Abstract

12 Hypotheses:

1. New conditions of the first decades of the 21st century are:
   a. The unsustainable level of social metabolism (input from nature and “output” to nature) in the developed countries together with the broad industrialisation of emerging countries and of almost the entire world with unprecedented increases of material flows with unprecedented implications on the resource and emission side. Currently we face peak oil, and we will face peak of almost everything on the input side of economy. On the output side there are emissions with various implications most important the green house gases causing climate crisis.
   b. The implications of accumulation of greenhouse gases parallel to accumulation of capital will cause the most heavy challenges for mankind in history till now in this century. If deadlines would be missed irreversible processes would question the basics of existence of mankind.
   c. Solutions for the fundamental resource and emission problems are only possible by “fair” distribution (on global and various other levels) and solidarity.
   d. "Simultaneous" solutions for many problems – resources, emissions, distribution and development - are necessary and possible.

2. Production and social development requires on the one hand some intact local and regional ecosystems (e.g. water) and on the other hand also intact global ecosystems (e.g. climate); some limits and tipping points on the local/regional and global level must not be exceeded.

3. For an optimal or sufficient development the adoption of limits on the input side (resources) and limits on the output side with (complex) implications of emissions and waste require a democratic and social planning. (I would be a miracle if the “invisible hand” would achieve by chance only one target within the complex setting)
4. Revised concepts of rationality and efficiency including eco-efficiency has to be agreed therefore.

5. The question if or to what degree an “eco-capitalism” is possible is not decided definitely until now. Anyway a much more socio-ecologically regulated capitalism hardly would remain the capitalism we know up to now. When the possibilities of capitalist systems to integrate resource and environmental systems are exhausted the question of the development towards eco-socialism are on the agenda.

6. The basic material flow side of existing economic systems mainly is linear: Resources $\rightarrow$ production $\rightarrow$ goods + waste + emissions (bads)

A fundamental principle of an alternative system (economics of tomorrow) overcoming the problems on the input AND output side is to close the cycle resulting in a recycling society or circular economy (in a material sense; this does not mean autarky).

7. Basic concepts to analyze capitalist market economies in regard to sustainability are information deficiencies about material flows and possibilities of recycling, externalization of costs, deregulation of trade, impacts of automation - economies of scale and economies of scope. Blocking factors on the path to circular economy firstly are contra productive incentives (material resource prices not reflecting full costs, inappropriate taxes), lock in, path dependency, sunk costs, rebound effects, and oligopolistic market power of incumbents. Environment is also in new sphere of accumulation of capital producing new “vested interested” of half-way solutions for remaining within the paradigm (E. g. incineration of waste)

8. The transformation from capitalism to socialism is a difficult task; the transformation from capitalism to eco-socialism even is more difficult.

9. The detailed institutional design of eco-socialism still has to be developed.

10. The adoption of the value of nature and its diversity as prerequisite for future development has to be combined with the labour theory of value.

11. Non-linear, rather sudden developments, which could embrace disasters, are probable – maybe combined with “traditional” economic crisis. Because the food sector is very sensible and is determined by energy development to a high degree these field can probably be the cause of systemic crisis.

12. So in the 21st century there will be eco-socialism or no socialism, because of the necessity to secure the foundations of mankind.