



Group Assembly Process (GAP) - Stirring Paper

Thoughts on agricultural transformation

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In principle there is considerable consensus within a large section of civil society that “business as usual is no longer an option” (IAASTD 2009, p.3). This citation refers to the well-known fact that the ruling model of agriculture is unsustainable and needs to be replaced by a sustainable alternative which can feed the still growing world population and offers resilience and mitigation to the ongoing climate change. Growing evidence shows that an agro-ecologically based peasant agriculture the most promising alternative. Hundreds of examples have demonstrated that this agricultural system – once implemented – is more productive (in terms of total output per area) and of course more climate-friendly than large scale monocultures.

Agro-ecological systems can require up to 100-times less energy to produce food. Up to ten calories of food can be produced with one calorie of input as compared to up to 10 calories input necessary for 1 calorie output in case of industrial agriculture. Although such a difference represents “the extreme of a continuum” (Lin et al. 2011) it helps to understand the problem. A recent analysis which is closer to the center of this “continuum” showed that the current agricultural system of Denmark consumes 3-4-times more energy than it produces (Markussen & Østergård 2013).

“Organic” agriculture ranges from complex agro-ecological smallholder settings to large fully mechanized enterprises that only refrain from the use of agrochemicals while maintaining many of the other features of industrial agriculture. Complex agro-ecological smallholder settings are most desirable to achieve maximum sustainability. But what does this imply? The answer will be very different for Malawi, Zambia or Mocambique as compared to Germany, Spain or the U.S. The answer will also depend on the timelines for such a transition.

In an ideal world, for existing agrarian societies with a significant portion of smallholders this would encompass:

- Substantial investments in training, knowledge exchange and extension services to implement locally adapted agro-ecological systems;
- Refraining from “quick fixes” e.g. by agrochemicals and, if at all, using them only temporarily at low intensity with a clear, well-defined exit strategy, to “bridge” the establishment of agro-ecological systems;
- Resisting large-scale agricultural investments (also known as land-grabbing) and – if necessary – the implementation of distributive land reforms;
- Putting an end to the privatization of seeds in order to re-diversify agriculture in a way that will guarantee local needs and be locally adaptable to climate.
- Cautious, sensitive elimination of patriarchal and quasi-feudalistic power structures agrarian societies of the global South

In other words, it would mean combatting poverty, emancipatory improvement of the livelihoods of smallholder communities and stopping the current trends of land grabbing and destruction of existing peasant agriculture.

In contrast, agricultural transformation in industrialized countries is a totally different story. Instead of stopping emerging trends – as in the global South – it would necessitate radical changes to existing realities. Independently of how this could be achieved, a **transformation** (and not just “some” alternatives of marginal significance) would include the disempowerment of the entire agro-industrial complex, significant changes in landownership, changes in the way food is distributed and necessary shifts in nutritional habits. Concerning the latter, even with careful selection of dietary components it currently seems impossible for the general population of western societies to eat “energy-neutral” food. A study in Sweden revealed that based on the assumption of a (relatively modest) daily caloric need of 7,8 MJ (corresponding to 2.000 kcal) the daily lifecycle energy input varied between 13 MJ (conscious selection) and 51 MJ (selection not paying attention to energy aspects) when purchasing food at the supermarkets, i.e. the typical situation of the majority of the population in western societies (Carlsson-Kanyama et al. 2003). Although the details are difficult to imagine at present, an agricultural transformation becomes inevitable when fossil energy resources deplete. What are the possible scenarios and underlying assumptions for such a transition?

Disregarding all other (environmental and social) problems surrounding fossil energy-based economies, it seems clear that fossil fuel cannot be substituted on a global scale by similar (liquid) energy sources, e.g. agrofuels, because of the lower energy density of these alternative fuels and their competition with food production regarding land use.

This transition will probably not be as abrupt as it was in Cuba after the collapse of the socialist block. Nevertheless Cuba offers a glimpse at what can happen as well as what is possible to achieve in a relatively short period of time under equitable conditions. In Cuba, by 1992 oil supplies had dropped to 50% and supplies of mineral fertilizers to 25% of the 1889 values. During the same time, the Cuban population lost on average (!) 9 kg of body weight and had a mean annual production of vegetables¹ of roughly 1.000 megatonnes in the period of 1991-1994. After substantial efforts to introduce agro-ecological methods and urban gardening, mean annual production of vegetables had increased 5-fold within 10 years (to 5.000 megatonnes annually for the period from 2002 to 2005).

It is obvious that an agricultural transition evoked by the depletion of fossil fuel will be accompanied by food price hikes, not only because of rising fuel prices but also, because the agro-ecological alternative is significantly more labor-intensive. Which raises the next question: Where will labor come from? Looking into history gives a sense of what could come: In West Germany, there were 6,8 Million people working in agriculture in 1949 as compared to 0,68 Million in 1988 (later comparisons are not possible due changes in statistics after re-unification). In other words, a substantial re-allocation of workforce will be necessary. Will the elites try and temporarily be able to (ab)use migrant labor to fill the widening gap? Or will de-urbanization occur as it has been seen in some African countries (cf. Potts 2012)? What conflicts will emerge when existing land-ownership collides with interests of those segments of the population that want to “de-urbanize” and grow food on their own and their communities? Will there be a way to induce large landowners to relinquish part of their property, if demanded? Will they do it voluntarily, because they lack the fuel to run their machinery? And finally: When food prices in the northern hemisphere (which are artificially low and subsidized by environmental destruction) will increase, how will poor and vulnerable people be protected? Will the artificially high housing costs be

¹ green vegetables, tomatoes, plantain, cassava, pumpkins, potatoes, sweet potatoes,

decreased? Or will food riots (seen in more than 40 countries after the food price explosion in 2008) become the way of “collective bargaining”?

To “stir-up” the discussion, it is concluded that interrupting “business as usual” (i.e. disempowerment of the agro-industrial complex) will require more than the current civil society efforts (e.g. in Germany the annual “Wir-haben-es-satt”- (“we’re fed up”) rally, some Anti-Gene-Tech protests, a campaign against seed privatization and a fledgling network of community supported agriculture). Whereas a further deepening of the crisis is foreseeable, this deepening will foster resistance, militancy and the growth of alternatives. Although “agricultural transition” is an important component, it is clear that this is only part of a larger process. “Degrowth” needs to become broad conscious process led by social movements struggling for an equitable society, because resource shortages and environmental disasters will increase the risk of ecofascist tendencies.

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