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Will Climate Change Enforce Global Justice?

Will capitalism survive the climate crisis? -

Elements of Political Ecology of Climate

Change

The rationale

The issue of sustainable development is to be reframed by the necessities to react globally to climate change. The fundamentally new: There are "deadlines" for the solution to the climate issue, becoming an existential question of humanity.

World-wide, there is a movement of "climate justice" rapidly gaining more importance.

In relation to the tremendous dimension of challenge there is a relatively short window of opportunity of about the next 15 years to turn the trends and to keep the drastic world wide change of the foundations of human existence still controllable.

The solution to the climate issue has to be realized finally on all levels. A global solution therefore requires the inclusion of all countries. Developing countries can and will join only on the basis of equity and equality. Fairness in this sense puts the questions on the historical responsibility of the accumulation of greenhouse gases.

Central notions as "climate change" maybe should be sharpened: we are in front of a comprehensive **climate crisis for many decades**.

The most relevant elements of a political ecology¹ of climate change are:

From the beginning of industrialisation from the 19th century (in Britain from the end of the 18th century) there is **strong correlation and co-evolution** between

- ❖ The emergence of **capitalist mode of production**
- ❖ Colonialism, neo-colonialism, global **asymmetrical accumulation of capital** (and infrastructure "capital", "human resources", "social capital") and thus the huge planetary increase of disparities
- ❖ (Industrial) use of **fossil energy and CO₂-emissions** and other greenhouse gases, and thus the accumulation of greenhouse gases in the commons of the atmosphere
- ❖ Tremendous irreversible **loss of diversity** of species and ecosystems

We discuss the questions like:

¹ Unfortunately there is no combined notion of political economy and political ecology.

- ❖ Are the current crises 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?

Are we at a turning point for the North-South divide?

Almost common sense in science is: The latter mankind starts with effective mitigating the more there will be sacrifices.² The former we start we can minimize harm und increase positive effects.

So these „deadlines“ will create fundamental pressure for simultaneous global solutions. Obviously there is the necessity and **real possibility for simultaneous global solutions** by global redistribution and sustainable development beyond capitalism.

So ecological issues, and (global) distribution issues are now inextricably linked by necessities of climate change policy: It is generally roughly undisputed that the divide between developing and developed countries would be deepened by climate change by "costs" for impacts (vulnerability) and adaptation on the one hand

But developing countries hold trumps: the expected harms by climate change also will be absolutely so big for developed countries that it does hardly matter if they are relatively less than in developing countries.

This question **brings capitalist north's past back in an rather unexpected way**. For the first time after decades or centuries strong trump cards belong to the south in the central question of burden sharing costs of mitigation, harms and adaptations of climate change. There will be big and comprehensive solutions for many fundamental problems created by capitalism – or there will be no solutions.

A fair solution for costs of climate change mitigation and adaptation will bring the foundation for the development of the South to overcome the huge gaps now on the planet by reallocation of capital and know-how, implicating global convergence and cohesion.

But perhaps only after several attempts.

Burden sharing of climate change completely unsolved

The topical IPCC document states: “All sorts of climate change policies related to vulnerabilities, adaptation, and mitigation will have impacts on intra- and intergenerational equity. These equity impacts apply at the global, international, regional, national and sub-national levels. Article 3 of the UNFCCC (1992, sometimes referred to as ‘the equity article’) states that Parties should protect the climate system on the basis of equity and in accordance

² In the following the well-known Stern report is cited although there could be much criticism on methodology: “...the Review leads to a simple conclusion: the benefits of strong and early action far outweigh the economic costs of not acting. Climate change will affect the basic elements of life for people around the world – access to water, food production, health, and the environment. Hundreds of millions of people could suffer hunger, water shortages and coastal flooding as the world warms.

Using the results from formal economic models, the Review estimates that if we don't act, the overall costs and risks of climate change will be equivalent to losing at least 5% of global GDP each year, now and forever. If a wider range of risks and impacts is taken into account, the estimates of damage could rise to 20% of GDP or more. In contrast, the costs of action – reducing greenhouse gas emissions to avoid the worst impacts of climate change – can be limited to around 1% of global GDP each year.

The investment that takes place in the next 10-20 years will have a profound effect on the climate in the second half of this century and in the next. Our actions now and over the coming decades could create risks of major disruption to economic and social activity, on a scale similar to those associated with the great wars and the economic depression of the first half”. Stern Review. Summary and Conclusions p. vi

with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country parties should take the lead in combating climate change and the adverse effects thereof. Numerous approaches exist in the climate change discourse on how these principles can be implemented.”³

“Much of the political and philosophical debate is about which rights are valid in this context – a debate that shows little sign of resolution.”⁴

“...appealing to global economic efficiency is not enough to get countries together, due to the large disparities in current welfare and in welfare changes implied by efficient climate policies.”⁵

“Social welfare functions and other value functions, when applied to the assessment of the costs and benefits of global climate change policies, run into a number of crucial equity questions. These include issues that are related to the asymmetry between the concentration of major GHG emission sources in industrialized countries and the relatively large expected damages in developing countries, the treatment of individuals with different income levels in the social welfare function, and a number of inter-generational issues.”⁶

Historical Responsibility has a long agenda in the history of UNFCCC⁷.

Concepts like “global but differentiated responsibility” or “contracting and converging” are found in the documents of IPCC and UNFCCC since the beginning. The specifications in the Kyoto protocol also implicitly assume that the industrial countries shall go ahead in climate policy. In principle, there is a broad consent to statements that global climate politics will be possible only at fair solutions. However, the interpretation of fairness differs very far to states and various interests.

But there are at least some dozens of different concepts for equity and fairness in climate policy. E. g. the Bush administration advocates the principle of equal carbon intensity per unit of GDP, complying with the interests of strong lobbies in of the United States.

So almost all the details in the process of burden sharing are open and evidently these are the greatest hurdles for the start of an effective global climate policy or the after-Kyoto process at all.

Already currently very sensitive distributional impacts by prices of energy, transport and food

Just within the last months it has got obvious that the world is not only confronted with negotiation problems of diplomats or future problems. In most countries we see problems of inflation: The current increase in food and energy prices is a highly sensitively political question shaking severely many governments.

The current inflation can be seen as a global distribution conflict (over resources).

³ IPCC, 2007: Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [B. Metz, O.R. Davidson, P.R. Bosch, R. Dave, L.A. Meyer (eds)], Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA., p. 145f

⁴ IPCC, 2007: Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [B. Metz, O.R. Davidson, P.R. Bosch, R. Dave, L.A. Meyer (eds)], Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA., p. 145

⁵ IPCC, 2007: Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [B. Metz, O.R. Davidson, P.R. Bosch, R. Dave, L.A. Meyer (eds)], Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA., p. 146

⁶ IPCC, 2007: Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [B. Metz, O.R. Davidson, P.R. Bosch, R. Dave, L.A. Meyer (eds)], Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA., p. 146

⁷ Friman M.(2007): Historical Responsibility in the UNFCCC. Centre for climate and Policy Research

But this is only a weak harbinger because in respect to food till now still there is very low damage by climate change globally in comparison to expected developments.

The basis for this lies in the adhering of the enormous resource intensity and pollutant intensity of production and way of life in the industrial countries (to stress the increase of demand by emerging countries would be superficial). The absolutely non-sustainable modes of production and consumption together with intended measures against climate change like promoting production of agro-fuels trigger a rally of prices for energy, almost all kinds of raw materials and food when simultaneously global industrialization is emerging on a broad front. The increase of food prices especially hits poor people all over the world, particularly very strongly in such countries dependent on imports of food.

Maybe these problems will be relieved at good crops for some time but with high probability they will stay for the next years and decades,

Because the mitigation of climate change probably has to be centred in taxation of CO₂, there are strong impacts to all kinds of energy production and transport based on fossil energy.

Anyway it can be foreseen that **any further steps in climate policy - even if they aren't far-reaching - will considerably effect the price structure and with that the life situation of broadest parts of population** particularly in the developing countries. **This applies to a more comprehensive climate politics still much more.**

By that it is further underlined that concrete national, regional and global distribution concepts on a fair basis are needed to have appropriate approval in the global and national negotiating process for implementing and starting solutions. But it is also necessary to keep approval in shaping and managing the foreseeable fundamental distribution consequences of climate and resources policy, in a way that the process is neither descending in chaotic social tensions, nor is loosing support for a radical climate mitigation policy with the threat of stopping the sustainable path.

At least "regressive" impacts⁸ within the framework of existing instruments should be weakened, but better is triggering progressive distributional effects.

The distributional problems by climate change are set worldwide, but also on all other levels.

The international negotiations are focussed on the distribution between countries. This is determined by the structure of institutions. But if there will be any substantial results in burden sharing anyway then eventually this could result in transfers from the more poor in the industrialized countries to the more rich in the developing countries. So not only the level of distribution between states has to be seen but also the comprehensive global (personal) distribution.

The basic approach

Historical development of 5 factors in parallel and reciprocal interaction approximately since the beginning of the 19th century; these could be defined as 5 key elements of a political ecology.

⁸ „Any policy to curb emissions – will raise prices of fossil fuels, and have a regressive impact on income distribution, since fuel expenditures represent a larger fraction of income for lower-income household than for upper-income households.“
Boyce, J.K.; Riddle M. (2007): Cap and Dividend: How to Curb Global Warming While Protecting the Incomes of American Families, Political Economy Research Institute, University of Massachusetts Amherst, Working Paper Series Number 150

We begin along a “trinity of 3 Cs”: "Coal, Capitalism, Colonies" :

„Without the dual boons of coal and colonies, Britain would have an economical impasse with no apparent internal solution.”⁹ “Before Synthetic fertilizer, synthetic fibers, and the cheap mineral energy that makes synthetics economical, there were limits on the ability of labor and capital to substitute for land... Trade helped, as we will see, but it could not solve these problems.”¹⁰

We see a breakthrough of the capitalist mode of production in a particular constellation of protoindustrialization (in England) by transition to fossil fuels:

- demand on markets
- Capital accumulation has to significant dimension
- use of overseas resources
- developments in agriculture
- labour supply/restrictions - demographics
- Ecological situation by over-exploitation (e. g. deforestation)
- Geography (reserves) and transportation (opportunities)
- Fossil Energy nearby

So a multiplication of "productivity" was possible (in relation to capital or labour)

(Global) industrialization partly has been proceeding **with exponential processes**

[I will show the similar graphs in the presentation:]

A. "Social metabolism"

- ❖ raw material (commodities, land use) - Input from nature
By that impairment of diverse ecosystems
- ❖ • emissions - "output" to nature from production and consumption- By that impairment of diverse ecosystems - accumulation

The emerging intensification of the "social metabolism" since the Industrial Revolution does not regard only to CO₂, it applies to a great variety of substances. Some of them reached also some sensitive thresholds. Global significance in the 1980ies got the ozone hole – caused by certain chemical substances.

B. Distributional asymmetries

Colonization, colonialism, neo-colonialism - unequal exchange

Global asymmetrical accumulation of

- ❖ capital,
- ❖ infrastructure (capital),
- ❖ "human resources",
- ❖ "social capital",

with corresponding asymmetrical material implications (raw material consumption and emissions); the accumulation of greenhouse gases corresponds to global asymmetrical accumulation of capital

⁹ Pomeranz, Kenneth (2000): The Great Divergence: China, Europe, and the Making of the Modern World Economy. Princeton. Princeton University Press, 2000, p. 218

¹⁰ Pomeranz, Kenneth (2000): The Great Divergence: China, Europe, and the Making of the Modern World Economy. Princeton. Princeton University Press, 2000, p. 211

High distributional disparities on different levels (“World income inequality worsened dramatically over the past two centuries.”¹¹ „Inequality of world distribution of income worsened from the beginning of the 19th century to World War II and after that seems to have stabilized or to have grown more slowly. In the early 19th century most inequality was due to differences within countries; later, it was due to differences between countries.“¹²

C. Tremendous irreversible **loss of diversity** of species and ecosystems (minus 50 % at + 3,6 ° Celsius) and thus unconceivable losses of resources and safety for future generations¹³.

Key points:

Variety of options enables more capability for adaptability

(drastic) decrease of biodiversity with the beginning of industrialization

(here neglected)

D. Concentration (**oligopolisation**, monopolization) und centralization of capital, inherent to “free markets”, counterpart to concentration of to political decision making and de-democratization

See increasing proportion of large corporations in controlling world production

But ambivalently: shows also socialization of production

(here neglected)

E **Arms build-up** with the real risk of devastation of earth -

in connection with protection for colonial processes and later for costs for weapons of mass destruction (here neglected)

Current situation: Increase in the RATE of increase (!) of greenhouse gas emissions is not surprising

Global mega-trends of the social-ecological development, particularly distinctive within the years since 2000:

Acceleration of industrialization on a global scale - big emerging countries "- but **this is not surprising**:

A. Intensification of the social metabolism on all continents:

* **Growth** of productive consumption **for various raw materials** (e. g. metals), inclusively fossil fuels

***Increase in the rate of increase (!) of greenhouse gas emissions**

An example of a particular resource and emitting sector:

development of world steel production as example for

global industrialization with some exponentially growing processes

(China's steel production per capita is despite tremendous dimension reached in the last years (still) around one third of Japan or Austria)

¹¹ Bourguignon, F., Morrisson, C. (1999): Inequality among World Citizens, 1820 – 1990. American Economic Review (September 2002): pp. 742

¹² Bourguignon, F., Morrisson, C. (1999): Inequality among World Citizens, 1820 – 1990. American Economic Review (September 2002): p. 727

¹³ See IPCC

B. Complicated development of the global **patterns of disparity** of income, according to different the intra- and interregional effects. (Global convergence and divergence effects at high level total gaps)

C. Further accelerating of declining biodiversity

D. Further oligopolisation, especially in energy and commodities

E. Continuing high level of armament with high risks

Industrialization on a global scale with big emerging countries **is not surprising**, but what is **surprising is rather that current global industrialization of developing countries seems to have been surprising to many organizations** such as the OECD, IEA, IMF and World Bank.

Although commodity prices soaring in recent years (food, metals, energy) – have been rather stable over decades (with fluctuations, – and with a particular development at oil and gas) the corresponding implications now seen in

- commodity demand,
- price increases and
- emission consequences

obviously were not considered in serious scenarios, and so global concepts and contingent preparations have not been made. On the contrary, e. g. in the wake of deregulation food stocks camps were dismantled.

Concept of a (multidimensional) matrix of distribution by climate change (policy)

Dimensions:

Spatial distribution

- ❖ Global
- ❖ Continental
- ❖ National
- ❖ Regional
- ❖ Local

Distribution along strata (or classes)
operationalized along income

Distribution along gender

Historical Dimension – integration of historical responsibility (and foreseeable development)

all for:

- ❖ *Mitigation*
- ❖ *Adaptation*
- ❖ *Vulnerability-Impacts-Risk*

Socially differentiated emissions per capita¹⁴

We see an empiric correlation of stratification along income strata, classes and gender, so we meet differentiated emissions per capita resp. differently affected impacts of climate change. Some highlights on the differentiated emissions per capita within a country:

Some examples:

- Systematic statistics for households in Austria hold for a very differentiated extent in using cars dependent on income: the 40 km per household a working day in the second quartile (income) doubles the first (20 km), the third shows some 53 km, and in the upper quartile we see 80 km, the 4-fold of the first quartile¹⁵. If we assume proportionate emissions along the daily way by car, and if we consider that the emissions of traffic are the most dynamic part of climate relevant gases, we see very different contributions to emissions dependent on income.

Evidence of differentiated emissions/consumption of the traffic services a day for Austria¹⁶:

4 quartiles (income):

1st: 20 km

2nd: 40 km

3rd: 53 km

4th: 80 km

- The consumption of the traffic services is differentiated to social classes also in the historical development. For the year 1912 the traffic budget for Swiss regions was analysed for different incomes. The share of the traffic budget approximately was similar in all income classes: about 2% (the smallest incomes with 1,8%). According to the high income dispersion - lowest income class reaches 1,000 Swiss francs yearly income, the highest class 10,000 to 20,000 - the similar relative share of the traffic budget in the various classes of income implicates absolutely very differently amounts (18 Swiss francs in the lowest income class, 400 in the highest income class)¹⁷
- "...middle and higher income consumers are often more easily able to make lifestyle adjustment to meet these requirements than are poorer consumers"¹⁸
- Women cause less emissions in transport.¹⁹
- The extent of worldwide inequality widens once again dramatically when men of different income are compared: an average US citizens emits 540 CO₂ times more than citizens in Ethiopia, Burundi, Afghanistan and similar countries. If US- millionaires are compared to the mass of poor people in these countries the relation becomes 1: 10.000 or 100.000²⁰

¹⁴ Baum J. (2007): Pareto-optimal Sinking in the Climate Change or Redistribution – The “Brazil Proposal” and Equity Concepts for Sharing the Burden of Mitigation Activities on Climate. European conference of ecological economists 2007

¹⁵ Steininger K., Gobiet W. (2005): Technologien und Wirkungen von Pkw-Road Pricing im Vergleich, Wegener Center Graz, Bericht 1/2005, p 20f

¹⁶ Steininger K., Gobiet W. (2005): Technologien und Wirkungen von Pkw-Road Pricing im Vergleich, Wegener Center Graz, Bericht 1/2005, p 20f

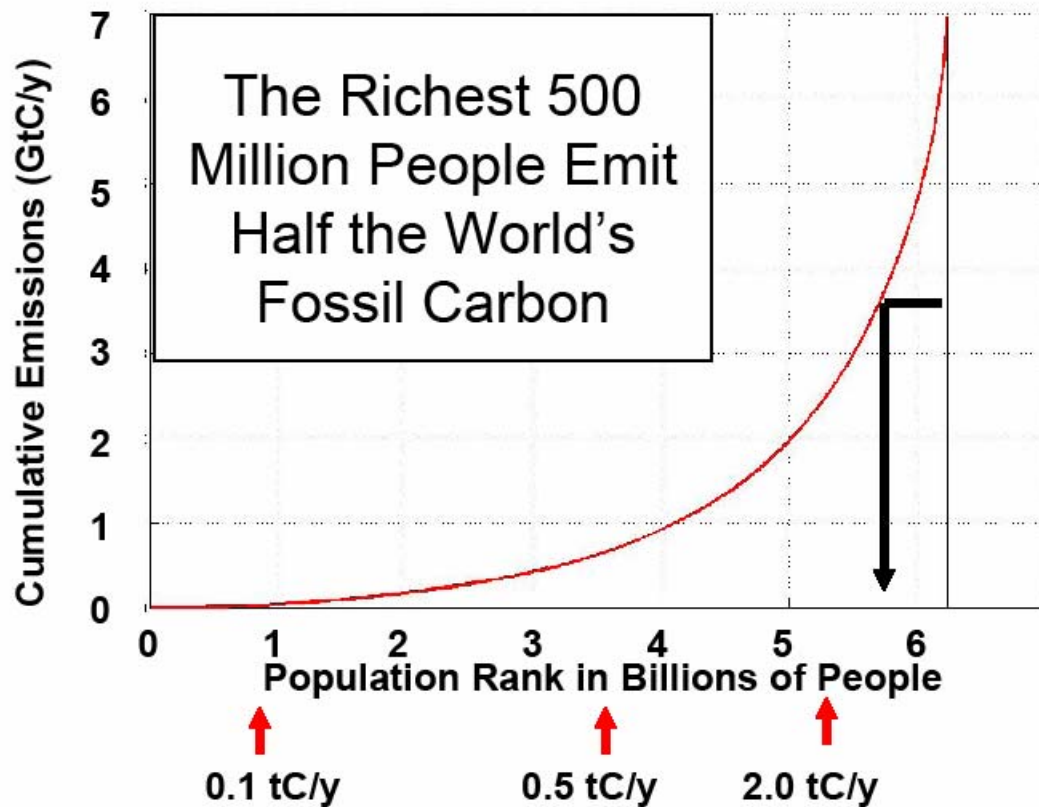
¹⁷ Frey T., Schiedt H.-U. (2005): Wie viel Arbeitszeit kostet die Freizeitmobilität? – Monetäre Reisekosten in der Schweiz 1950-1910, In Gilomen H.-J., Schumacher B., Tissot L. (Hg.): Freizeit und Vergnügen vom 14. bis zum 20. Jahrhundert, Chronos, p 159

¹⁸ O'Brien K., Leichenko R. (2006): Climate Change, Equity and Human Security. Die Erde 137 2006 (3), p 170

¹⁹ VCÖ (7.3.2007): Frauen sind klimafreundlicher mobil als Männer! Vienna

²⁰ Roberts J. T., Parks B. C. (2007): A climate of injustice: global inequality and climate change – vulnerability; responsibility and action. MIT Press. P 146-8; 284

These highlights give some hints that a worldwide CO₂ reduction programme is confronted with complex intertwined equity issues. And we can see this on the global level:



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>

Calculations show high amounts of redistribution

Gruebler-Nakicenovic²¹ presented one of the first scenarios with different emission allocation rules (reductive and distributive aspects). 13 regions of the world by 2050 were regarded with the focus on the principle of "Equal emission right person".

Anyway these calculations and also the following similar ones showed very high amounts of redistribution along the principle of equal emission right for each person.

Calculations are also possible on the global personal level. See e.g. Baer along world regions und quintiles of income within the regions: The upper two quintiles in the USA would have a need for redistribution of some 144 billion \$.²²

²¹ Gruebler A, Nakicenovic (1994): International Burden Sharing in Greenhouse Gas Reduction, IIASA, 1994

Boyce-Riddle²³ calculated for US deciles of households budgetary expenditure on food, services, electricity, fuel, other modes of transport and industrial goods, and corresponding CO₂ emissions per capita for the year 2003. A limit to the total emission (“Cap”) is defined, and this limit can be gradually reduced according to climate goals. On the other side CO₂ taxes are levied, which will be collected at producers (as the production is concentrated, it is an effective approach). The revenue is to be placed in a fund "Sky Trust". Equal rights implicate per capita emissions. Those that are under the threshold emission limit receive net disbursements. The results are net monetary benefits for the first six deciles, with by far the greatest benefit to the bottom decile.

The basic scheme (the emission limitation, the egalitarian distribution of the burden, and the monetary transfer to the low emitters) of this allocation of resources can be achieved at different levels from the regional to a global level.

“Climate change is the greatest market failure the world has ever seen.” (Stern Report)

To converge to the level of 550 ppm CO₂(equivalent) in the atmosphere at the end of the century European countries would have to get at least roughly 80 % below the actual level²⁴ “For a 50% reduction in global emissions by 2050, the world average per capita must drop from seven tonnes to two or three. Within these global targets, even a minimal view of equity demands that the rich countries' reductions should be at least 80% - either made directly or purchased. An 80% target for rich countries would bring equality of only the flow of current emissions - around the two to three tonnes per capita level. In fact, they will have consumed the big majority of the available space in the atmosphere.”²⁵

The former chief economist of the world bank and Senior Vice-President of the World Bank Nicolas Stern delivered not only such remarkable fundamental remarks but also constructed in new defence line for capitalism: “Climate change is the greatest market failure the world has ever seen,” is a result which still probably will become more popular. Admitting this tremendous “failure” threatening the existence of mankind then the conclusion for more further “market” (some euphemism for capitalism) solutions seems to be not logical. And why should it work then?

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

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.

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

²² Baer, P. (2006): Adaptation: Who pays whom? In: Adger W.N., J. Paavola, S. Hug and M. J. Mace (eds.) (2006): Fairness in Adaptation to Climate Change. – Cambridge, Mass, p. 148

²³ Boyce, J.K.; Riddle M. (2007): Cap and Dividend: How to Curb Global Warming While Protecting the Incomes of American Families, Political Economy Research Institute, University of Massachusetts Amherst, Working Paper Series Number 150

²⁴ Stern Review p xi (Global peak around 2020 and then global annual reduction rate of 1-2%)

²⁵ Stern Nicholas: Bali – now the rich must pay, December 11, 2007

<http://www.chinadialogue.net/homepage/show/single/en/1559-Bali-now-the-rich-must-pay>

Profit rate devalues future

The “present value” defined in cost-benefit-analyses is defined by

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

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

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

The extension of discount rates in neoclassical terms is derived from “market”²⁶, and is usually assumed in practical terms in cost-benefit analyses 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. - The interest rate mechanism is operating.

Therefore huge future harms in fifty or hundred years caused by climate change evaluated by a discount/profit rate are near to zero and therefore mitigation would not be worthwhile – so was the result of dozens of studies and articles. Within a short-sighted profit mechanisms the solving of the climate problem so is difficult.

Future in general or the basis of life for future generations almost completely is devalued (e. g. see the calculations of Nordhaus on climate change).

So discounting is one of the most central determinant of intergenerational distribution and sustainable development.

Must the “profit rate” vanish for the rescue of the basic environment of mankind in climate change?

Criticism of the Stern Report (actually methodically vulnerable for other reasons) from mainstream economics stress alleged low discount rates: So in the Stern Report future damage would be evaluated much too high and inadequate too high dimensioned climate policy would be provoked (Nordhaus²⁷)

So could it be inferred in a different sense that sustainable development is possible when the decisions on investments are no longer dependent on the profit rate, or the profit rate/discount rate converges to zero?

Climate change as biggest “failure” of mainstream economics?

Besides, how responsible is mainstream economics for the “greatest market failure”?

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

Profit in mainstream economics often is a premium for risk to put capital available. Now in some dialectical turn the profit mechanism and the capital accumulation brought back the risk by the CO₂ accumulation in the atmosphere - and increased the global risk to the largest extent for civilization.

²⁶ Spash, C.L. (2002): Greenhouse Economics. Routledge, p. 204

²⁷ Nordhaus, William: Critical Assumptions in the Stern Review on climate Change. SCIENCE Vol. 317, 13 July 2007

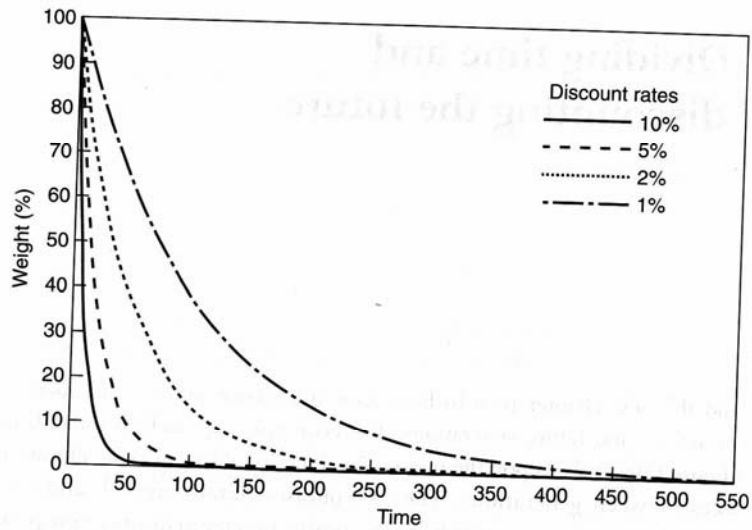


Figure 8.1 Reducing the weight of future events

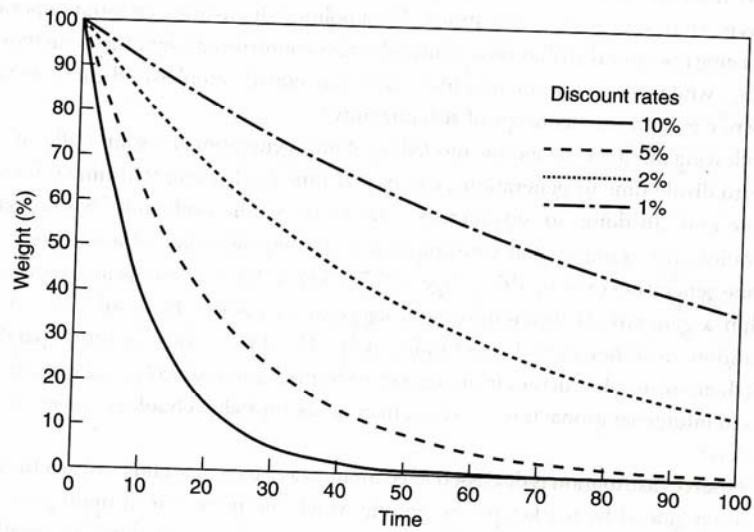


Figure 8.2 Weighting for 100 years of discounting

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)

“New territory” hardly will remain capitalism up to now

Non-linear, rather sudden developments, which could lead to fast disasters, are hardly taken into account in general climate models (because it is very difficult to handle it) but the probabilities for them are getting significant. 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.

Historically - see 5 factors of climate crisis - CO₂ accumulation in the atmosphere by the long term capital accumulation generally is

= privatization of the atmosphere

= privatization of the global commons

= expropriation of the environmental space

A recent study by the Dag Hammarskjöld Foundation in Uppsala²⁸, for instance, strongly gives evidence for failing of “market- based” attempts to solve global warming, such as emission rights trading. It pleads instead for locally-based, climate-friendly, more or less planned economies.

Anyway “new territory” (IPCC, Stern-Report) for mankind will be entered by climate change. Although capitalism was very flexible in history capitalism up to now seems to be lost in the old territory.

²⁸ Lohmann L. et al. (2006) Carbon Trading: A critical conversation on climate change, privatisation and power, development dialogue, no. 48, September

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