



# **Changing Mindsets Climate Change and Sustainable Development**

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# Changing Mindsets

- In complex systems, framing the questions matters
  - The difficulty lies, not in the new ideas, but in escaping from the old ones, which ramify, for those brought up as most of us have been, into every corner of our minds.  
John Maynard Keynes
- Who frames the questions matters: the role of the academy, the state, the citizen, and the policy entrepreneur
- Policy matters
- Integration matters



**Only One Earth**



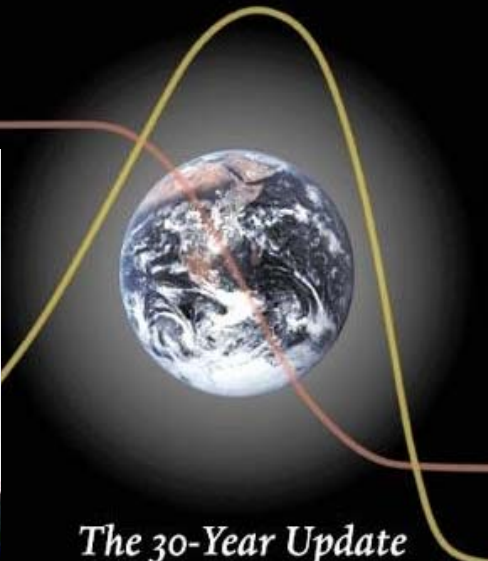
**It adds up**

**Less Taste for Destruction**

**Poverty is the biggest pollutant**

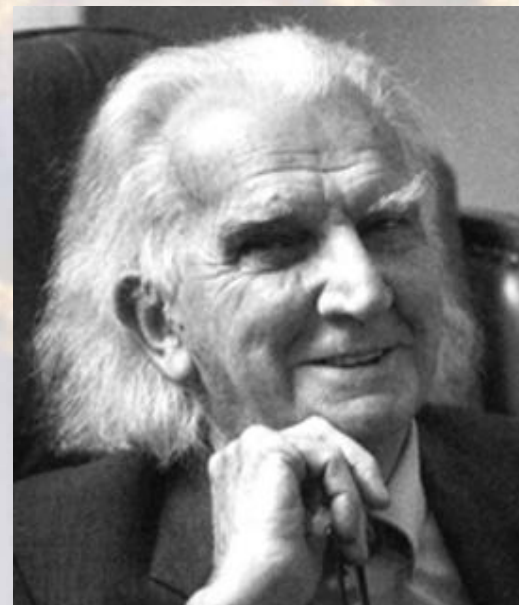


**LIMITS TO GROWTH**



*The 30-Year Update*

**Spaceship Earth**

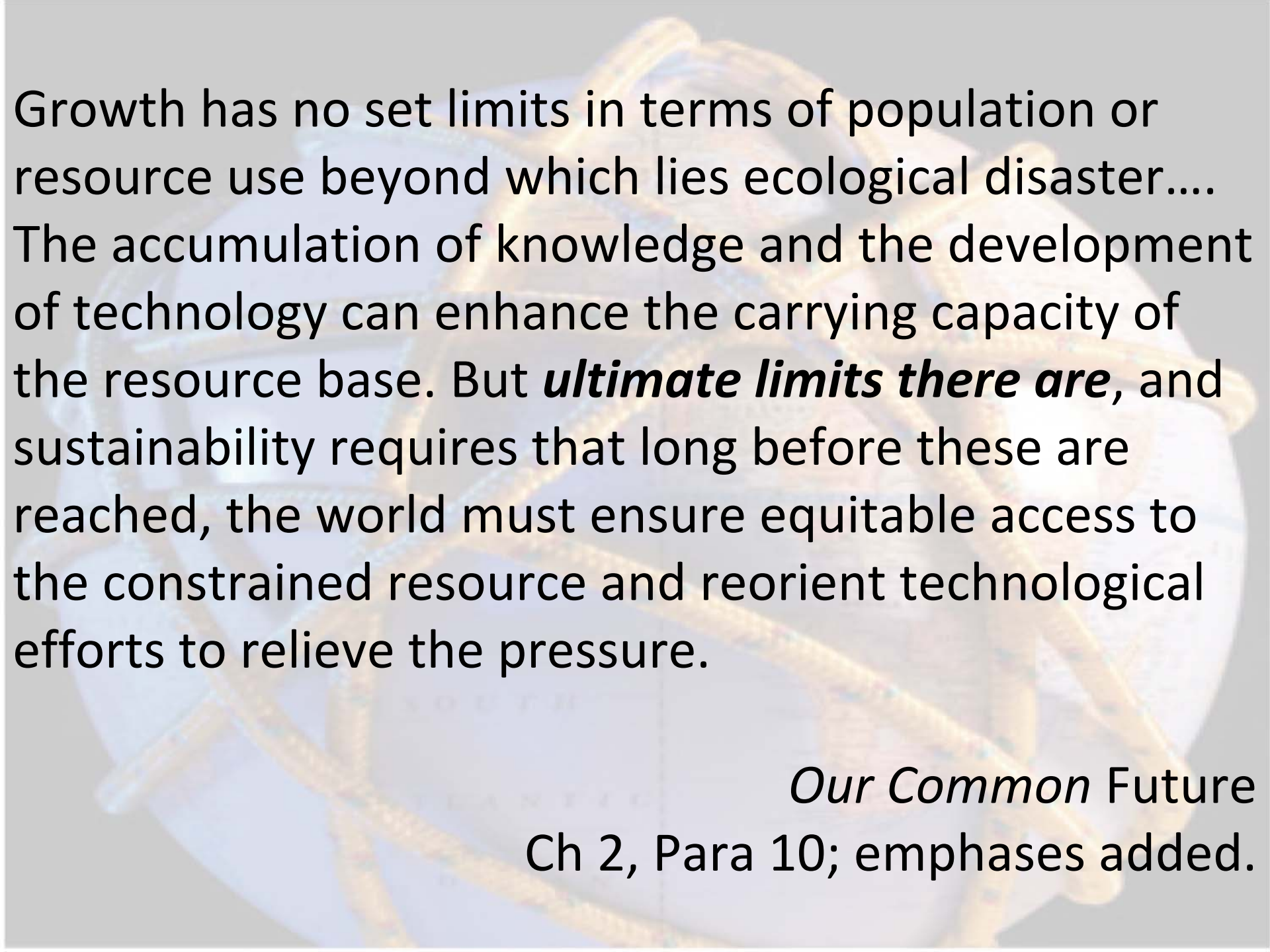


**Here's to the crazy ones!**

**Make the old model obsolete**

# Sustainable Development

- Sustainable Development as integration
  - The recognition of ecological limits
  - The urgency of overcoming the “survival problem”
  - The social necessity of equity
- Sustainable Development as a Bridge:
  - Environment and development, North and South, Government, business, and civil society, present and future, Long term and short term, science and policy, and efficiency, equity, and participation



Growth has no set limits in terms of population or resource use beyond which lies ecological disaster.... The accumulation of knowledge and the development of technology can enhance the carrying capacity of the resource base. But ***ultimate limits there are***, and sustainability requires that long before these are reached, the world must ensure equitable access to the constrained resource and reorient technological efforts to relieve the pressure.

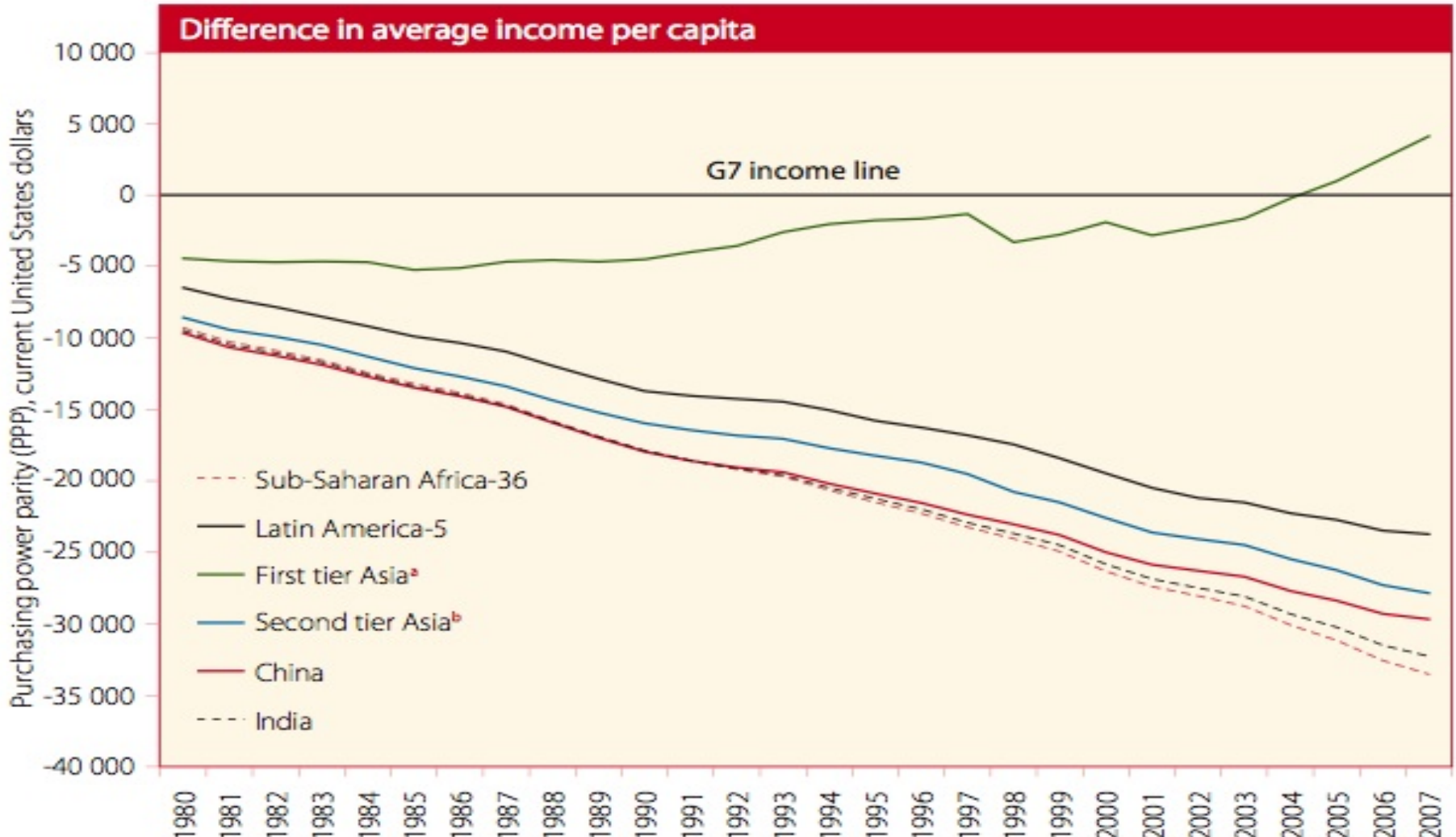
*Our Common Future*  
Ch 2, Para 10; emphases added.

# The Policy Landscape has Changed

- Globalization, Internet, www, google, WTO, outsourcing, good governance, G20, FSU, BRICS, emerging economies, MDGs, flexible mechanisms, tipping points,
- MEAs, IPCC (and similar assessments), Disclosure, PIC, CSR, SCP, green GDP, green growth, green economy, green new deal, TEEB, PES, sustainable livelihoods, PPP, civic entrepreneurship, Major Groups, Partnerships, GPPNs, contingent valuation, impact assessment, scenarios analysis, new diplomacy, human security

# The Development Agenda is Still There

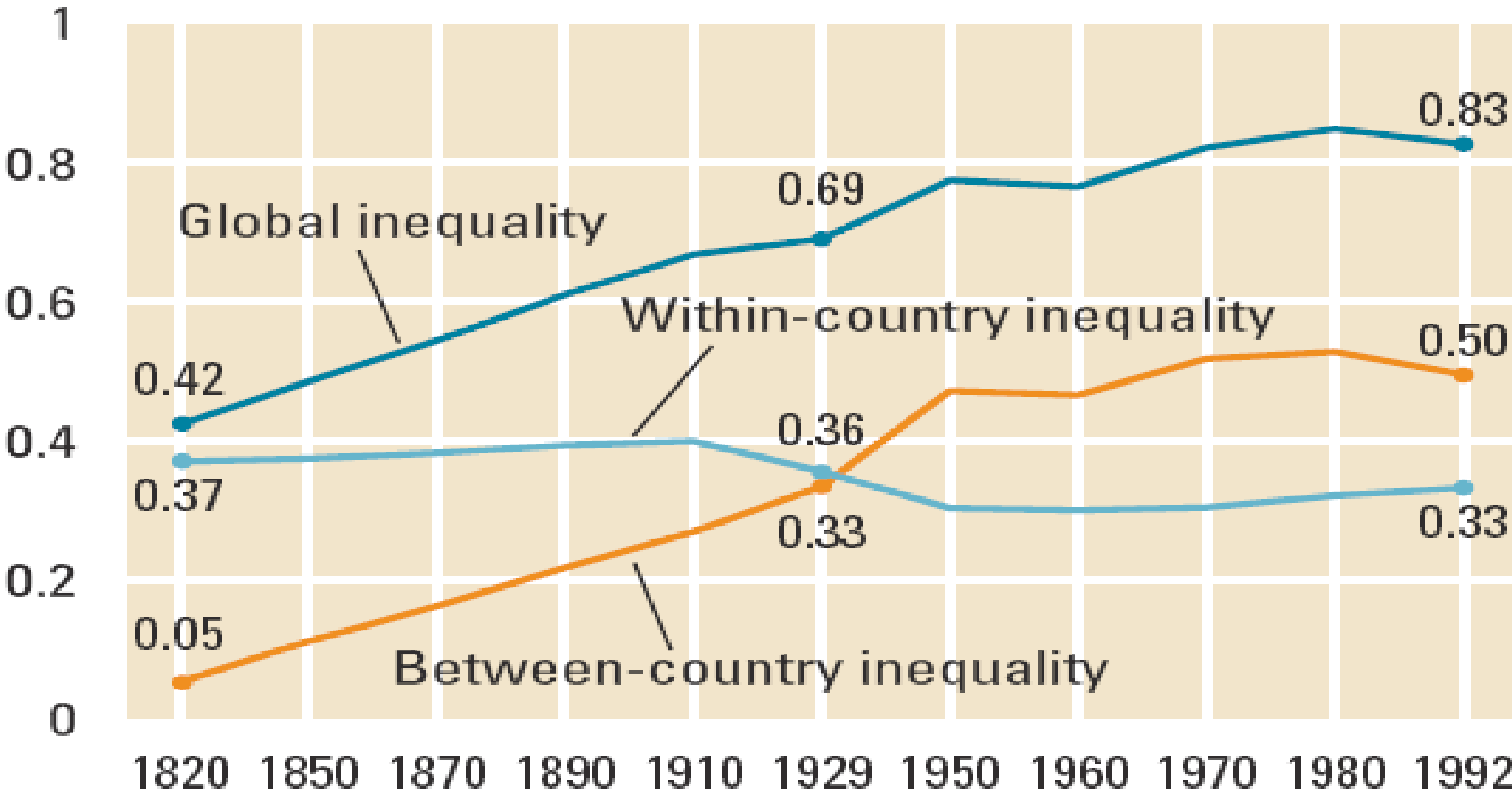
Figure O.1  
The income gap between G7 and selected regions, 1980-2007



Source: UN DESA / DPAD / DSP calculations, WB-WDI Data

# Figure 3.10 Inequality between countries became much more important over the long run

Mean log deviation



Source: Authors' manipulation of data from Bourguignon and Morisson (2002).



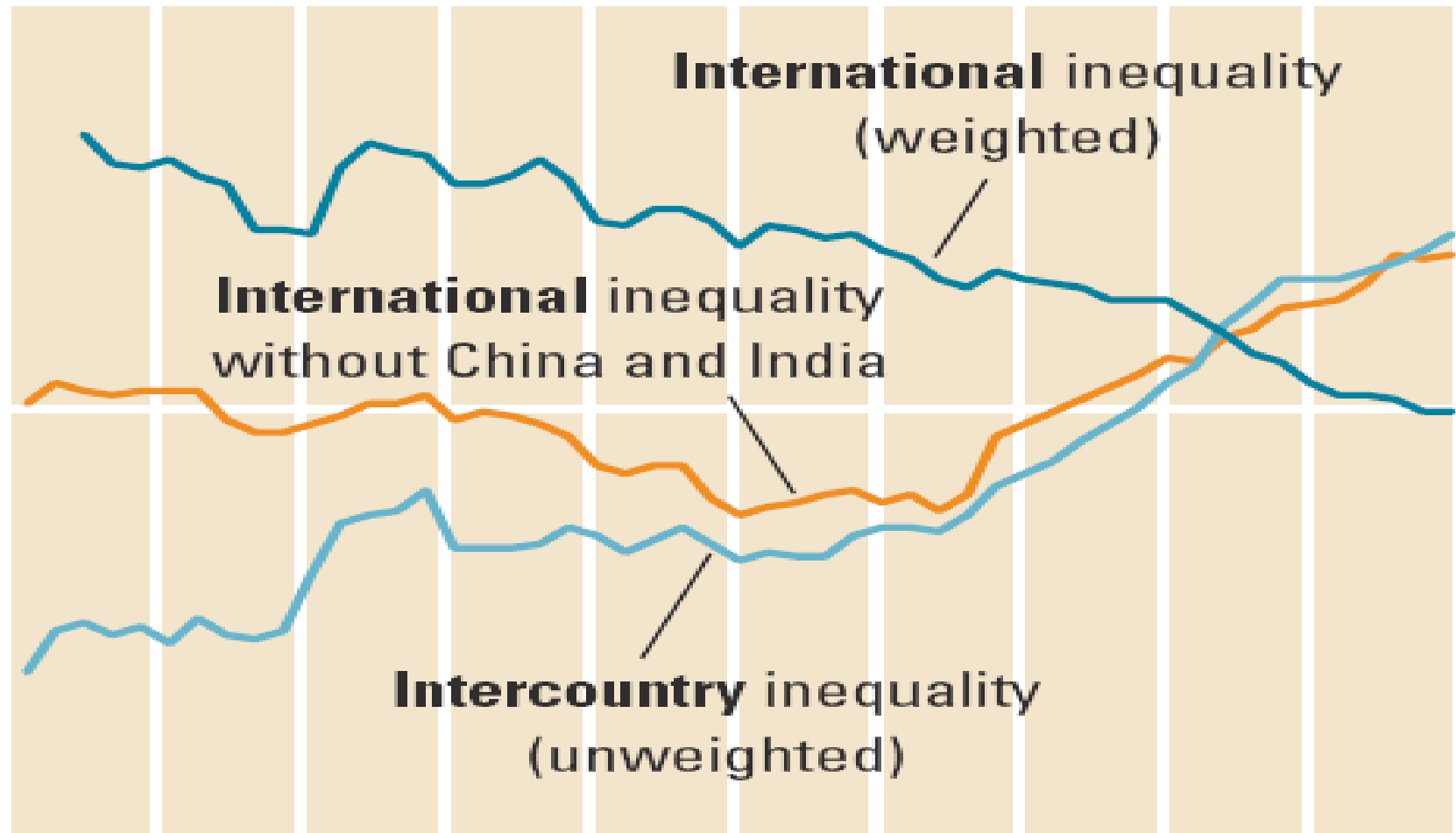
**Figure 3.7 Since 1950, intercountry inequality increased, while international inequality declined**

Gini index

0.6

0.5

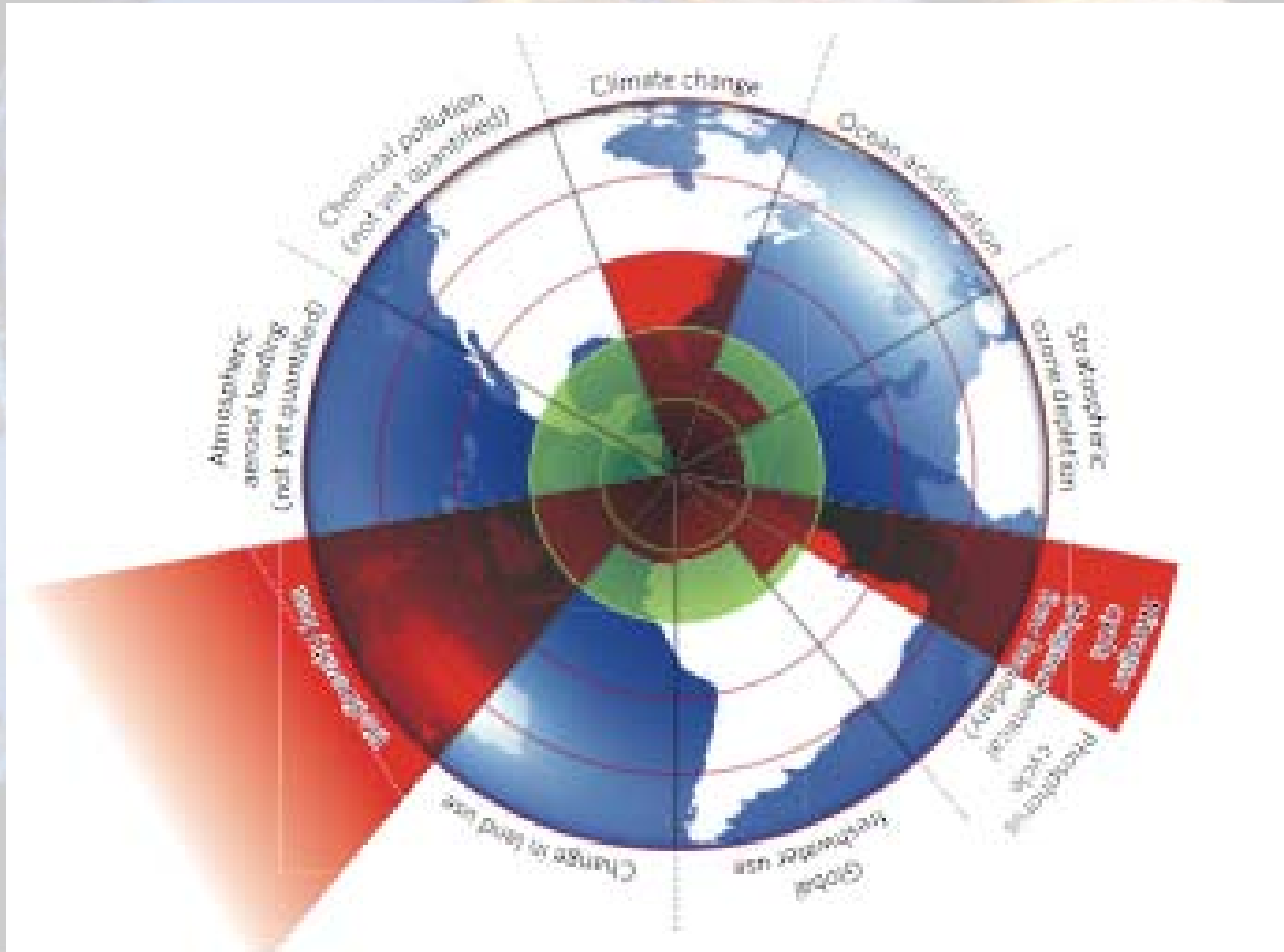
0.4



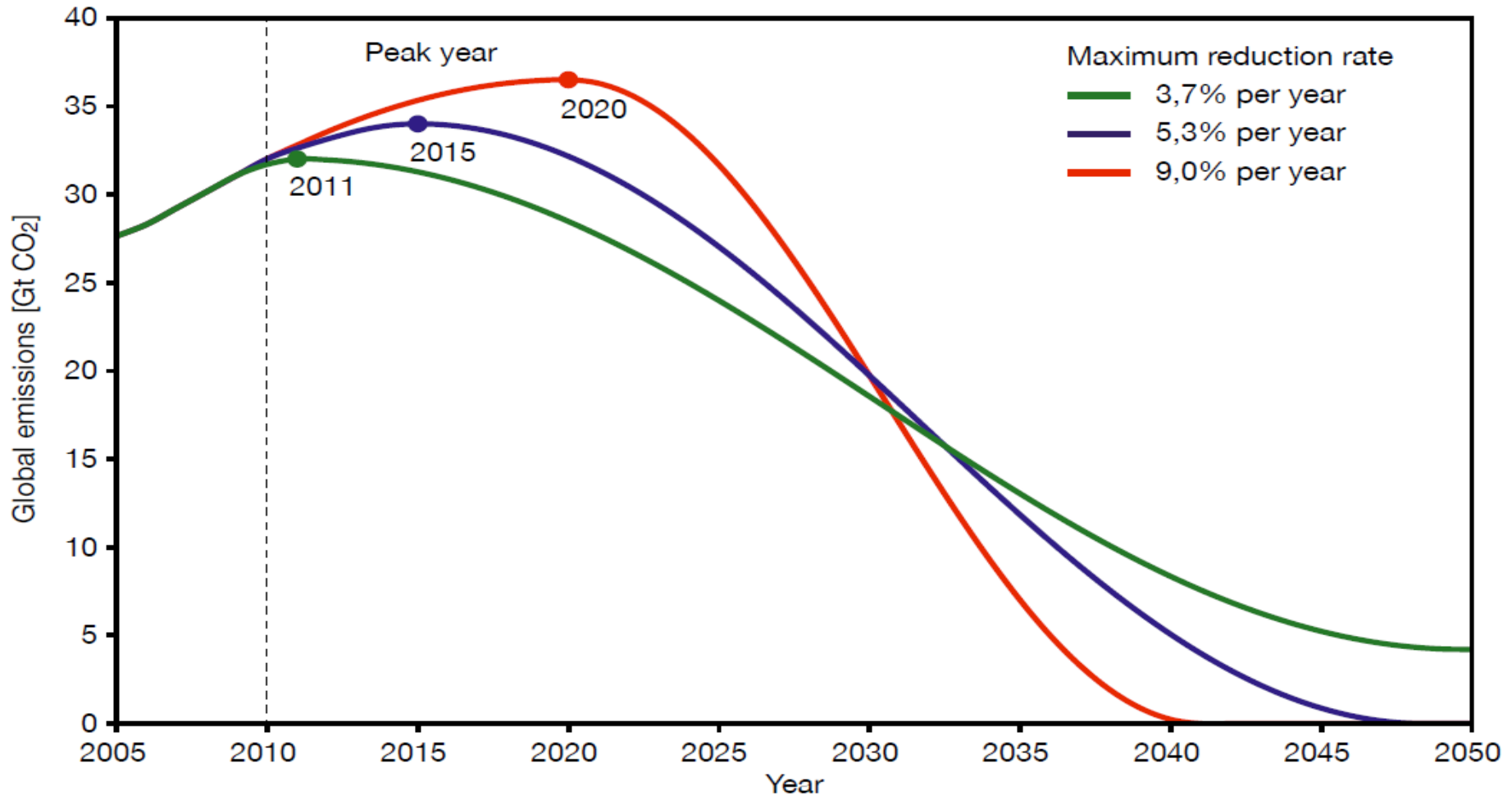
1950 1955 1960 1965 1970 1975 1980 1985 1990 1995 2000

Source: Milanovic (2005).

# The Limits have moved closer!



# Climate Goals are Tightening

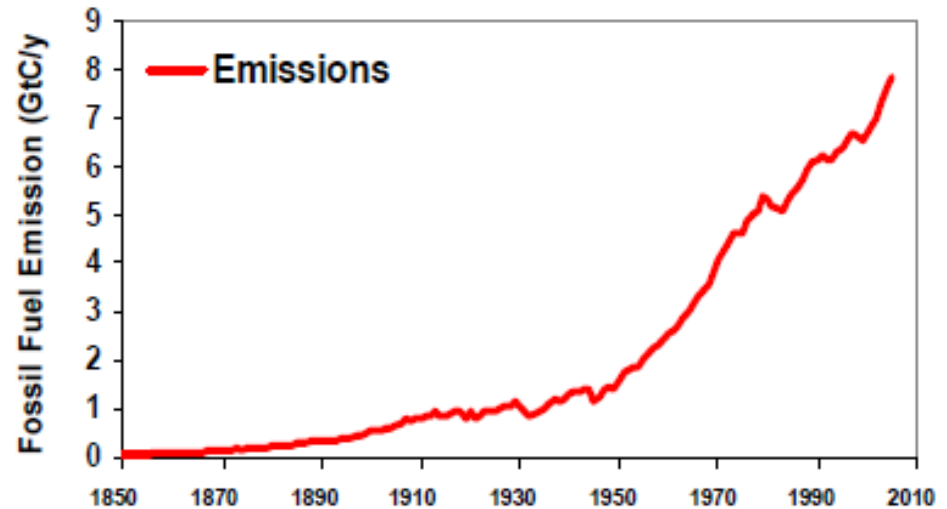


Emission pathways to remain within a budget of 750 Gt between 2010 and 2050 (Meaning 67% probability of staying below 2 ° C).

# Emissions from Fossil Fuel + Cement



2007 Fossil Fuel: 8.5 Pg C

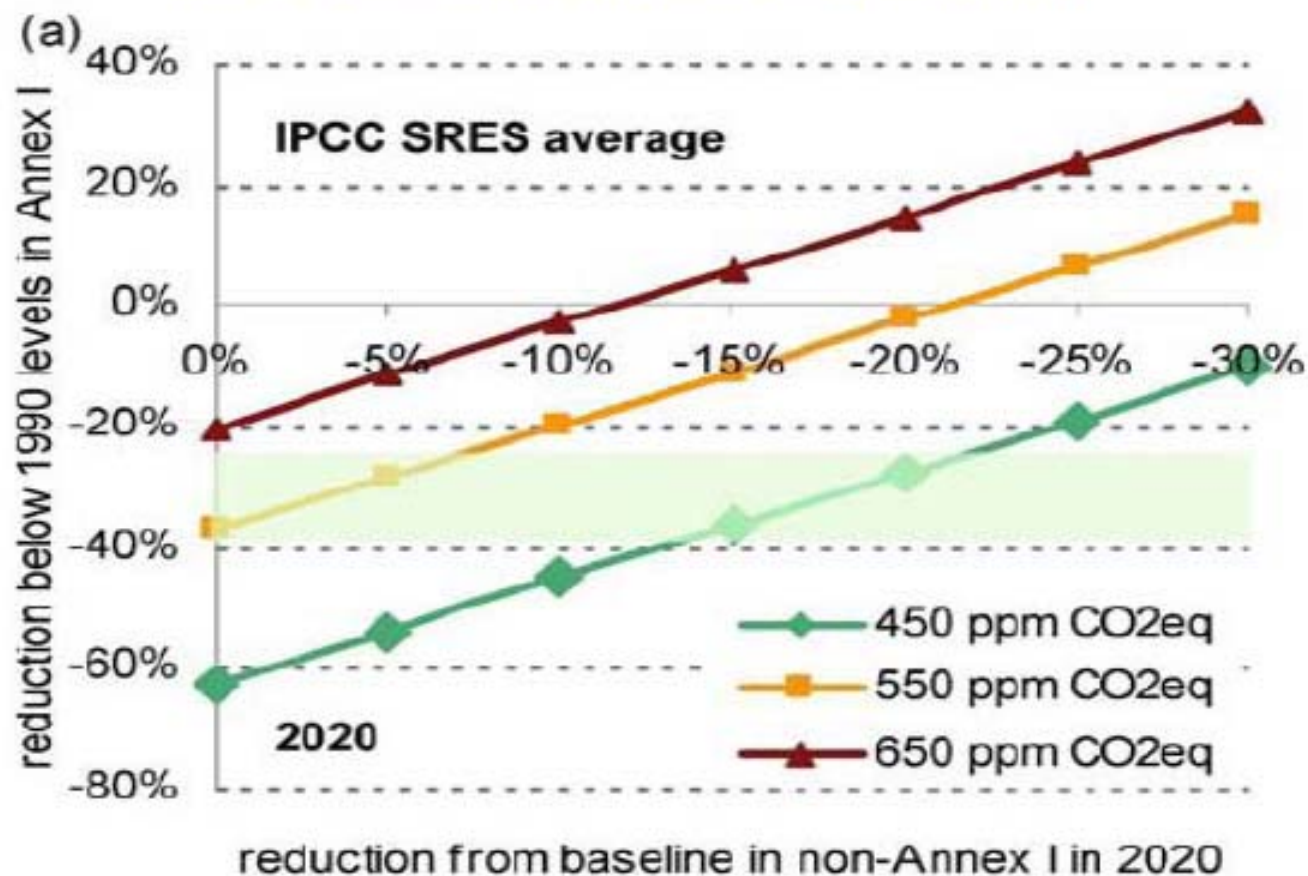


1990 - 1999: 0.9%  $y^{-1}$

2000 - 2007: 3.5%  $y^{-1}$

# Trade-offs in reductions for Annex I and Non-Annex I emissions for different stabilization levels

Source: den Elzen and Hohne, Climatic Change Policy, 2008.



# We Need Sustainable Development!

- Development is a **positive-sum game**
- Climate change is largely being viewed as a **zero sum game**, inhibiting cooperation and action
- An **SD-based approach** to climate change can transform it from zero- to positive-sum game
- **Key Elements:** strategic direction, energy policy, upfront investment to make RE the default option
- The **Goal:** Tipping Point, “leapfrogging”, virtuous cycle

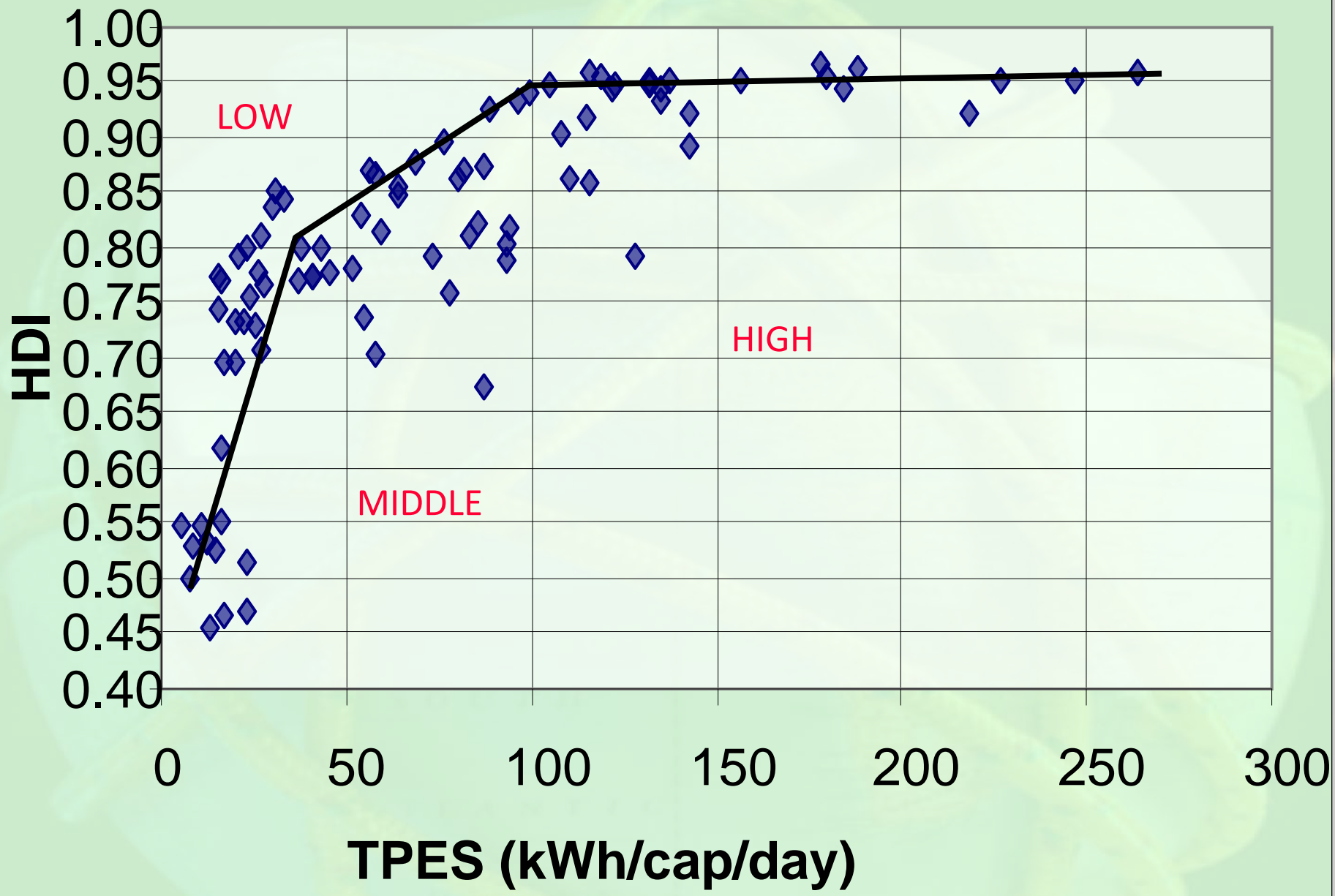
# WESS 2009: A Comprehensive Review of Climate-Development-Energy, 2010-2050



- “... the **best possible options** available to countries at different levels of development” (Ban Ki-Moon)
- Mapping the pathway to a **green energy revolution** – making energy affordable as well as renewable; meeting development as well as the climate goals
- Defining the **scale** and **speed** of transformation
- Comparison of **market v. public investment strategies**
- **Changing mindsets from “zero-sum” to “win-win”**







# Energy Consumption (kWh/cap/day)

Country	Final	Excluding industry	TPES	% HH from biomass
US	167.07	137.26	246.62	7.6*
Germany	98.09	76.05	134.84	7.6*
China	29.19	16.41	45.63	65
India	10.87	7.74	16.25	79
Nigeria	20.85	18.59	23.13	96
Colombia	16.86	11.93	21.13	27
Bangladesh	4.11	3.49	5.13	72

# Energy (kcd), GDP (\$), Prices (c/kWh)

Region	TPES	Electricity	Prices	PCGDP
World	55	6.8 (1.8)	3-30	8,579
OECD	174	25.6 (6.6)	10-20	39,345
China	45	5.3 (0.7)	..	2770
India	16	1.3 (0.3)	4	1010
Africa	16	1.6 (0.4)	5+	1082
Brazil	38	6.4 (1.2)	9.3	7350
Korea	143	21.1 (3.0)	9.8	21530
Russia	145	15.9 (1.9)	..	9620

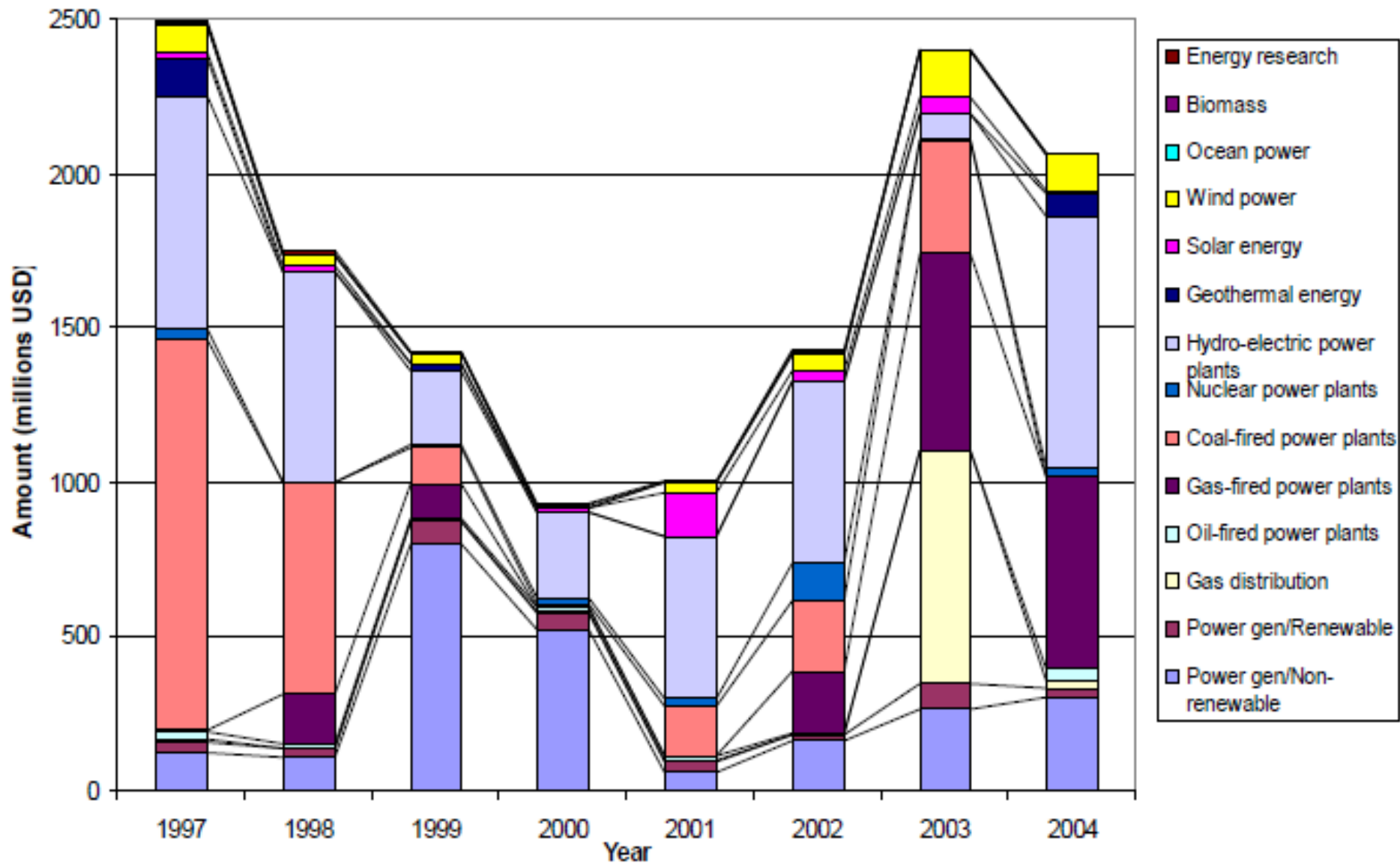
# What is Affordable Where?

Income \$/cap/day	Energy Budget 10%	Affordability kWh/day at prices (cents/kWh)		
		6	10	20
India (\$2)	\$0.20	3	2	1.0
Egypt (\$5)	\$0.50	8	5	2.5
China (\$7)	\$0.70	12	7	3.5
Peru (\$10)	\$1.00	17	10	5
Croatia (\$30)	\$3.00	50	30	15
OECD (\$120+)	\$12.00	200	120	60

# How Developing Countries Cope?

- *Exclusion*: Many people have no access to modern energy.
- *Environmental stress*: Reliance on inefficient but cheap biomass
- *Regressivity*: Energy expenditure share falls with income (2- 30%, median 10%).
- *Targeted Subsidies*: block tariffs, low diesel and kerosene prices, low quality public transport.

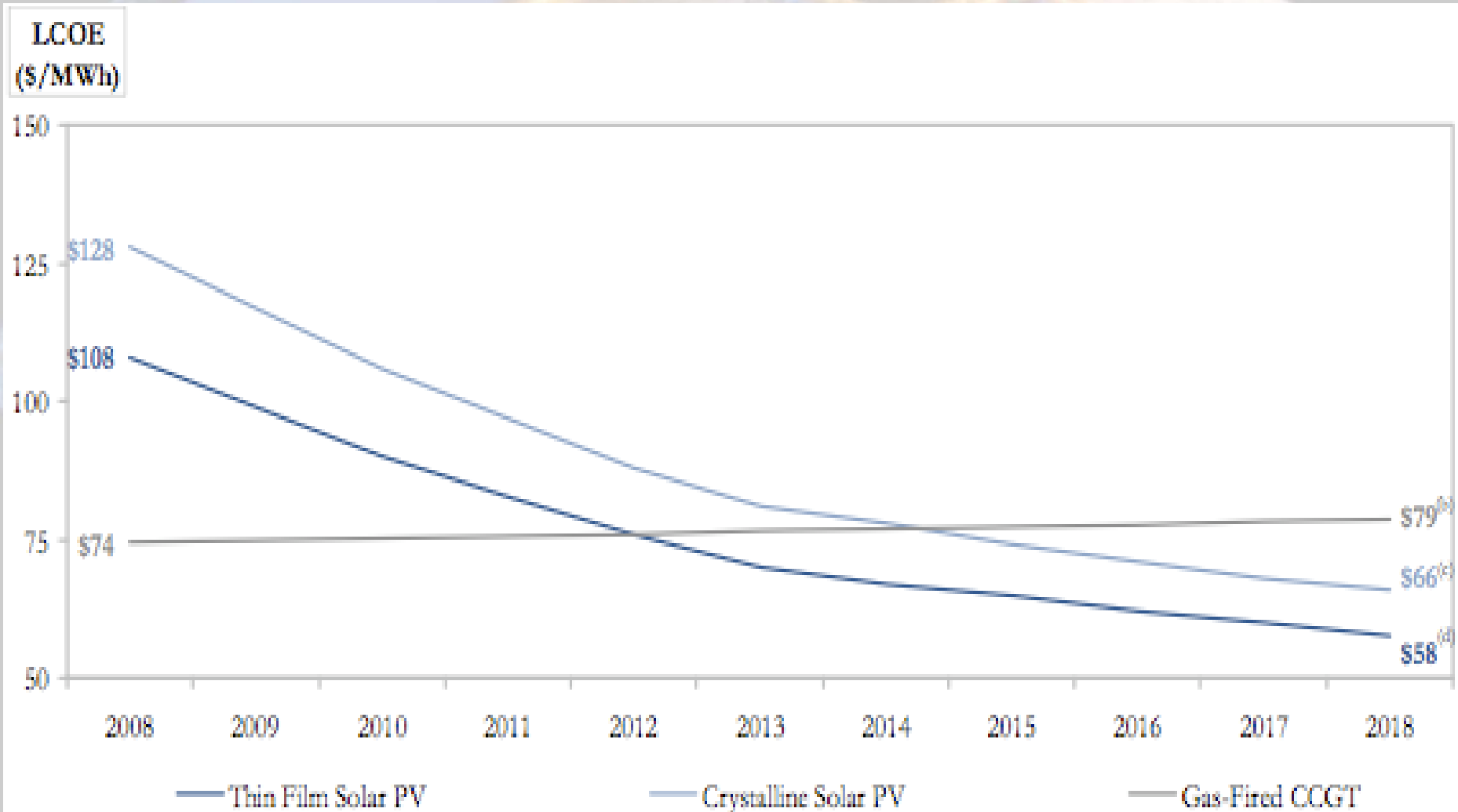
# Bilateral development assistance for energy by category from 1997-2004 in US\$ millions ..69



# Reconciling two Strategies

- One approach to the climate problem is to **raise costs** of carbon (carbon tax or cap and trade) and therefore conventional energy.
- Developing countries address energy poverty and HD by **lowering the costs** of energy to make it affordable, in SR through subsidies, and in LR through investment, scale economies and learning.

# But Costs are Declining





# RE Learning Curves

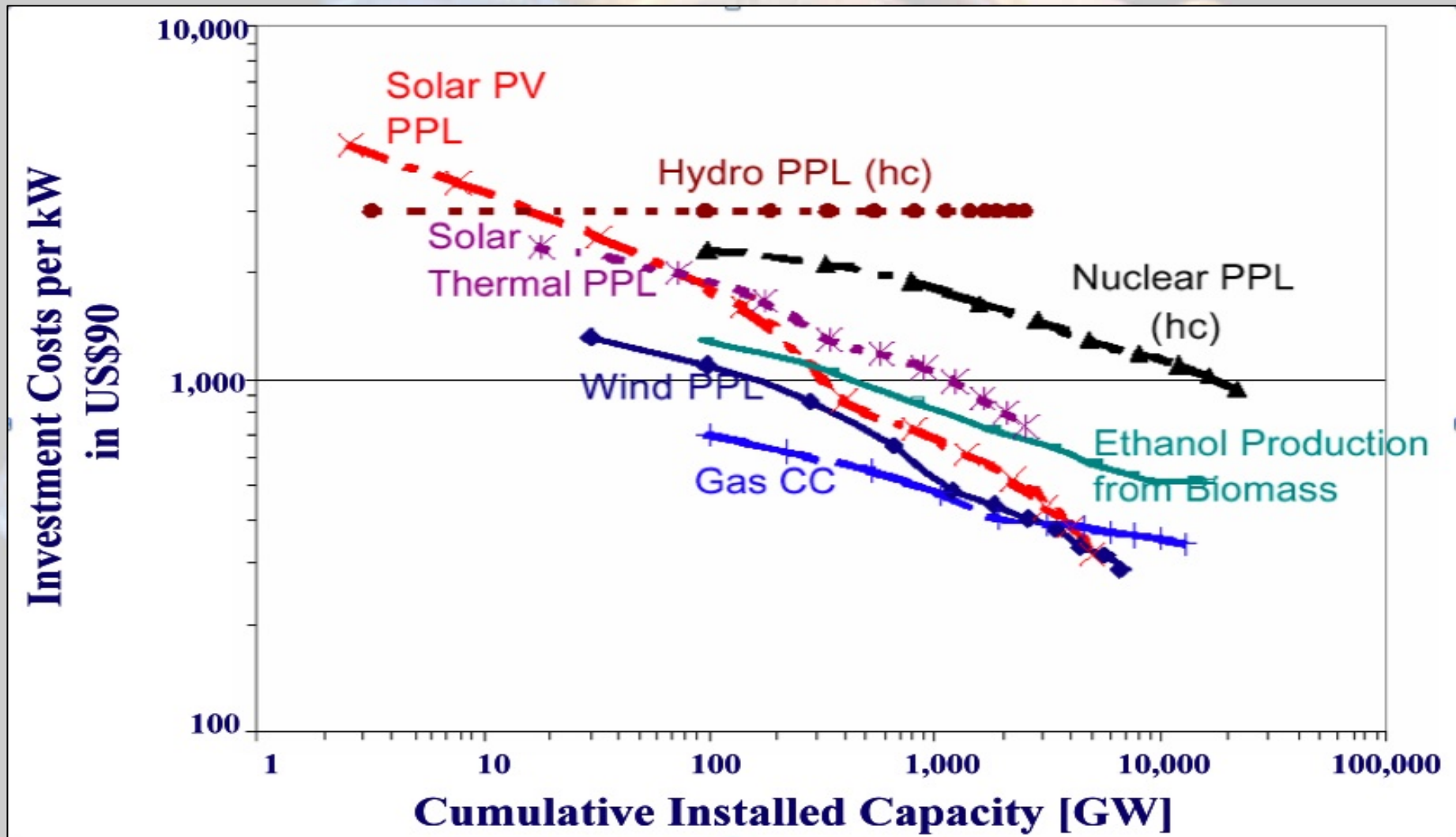


Figure 2. The greater the installed capacity of an energy technology, the lower price for every new unit installed. (Source: Nakicenovic, IIASA, 2009)

# Elements of "The GER"

- 1. Set affordability targets for RE costs , the year by which they are to be achieved, and capacity***
- 2. Establish a RE Marshall Fund (time-limited investment fund) to provide guarantees to investors***
- 3. Front-load investments to accelerate innovation, bring costs down quickly, and bend the emissions curve***
- 4. Use a global feed-in policy with declining rates to channel investment support***
- 5. Support the establishment of a network of national climate institutions on the Green Revolution Model***
- 6. Establish a global extension program on the CCC or Peace Corps Model***

# Please read the World Economic and Social Survey 2009



Download free or purchase a hard copy:

<http://www.un.org/esa/policy/wess/>

If you are interested in the emerging “Big Push” strategy briefing for decision-makers (coming for Copenhagen), please visit the website for the Division of Sustainable Development

<http://www.un.org/esa/dsd/>

(Also on Twitter, Facebook etc.)

Climate,  
Development,  
Energy:

A New Approach  
to Solving the Problem  
of Global Warming  
and Global Poverty

Copenhagen 2009

# Thank You

- Sustainable development started as a crazy idea
- Here is a one minute tribute to a list that should include Rachel Carson, Kenneth Boulding, Barbara Ward, Buckminster Fuller, Indira Gandhi, Maurice Strong, the Meadows, Gro Harlem Brundtland, Bert Bolin, Anil Agarwal and others
- [http://www.youtube.com/watch?v=Dvn\\_led9t4M](http://www.youtube.com/watch?v=Dvn_led9t4M)