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Which crisis next to the financial crisis: energy, food, climate crisis? And will capitalism survive all this?

Abstract:

Three main areas of potentials of crisis of global capitalism are identified in a broader socio-ecological context:

*The physical **input side** of production (energy, materials) – most known is the energy crisis*

*The physical **output side** of production towards environment: besides goods we see “waste”, emissions, and more general: „external effects”*

***Profit maximization** and production of surplus value as the central engine of capitalism. Now in the financial crisis we see the consequences of the implicit tendency to speculation.*

*When the “**invisible hand**” – as we see now in the financial crisis - is not able to target the financial profit aims although “profit” is the core “language” of the mechanism of profit maximization, how could it target – in quite different “languages” - quite different parameters of physical aims of providing (renewable) energy and securing the basic energy needs of billions? How could it target physical aims of circular economy? And how could it target physical aims of reducing greenhouse gases?*

*It is argued that on the output/emission side we will see the most severe problems. The **climate crisis is the most crucial point**. The implications of accumulation of greenhouse gases parallel to accumulation of capital are most fundamental causing probably **the most heavy challenges for mankind in history till now**: The impacts of climate crisis to come will tackle us probably for some decades. If deadlines (!) would be missed irreversible processes would question the basics of existence of humankind. It is a comfortable message: “Climate change is the greatest market failure the world has ever seen”. **Anyway capitalism will probably suffer fundamental transformations.***

Keywords: ~~financial crisis, climate crisis, energy, sustainability~~

Long version:

The current financial crisis and the world economic crisis could be discussed in a broader socio-ecological context together with other elements of potential future crisis embracing the ecosystems.

Three main areas of potentials of crisis of global capitalism

The toughness of the current financial crisis and world economic crisis is characterized by the synchronization caused by the new stage of globalisation and the fast transmitting processes

since its begin. Furthermore we saw a remarkable rapid twist from a world of inflation to a world of deflationary tendencies, but another turn around is not excluded.

We can explain commodity prices soaring in recent years (food, metals, energy) and inflation generally as global distribution conflicts on resources and commodities increased by speculation.

The background is western countries keep on a non-sustainable mode of production and consumption with very high resource and pollutant intensity while global industrialization is emerging on a broad front. Additionally impacts of promoting agro-fuels triggered a rally of prices for energy and food. But almost all kinds of raw materials became more expensive simultaneously. So we could suppose that – if the financial crisis would not have happened – there could have emerged very serious problems on the input side in supplying energy and raw materials.

Oil prices were under pressure by supply and demand factors, but till now not yet influenced from emission side and mitigation strategies of climate policy. It should be kept in mind that more than 1.5 billion men are still without electricity – but here we do not focus on the energy input problem.

Here we want to see the current financial crisis and world economic crisis in a broader socio-ecological context together with other elements of future crisis embracing the physical flows. We basically see **three main areas of potentials of crisis of global capitalism**:

- The physical **input side** of production (energy, materials) – most known as the energy crisis
- The physical **output side** of production into the environment: besides goods there are “waste”, emissions, and more general: „external effects“. The implications of accumulation of greenhouse gases parallel to accumulation of capital are most fundamental
- **Profit maximization** and production of surplus value as the central engine of capitalism.

Greenspan: “The whole intellectual edifice...collapsed”

Nobody will maintain that high wages, a wave of class struggles, climate policy or a systemic fight against a global alternative system caused the topical crash of capitalism. It emerged from the specific contradictions of the capitalist mode of production coming out of the most fundamental mechanism of profit maximization.

It was not an exaggeration or an aberration or obstruction of profit maximization. The basic rationales of profit maximization were working, and their full implementation led to

- The distortion and manipulating of markets and prices by market power and other domination features
- The tendency to speculation
- Self-enforcing processes of destabilization

Do you remember the admired dogma of **“efficiency of capital markets”**? In the financial crisis it collapsed like many other dogmas with dramatic consequences to millions of people. Now in the financial crisis we see the consequences of the implicit tendency to speculation.

When Alan Greenspan noticed about the central tenets of neoliberalism: “The whole intellectual edifice...collapsed in the summer of last year,” we could imagine the pope who informs that he was wrong in the existence of god.¹

Can there be a multifunctional “invisible hand” ?

But here we will turn to a broader socio-ecological view: The bankrupt dogma of the “efficiency of capital markets” raises the questions what about the “invisible hand” of Adam Smith on the input side of production (energy, materials) and the output side/emission into the environment.

The dimension of the general profit target and the parameters of the financial sector at least are identical and it did not work in this “simple” area. The parameters of securing the basic energy needs for billions of people are more complicated, they at first are not measured in money. Anyway they are more complicated. There are no – direct - physical targets within a capitalist market system. Why should the profit mechanism provide long run security in energy for all the mankind? This applies for all other resources on the input side.

On the output /emission side we see even more severe problems, probably the heaviest challenges for mankind in history till now: The climate crisis is the most crucial point. The impacts of climate crisis to come will tackle us probably for some decades. The implications of accumulation of greenhouse gases parallel to accumulation of capital are most fundamental causing probably the heaviest challenges for mankind in history till now: If deadlines (!) would be missed irreversible processes would question the basics of existence of mankind.

When the “invisible hand” is not able to target the financial profit aims although “profit” is the core “language” of the mechanism of profit maximization, how could it target – in quite different “languages” – still much more different parameters of physical aims on the emission side to prevent irreversible impacts on ecosystems. How could it target physical aims of reducing greenhouse gases in the necessary relatively short period?

The profit rate is a one-dimensional optimisation in the interest of shareholders. It is short sighted and territorially restricted: It would be very marvellous when this steering mechanism as an “invisible hand” could yield optimal results in various dimensions, in the long run, globally and in a fair distribution with future generations.

A basic scheme of not-sustainable capitalism: goods and “bads”

¹ “Alan Greenspan’s testimony today before the House Committee on Oversight and Government Reform is likely to be quoted for years. Is there anyone in Washington with a better instinct for the jugular than Henry Waxman, the committee chairman, whose questioning evoked some of Greenspan’s most evocative comments? Greenspan: I made a mistake in presuming that the self-interests of organizations, specifically banks and others, were such as that they were best capable of protecting their own shareholders and their equity in the firms... Waxman: In other words, you found that your view of the world, your ideology, was not right, it was not working.

Greenspan: Absolutely, precisely. You know, that’s precisely the reason I was shocked, because I have been going for 40 years or more with very considerable evidence that it was working exceptionally well. At another point, Greenspan said that his faith in Wall Street’s ability to regulate itself was based on his assumption that rational firms would not expose themselves to self-destructive risks. He also assumed that the markets would “properly price” risky bundles of subprime mortgages, so that investors worldwide would understand that they presented unusual risks. He continued, ‘The whole intellectual edifice...collapsed in the summer of last year.’” The New Yorker October 23, 2008

<http://www.newyorker.com/online/blogs/stevecoll/2008/10/the-whole-intel.html>

Diagram 1 shows a stylised production and consumption process: the inputs – simplified – are energy and (processed) material finally coming from nature, then labour; together with capital there are produced goods: investment (and intermediary) goods on the one side and consumption goods on the other side. Furthermore from the production and consumption process “waste”, emissions (to different media of water, soil and air) – more or less “bads” with various „external effects” are coming back to nature (recycling is neglected here). This is the core of “social metabolism”.

The driving factor within capitalist mode of production is profit maximization by production of surplus value resp. the accumulation of capital.

“Waste”, emissions, the “bads” cause „external effects” which generally cannot be valued well in their mid and long term effects in complex regional and global ecosystems, especially when there are new qualities and new quantities. There can be also existential threatening within a short period like the ozone depletion. In a case like ozone depletion when the causal mechanism is relatively simple and not central for production, solutions seem to be relatively feasible. But they are very difficult when there a complex causes and when these causes are central for existing modes of production. This relates to the decrease on diversity of ecosystems and to climate change². But there are still other potential general negative effects on ecosystems, e. g. currently not known long term effects of thousands of chemicals.

This in other words is the old Marxian story of the fundamental contradiction of capitalism: We see **social(ized) production, but private appropriation** (of surplus) **supplemented by the eco-social issue of social(ized) harm.**

The perspective: circular economy and solar orientation

As it can be seen in the graphics the “simple” solution of the first and second field of problems, the potential scarcity on input side of production (energy, materials) output/emission side of production into the environment would be circular economy. The “bads” would become goods. The emptying of resources on the one side and the accumulation of emissions on the other can be resolved in a loop; not perfectly because of “frictions”, but in approximation. To be more precise: it will be a **solar and circular economy.**

² The story of decreasing diversity of ecosystems is a very big one, but is not dealt with here

Stylised physical flows, surplus production and potentials of crisis in a not-sustainable capitalism

Diagram 1

Social(ized) production – private appropriation - social(ized) harm

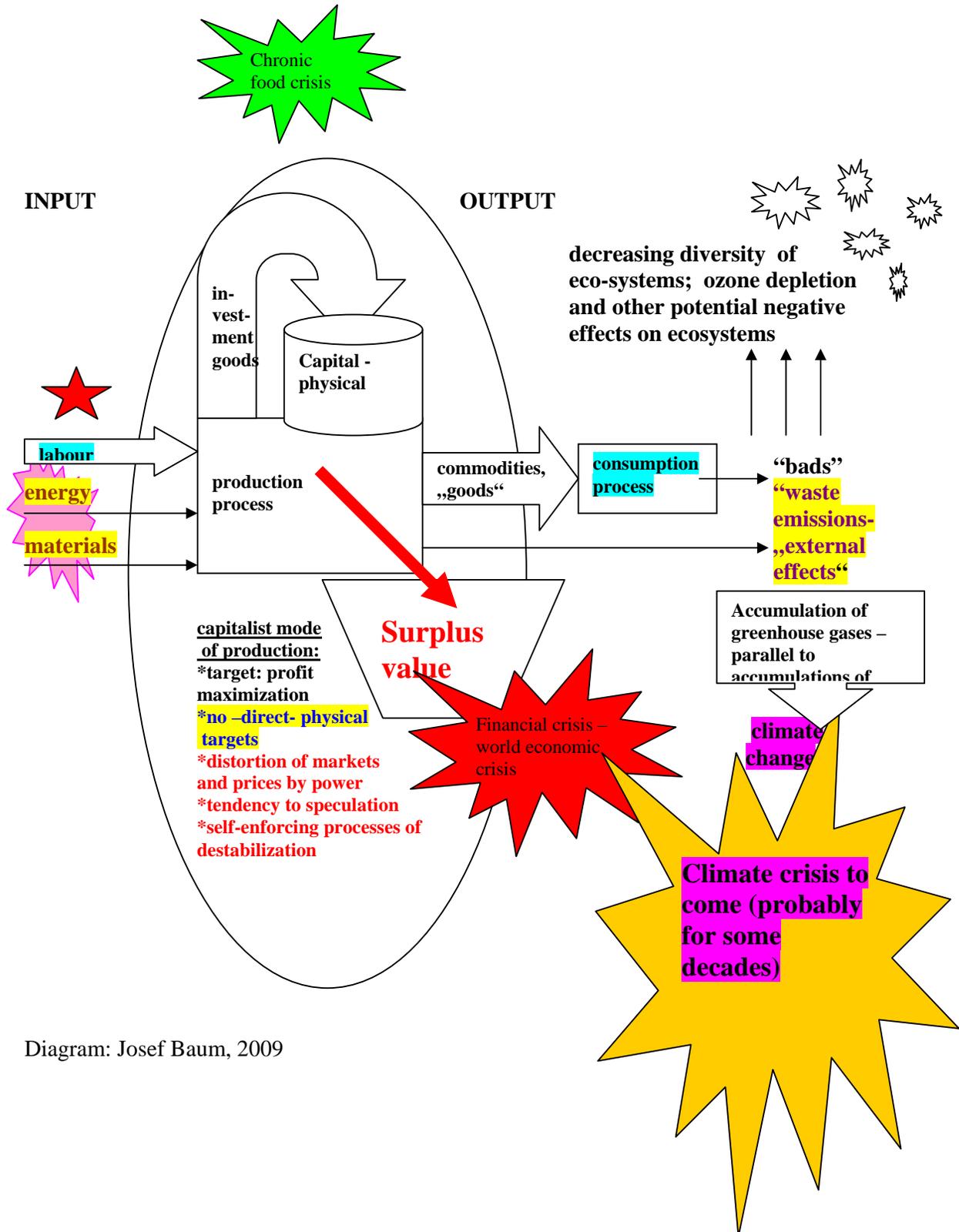


Diagram: Josef Baum, 2009

Will substitution and innovation work?

Mainstream economists would acknowledge that resources are finite but they say: when the stock of resources is decreasing to zero there will be **substitution and innovation** induced by the price system and its signals, again triggered by the marvellous “invisible hand”. And again the premises of perfect competition are assumed quickly for reality. But in reality we have lock-in processes of powerful corporations, which want to defend their domination. They want to exploit their specific investment e.g. in technologies in fossil energies for a maximal period. They do not want to be undermined by the potentials of renewable energy, which is organized more decentralized. When markets are distorted by power the signals are misleading, and the assumed transformation does not work.

Mainstream economics at best refers to “**weak sustainability**”, which stipulates that any harm can be compensated by some kind of substitution. In contrast, “strong sustainability” of ecological economics sees irreversible losses.

Mainstream economics says deficiencies of markets can be balanced by **competition policy**. But the practise of competition policy almost all over the world shows that excess defects are tackled but the general power of oligopolies is not cut. Although competition policy would have some instruments the factual and real power of oligopolies is setting the framework. And on the global level competition policy does not exist; and on the national level competition policy (together with industrial policy) often forges oligopolies (national champions). So these alleged affects of substitution and innovation are not provided.

But the principles of competition policy are to be questioned anyway: Why only competition should be the positive driving force? Why “cooperation” is suspicious anyway and denounced (collusion, cartel)?

Why the profit mechanism tends to be short-sighted

An important feature of the profit rate mechanism is that the profit rate devalues future.³ It is the well-known **effect of compound interest**. It works in usual project calculations and also when general economic and social effects were considered in cost-benefit-analyses. Via discount rates future values in cost-benefit-analyses are transformed to present values: Discount rates are essential for evaluating future harms (or positive effects). The extension of discount rates in neoclassical terms is derived from “market”⁴, and is usually assumed in practical terms in cost-benefit analyses as high as the average profit rates of about 5-6%. Discount rates (profit rates, interest 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. 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 – this is the result of dozens of studies and articles. Therefore: **Within a short-sighted profit mechanisms the solving of the climate problem is difficult** and the short run perspective of the profit mechanism generates false stimulus. So also usually the expenditures of research and development are seen short-sighted.

³ Josef Baum, Elements of political economy and political ecology of climate change – Distribution and climate change – principles for global solutions. Third Forum of the World Association for Political Economy (WAPE) May 24-25, 2008, Langfang

⁴ Spash, C.L. (2002): Greenhouse Economics. Routledge, p. 204

Anyway discounting is one of the most central determinants of intergenerational distribution and sustainable development. Must the “profit rate” vanish for the rescue of the basic environment of humankind in climate change?

The problem is aggravated by implicitly accelerating the dynamics of G-W-G'. (Money-Commodity-Money')

The protracted starving – food crisis

The global **food crisis** is protracted. This crisis is a special one. It is connected with the speculation issues and it is connected with the energy crisis because of the increase of agro fuels. But the global food crisis is definitely not caused by absolutely restricted availability (the Malthusian case). Although the world could still feed more billions of people we obviously have a severe **problem of distribution**. The global food crisis is – as it is well-known – chronically since long:

- 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

The chronic food crisis - the protracted starving of millions of adults and children – is not at special place in diagram 1 because the food crisis is very special (In diagram 1 the focus is not on labour and reproduction and food is specific in reproduction).

The situation has worsened in the price rally of commodities till 2008. We have to state explicitly that there were no big crop failures (no significant deviations from average); and we currently see very low climate change effects - in contrast to expected developments. Although prices currently have fallen again the problems stay on a higher level because of the impacts of disruptions. - The increase of food prices especially hits poor people all over the world, particularly very strongly in such countries dependent on imports of food. They are hit additionally to the chronic situation. Maybe these problems will be relieved by large harvests ? for some time but with high probability they will stay for the next years and decades.

By the logic of profit maximization on capitalist markets at an asymmetric distribution of power and together with high inequality hundreds of millions of people are driven to hunger and millions are driven to death. The defenders of capitalist markets say food is business as usual and warrant “agribusiness” in all forms of the supply chain. But food is no usual business and you will recognize this if simply you lack it.

Last but not least: In comparison to the sums for bailout banks the expenses for a basic solution of the food questions are minimal.

In combination with effects of the current financial crisis and world economic crisis the global food crisis could lead to hunger revolts like in 2007 and 2008 in some third world countries.

An uncomfortable message: the rebound effect

Since Jevons in the 19th century the rebound effect is known. It was seen at first with coal: more efficiency did not decrease the volume of input but on the contrary it can be a stimulus for a dynamic increase of "more of the same". For example: we have more efficient TV sets, but we use three instead of one. We have more efficient cars, but they are bigger and we drive more km.

Increasing energy efficiency for certain energy services lowers the cost per unit of energy service, so a higher level of energy supply is consumed, depending on the elasticity of demand. Generally: Better material efficiency and better energy efficiency is a necessary but no sufficient condition to solve ecological issues. More generally: technological progress is not a panacea. This is a hard blow to the mainstream recipes of more market and technology to tackle climate crisis

We see direct rebound effects on the same input stuff; and indirect rebound effects when by saving by more efficiency more consumption of other products is triggered. And we see dynamic macroeconomic effects: increased energy efficiency leads to expansion of production by the entry of "marginal consumers".

An uncomfortable message: Non-linear developments are possible

We do not need doomsday scenarios but a realistic reasoning for the necessity of a fundamental transition.

Climate change processes have accelerated in the last years even outperforming the worst case scenarios of the IPCC.

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 becoming 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.

By crisis towards “green capitalism”?

Crisis was a companion of capitalist development since ever. Exceptions were e. g. the last twenty five years in the core capitalist countries. Other regions and former generations know capitalism much more as crisis-prone.

In a crisis the position of capital towards labour usually is used to restrict wages. And by crisis the accumulation has been reoriented but also – ex post - consolidated in the long run.

It could be a realistic strategy to reorient towards energy efficiency and generally sustainability. The result could be some **“green capitalism”**. Stakeholders of traditional capitalism having caused much of the troubles will try to use new possibilities and to make further profits. But the described inconsistencies within capitalist basics based on non-systemic optimisation will still exist, and it is hardly conceivable that this would work generally. On the contrary: It is supposed that it will be seen that there will be too less and marginal change, capitalist restrictions will prevent thorough successes, and a fundamental turn has to be made to secure human existence. Environmental goals will be used for pressing on wages. Big solutions will fail in unfair global and national distribution. But on the other hand: because of the deadlines in global climate policy it is necessary to begin with relevant measures mitigating climate change as soon as possible anyway.

A comfortable message: “Climate change is the greatest market failure the world has ever seen”

it was written in the famous report of former chief economist of the World Bank and Senior Vice-President of the World Bank Nicolas Stern (Stern Review 2006 p viii). His main message: the sooner the “cheaper” are measures of climate policy and the less the harms. His report delivered not only such remarkable fundamental remarks and highlighting the problem but also constructed a new defence line for capitalism which can be used for distribution conflicts in climate policy. His conclusions for more “market” (some synonym for capitalism) solutions does not seem to be logical since these recipes (CO2 trading, etc.) did hardly work till now. And why should it work then?

But this is a positive message: (Accelerated) climate change is “man made”, more precisely “made by capitalism”. Climate change and climate crisis are socio-ecological problems. This view differs from “naturalistic” views, which state that natural processes determine social processes, and that “man” destroys nature since the Stone Age (see theories, which make absolute the social metabolism). Because of neglecting power and other socio-economic and socio-ecological processes “naturalistic” views would mean much less possibilities for interventions on the one hand and are more compatible with “green capitalism”.

From 3 Cs to 5 Cs

Historical development of factors approximately a “trinity of 3 Cs - Coal, Capitalism, Colonies” has driven the development since the beginning of the 19th century in mutual interaction and with positive feedback. By climate change and crisis the trinity could be enlarged by two more Cs.

The most relevant elements of a political ecology⁵ of climate change are:
From the beginning of industrialisation at the 19th 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

In such an historical view CO2 accumulation in the atmosphere by long term capital accumulation generally can be seen as

- privatization of the atmosphere
- privatization of the global commons
- expropriation of the environmental space

Climate change as greatest “failure” of mainstream economics?

⁵ Josef Baum, Elements of political economy and political ecology of climate change – Distribution and climate change – principles for global solutions. Third Forum of the World Association for Political Economy (WAPE) May 24-25, 2008, Langfang

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 greatest "market failure" has been involved essentially

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.

How to handle externalisation?

A central issue in the criticism of mainstream economics and constructing a political ecology is the handling of **externalisation** of social costs. Because the higher the potential for externalisation the higher will be the profits, there is a positive feedback of profits and harm, an adverse steering mechanism. Especially environmental costs are transferred to other social groups, countries, future generations and the commons. This gigantic redistribution of wealth functions along different levels of power of the players⁶. Who has the power to shift “costs” or harms to others, which could not resist? The process additionally is complicated by the possible time shift of the effects. Therefore the solution of the environmental problems is very complex and adequate complex tools are necessary

Trickle down or fundamental transformation?

The well-known “**trickle down**”- theories claim that poverty can be overcome when the rich first still become richer. The “Kuznets-curve” (in the first stage of development more inequality then after industrialisation less) is alleged therefore, but the empirical results are very controversial. Anyway the last two years have shaken these theories pushed by IMF and others severely.

Up to now capitalism could not manage a fair distribution even within developed industrialized countries. How should this be possible worldwide? And even more: How should it be possible for the next generations?

In climate policy we have a tremendous time gap between measures and their effects: currently we see the effects of the emissions of some thirty years before. This time gap contradicts totally with the short-sighted profit mechanism. And to build majorities for concrete policy is very difficult because today’s climate policy will impact only in about thirty years.

Redistribution from poor of north to rich of south?

Various countries and social classes have contributed very differently to the accumulation of greenhouse gasses in the atmosphere. Different countries and social classes are also hit very differently by the impacts of climate change.

⁶ Massarat Mohssen (2006): Kapitalismus, Machtungleichheit, Nachhaltigkeit. Perspektiven revolutionärer Reformen. VSA, Hamburg (Capitalism, inequality of power, sustainability. Perspectives of revolutionary reforms), p.65

Therefore in climate policy 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. When an effective climate policy has started it is necessary to keep consent or majority support by managing the foreseeable fundamental distribution consequences of climate and resources policy (e. g. the implication of internalisation by taxes on fossil fuels), in a way that the process is neither descending in chaotic social tensions, nor is losing support with the threat of stopping the sustainable path.

Because the countries are the units in international negotiations the outcome of current negotiations between national governments before and on the big Copenhagen conference in December 2009 could be: redistribution from poor of north to rich of south - because by existing national institutions taxes or costs would be passed although the responsibility would be the other way round

The effects of climate policy on all levels (regional, national, continental, global) are intertwined. Anyway therefore fair solutions in burden sharing (effort sharing) have to consider responsibility and historical benefits also on a level of social groups.

Regulation, planning, common property on resources

The increasing division of labour reflects the increasing societal character of production. Globalisation underlines this process. So also the contradiction to the appropriation of the surplus by the owner of capital is becoming deeper. The increasing knowledge about the complex positive and negative environmental impacts even more corroborates this tendency.

The most important instrument reflecting the societal character of production when staying still within the traditional system is the promotion of a **strong regulation** of a capitalist economy. Here the interests of working classes and the environment could be considered, but successes in class or socio-ecological struggles usually would be prerequisites. So the power of oligopolies could be restricted and the negative impacts of the profit mechanism could be contained. An important issue of regulation could be the internalisation of external effects by imposing adequate taxes on products and services.

Anyway this probably would be an important step in a transformation process. But why we should not correct the primary profit mechanism at all? **Why only putting fencing and crash barriers and not directly checking the steering wheel?**

The one dimensional, short sighted and territorially restricted steering mechanism of the profit rate - maybe moderated by a regulation system - could be replaced by an **optimisation tool considering directly various positive and negative effects.**

The requirement for the success of such an optimisation tool would be to qualify the property on means of production in the sense that owners could codetermine the optimisation but not block it.

In former days this tool was called planning. Planning has the connotation of inflexibility. But also big corporations use this kind of planning. Currently high-developed tools of information management and information processing could warrant quick responses if there are shifting functional relations or changing demand or changes in democratic decisions.

Anyway we have high uncertainty in functional relations and no common scaling of different levels of effects. But this even more is valid for profit maximisation. And anyway the democratic process resulting in societal planning decisions is absolutely not trivial.

The nationalization of natural resources can be an important step towards a better distribution of the benefits. But nationalization of natural resources is not a sufficient condition for a socially optimal and fair use. Nationalisation without elements of socialization correlates with a one-way planning without sufficient feedback. Furthermore nationalization of natural resources can lack the democratic element of socialization. Socialization includes anyway information, transparency and a mechanism of democratic codetermination.

But what about the environmental performance of alternative “socialist” states hitherto?

The environmental performance of alternative states, which were or are called “socialist” hitherto by and large is not impressive.

- The most relevant background therefore is that – not along with Marx’ expectations - less developed countries tried to overcome capitalism, and so the pressure for development was a dominant driving force. By high speed of development stages should be skipped to compensate for the “lost” time
- The competition of systems intensified this background.
- Additionally there was a pressure to produce quick results for a new distribution of wealth after periods of stagnation or wars.
- Till the seventies of the 20th century the knowledge of impacts on ecological systems was not pronounced.
- The lack of transparency had negative impacts (see the severe accidents and catastrophes with radioactive waste and the atomic power plant of Chernobyl in the former Soviet Union)
- The tools of planning and evaluation were not developed so sophisticatedly
- The process of planning lacked democratic codetermination
- Dogmatic thinking and stagnant tendencies blocked the acceptance of empirical results and new developments

So in consequence the societal character of property and planning was restricted. But more research should be made on the issue why systemic views and long-term thinking could not develop stronger.⁷

But on the other hand there were/are at least some issues showing the socio-ecological potential of socialist mode of productions: good land use by more efficient urban planning; more public transport, more community heating; more circular economy because of lack of materials; more organic farming (in Cuba, by lack of chemical stuff)

Outlook: a scenario of climate crisis and transformation

Some scenario: Here the probability is estimated high that the capitalism will emerge from the current financial crisis and world economic crisis in a somewhat changed form by a stricter system of regulation. Because an effective coalition of forces for an alternative system currently does not seem to emerge on the horizon, the players will stay more or less the same and the central profit mechanism will be more or less the same. The system maybe will become again as self-confident as till 2008; and there will be no effective climate policy because this would be inconsistent with the core mechanism of capitalism. Slowly but relentlessly the climate crisis will deepen. Valuable time has passed and the costs for

⁷ The reasoning here concentrates on former “socialist” state in Europe

mitigating and adaptation of climate change will increase significantly. All contradictions will be sharper and there will be some unexpected explosions and implosions. The impacts of climate change will strongly hurt poorer people. But the “rich” will be hit also dramatically – gated community will hardly be possible. Then we would have the climate crisis in its developed form and measures will have to be very fundamental. There will be a long process by hard disruptions and transformations. Anyway, with climate change “new territory” (IPCC, Stern-Report) in the development of mankind will be entered, which means that we will see hitherto not known socio-ecological processes . Although capitalism was very flexible in history capitalism up to now seems to be lost in the old territory. Anyway transformations to socio-ecological sustainability will need the activity of broad movements and coalitions.