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Will Climate Change Enforce Global Justice? Will capitalism survive the climate crisis?

-Elements of Political Ecology of Climate Change

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Questions

Are current crises (Prices of food and energy, inflation, +hunger) harbingers of the big future climate crisis?

Solving the climate crisis only by fair distribution solutions at all levels?

Should the profit rate converge to zero to reach sustainability?

Will capitalism survive the climate crisis?

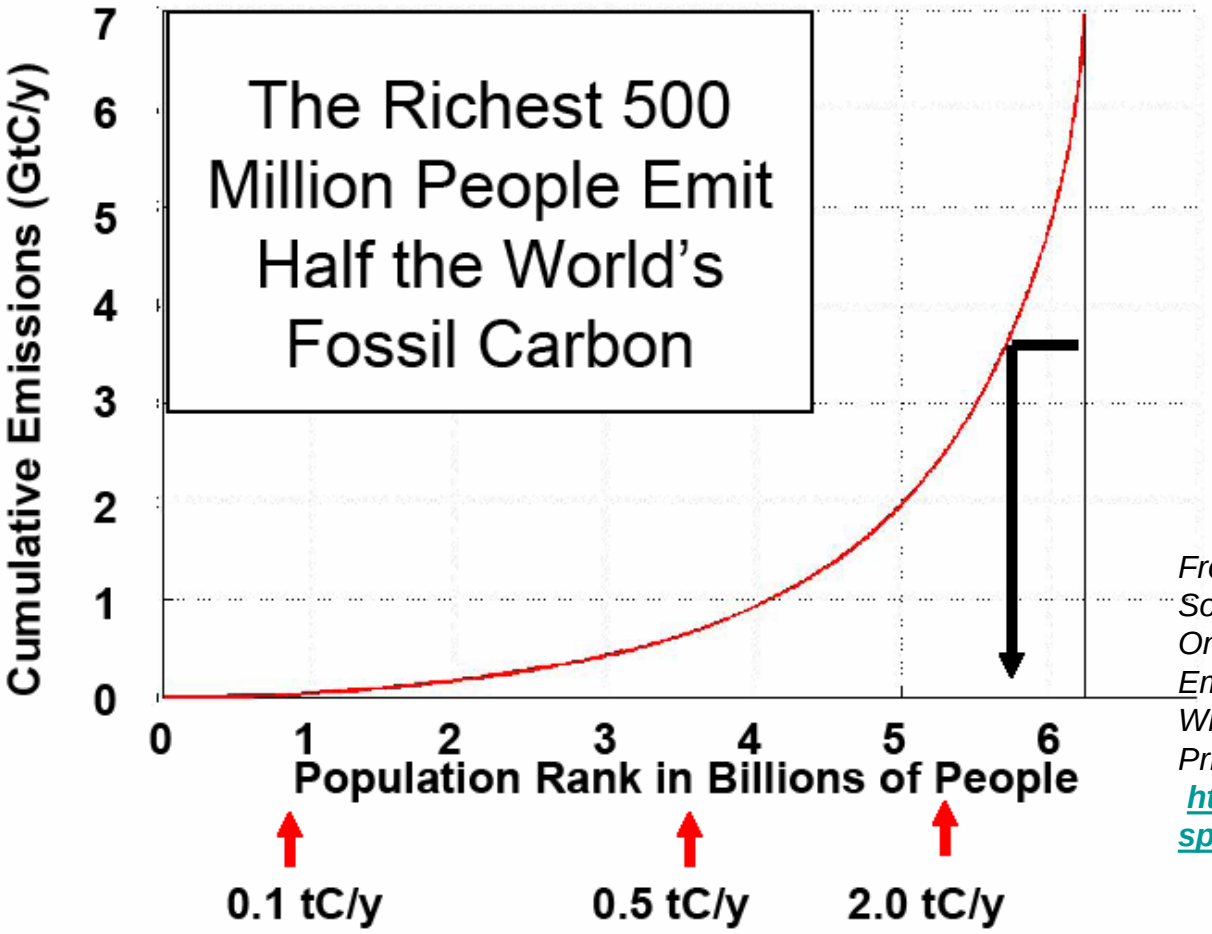
Climate crisis and global distribution

Starting point:

Is effective (global) climate policy possible without fair (global) distribution solutions?

distribution issues are probably inextricably linked to climate change

Politicial ecology: climate crisis and global distribution



From: Pacala S.W.: Equitable Solutions to Greenhouse Warming: On the Distribution of Wealth, Emissions and Responsibility Within and Between Nations. Princeton, at IIASA, November 2007 ***http://www.iiasa.ac.at/iiasa35/docs/speakers/speech/ppts/pacala.pdf***

Current crises slight harbingers of a big future climate crisis ?

Global food crisis
Although no big crop failures

Inflation
**as global distribution conflict (on resources, commodities)*
**and although currently globally in comparison to expected developments still very low climate change effects*

Oil prices – pressure still only from supply side, not yet from emission side

Financial crisis

Current crises slight harbingers of the big future climate crisis ?

Global food crisis
additionally to chronical situation:

Approximately 800 million people are chronically undernourished

More than 1 billion people have inadequate access to fresh water

2 billion people are without access to clean cooking fuels

More than 1.5 billion without electricity

Climate crisis and global distribution

Words such as "global, but differentiated responsibility" for climate change, or "contracting and converging" for greenhouse gases are in the documents of IPCC and UNFCCC

But operationalized effective solutions seem to be still a long process

There are dozens of concepts of "equality" - even more of "fairness

Industrialization and capitalism

From historical literature :

„3 C“: ***„Coal – Capitalism – Colonies“***

Emergence of the capitalist mode of production in a particular constellation of protoindustrialization in England by transition to fossil fuels:

Labour restrictions - demographics
Demand on markets
Capital accumulation already on a significant level
Situation in agriculture
Use of overseas resources
Ecological situation by over-exploitation (especially deforestation) tense
Fossil energy (coal) in the near
Transportation (opportunities)

→ *multiplication of "productivity" (in relation to capital or labour)*

Industrialization and capitalism

Capitalism:
The socialization of production – appropration by private ownership
Capital accumulation
Profit rate and profit maximization as a steering mechanism

→5 central elements of political ecology:

5 central elements of political ecology

Historical development of 5 factors *in parallel and reciprocal interaction* ***~ since the beginning of the 19th century***

A *material flows* ***- metabolism society/nature***
B *distribution asymmetries* ***various levels***
C *oligopolization****- (decision) concentration***
D *biodiversity - losses*
E *arms build-up*

A. Material flows - metabolism society/nature („social metabolism“)

(exponential) processes

raw materials (land use) - input from nature

- by that impairment of diverse ecosystems

emissions – „output“ ***in nature***

in production and consumption

- by that impairment of diverse ecosystems - accumulation of pollutants

e.g. CO2 – greenhouse gases

Accumulation of pollutants e.g. CO2 – greenhouse gases

(exponential) processes

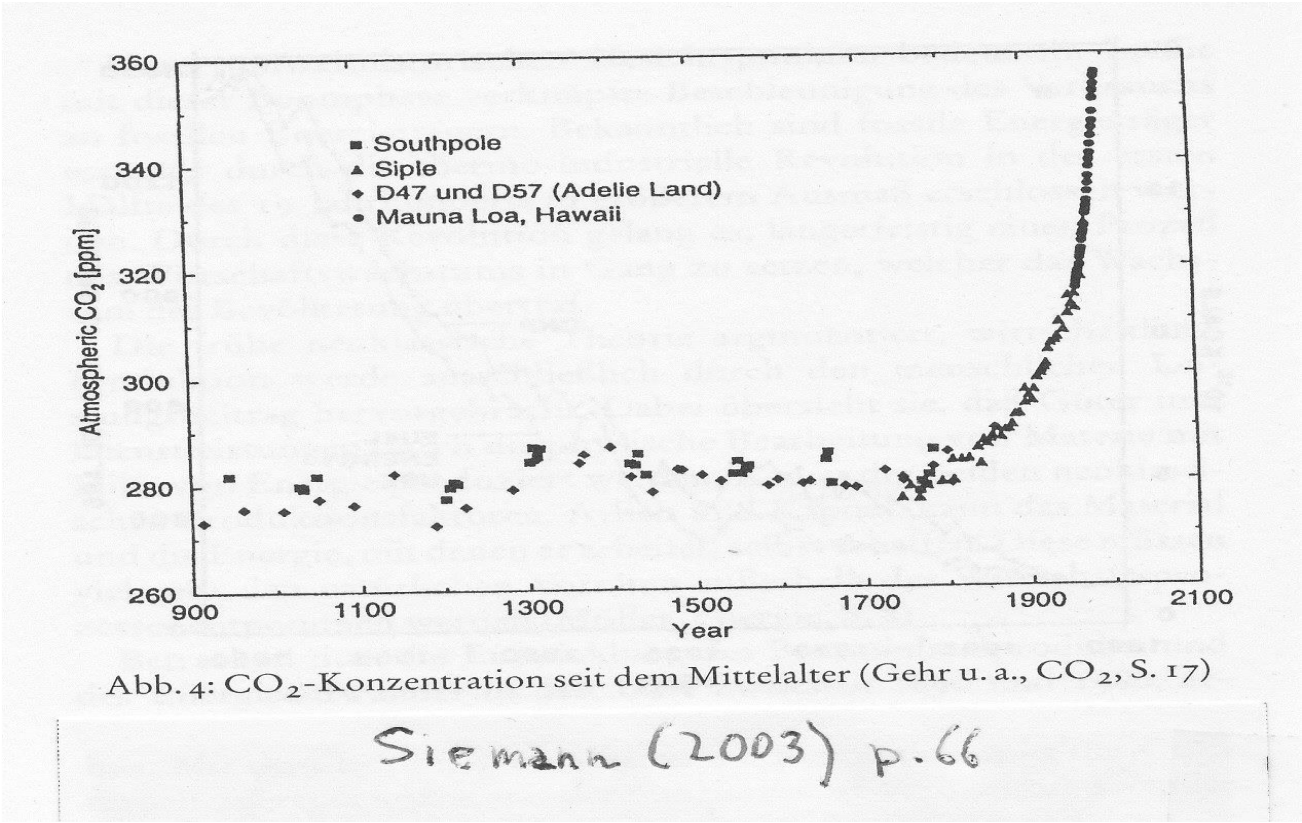


Abb. 4: CO_2-Konzentration seit dem Mittelalter (Gehr u. a., CO_2, S. 17)

Siemann (2003) p.66

B. Socio-economic/ecological distributional asymmetries

(Global) asymmetrical accumulation of

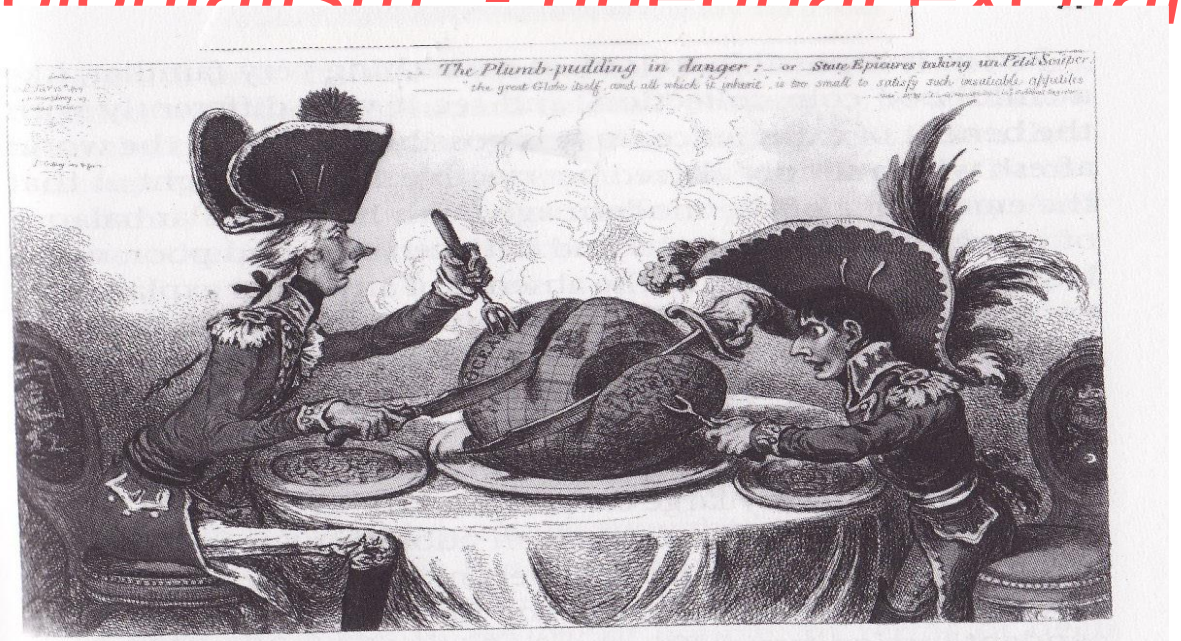
- *capital,*
- *infrastructure (capital),*
- *"human capital",*
- *"social capital"*

with asymmetric material implications ***(consumption of resources and emissions)***

The accumulation of capital relates to the accumulation of greenhouse gases – ***on various levels***

B. **Socio-economic/ecological distributional asymmetries**

Colonization, colonialism, neo-colonialism - unequal exchange



5. James Gillray's classic satire of 1805 on colonial powers, France and England, carving up the world for their own ends: 'The plumb-pudding in danger; – or – State Epicures taking un Petit Souper'. (Courtesy of the National Portrait Gallery, London)

Simms 2005 p 71

B. **Socio-economic/ecological distributional asymmetries**

High distributional disparities

on various levels:

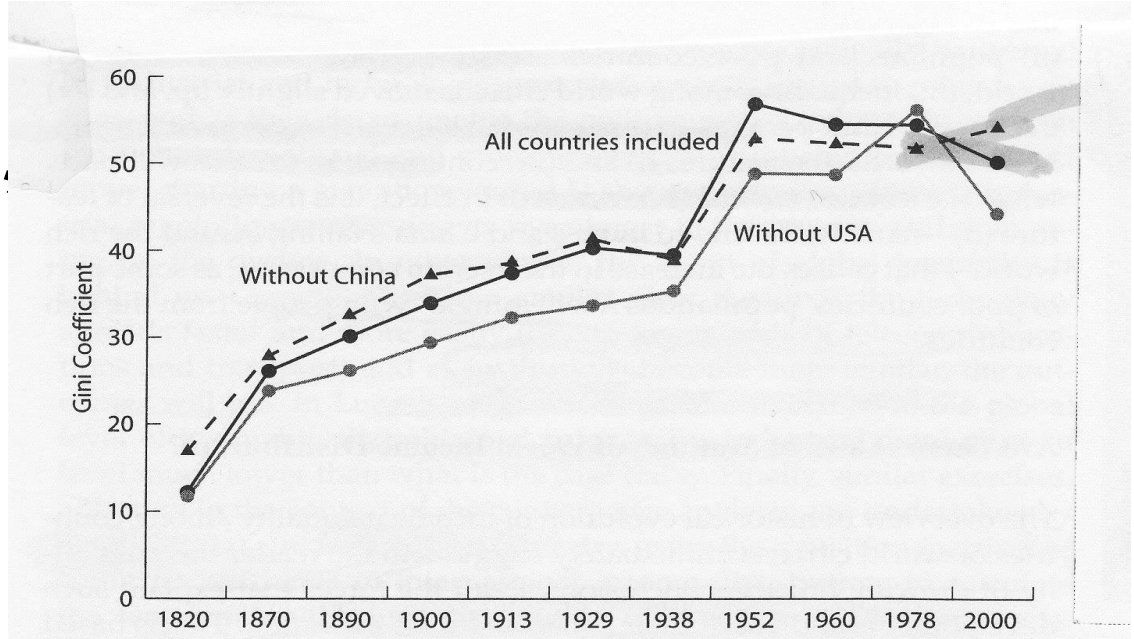


Figure 11.2. Concept 2 (Gini) inequality without China and without the United States, 1820–2000.

Milanovic(2005)p.143

B. **Socio-economic/ecological distributional asymmetries**

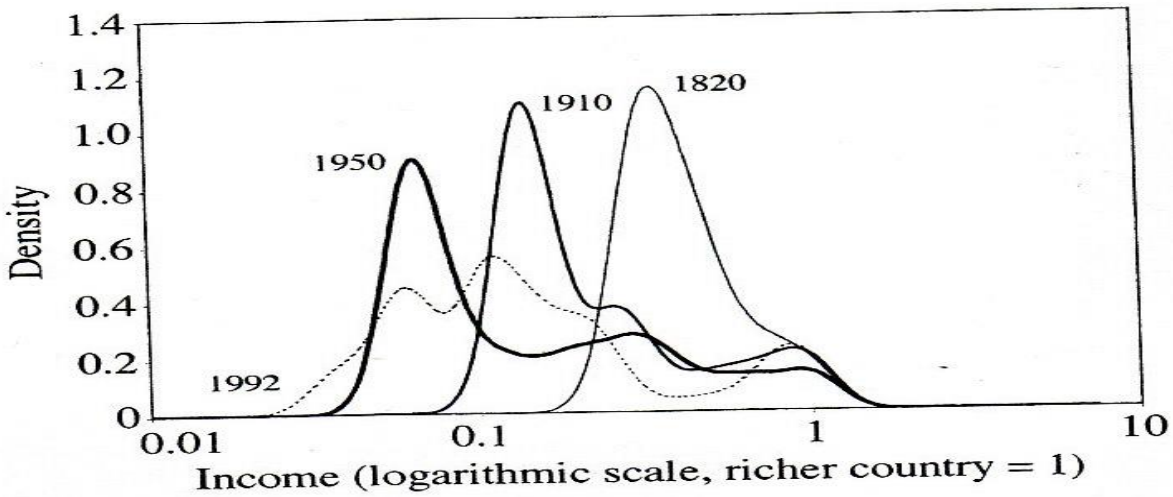


FIGURE 2. GAUSSIAN KERNEL ESTIMATE OF THE DENSITY OF THE WORLD INCOME DISTRIBUTION WHEN INEQUALITY WITHIN COUNTRIES IS IGNORED: 1820, 1910, 1950, AND 1992

Bourguignon, F., Morrisson, C. (1999): Inequality among World Citizens, 1820 – 1990. American Economic Review (September 2002): p. 734

B. **Socio-economic/ecological distributional asymmetries**

TABLE 2—DECOMPOSITION OF WORLD INCOME INEQUALITY INTO "WITHIN" AND "BETWEEN" INEQUALITY (VARIOUS INEQUALITY MEASURES)

	Theil index			Mean logarithmic deviation			Standard deviation of logarithm	
Year	Inequality *within* country groups	Inequality *between* country groups	Total inequality	Inequality *within* country groups	Inequality *between* country groups	Total inequality	Inequality *between* country groups	Total inequality
1820	0.462	0.061	0.522	0.370	0.053	0.422	0.300	0.826
1850	0.470	0.128	0.598	0.374	0.111	0.485	0.432	0.873
1870	0.484	0.188	0.672	0.382	0.162	0.544	0.515	0.920
1890	0.495	0.250	0.745	0.393	0.217	0.610	0.592	0.971
1910	0.498	0.299	0.797	0.399	0.269	0.668	0.668	1.027
1929	0.412	0.365	0.777	0.356	0.334	0.690	0.747	1.064
1950	0.323	0.482	0.805	0.303	0.472	0.775	0.907	1.154
1960	0.318	0.458	0.776	0.300	0.466	0.766	0.920	1.161
1970	0.315	0.492	0.808	0.304	0.518	0.823	0.977	1.210
1980	0.330	0.499	0.829	0.321	0.528	0.850	0.994	1.234
1992	0.342	0.513	0.855	0.332	0.495	0.827	0.926	1.184

An

B. (Global) distributional disparities

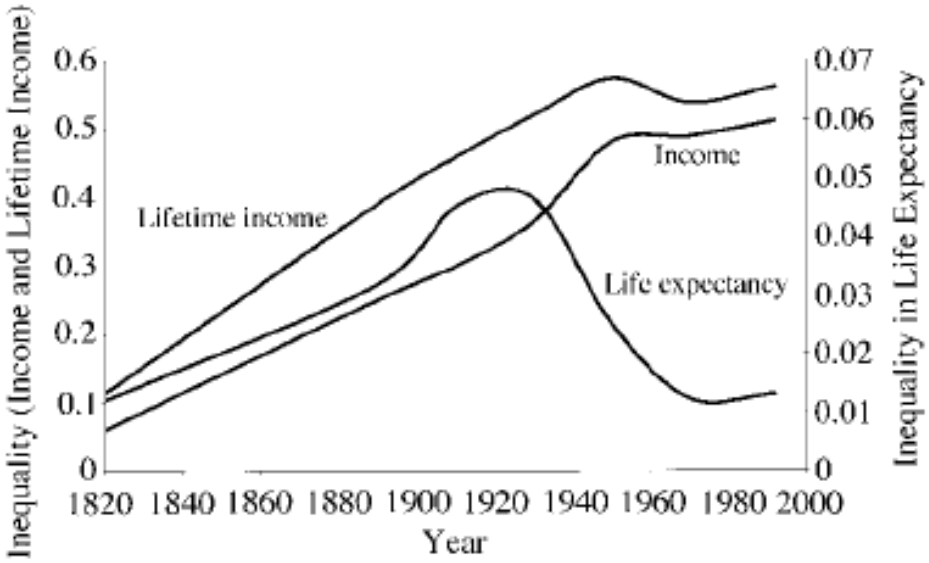


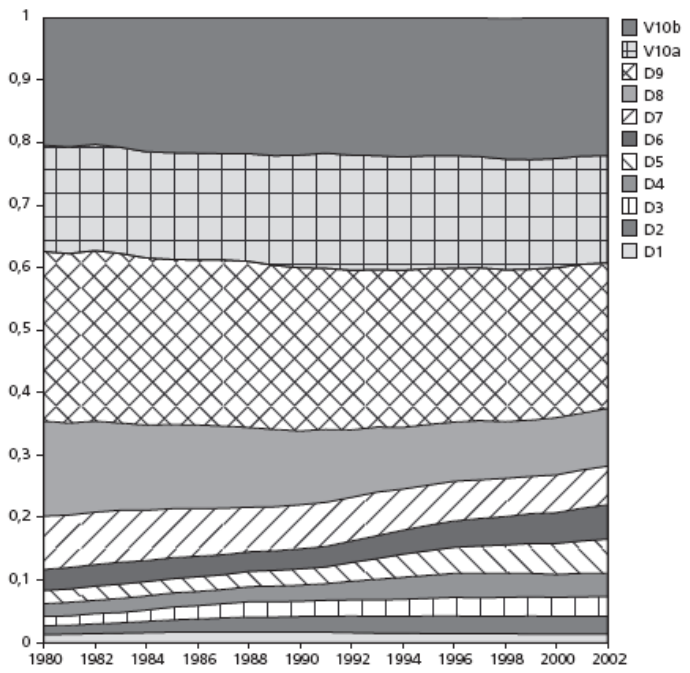
FIGURE 3. EVOLUTION OF INTERNATIONAL INEQUALITY IN INCOME, LIFETIME INCOME, AND LIFE EXPECTANCY (THEIL INDEX)

Bourguignon, F., Morrisson, C. (1999): Inequality among World Citizens, 1820 – 1990. American Economic Review (September 2002): p. 741

B. (Global) distributional disparities

Bourguignon, Levin & Rosenblatt / Économie internationale 100 (2004), p. 13-25.

Historical trend in the distribution of global GNI



←**Gross National Income**

- still very high gaps
- complicated development of the global patterns of disparities - various contradicting intra-and interregional effects.
- global convergence and divergence effects

5 central elements of political ecology: C. Oligopolization

Further distributional assymetries
within regions of a country
along gender
…
C. Oligopolization (monopolization)
inherent to market
connected with concentration of political decision making - de-democratisation
See increasing proportion of large corporations in controlling world production
But ambivalently: shows also socialization of production

5 central elements of political ecology: D. losses of biodiversity

D. Tremendous irreversible losses of biodiversity (species and ecosystems: minus 50 % at + 3,6 ° Celsius in 21st century, see IPCC) and thus unconceivable losses of resources and safety for future generations

The problem: Variety of options enables more capability for adaptability

(Drastic) decrease of biodiversity with the beginning of industrialization

Global megatrends of socio-ecological development (pronounced in the years since 2000)

Aus: Ameling Dieter (20./21.9.07): Die Rolle Südost-Europas im Umfeld globaler Stahlmärkte. Vortrag Stein/Nürnberg. Stahlinstitut

←*WORLD STEEL PRODUCTION*

(Global) industrialization with some exponential processes

Example of a particular resource and emitting intensive sector

China's per capita is still only around one third of Japan or Austria

Industrialization on a global scale - big emerging countries "- **is not surprising**

What is surprising is rather

that current global industrialization of developing countries seemed to be a surprise to many organizations such as the OECD, IMF and World Bank;

and that the corresponding
**commodity demand,*
**price and*
**emissions consequences*
has not been seriously envisaged and

that no global concepts and contingent preparations have been made,

on the contrary, in the wake of neoliberal deregulation food stocks were dismantled.

Industrialization on a global scale - big emerging countries "- **is not surprising**

Recent years: An intensification of the social metabolism - on all continents:
→Consumption growth of commodities, including fossil fuels in
→Increase in climate emissions

commodity prices - apart from oil and gas prices - over decades rather stable (with fluctuations)
so there was a long period of low investment

In recent years extreme soaring in commodity prices incl. of metals and in heavy industry sectors

Also the EU responded very lately with a new focus on raw materials policy

Fundamentally New: the "deadline“ can enforce "simultaneous" solutions

There are "deadlines" for solving the climate issue, now an *existential question of humanity*

In proportion to the huge challenge there is not much time: a window of opportunity *of about 15 years* ***to keep any drastic change in the framework of “known territory”***

The solution to the climate issue can only be global, requires the involvement of almost all countries

The poorer countries can and will only join on the basis of *fairness and equality*

Fundamentally New: the "deadline“ can enforce "simultaneous" solutions

Fairness and equality put questions for the historic responsibility of the accumulation of greenhouse gases.

This question *brings capitalist north's past back in an rather unexpected way**.** For the first time strong trump cards belong to the south* ***in the central question of burden sharing;*** *because climate change hits also the "rich" strongly and they only hardly can escape*

There will be only comprehensive large or no relevant solutions

A fair solution for costs of climate change mitigation and adaptation will bring the foundation for the development of the South by redistribution, and thus global convergence and cohesion

But perhaps only after several attempts

Concept of matrix of distribution by effects of climate change

Dimensions*: **Distribution along various levels:***

Spatial dimension

- Global
- continental
- national
- regional
- lokal

Distribution along strata or classes)

- Operationalized via income

Correlation between income and emissions

Socially differentiated emissions per capita

Empiric correlation of stratification along income for consumption and emissions per capita

Evidence of differentiated emissions/consumption of the traffic services a day for Austria:

4 quartiles (income):

1st quartile	20 km
2nd quartile	40 km
3rd quartile	53 km
4th quartile	80 km

(see: Steininger K., Gobiet W. (2005): Technologien und Wirkungen von Pkw-Road Pricing im Vergleich, Wegener Center Graz, Bericht 1/2005, p 20f

Concept of matrix of distribution by effects of climate change

Distribution along gender

all for:

Mitigation

Adaptation

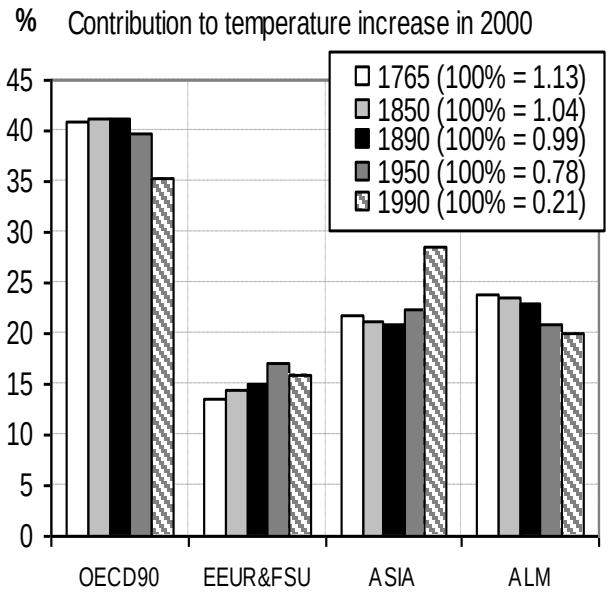
Vulnerability-Impacts-Risk

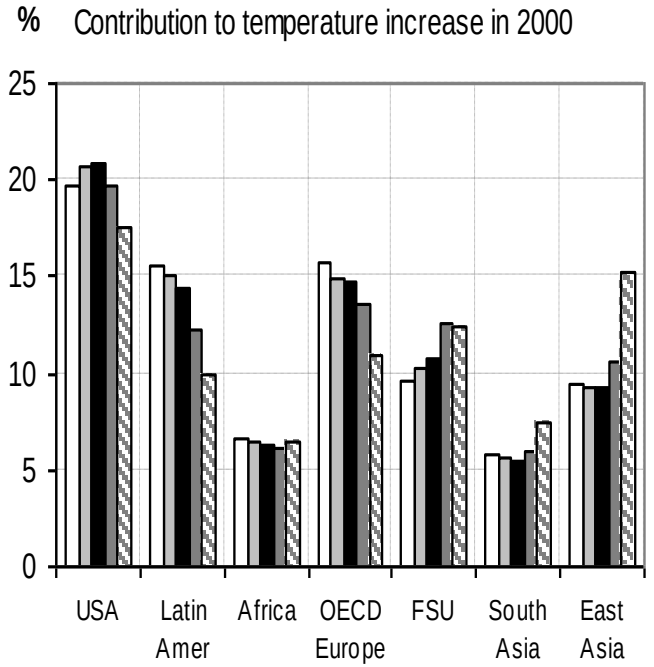
Historical dimension

EEUR: Eastern Europe
FSU: Former Soviet Union
ALM: Africa and Latin Americ

Contributions to climate change on the basis of greenhouse warming potentials (GWP) cumulative weighted emissions **(These are NOT per capita values but relative globa**

ch-info.net/ Pres





Correlation between GDP per capita and historical accumulation

There is a largely confirmed correlation between GDP per capita on the one hand and the causing of emissions in the sense of historic responsibility for the accumulation of greenhouse gases in the atmosphere on the other hand.

Relevant deviations from this only are for countries with high GDP growth rates per head in recent times (like China or Asian "tigers")

Discounting central for distribution

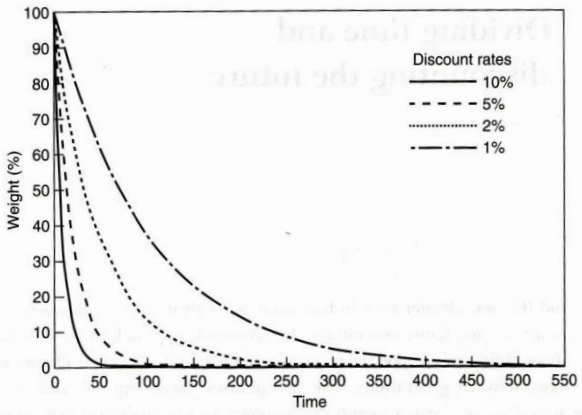
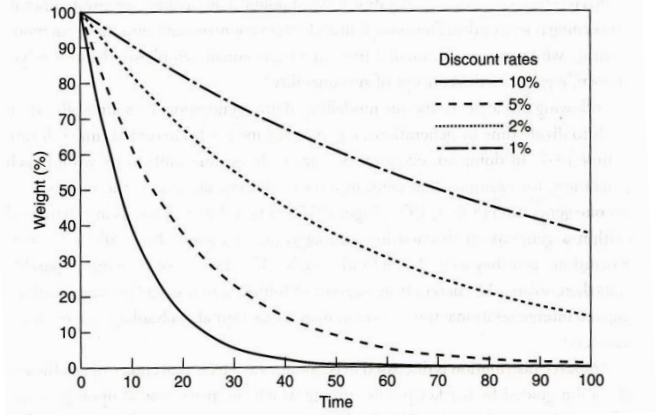


Figure 8.1 Reducing the weight of future events



Time

Figure 8.2 Weighting for 100 years of disounting

within about 40 years, at which point values (flows of costs or benefits) would add almost nothing to the summed discounted value arising from a project. Even the lower rates of 1 or 2 per cent limit time horizons to a few hundred years with events then having little or effectively no weight in decisions. Figure 8.2 shows the impact within a 100-year time horizon. For example, under the 10 per cent rate half the

C. Spash (2002)

Spash, C.L. (2002): Greenhouse Economics. Routledge, Seite 202

Discount rates in the height of avarage profit rates push the value of future near zero

Profit rate devalues future

Via discount rates (" time preference rate"), future values are transformed to present values(future harms or positive effects).

$$\$X = \$X / (1+r)^n$$

r:= discount rate ***n:= number of accounted years***

Mechanism of compound interest !

Usually in practical terms in cost-benefit analyses discount rates are assumed as high as the average profit rates of about 5-6%.

Discount rates, which are not close to zero, devalue future damage (or positive effects) beyond the immediate next few years or decades to a value close to zero. See the diagram.

*So mitigation of climate change would hardly be worthwile. Future in general or the life basis of life for future generations almost completely is devalued (e. g. the calculations of Nordhaus on climate change***).**

Sustainability by zero-profit rate ?

Well known Stern-Report on climate change is citicized by mainstream economics due to "too low" discount rates: Stern report would so implicate „too high" values of future harms (Nordhaus) and „alarmism"*
(but Stern Report is to criticize for other reasons)

So:

Only when the decisions on investments no longer dependent on the profit rate; or when the profit rate / discount rate is near to zero, a sustainable development is possible

*Nordhaus, William: Critical Assumptions in the Stern Review on climate Change. ***http://www.sciencemag.org*****. SCIENCE Vol. 317, 13 July 2007**

“Climate change is the greatest market failure the world has ever seen.”*

The Stern-Report states: „*Climate change is the greatest market failure the world has ever seen.*

- “But here "**market" is apparently a synonym for capitalism**, therefore we could deduce: climate crisis can be seen as **"the greatest failure of capitalism the world has ever seen"**

In general the Stern Report – although highlighting the problem - produces also some *new base lines of defense* ***in the foreseeable discussion on issue of climate change,*** *capitalism* ***and the distribution costs of climate policy***

The Stern Report is *inconsistent****, too: If climate change is the "biggest market failure” why climate change should be tackled with even more market (CO2 trading, etc.), especially since these recipes did hardly work till now.***

**Stern Review: The Economics of Climate Change (2006)*

www.hmtreasury.gov.uk/independent_reviews/stern_review_economics_climate_change/stern_review_report.cfm

Climate change as the “greatest failure” of mainstream economics?

If, according to the Stern report climate change is the “greatest market failure of history”, then mainstream economics has been involved essentially at the biggest "market failure“

Profit in mainstream economics often is a premium for “risk” ***to make capital available***

Now in some dialectical turn the profit mechanism and the capital accumulation turned back the risk by the CO2 accumulation in the atmosphere - an absolute socialisation of risk

By the “risk” of profit the global risk for mankind and civilization

has developed to the largest extent

Climate change as the greatest failure of capitalism the world has ever seen (1)

Historically - see 5 factors of climate crisis

CO2 accumulation in the atmosphere triggered by long term capital accumulation generally is
= privatization of the atmosphere
= privatization of the global commons
= expropriation of the environmental space

Climate change as the greatest failure of capitalism the world has ever seen (2)

Non-linear, rather sudden developments, which could lead to relatively fast disasters, ***are hardly taken into account in general climate models or at Stern (because it is very difficult to model) ,***

Possible self-reinforcing effects:

- ***thawing of tundra with extensive methane release***
- ***melting of the Greenland ice***
- ***melting of the West Antarctic and others; all with very far reaching consequences.***

Containment of effects of climate change needs a radical turn (1)

Basic result of Stern-report: the sooner effective climate policy starts the „cheaper“ and less s“sacrifices“

To converge to the level of 550 ppm CO_2 in the atmosphere at the end of the century the sum of CO2-emissions would have to get at least roughly 80 % below the actual level

In the north: fair global solutions at least minus 90 %

G77-paper in Bali: north minus 95 %

Containment of effects of climate change needs a radical turn (2)

Heuristic approach

The starting points for the view of equality and fairness in connection with the climate change can come e. g. from:

- ***ethical moral reasons,***
- ***obligations from international documents,***
- ***concepts of the sustainable development.***

Or from the fact that necessary international contracts simply will not come into being otherwise

Fundamental principles of distribution
can be e. g. – (pre- scientific/political/ethical):

- *Parity*
- *Proportionality*
- *Priority*

Containment of effects of climate change needs a radical turn (3)

In principle we can see *procedual, effort-oriented and results-oriented principles* ***of equality and fairness***

Oxfam e. g. uses 3 princples:

- **Fairness,**
- **capability,**
- **simplicity**

CICERO-ECZ stress

- **guilt,**
- **capacity und**
- **need**

Procedual principles of equality and fairness

Market mechanism

Willingness to pay

Auction

Consent (can mean very different: from discretionary to fixed rules)

„Efficiency“ targets

- ***Equal CO2-emissions per unit GDP***
- ***Equal marginal mitigation costs***
- ***Mitigation costs in proportion to emissions per unit of GDP***

Grandfathering

- *Equality of absolute CO2-reductions per capita (could be negative at poor countries, therefore not possible logically at any events)*
- *Equality of relative CO2-reductions per capita (for industrial countries - Kyoto),*
- *Equal proportion of reductions in relation to historical accumulation of emissions*
- *"Ability to pay": equal proportion in mitigation costs/GDP*
- *Outcome based, "horizontal": Equal net welfare change (equal proportion of GDP)*

** compensation for net-loosing countries: "No nation should be made worse off" –*

Grandfathering with securing of minimum

Rawls ***- Maximin (Maximization of lower incomes within the existing environment)***

"*No purchase****": poor countries get CO2-certificate without payment within a basis scenario***

„*No harm****": No costs for more poor countries***

Equal rights for the atmosphere (1)

"Outcome based – vertical":
(Net)gains inverted to GDP, losses proportional to GDP

Egalitarian: ***Equal right for pollution (per capita) –*** *territorial*
- Position of G-77
Date of convergence has to be fixed

Egalitarian: ***Equal right for pollution (per capita) –*** *functional*
compare „ecological footprint
Clearing up of trade - net
Modified polluter pays principle
Production (incl. emissions) *for whom (not : where)*
"*Net exports (in China) accounted for 23 % of China´s total CO2 emissions."*[1]

[1] **Watson J., Tao Wang, Is the west to blame for China's emissions? December 20, 2007**
http://www.chinadialogue.net

Equal rights for the atmosphere(2)

- *Egalitarian*: ***causal historical responsibility for greenhouse gas emissions – territorial***
  = "Brazil proposal"
  ****Former economic and ecological asymmetric distribution integrated***
  ****UNFCCC - MATCH-process***

***In the context of the Kyoto process Brazil made a proposal which aims at differentiated emission reduction after accounting the sums of the historical contributions of greenhouse gas emissions by various countries.**

Egalitarian: ***causal historical responsibility for greenhouse gas emissions – functional***
****Clearing up of trade - net***
****Historical polluter pays principle***
****Production (incl. emissions) for whom? (not : where?)***

Equal rights for the atmosphere(3)

- *Egalitarian*: ***Equal right for pollution (per capita) – control view***
  ****Rights of property and power of disposal?***
  ****Who controls the value added?***
  - *58% of Chinese exports are controlled by transnational companies

- *Egalitarian*: ***Equal right for pollution (per capita) – control view for the whole viewed era - historical***
  ****Who has had the property and disposal rights in previous time periods?***
  ****And who has checked the obtained net product?***
  **World-system approach* - (Wallerstein)

Equal rights for the atmosphere(4)

Open questions
****Integration of „land use changes“?***
****Integration of sinks?***
…..
The Brazilian suggestion doesn't imply that developing countries shall pursue no climate politics or no CO2-mitigation. The main consequences are about

- ***financing,***
- ***redistribution***
- ***economic compensation***

Results show high amounts of redistribution

Calculations on the global personal level: e. g. Baer along world regions and quintiles of income: *The upper 2 quintiles in the USA had to redistribute some 144 billions of $*

Climate crisis: A new situation for the left

Results show tremendous amounts of redistribution

No Pareto optimal solutions → Redistribution!

A long way by hard disruptures and transformations

Crucial - the "rich" will be hit also dramatically – no gated community

All levels (regional, national, contintal, global) intertwined - outcome of current negotions between national governments (Copenhague 2009) could be: redistribution from poor of north to rich of south

Towards a social-ecological welfare state:

Stressing the material side of social welfare

Provision of basic energy needs

Provision of basic mobility

Provision of basic food

Towards a social-ecological welfare state:

Equal rights on the environmental commons

Basics free, remaining: progressive taxes on resources, carbon trade?

Traditional:
Allowances for energy for heating
Allowances for commuters

→Transition to material provision

By regulation, planning, common property on resources