

**An interpretation of the world  
economic situation and some  
personal remarks on the  
environmental crisis viewed from  
the standpoint of « world society »**

*François Chesnais*

- **A twofold world context of**
  - **deep economic and financial crisis with no end in sight:**
    - **dead-end of the debt-led growth regime in the « industrialised countries »**
    - **but also economic weaknesses & vulnerabilities of “emerging countries”**
  - **an ongoing soon irreversible ecological crisis with climate change at its core**

- **« World society » in a dramatic quandary**
  - **faced with the urgent need to make a « Copernican break » with a multiseccular pillar of thinking & action regarding man's relation to his natural environment**
  - **along with a parallel critique of central tenets about the working of the economic system**
  - **yet marked by**
    - **the continuous resurgence of rivalry rather than cooperation among nations**
    - **the influence wielded by private interests deeply hostile to any real change, fostered, organised & commanded**

- **Ecological situation calls for**
  - **cooperation rather than rivalry (IPCC scientists have been exemplary)**
  - **negotiated distribution of scarce resources based on a new conception of development**
- **Length of the crisis has revealed again**
  - **the incapacity of governing elites dominated by finance to indentify & recognise the immediate causes of the crisis: e.g. income distribution**
  - **the proneness of governments to quickly revert to rivalry once the worst threats are past**

- **Changes in world economic and political relationships have been accelerated by the crisis**
  - consistent concentration of GDP growth in the large “emerging economies” with China spectacularly in the lead
  - decline of US hegemony, governance crisis
  - deep economic, political & social crisis of EU countries
  - political crisis and strong social malaise in Japan
- **Potentially major new global economic, social & ecological responsibilities for BRICS**

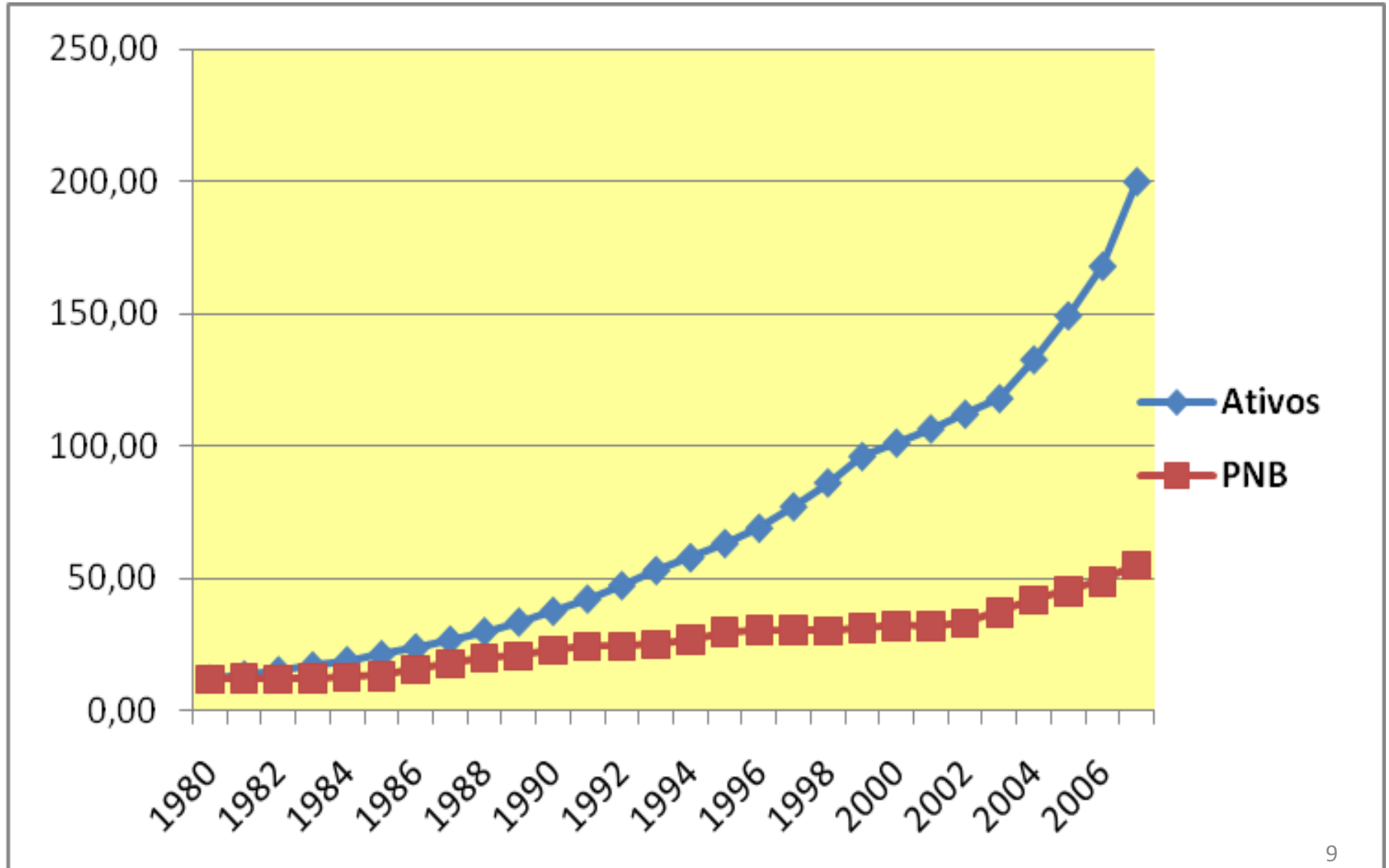
# **I. Characterization of the crisis**

- **Crisis into its fifth year**
- **Media has always called it a “financial crisis”**
- **Basically a crisis of global over-accumulation, e.g. excess capacity creation & overproduction**
  - **delayed in its outbreak by creation of debt**
  - **centred in certain major countries or blocks and**
  - **in specific sectors, some of them key to the prevailing “growth model”**
- **However financial shocks have indeed constantly marked its progression**

- **Two factors are absolutely central to the crisis & its persistence**
- **Hypertrophy of financial assets and markets**
  - **McKinsey Global Institute data point to a stark contrast between rate of growth of world GDP and of global financial assets**
- **Very strong income distribution inequality**
  - **It has increased at the heart of the system**
  - **Also in China: Gini coefficient grew from 0.28 in 1981 to 0.45 in 2002 (higher than the US at 0.42)**
  - **Trend offset a little by policies in a few emerging countries (e.g. Brazil)**

# Market value of financial assets and aggregate world GDP at current prices (billion US dollars)

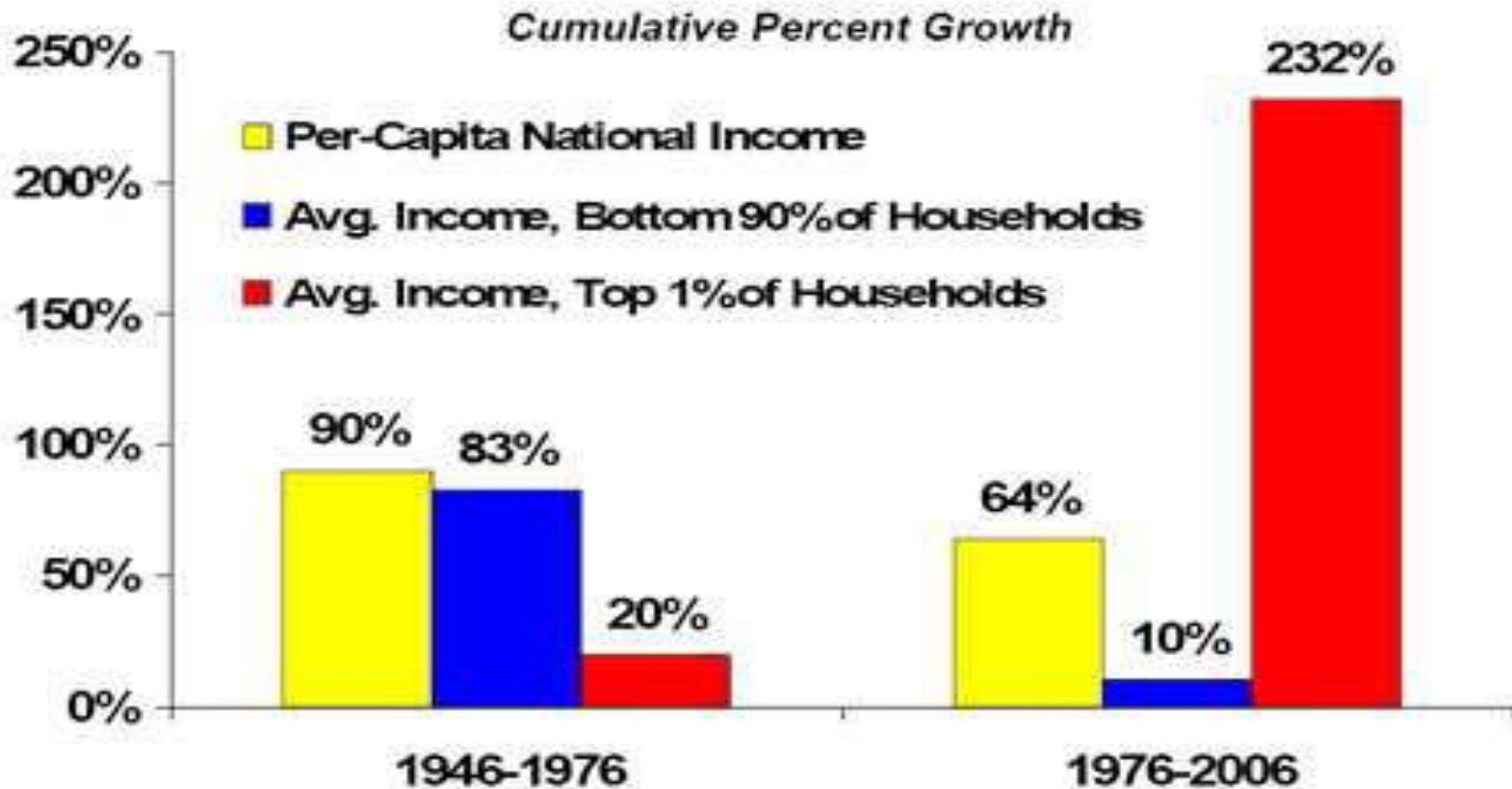
Source : Leda Paulani, USP with McKinsey Global Report data



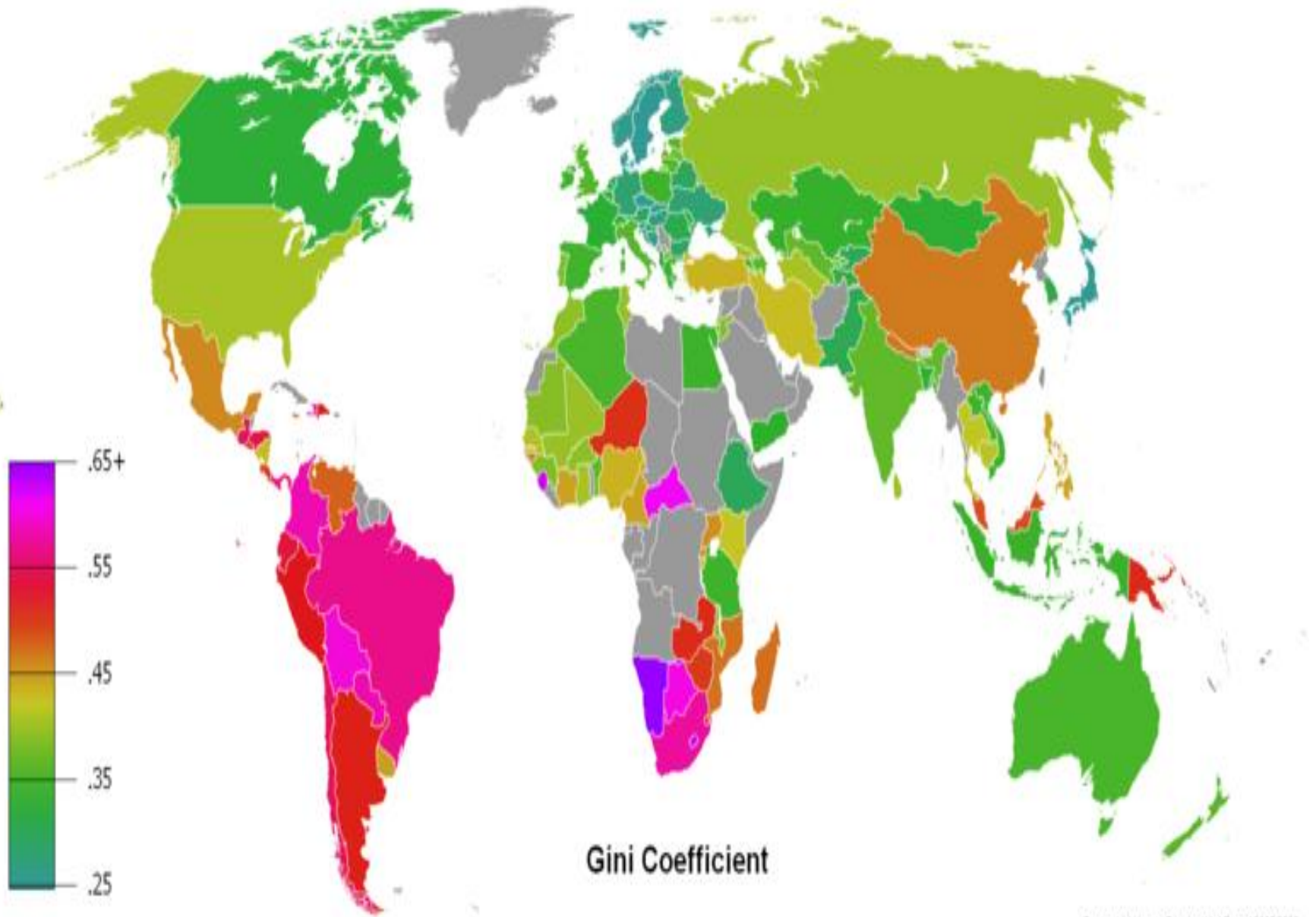


## FIGURE 2

### Uneven Distribution of Gains Since Late 1970s Different From Earlier Era, When Growth Was Widely Shared



Source: CBPP calculations based on data from economists Thomas Piketty & Emmanuel Saez & BEA and Census data. Adjusted for inflation using CPI-RS.



Source: UN Human Development Report 2007/2008

- **The term finance designates the institutions which permit the valorisation of money in a relation of exteriority to production**
  - specialised organisations (Banks & Funds)
  - specialised markets
- **Specific forms of « financial accumulation » dependent on the real economy but seeking to autonomize themselves from it through « financial innovations »**

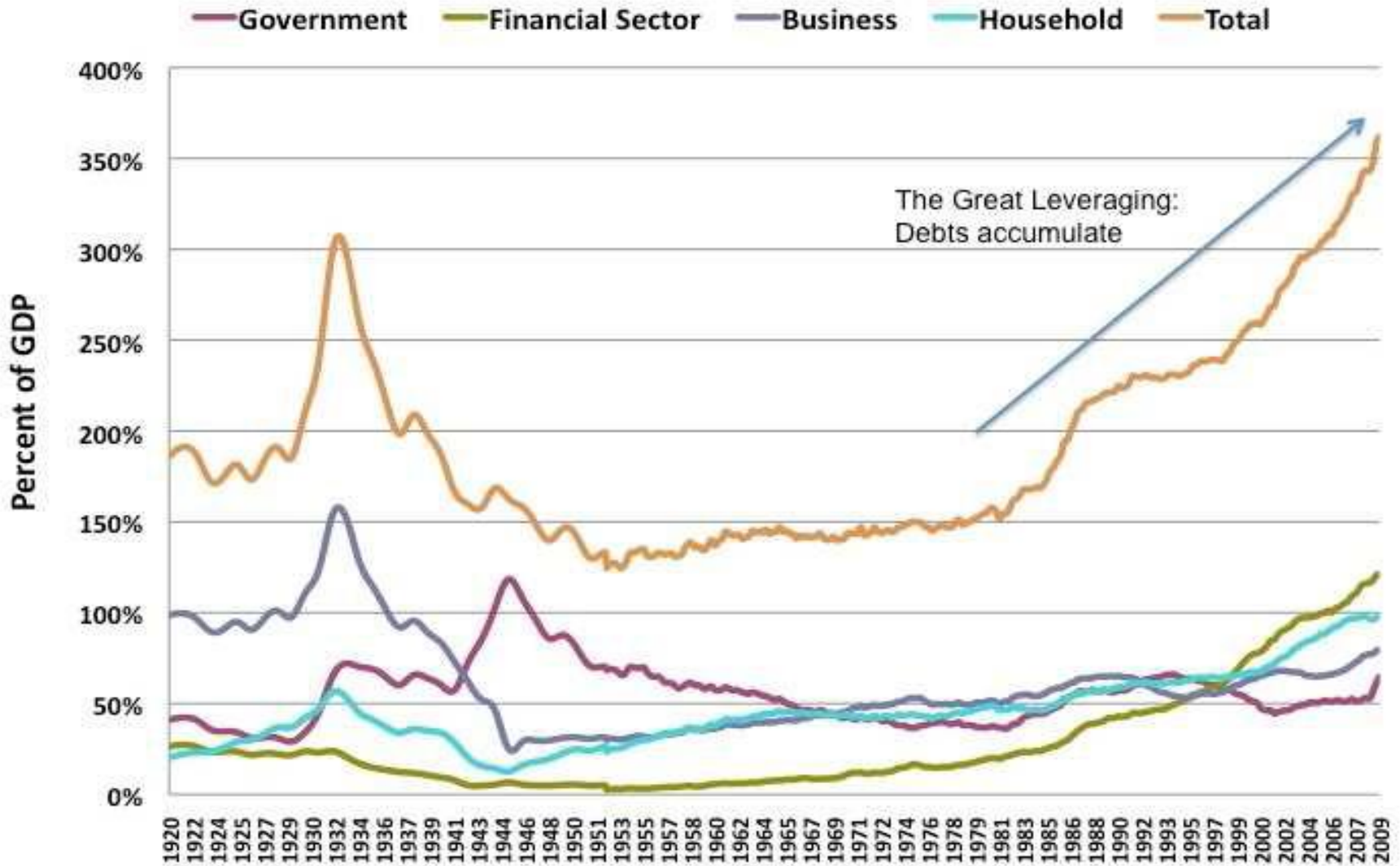
- **Changes brought about in the forms & intensity of finance's control of finance over corporations**
- **Since the 1970s finance a major agent of accelerated concentration in manufacturing & services**
- **Changes in the identity of shareholders**
- **« Corporate management » leads to the total identification of shareholder & management goals**
- **Around “core business” in some areas diversification leading to strong monopolistic control of technological choices**

- **Two fundamental forms of retribution akin to rent**
  - **dividends and interest (the term “derivatives” expresses this indirectly)**
  - **Both are paid out of primary industrial profits and wages**
  - **Financial assets represent claims**
    - **direct or indirect dependence on current and future production**
    - **on the effective realization of which they weigh negatively**
  - **They are a drain on investment, wage-based consumption and social expenditure**

- **Gradual (1990s) and then full blown emergence (2000) of two complementary “growth regimes”**
  - **In the old dominant countries finance capital builds a debt-led growth regime with the support of government in US, UK and countries “aping” the model**
  - **In “emerging countries”, indigenous capital & foreign capital build an export oriented growth regime quite heavily dependent on imports by high-debt countries**

- **Blind alley, impasse of the debt-led growth regime**
  - **Finance capital slows growth and deepens basic contradictions in advanced countries**
  - **Then offers a solution in the form of massive debt creation backed by securitisation**
- **From the mid1990's onwards a debt-led growth regime addressed at firms & families sets**
  - **in the US qualitative jump after 2001**
  - **quickly accompanied by the UK**
  - **blindly copied by Spain and Ireland**
- **Huge hidden over-accumulation (e.g. motor industry) & massive overproduction in housing**

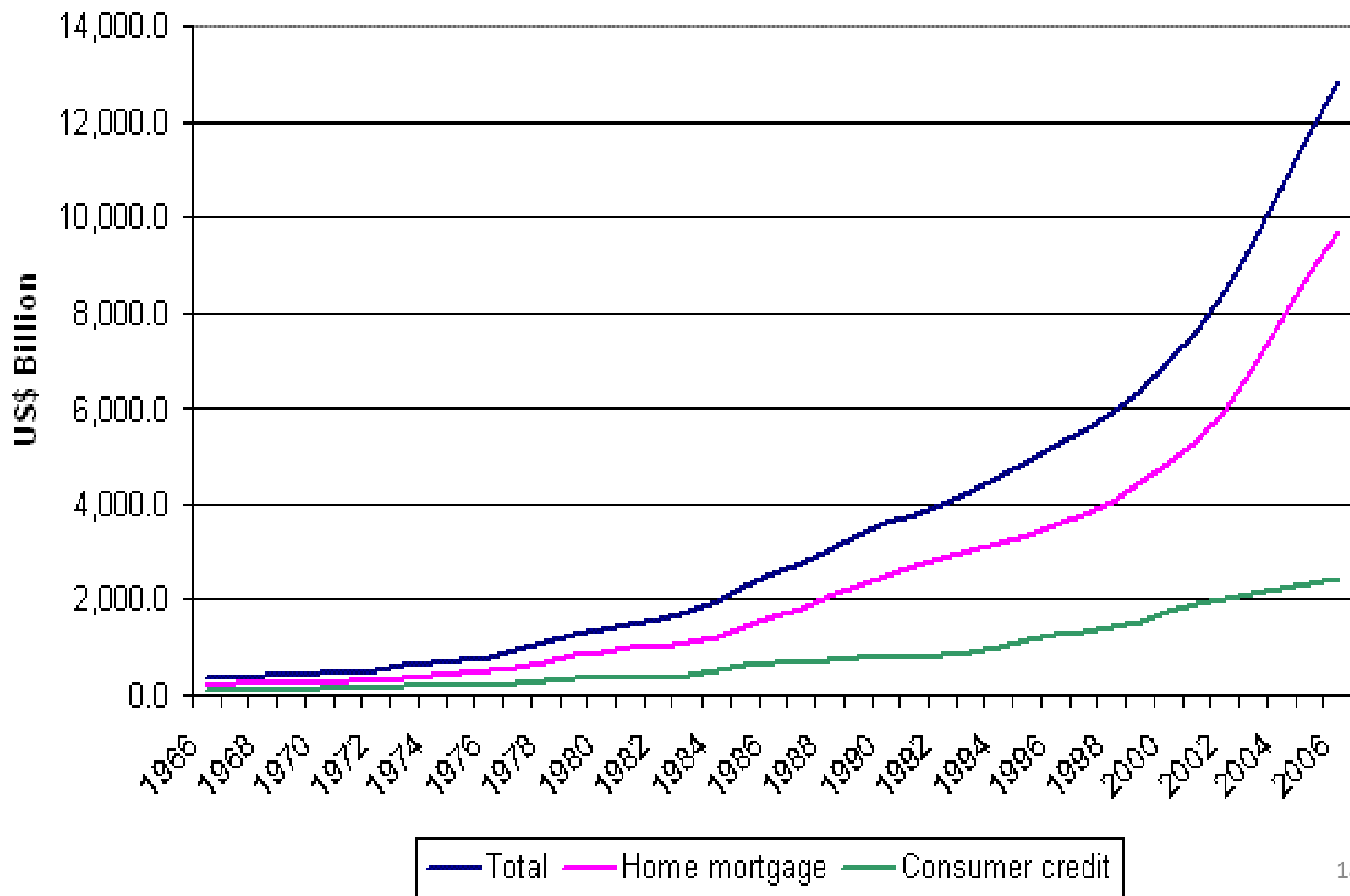
# America's Debt Burden: Public AND Private



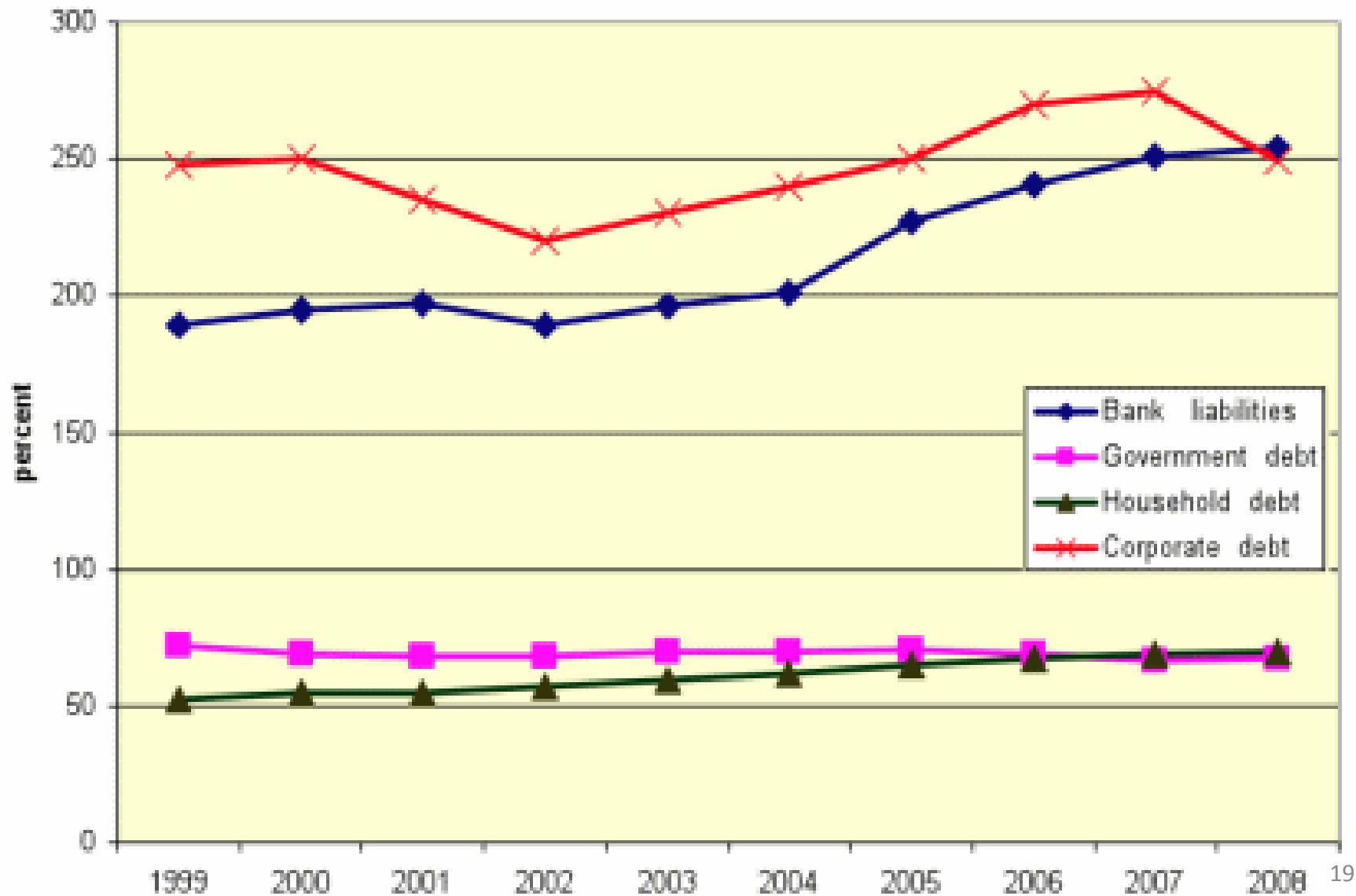
Note: "Government" includes only publicly-held debt, excludes trillions for unfunded entitlement obligations.



## US Household Debt: 1966 - 2006



## Private and government liabilities in eurozone (percent GDP)



- **The immediate prospect is that of a new episode of financial crisis & a new recession as a result of:**
  - **The recession-prone policies dictated by finance in the US & the EU**
  - **The huge amount of footloose money attempting to make financial profits, moving from one market to another & creating havoc and in some cases misery**
- **Permanent financial systemic risk with bank vulnerability at its core**

- **Since the 19<sup>th</sup> century, banks have been the locus of tension between**
  - **their crucial function of credit creation**
  - **their activity in the centralisation of money & its valorisation in financial markets**
- **Traditional role of Central Banks in reducing the extent of this activity and limiting its risks dismantled by financial liberalisation and deregulation**

## United States : Indebtedness by sector 1980-2008

(% of GDP)

| <b>Sector 1980</b>    | <b>1990</b> | <b>2000</b> | <b>2008</b> |            |                   |
|-----------------------|-------------|-------------|-------------|------------|-------------------|
| <b>Households</b>     |             | <b>100</b>  | <b>49</b>   | <b>65</b>  | <b>72</b>         |
| <b>Non-fin. Corp.</b> | <b>53</b>   | <b>58</b>   | <b>63</b>   | <b>75</b>  |                   |
| <b>Finance Corp.</b>  |             | <b>18</b>   | <b>44</b>   | <b>87</b>  | <b><u>119</u></b> |
| <b>State</b>          |             | <b>35</b>   | <b>54</b>   | <b>47</b>  | <b>55</b>         |
| <b>Total</b>          |             | <b>155</b>  | <b>221</b>  | <b>269</b> | <b>349</b>        |

Source : Michel Aglietta, Federal Reserve Bank, Flow of Funds data

- **New episodes of severe financial turmoil are in the offing**
  - Epicenter this time the European banks
  - Levels of banking & corporate debt that cannot withstand recessionary conditions
- **Socially responsible public policy requires that they be anticipated and preparation made for Eurozone bank failures**
- **Bank profits built on “leverage” dependent on interbank loans now highly vulnerable**

- **Banks should not be saved the way they were in 2008. As minimum first steps**
  - **Re-nationalisation of their credit system by all countries possessing the domestic political conditions to do so**
  - **Dismantling of Hedge Funds**
  - **Strict control of international capital flows**

- **Global economic recovery requires in US & the EU:**
  - Re-establishment of low & middle class purchasing power
  - The large expansion of the capacity of Governments to make socially & environmentally necessary investments
  - A stable international monetary system freed from finance
- **The conditions for this include:**
  - The cancellation of the larger part of Sovereign debt
  - Idem for a very large part of household debt
  - Adequate taxation of finance-based income and capital ( a return to the levels of the 1970's as a first step)
  - Strict control of capital flows & effective fight against tax havens
  - Re-establishment of true public control of the credit system



- **Pervasiveness of massive credit creation, but fairly different degrees of bowing down to finance & external protection among BRICS**
- **Has the trade & financial vulnerability of BRICS risen since 2008?**

## **II. Environmental limits to growth within the actual productive paradigm based on the intensive exploitation of natural resources & emergence of a new one**

- **Here I speak as a layman, a “concerned citizen” who tries to keep up with the world’s major issues**
- **Talking in Rio host of RIO+20 conference next year**
- **The evidence regarding climate appears conclusive:**
  - **rate of growth of carbon dioxide emissions**
  - **possible cumulative feedback processes**
  - **radical depletion or destruction of oceanic resources**

- **There is little evidence of the emergence of a new production paradigm**
  - to be centered on a low carbon economy and renewable energy
  - with economic behaviour based on the respect of natural reproduction processes
- **At any rate no emergence at the speed required given the dimension and speed of the threats**

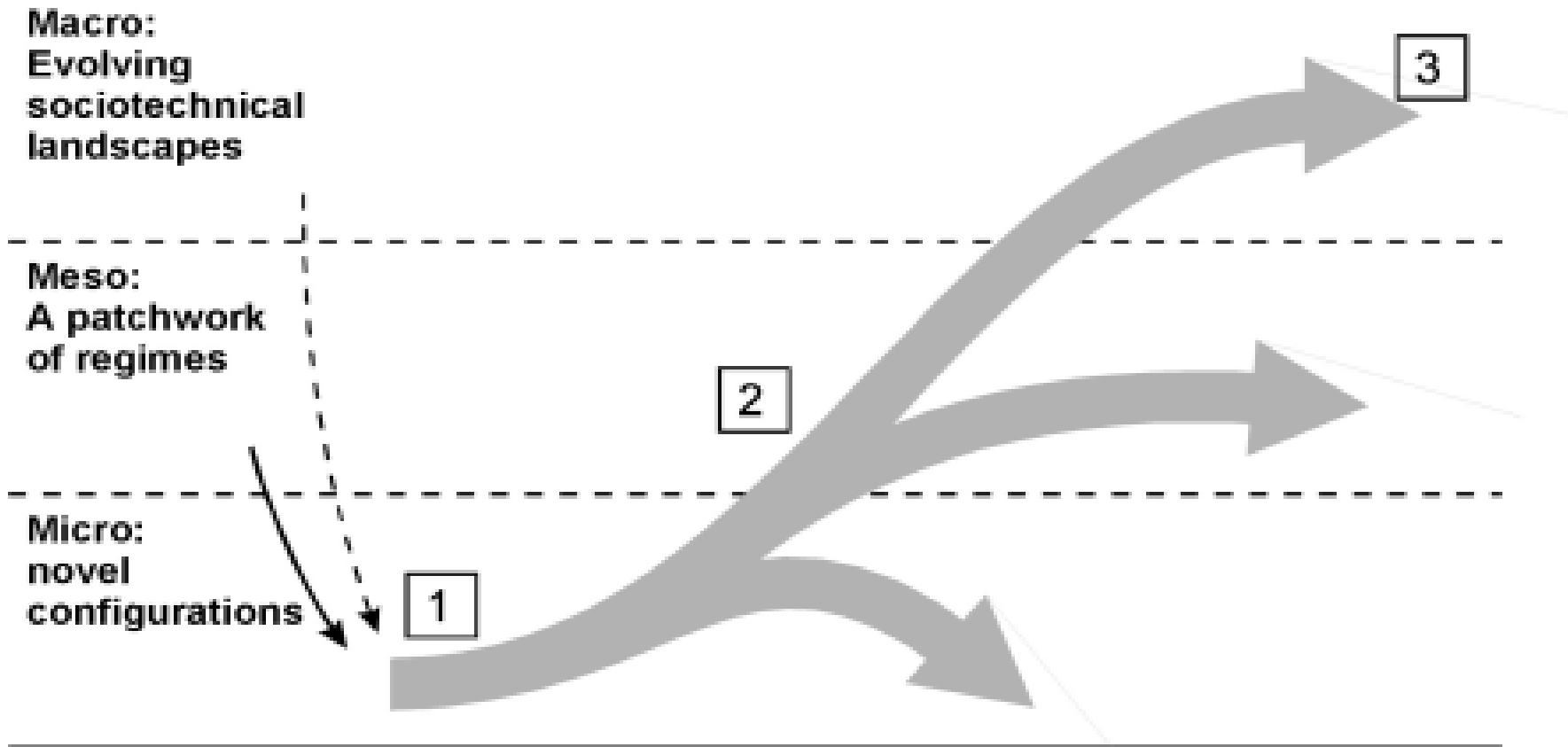
- **Very slow & hesitant action on greenhouse gaz emissions**
- **Little or no slowing down of the intensive exploitation of natural resources generally**
- **The tradional term “limits to growth” understates the issue**
- **Implications of the compounding rate of growth required by capitalism drawn out by David Harvey (see *The Enigma of Capital and the Crisis this Time* (American Sociological Association Meetings, Atlanta, August 16th, 2010))**

- ***“The average global growth rate from 2000 to 2008 was exactly three percent (with plenty of local variation).***
- ***Anything less than three percent is problematic, So the problem for capital is to find a path to a minimum compound three percent growth for ever.***
- ***Capital accumulation is at an historical inflexion point where sustaining a compound rate of growth is becoming increasingly problematic. In 1970 this meant finding new profitable global investment opportunities for \$0.4 trillion.***
- ***Resumption of three percent growth right now would mean finding profitable investment opportunities for \$1.5 trillion. If that rate of growth were to be sustained by 2030 or so we would be looking at \$3 trillion.***
- ***Put in physical terms, when capitalism in 1750 was about everything going on around Manchester and Birmingham and a few other spots three percent compound growth posed no problem. But we are now looking at compounding growth in North America, Europe, much of East Asia, Latin America and increasingly South Asia, the Middle East and Africa....***
- ***The implications socially, politically and environmentally are gargantuan”.***

- **In environmental technological and economic thinking bottom up, progressive change from niches has been dominant**
- **Influential Dutch work from the 1990s still strong in Academia & inspiring a part of current thinking in the OECD-based International Energy Agency and UNIDO**
- **Continuity between**
  - Peter Mulder, Carl H. Reschke and René Kemp, *Evolutionary Theorizing on Technological Change and Sustainable Development*, Grenoble, 1999
  - Frank Geels, *Innovating for a transition to a sustainable economy*, Annual Conference of Sustainable Development Research Network, Dec. 2010, London

# A multilevel model of innovation and transformation

Rip and Kemp, *Towards a Theory of Socio-Technical Change*, (1996)



- [1] Novelty, shaped by existing regime
- [2] Evolves, is taken up, may modify regime
- [3] Landscape is transformed

- **In the 16<sup>th</sup> and 17<sup>th</sup> century an epistemic break by Copernic and Galileo's astronomical research opens a new era of human history**
  - the Earth does not occupy a unique position in the Universe ; the Sun and not the Earth is at the centre of the Universe (“epur se muove”)**



- **Contemporary “Copernican rupture”**
  - associated with the term “Anthropocene”, the new ecological period succeeding the Holocene
  - on account of the breadth & magnitude of his impact on his physical environment  
Man has acquired the status of a geological agent ushering in, anyway accelerating the entry into a new ecological period

- **An urgent need to question & break with the main two pillars of present thought and action**
  - **1° the conception developed out of Descartes's call on Man to view himself as "Master and Possessor of Nature" (Francis Bacon much more prudent & wise: "nature, to be commanded, must be obeyed.")**
  - **2° private property, profit-oriented production, accumulation of wealth & competition as best possible motors of economic & social activity**

- **The second pillar**
  - **strongly questioned by Socialist thinkers during more than a century but re-established by neo-liberalism**
  - **the second much less discussed even by critical thinking until quite recently**

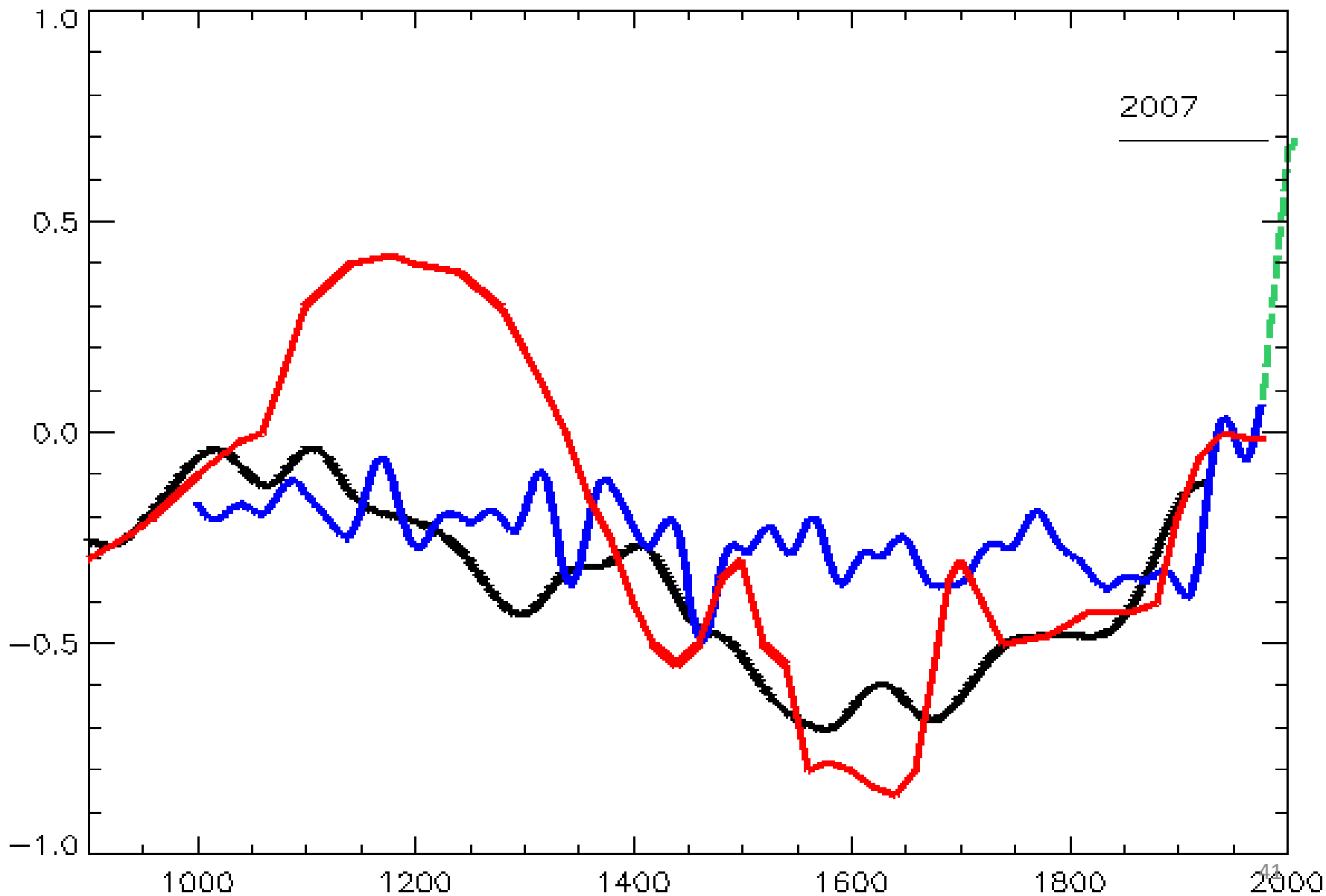
- **Marxist vulgate: “development of the forces of production” only subjected to strong criticism since 20 years (Bellamy Forster, Itsvan Mészáros)**
- **Practice & ecological legacy of “real socialism”**
- **A number of intuitions by Marx but conclusions too vague to command attention by later theoreticians and influence practice:**
  - ***“socialized men,” in order to achieve “freedom,” must learn to regulate, in a rational way, “their interchange with nature” by “bringing it under their common control, instead of being ruled by it as by the blind forces of nature.”***
  - ***This control over nature should be achieved “with the least expenditure of energy and under conditions most favorable to, and worthy of, their human nature.”***

- **The shared dominant position: exteriority of man to Nature, or at any rate basically a one way relationship in particular after the advent of 19th century science & technology & the triumph of the second industrial revolution**
- **Resources « freely available » to be exploited « without end or limit » = particularly entrenched reflex in societies with weak peasant traditions**

- **The feed-back mechanisms of Man's action on his environment not investigated until very recently**
- **When they started to be examined within the IPCC (1990) neoliberalism had won the day**
- **Finance has been at the helm over the whole time that IPCC has produced its reports**

- **Intergovernmental Panel on Climate Change (IPCC)**
  - **First Assessment Report on Climate change 1990**
  - **Subsequent reports in 1995, 2001 and 2007**
  - **Initial assessment never faulted, made ever more precise**
- **Rio Earth Summit 1992**
- **UN Framework Convention on Climate Change 1994**
- **Kyoto Protocol 1997, but applied only in 2005 and never ratified by the US**
- **Failure of the Copenhagen Conference 2009**
- **IPCC findings and warnings are contemporary to the full sway of finance & China's adhesion to capitalism & to main aspects of the carbon intensive production regime**

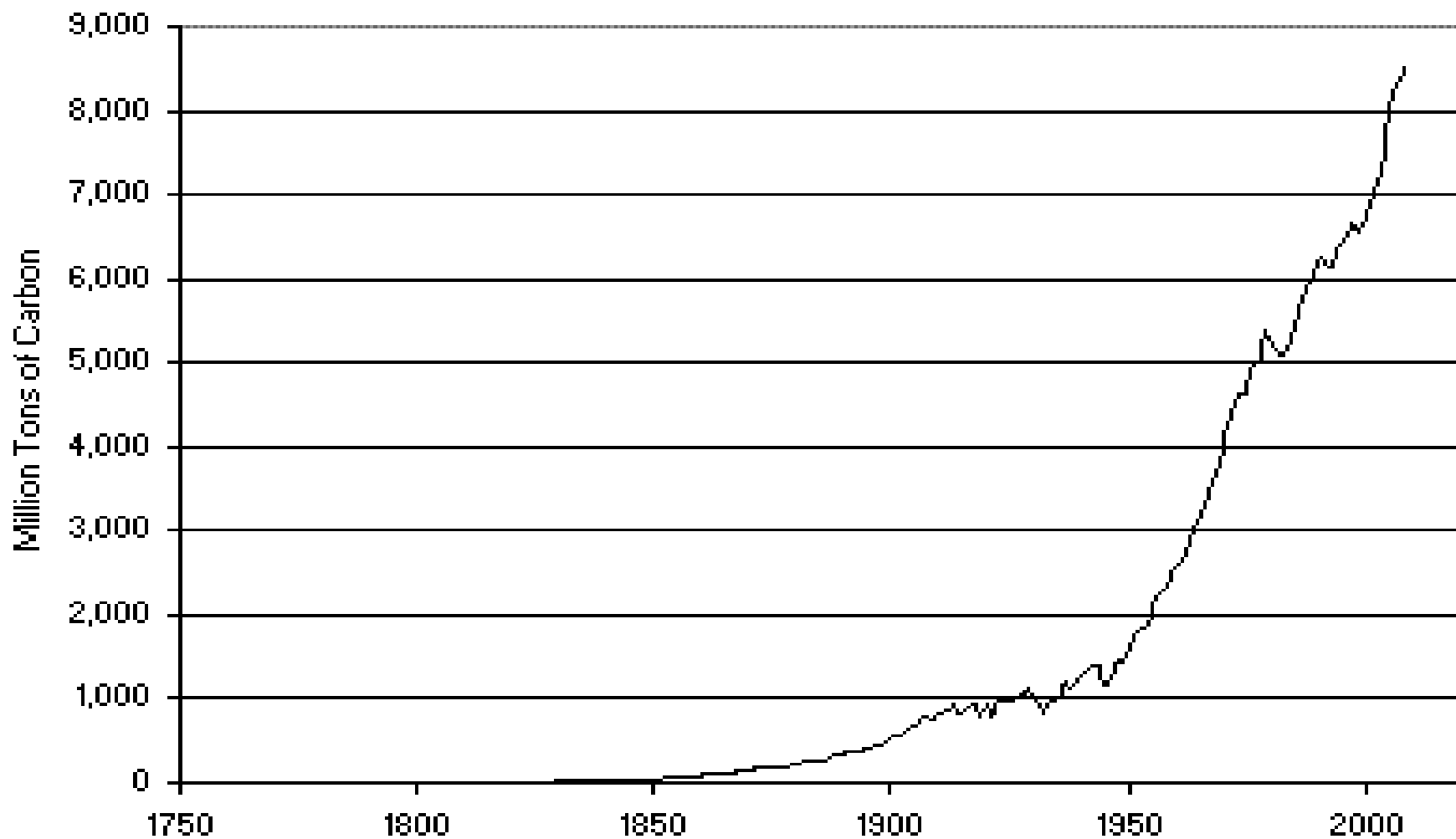
# The "hockey stick" graph in the third IPCC report (2001)



2007

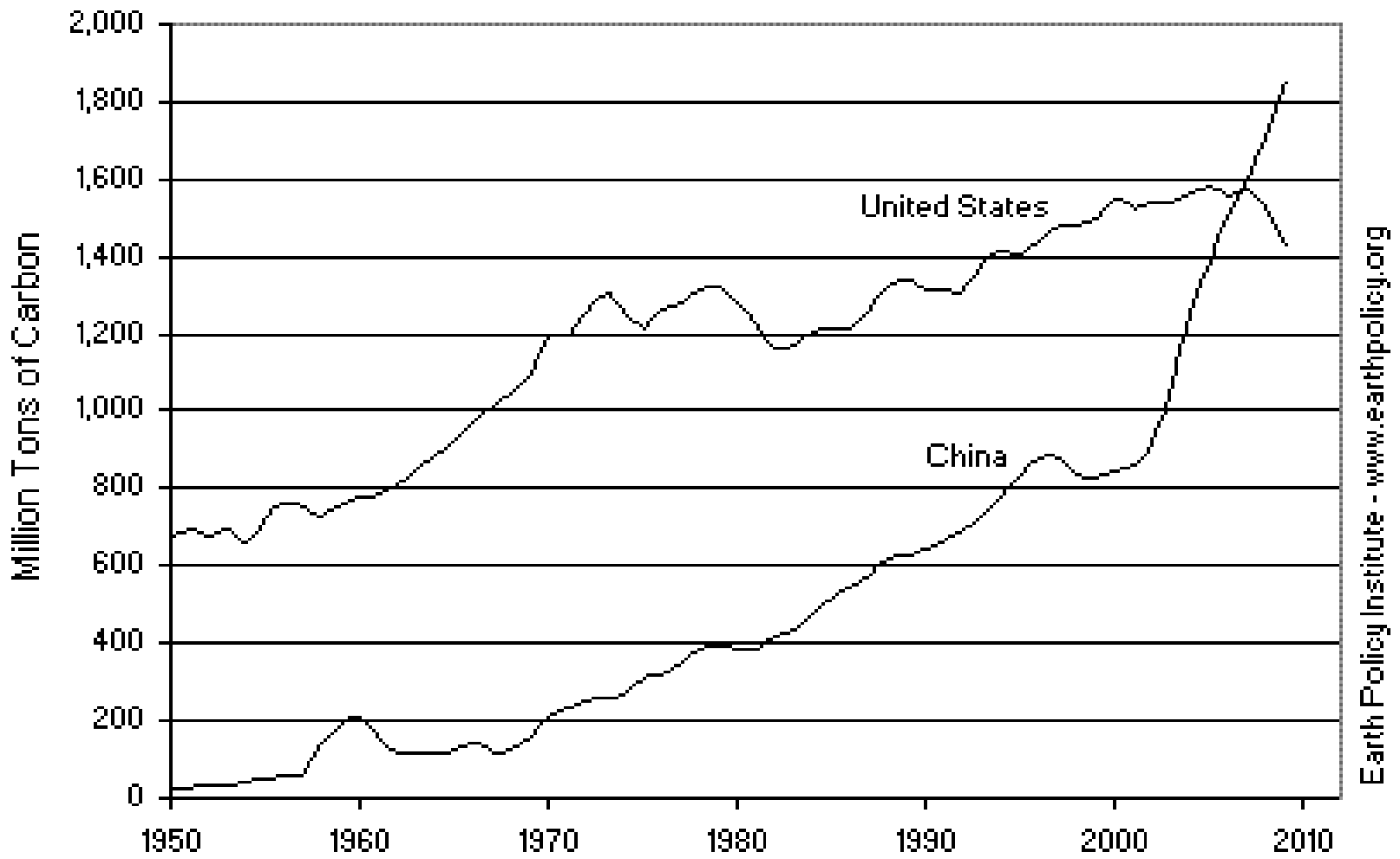


# Global Carbon Dioxide Emissions from Fossil Fuel Burning, 1751-2009



Source: CDIAC, BP, USGS

# Carbon Dioxide Emissions from Fossil Fuel Burning in the United States and China, 1950-2009



Source: CIAAC, EP

Earth Policy Institute - [www.earthpolicy.org](http://www.earthpolicy.org)

- **“Copernican rupture”** involves recognition that
  - the birth of civilisation around 4000 BC only made possible by the climatic conditions of the Holocene (which itself only dates back to circa 10,000 BC)
  - industrial growth under capitalism only made possible by the existence of mineral & energy resources dating back to older geological eras still
- **The very delicate set of relationships between a number of interdependant ecosystems which make up the biosphere need:**
  - to be understood, which thanks to scientific activity they are&
  - respected by economic activity & political action which they are not

- **The fundamental complementary break:**
- **The Smithian proposition about “the invisible hand »**  
**(« By pursuing his own interest (the individual) frequently promotes that of the society more effectually than when he really intends to promote it”) may have held:**
  - **when world population was one billion, but not when it is moving to 8 billion**
  - **when corporations wealthier than countries were unknown**
- **Need for forms of economic organisation requiring not requiring “ a minimum acceptable growth rate of three per cent”.**

- **Somewhat different from « changes in techno-economic paradigms » as theorized by Christopher Freeman and Carlota Perez**
- **The paradigm changes studied by them have been**
  - **broadly speaking technology-driven and**
  - **have occurred within the bounds of profit-oriented production and capital and wealth accumulation**
- **They did not require a radical change in the conception of man's relationship with « Nature »**
- **Approaches enhance gradual bottom-up approaches which I believe to be inadequate**

- **Bigtechnology-based « optimistic » scenarios put very little emphasis on:**
  - **Waste of resources & greenhouse effects of spurious consumption**
  - **Energy saving**
- **Geoengineering (e.g. climate engineering)**
  - **Carbon capture & storage**
  - **Carbon sequestration**
  - **Solar radiation management**
  - **Ocean iron fertilization**

- **“Pessimistic” approaches**
- **Isabelle Stengers: “*intrusion of Gaia*” (see *Au temps des catastrophes. Résister à la barbarie qui vient*, 2009 “*En tiempo de catástrofes. Resistir la barbaria que se aproxima*” & my essay on this book in *Revista Herramienta* n°42, Buenos Aires, Octubre de 2009)= stress on cumulative feedback mechanisms suddenly accelerating global warming**
  - **terrestrial carbon-cycle feedbacks**
  - **thermal expansion of warming ocean water combined with sudden loss of albedo in the arctic ocean as sea ice melts**

- **“Barbarism” (which also encompasses barbarity) social processes whereby**
  - **The most vulnerable social groups and/or nations are hit**
  - **New Orleans as major example in advanced countries**
  - **Gulf of Bengal, South Pacific Islands**
- **“Climate wars”: 2008 report by German advisory council on global change (WBGU), Harald Welzer, GwynneDyer**

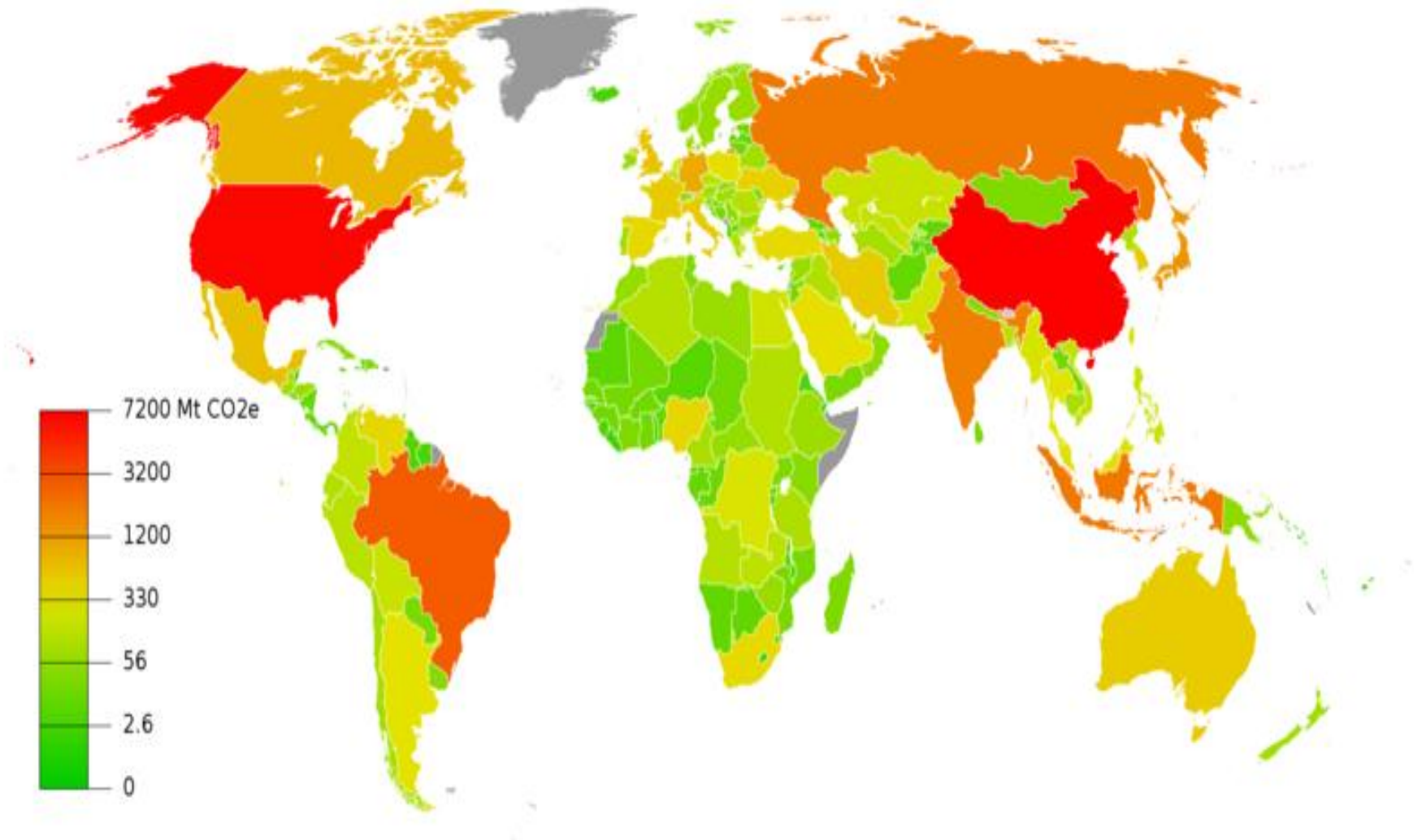


- **For the scientific community, IPCC as a rallying point and a model of true international cooperation**
- **Major responsibility of economists**
  - **be « political economists » again & return to the social sciences**
  - **work on the relationships between finance & environmental destruction**
  - **work on a new meaning of « development »**

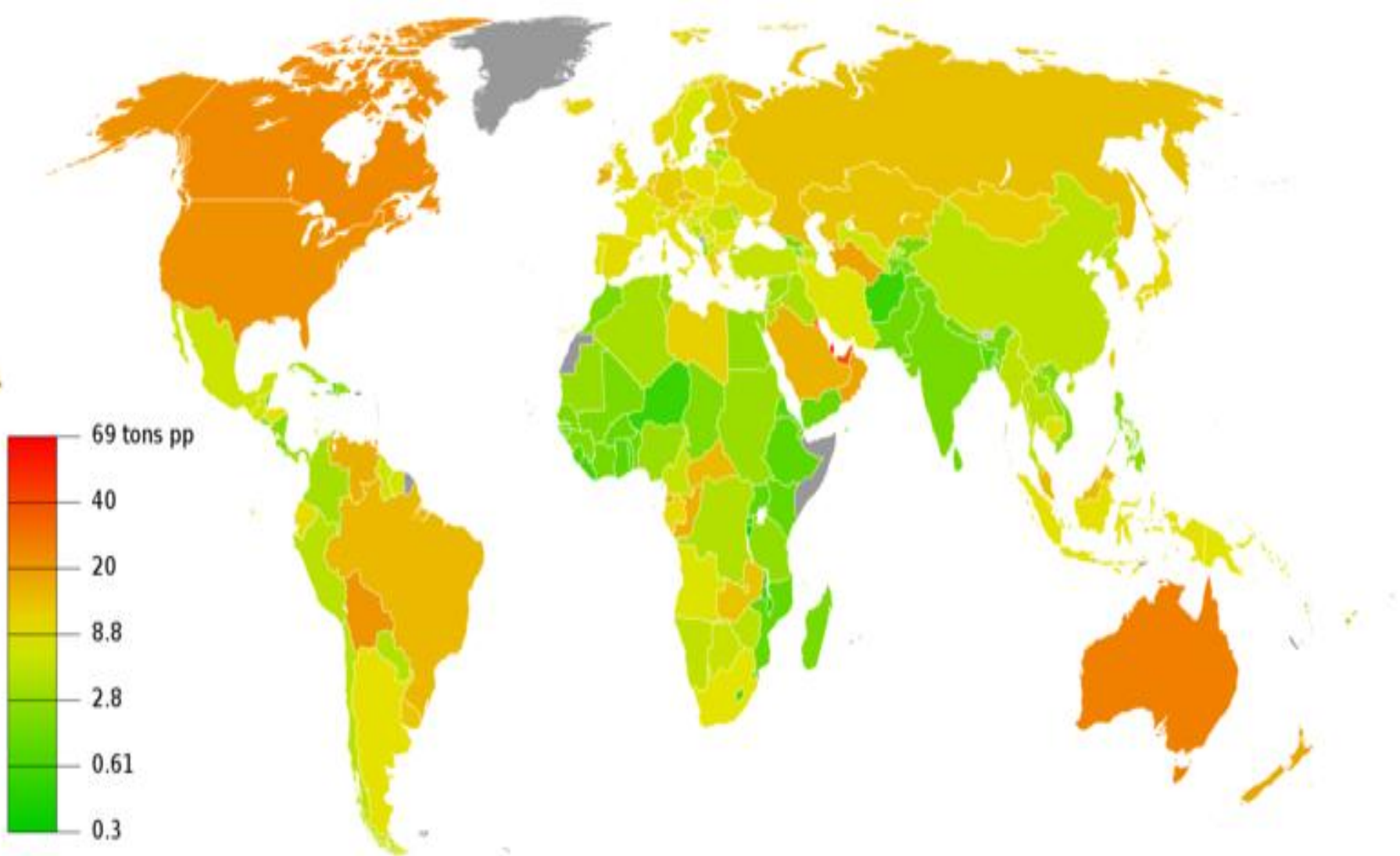
- **Major responsibility of governments**
  - **support & finance international cooperative S&T**
  - **fight « climatescepticism » subsidised by corporations**
  - **support projects by economists working on new approaches to development**

- **Particular position of Brazil among the BRICS**
  - **High per capita emission rate (in particular in comparison with China and India)**
  - **Host to Rio and Rio+20 conferences**
  - **One of the Earth's « lungs » situated largely in Brazil**

# Total greenhouse gas emissions 2005 including land-use change



# Per capital greenhouse gaz emmissions 2005 including land-use change



- **« Greencapitalism » still largely a catch phrase**
  - **Firms don't act until profit perspectives very clear**
  - **IT the outcome of decades of gov. procurement in weapons & space**
  - **Environmental-friendly technologies emerged in countries where environmental collective & individual awareness had been socially constructed with elite involvement**
  - **Strategy of large entrenched corporations in energy**
    - **Sell as much petrol or electricity they can & so harden all highly energy-intensive consumer habits (EDF in France)**
    - **Oil companies doing some R&D, poised to buy small innovative firms**
    - **But intent on controlling the speed of new technology**

- **Reduction of energy consumption by firms, city councils & households as a « national goal »**
  - **Energy consumption reduction campaigns in the media**
  - **Japan managed to reduce by 15% in 3 months without pain**
  - **Energy will have to be excluded from profit-seeking sector**
  - **Public corporations not seen as « fiscal cows » & given very strict objectives**
- **Procurement installed as a major policy instrument**