoot path, so now the old definition of sustainable development is no longer useful.
- We must change our focus in four ways.
 - #1: Focus on universal, not global problems.
 - #2: Focus on cultural and social changes.
 - #3: Focus on the resilience of our systems.
 - #4: Shift from talking to acting



World3: Overshoot Path

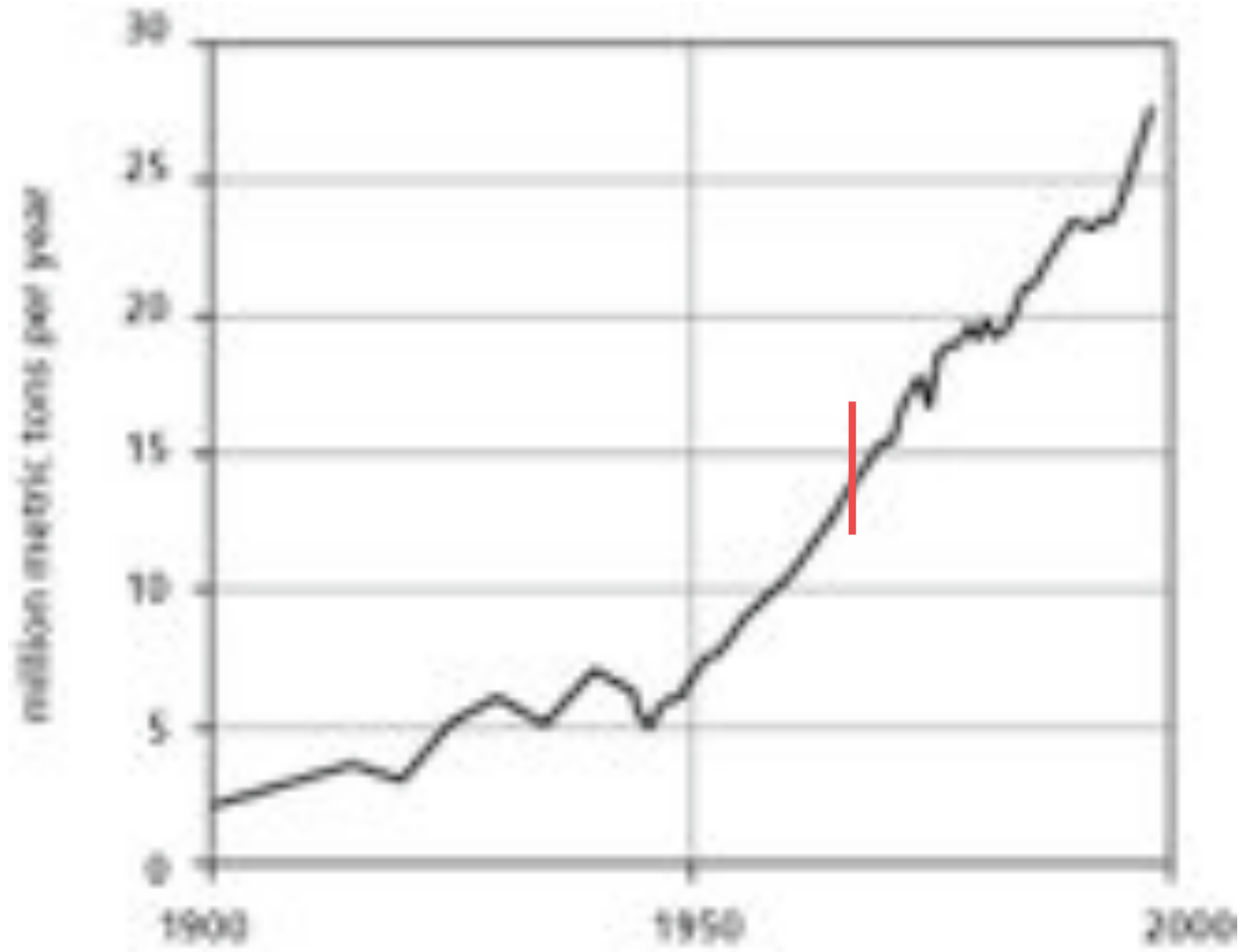


World3: Sustainable Development Path

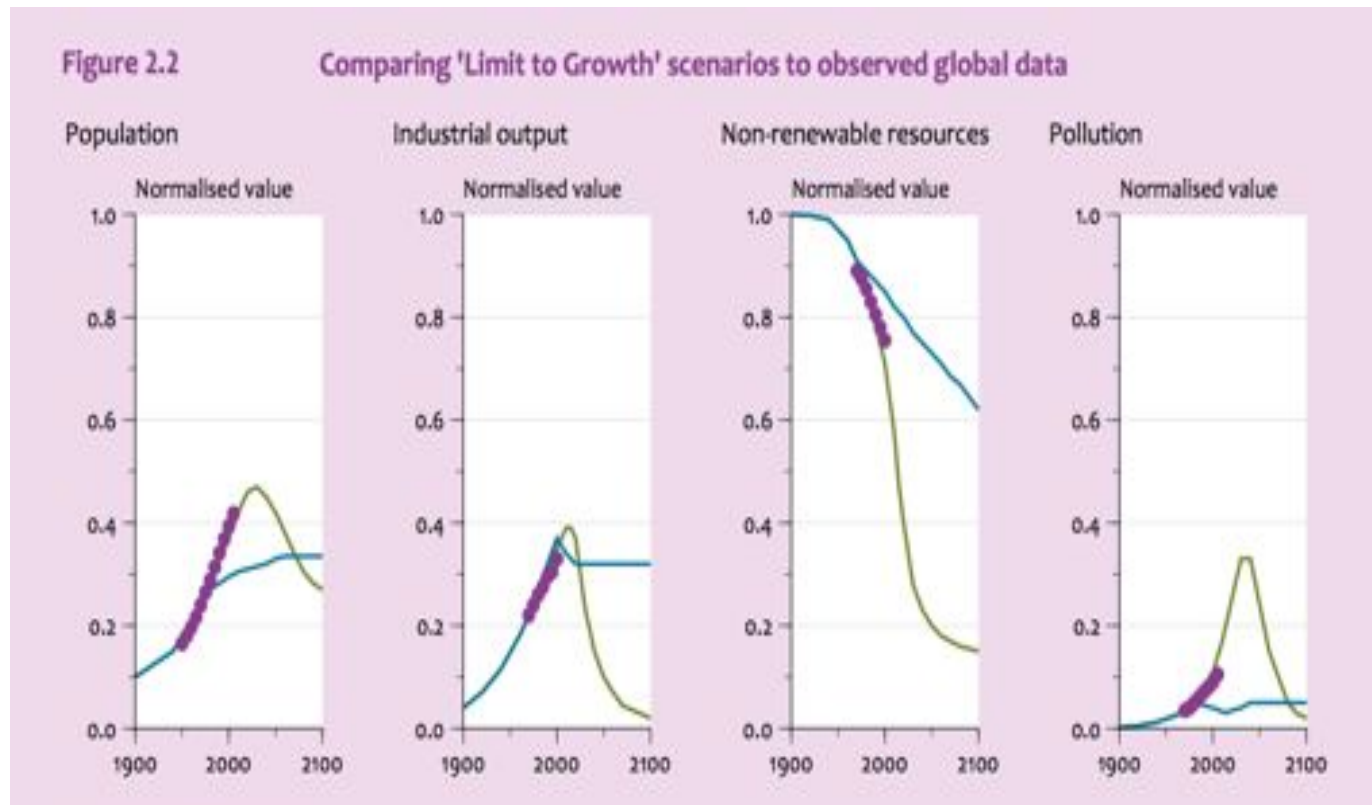
World Population



Index of World Metals Use



Global society is following the overshoot scenario

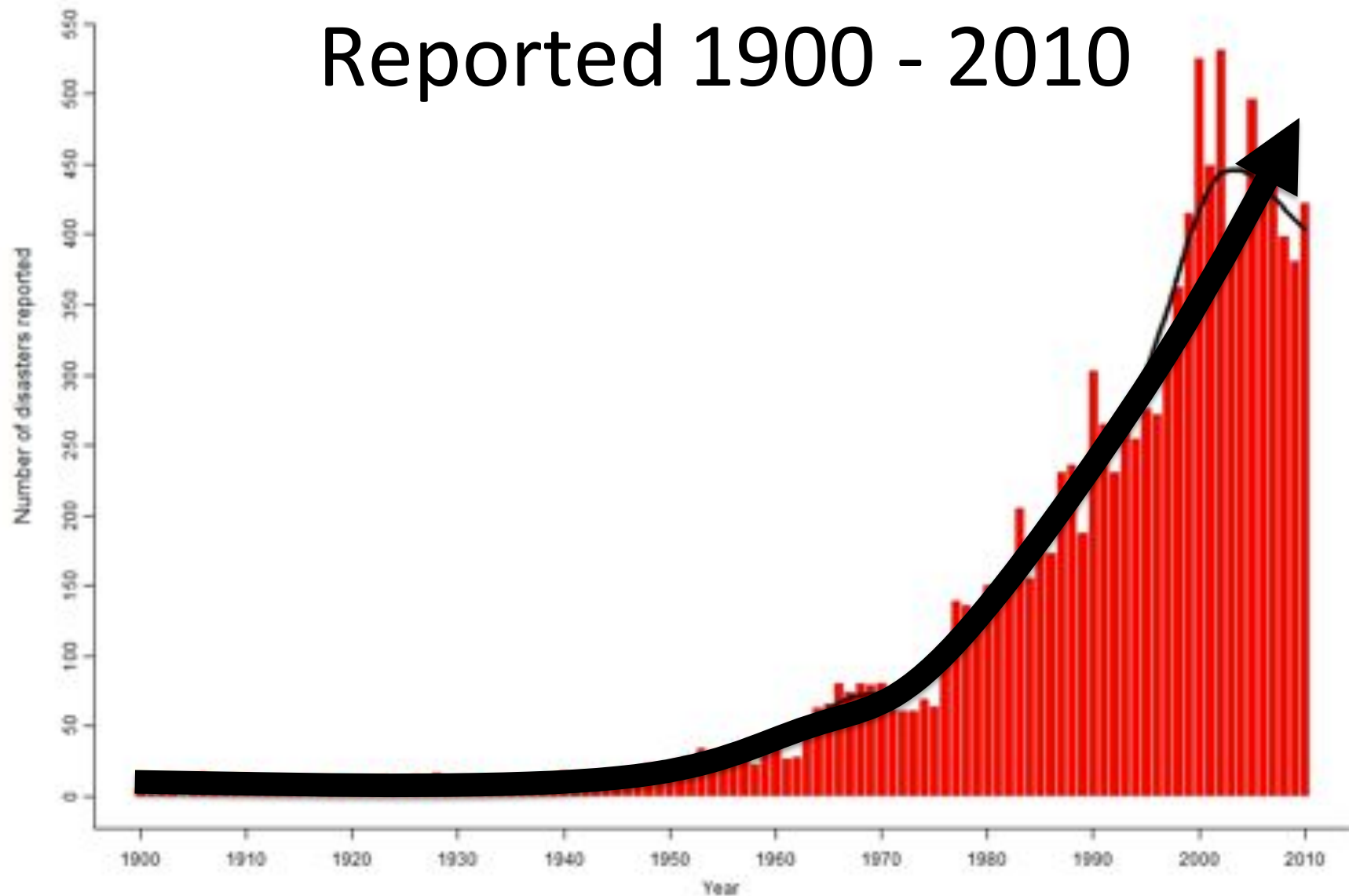


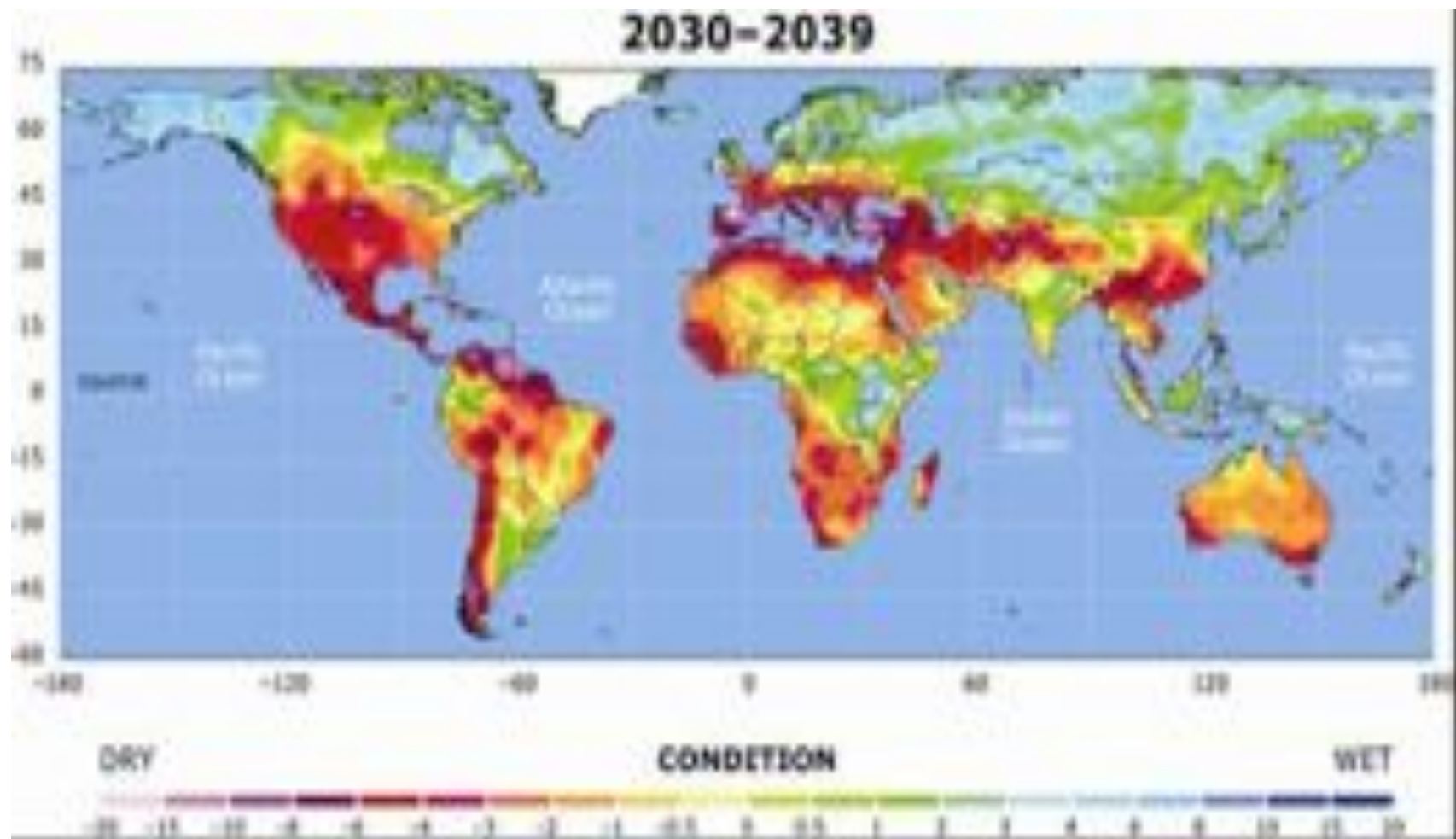
Overshoot Path 


Sustainable Dev. Path 

Historical Data 

“Natural” Disasters Reported 1900 - 2010






Think again, teacher: Myths from neuroscience are creating confusion in the classroom. 



REVIEW




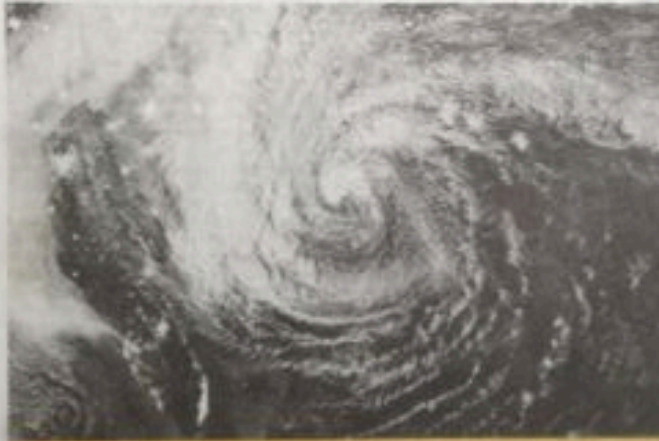
For the gift-giving season, books on Proust, suburban wild life, Jewish jokes and the history of Christmas trees. 

BOOKS | CULTURE | SCIENCE | COMMERCE | HUMOR | POLITICS | LANGUAGE | TECHNOLOGY | ART | IDEAS

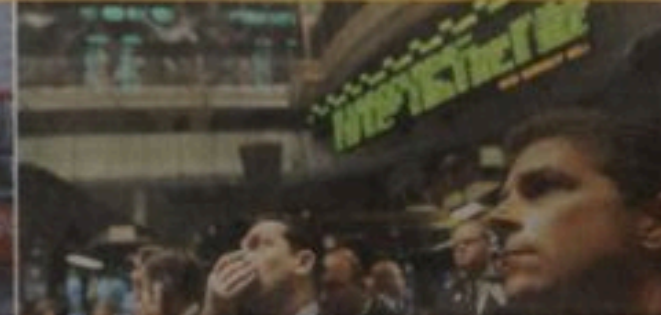
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Saturday/Saturday, November 17-18, 2012 | 



LEARNING TO LOVE VOLATILITY



Brundtland Commission Definition

Sustainable Development is: development that meets the needs of the present without compromising the ability of future generations to meet their own needs

Our Common Future, Report of the World Commission on Environment And Development, United Nations, 11 December 1987

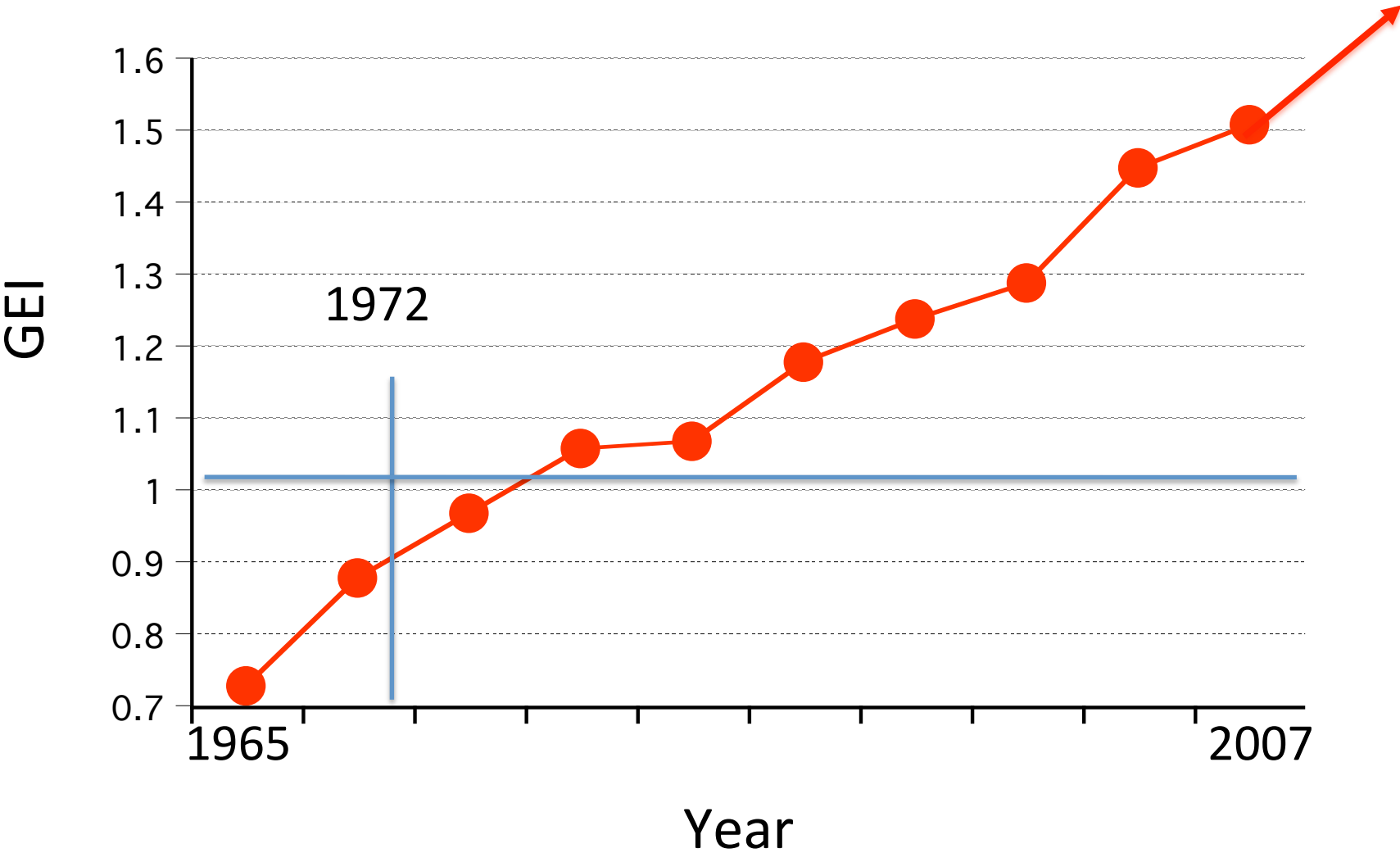
The common assumptions about sustainable development

- The rich can keep what they have (preferably get even more)
- while the poor rise to the standards of the rich
- this will be achieved keeping our current system (markets and politics)
- by developing new technologies that 'decouple' GDP growth in the use of energy and materials.
- Growth will give us the resources we need to accomplish all this.

Leaders Hope that Old Policies will Achieve These Goals

German and French finance officials met Monday in Berlin ahead of a meeting of European Union leaders Wednesday in Brussels. The discussion at the Brussels meeting is expected to focus on possible pro-growth initiatives, a reflection of what appears to be a growing consensus that Europe must balance its austerity policies with measures to bolster growth.

Global Ecological Footprint: 1965 - 2007



To make our future more attractive

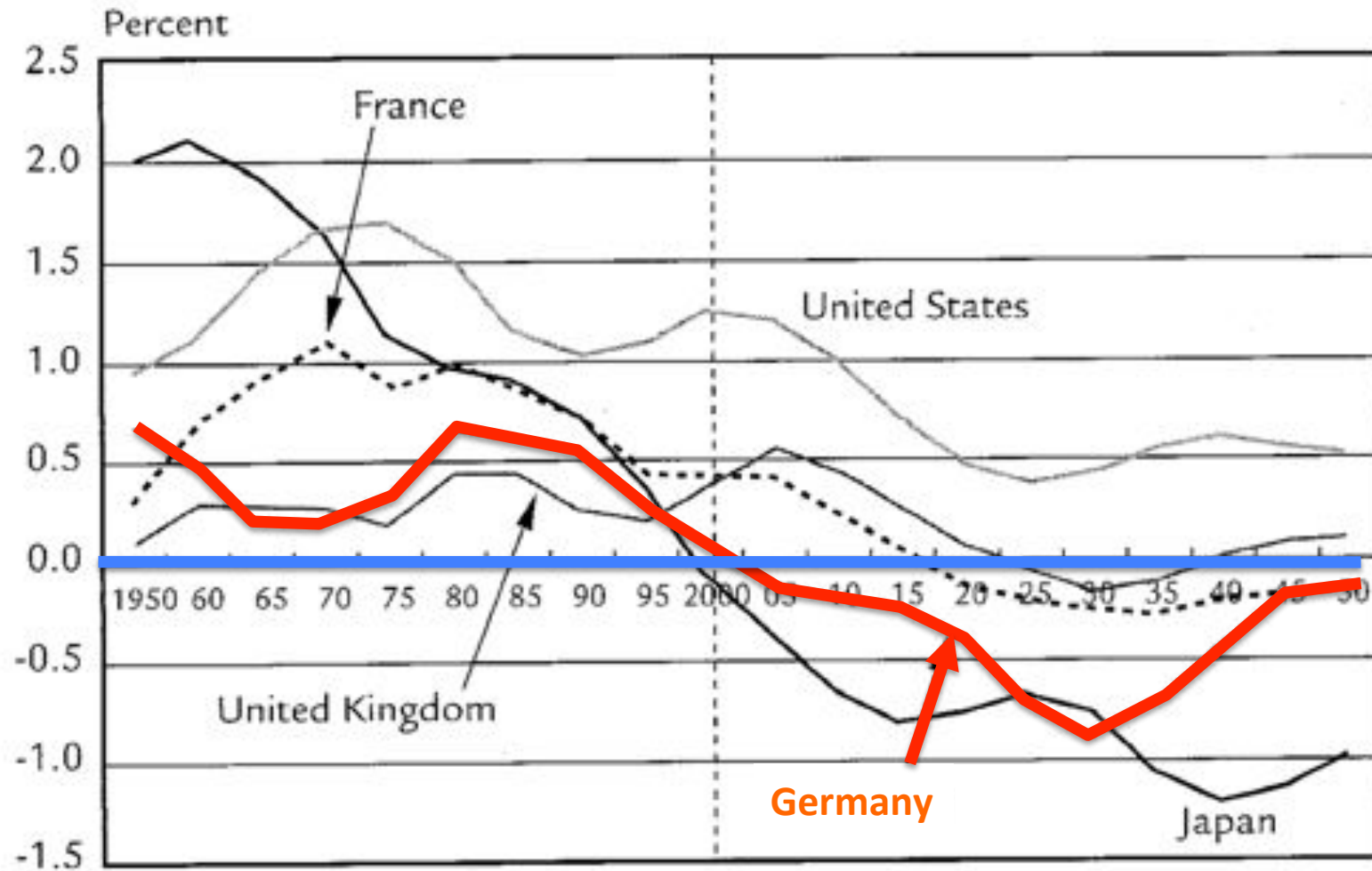
- Focus on universal problems
- Focus on cultural and social changes
- Focus on making our systems more resilient
- Shift from talking to acting

#1: Focus on Universal Problems

- Global problems affect everyone (climate change, spread of nuclear weapons, epidemics, etc.). Solving them requires everyone to agree and act. Costs here and now give benefits there and later.
- Universal problems affect everyone (city air pollution, soil erosion, flooding, etc.). Solving them requires only a small group to agree and act. Costs here and now give benefits here and soon.

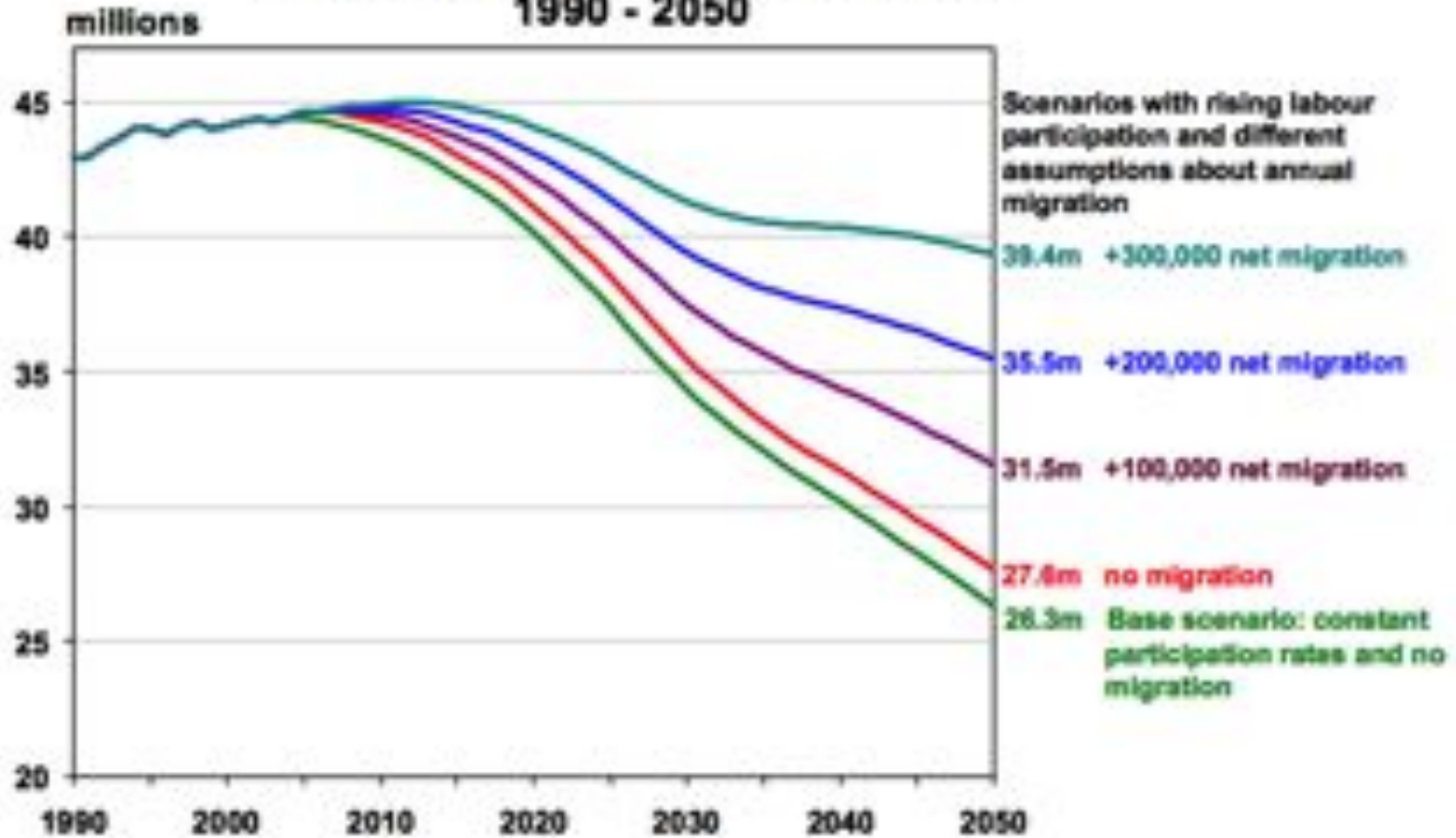
Figure 6

Annual Percentage Change in the Working-Age Percentage of the Population in Principal Industrialized Nations



Source: United Nations, *World Population Prospects 2002 Revised*

Potential Labour Force in Germany, 1990 - 2050

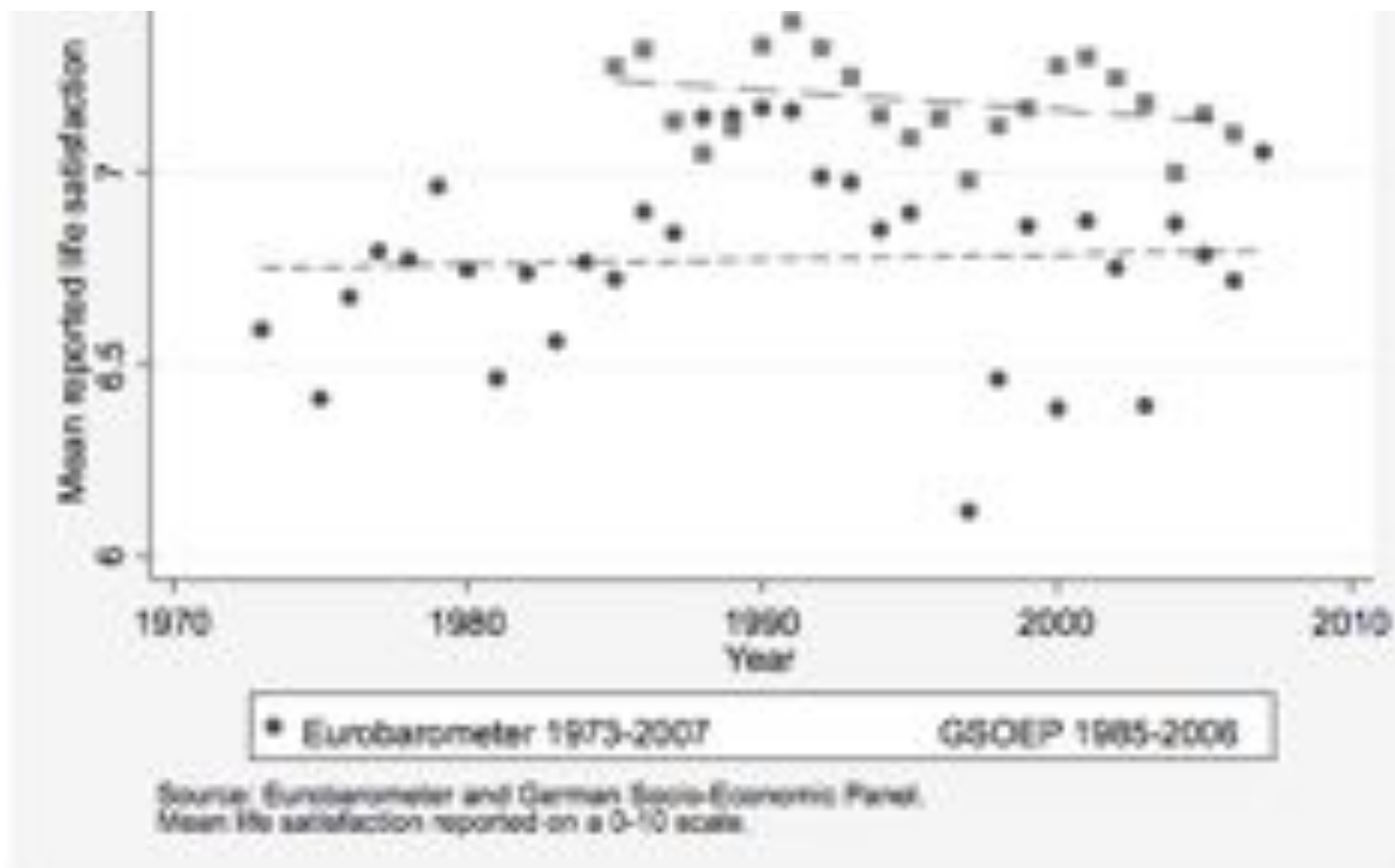


Johann Fuchs, *Ageing Labour Force in Germany*,
Nuremberg, Germany, 2005, p. 5

German GDP 1970 - 2010



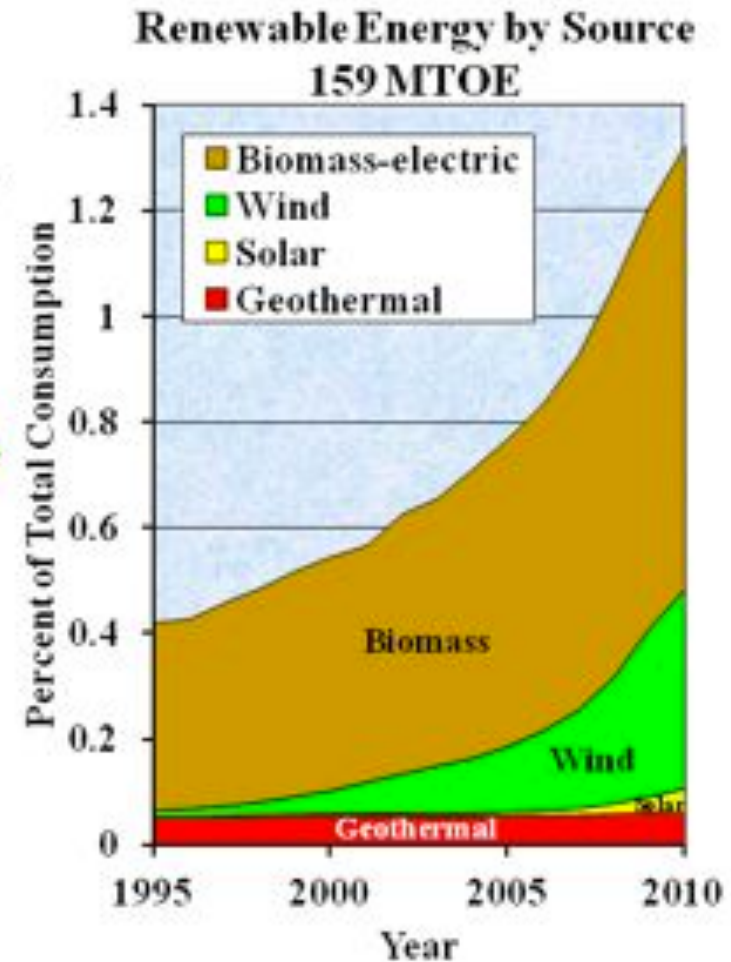
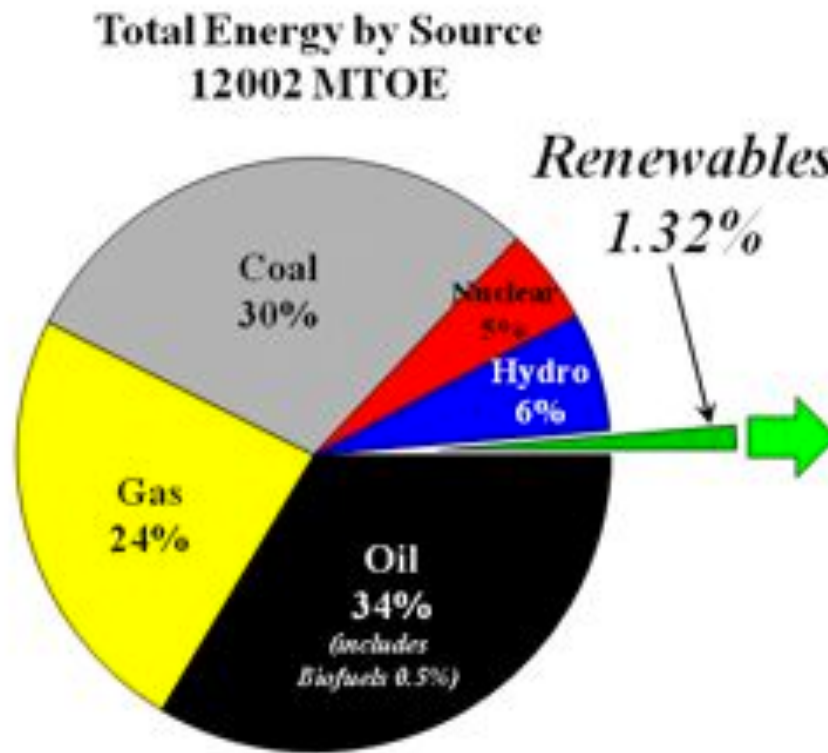
German Reported Happiness 1970 – 2007



John Helliwell, et. al (Eds), *World Happiness Report*, Columbia Univ., 2012, P. 62

#2: Focus on cultural and social changes

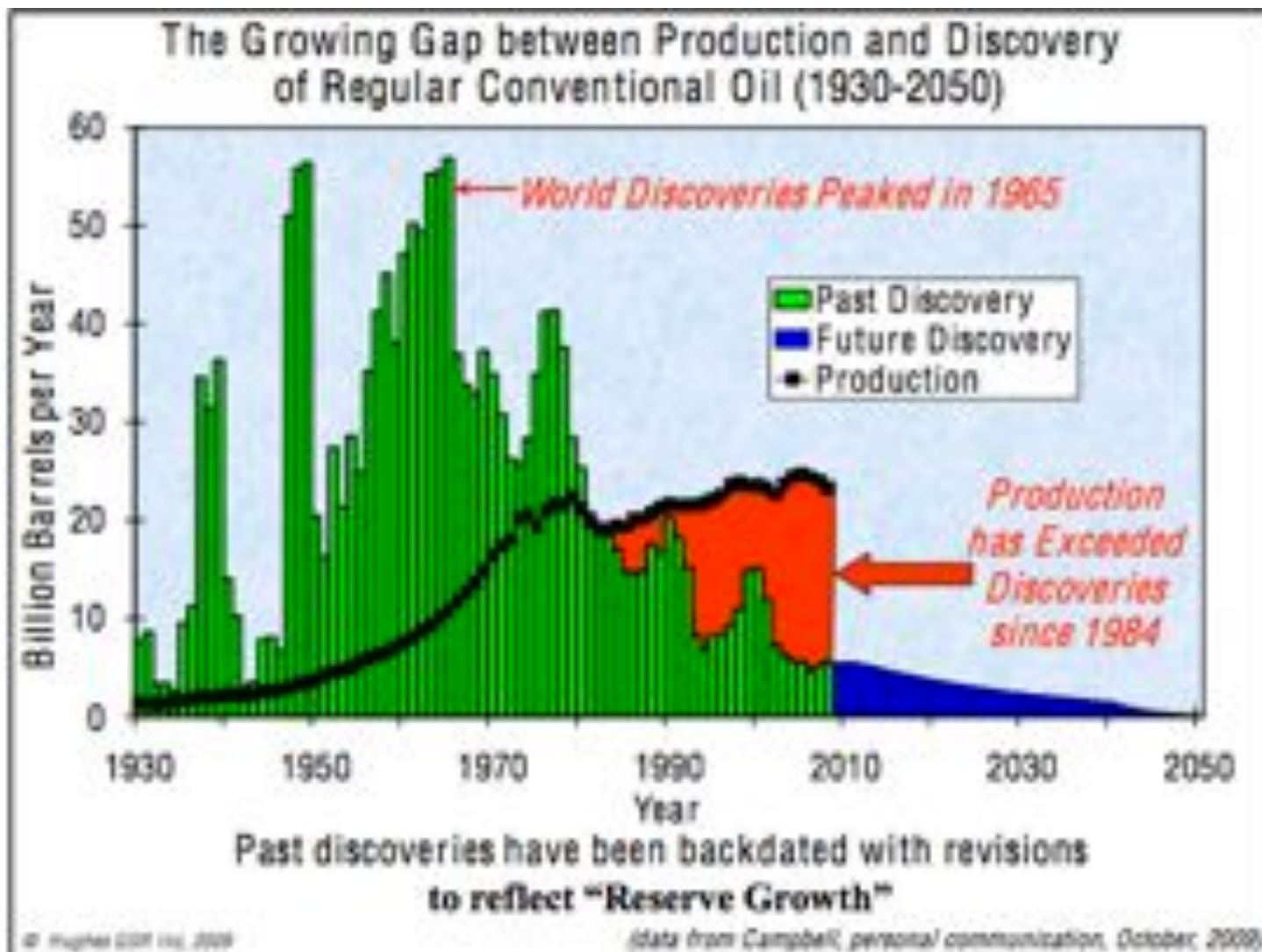
Global Primary Energy Consumption by Source in 2010 A Comparison to Total Non-Hydro Renewable* Energy



*excluding biomass burned for non-electric uses

© Hughes GSR Inc, 2011

(data from BP Statistical Review of World Energy, 2011)



Global Oil Production is Nearing the End of its Plateau

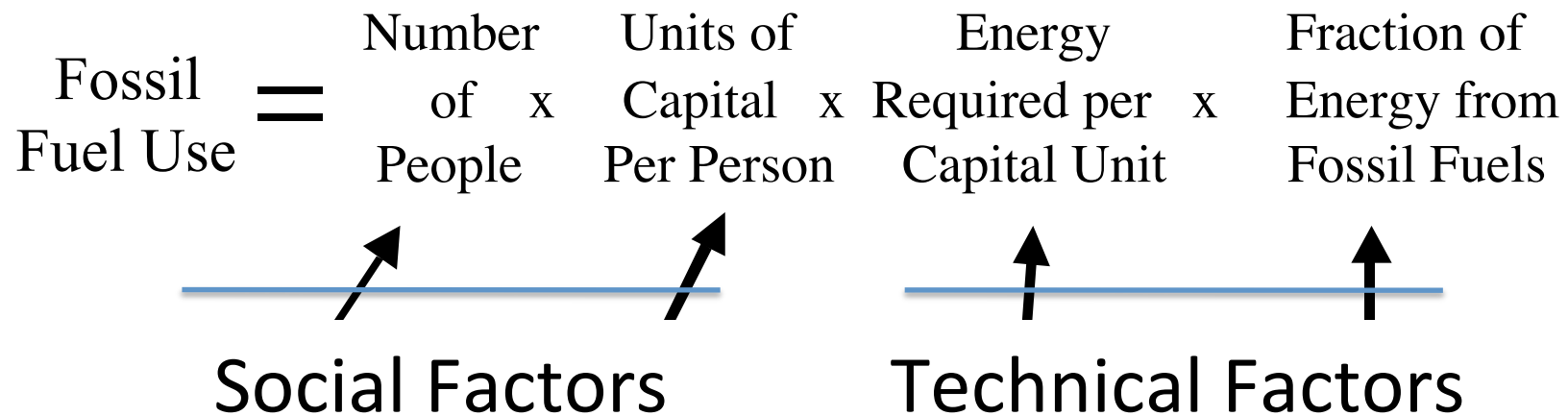
- 1995 - 1999 + 5.5%
- 2000 - 2004 + 7.9 %
- 2005 - 2009 + 0.4 %

- data from the *International Statistical Supplement – 2010 edition, International Energy Agency, p. 18*

- 2010 - 2030 – 50%*

* Projection from *Crude Oil – The Supply Outlook, Energy Watch Group, Feb 2008, p. 12.*

Four Factors Determine the Amount of Fossil Fuel Use

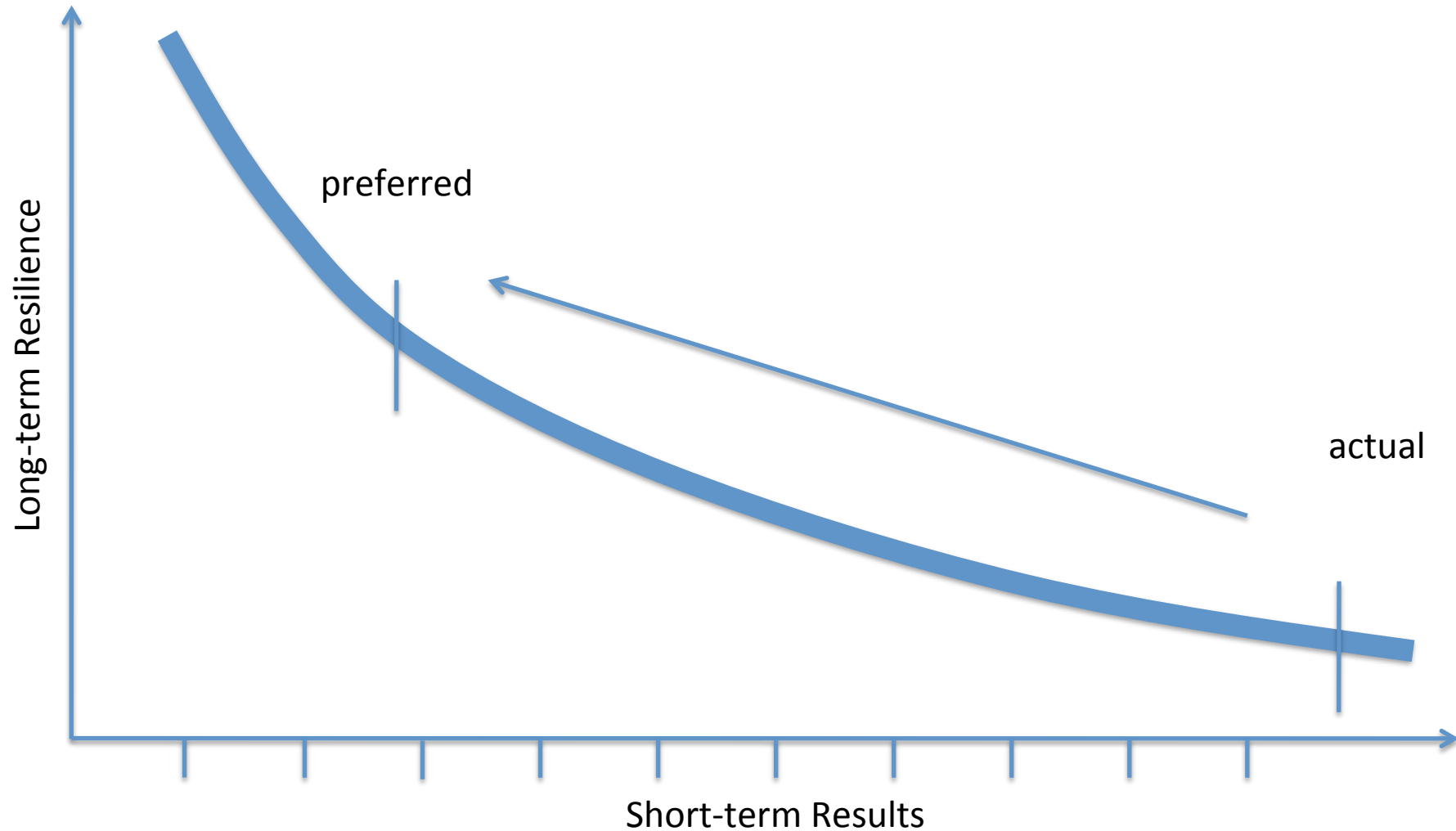


**#3: Focus on making our
systems more resilient**

Resilience Vocabulary

- Resilience is the ability to absorb a shock and quickly regain the ability to perform essential functions.
- If a resilient system continues to perform without pause, we say it is **stable**.
- If a resilient system quits performing briefly and then resumes, we say it is **flexible**.
- If a system is not resilient, we say it is **brittle**.

Trade-off between Long-term Resilience and Short-term Results



#4: Take Action