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# Searching for a new model of food and farming

## A confession of impasse, searching for a new beginning

There is a sense that the world food system has reached an impasse. Hunger afflicts at least an eighth of the world population (FAO, 2012), mostly in the global South, but also in the North where austerity policies – which respond to crisis by prioritising the interests of the wealthy – leave working people hungry. What is even more serious is that even this damaged ‘food security’ cannot be guaranteed into the future. International institutions now recognise that something fundamental must change, a realisation embodied in the notion of *paradigm shift* (Graziano da Silva, 2015; FAO, 2011) and further concretised in the form of *sustainable intensification*.

Such recognition is all the more significant since, for most of its history, the UN Food and Agriculture Organisation (FAO) tended to be somewhat unwilling to offend corporate interests. Within the UN system it was mostly the two successive Special Rapporteurs on the Right to Food, Jean Ziegler and Olivier de Schutter, who pushed for a more radical and systemic critique. The latter notably placed his authority behind *agroecology* (de Schutter, 2010), a term that implies bringing farming back to an understanding of natural systems, and that forms an important point of reference for this book.

A landmark in official critiques of the ruling food paradigm was the publication of *Save and Grow, A New Paradigm of Agriculture – A policymaker’s guide to the sustainable intensification of smallholder crop production* (FAO, 2011), which argued specifically for a revitalisation of small farms and a recognition of their dignity and essential contribution. Expanding on this, the UN Conference on Trade and Development (UNCTAD) further stated: ‘The world needs a paradigm

shift in agricultural development: from a ‘green revolution’ to an ‘ecological intensification’ approach. This implies a rapid and significant shift from conventional, monoculture-based and high-external-input-dependent industrial production towards mosaics of sustainable regenerative production systems that also considerably improve the productivity of small-scale farmers. We need to see a move from a linear to a holistic approach in agricultural management, which recognises that a farmer is not only a producer of agricultural goods, but also a manager of an agro-ecological system...’ (UNCTAD, 2013, p.i).

This and similar statements embody a welcome reflection on what the shift may entail: terms like ‘mosaics’ and ‘regenerative’ imply a change in how we think, moving away from linear and reductionist approaches and towards a systems perspective.

These ideas are stimulating. Nevertheless, we should ask whether the new paradigm is correctly framed. Not everyone, even among those critical of the old paradigm, would accept that it is, particularly the assumption that the answer is ‘intensification’, which could imply a merely quantitative solution and contradict the more qualitative issues raised. Indeed, the notion of a ‘new paradigm’ entered the debate quite some time ago, precisely in relation to quality issues (Welch and Graham, 1999). The emphasis on quality arose as a critique of earlier mainstream policies, targeting mainly quantity, which often were critically labelled ‘productivist’ and were typified by the now-discredited Green Revolution in which hybrid crop strains were bred only for quantity of yield.

The question therefore arises as to whether sustainable intensification is merely a cosmetic updating of productivism. Could the problem of feeding the planet be solved in another way?

It might for example be argued (Wiskerke, 2015) that the issue is not insufficient production, but rather cutting waste; indeed, food waste is a crucial issue, commonly estimated to represent between 30% and 50% of food produced (IME, 2013).

## **Distributive justice as a critique of social ills**

Another, complementary, critique would see the problem as one of *distribution*, rather than production. Plenty of food is produced, but fails to reach those in need.

The issue of access to food is by no means just a matter of technical logistics; it is, ultimately, about distributive justice: decent nutrition should be addressed not through hand-outs or largesse, but as a right.

Distributive issues are, in fact, central to political ecology, which critically questions issues like the distribution of risk... of which food insecurity is an integral part.

One way in which the distributive issue can be framed is in the terminology introduced by Amartya Sen (Sen, 1982), according to which malnutrition is caused not by deficient production per se, but by a deficit of 'entitlements' (the means which enable you to access food). And, in the urban context, food justice has an important spatial angle, expressed in the phenomenon of 'food deserts'.

More radically still, we could frame distributive justice in the form addressed by Marx: there is no absolute law saying working people must only be paid the minimum cost of subsistence: we have a right to struggle for a larger share in the value we produce (Marx, 1969 [1865]); and the struggle for improved access to food would obviously be central to this.

For all the above reasons, we might ask if the ruling bodies have an interest in presenting the problem as one of food *production*, simply to distract attention away from the awkward structural issues raised by distribution.

Nevertheless, in the author's view, there are reasons why we might be more favourable to 'sustainable intensification' than the argument so far seems to imply.

The key point is that, although it may *at the moment* be true that there's enough food 'around' (provided we stop wasting it and distribute it fairly), the system which currently produces that food is not ecologically sustainable into the future. It's not just that this system is failing but, more fundamentally, it is actually its *successes* which are eroding our future. This is a point where we can again draw from Marx, who predicted such a sustainability crisis, inasmuch as, under capitalism, 'all progress in increasing the fertility of the soil for a given time is a progress towards ruining the more long-lasting sources of that fertility.' (Marx, 1954 [1887], p.506). We could demonstrate this practically using the case of chemical fertiliser where, with regard to input, there is clear evidence of diminishing returns – between the beginning of the 1960s and the mid-2000s, global fertiliser inputs per hectare increased 5.5 times for a 2.5 times increase in cereal yield per hectare (UK Government, 2011, p.79). With regard to output, nitrogen runoff is a major ecological disaster in terms of ecosystem depletion, which (as revealed by recent research) will retain a persistent effect over several decades (van Meter, et al., 2016), while a very similar point can be made about the long-term persistence of fertiliser-derived phosphorus (Powers, et al., 2016). Marx' point about

the long-lasting sources of fertility is further illustrated by research (Klinger, et al., 2016) showing how chemical nitrogen application disrupts the natural symbiotic relationship between plant roots and nitrogen-fixing bacteria (rhizobia).

This is why we need a paradigm-shift in the way food is *produced* and why it is not sufficient merely to address issues of distribution/waste.

In this sense the FAO discourse is correct. However, it doesn't tell the whole story: the underlying problem is the logic which drives the present socio-economic system, i.e. capital accumulation, to which food and farming are subordinated. The circuits of capital's reproduction take precedence over the loops and flows of nature (which should form the basis of a sustainable farming paradigm), and *in the same process* increase polarisation, disempowerment and loss of entitlements. There is a tragic narrative of Indian farmers who get into debt buying pesticides and then commit suicide by drinking them, and micro-credit has been revealed as a contributory cause (Associated Press, 2012). The farmers are being drawn into accumulation circuits which then overwhelm them. Or, when US African-American activists such as Ron Finley (Zocco, 2015) challenge the 'food deserts' phenomenon, this is framed as a challenge to structural issues of deprivation: accumulation has in a sense siphoned something *out of* these regions.

The argument so far suggests two observations:

- [1] we cannot fundamentally address food issues without addressing the whole structure of society;
- [2] we are nevertheless in some sense *obliged* to do so, since there is, at this moment, a window of opportunity to change the food paradigm while there is still enough food 'around'. We dare not delay food-system transformation under the excuse of waiting for more general societal change, because by then it would be too late.

These statements appear contradictory, but in fact we can resolve the contradiction as follows: build the new food system in a way which, from the outset, embeds solutions to big issues of social emancipation; or, find a way to act immediately, but without losing sight of strategic issues. This is effectively the perspective of many of today's grassroots social movements. The latter often identify with the notion of 'food sovereignty', a term widely employed in many regions of the world, notably the global South.

There is a range of academic debates on food sovereignty (e.g. Bernstein, 2013; Hopses, 2014) which often seem somewhat semantic and formalistic. I prefer here to focus on the substance, which is surely that *food security can't be truly secure unless it's embedded in autonomy*. Any nomenclature identifying a social movement will never cease to be *work in progress*, which is exactly as it should be: you must always encourage the real struggle to critique your conceptualisations. And in some sense, radical social movements are themselves evolving the definition of a 'new paradigm' as we speak, in a dynamic and self-defining way which doesn't have to wait for recognition by official bodies.

In fact, 'paradigm' – in the spirit of Kuhn who introduced the term (Kuhn, 1970) – can't be limited to a mere technical model in some applied field like farming: it implies a change in world-view. But it can be a model of farming which *embodies* such a change in world-view. Many food sovereignty movements (for example in Latin America) have a strong input from indigenous peoples, highlighting the need to resolve the deep issues of alienation from nature and from ourselves. This book contends, as a central thesis, that we can achieve such disalienation by bringing society and nature together on parallel organising principles: those of self-organisation.

## 'Transition': a challenge to human imagining

A major theme arising from paradigm-shift is 'transition': the process (phase-shift, leap of consciousness or whatever we call it) by which we *reach* that goal.

Here, an important notion is *path-dependency*: any established paradigm acquires an inertia, whereby past choices imply future ones (c.f. Tiberius, 2011). Thus, chemical-intensive agriculture is embedded in a feedback loop: chemicals undermine soil and ecosystem → decline in yield → apply more chemicals → more damage to soil, etc. Such trajectories tend to persist under their own momentum, unless a force is brought to bear. Transition is about breaking that inertia.

The above image may suggest 'force' in physics, but in reality the force is also political. In fact, Political Ecology can unify the two categories (c.f. Gale, 1998): for the ruling system, socio-political power confers an entitlement to physical resources (energy/matter, which in Einstein's formulation are expressions of the same thing), to set these resources in motion (through productive processes, agriculture included), and – by

realising a profit from that productive act – to initiate a further cycle at a higher level (both of resources mobilised and social power). And we should be careful not to confuse power with mere repressive brute force: what counts are the *structural* forms addressed by Foucault (2003) and Gramsci (1971), whereby those who suffer from the system are trained to reproduce its norms.

What's encouraging is that the recognition of being stuck in path-dependencies is a prelude to escaping them, and this is true of many issues of personal development, as well as societal ones. But then, we must highlight the agents of change, and also the actual *period* during which paradigm-shift occurs. Here, an important issue is the relation between radicalism and gradualism.

The gradualist side of the transition argument is that you generally can't just switch off an old order and have a total overnight change. Thus, the literature on low-carbon transitions highlights a period of 'messy mix' where two conflicting paradigms overlap (Geels and Schot, 2007; Curry and Hodgson, 2008). In the case of food – which is indeed an integral *part of* low-carbon transitions, for reasons which we address in Chapter 9 – this takes a special form, raising specific and very interesting problems. This is because transition, in this case, means *conversion* (switching from chemicals to organic). The main issues are:

- [1] You obviously must keep feeding people during transition, so you can't just smash the old paradigm and leave a tabula rasa; therefore the two systems must overlap. That's the aspect which appears gradualist.
- [2] On the other hand, the 'messy mix' in farming is particularly difficult because old and new paradigms are incompatible: for example, chemicals kill off natural predators and pollinators which organic agriculture needs. It's harder to 'mix' organics and chemicals than it is, say, conventional power stations and solar. This is the aspect which stresses radicalism.
- [3] For a given portion of land you need a conversion *period* (two years, according to Britain's Soil Association). The reason is that it is not so meaningful to say 'organic' in a purely negative sense of avoiding chemicals, rather what we need is a changed approach to *systems*; the conversion period provides 'time to start establishing organic management techniques, build soil fertility and biological activity, as well as to develop a viable and sustainable agro-ecosystem.' (Soil Association n.d.). The deduction is that a given portion of land needs to *stop* producing for a

while, before re-starting on a sustainable basis; but then, how do we keep feeding people?

Framed in this way, the problem may sound discouraging, but in reality it's precisely when we take a systems view that we start seeing optimistic outcomes. It's the very *interdependence* of systems that opens up win-win scenarios where, for example, food security and climate mitigation/adaptation reinforce one another through benign feedbacks. The point is: if the problem's systemic then so is the solution; if a bad situation is embedded in feedback loops, then – once we break free from these – benign loops will self-engineer. This is true not just of the physical dimension (soil-climate etc.) but also of the social dimension, where in place of the old loops – accumulation circuits sucking the life out of farms and communities – the paradigm-shift in farming may find allies in the wider paradigm-shift in society, for example in the case of Community Supported Agriculture (CSA). And even food-system upheavals, such as food price spikes, could be beneficial if they create demand for change during the window of opportunity before food security faces even more serious challenges (severe drought, loss of pollinators).

The city, our specific case study, can make a key contribution. By contributing more to feeding itself, the city takes pressure off the rural economy, allowing the latter to undertake conversion; there is also much scope, through biomimicry, to re-design cities in a way conducive to sustainability; and benign social networks likewise have great scope for self-organisation.

A key point about transition is that, while it may have a gradualist aspect, *the leap of consciousness must be radical*; we will expand on this in Chapter 6. And so must the agents of change be radical: the mode of production is first and foremost a class system, where vested socio-economic interests resist paradigm-shift, or at best want a merely cosmetic or co-opted form. So it's only the dispossessed who can unblock the situation, initiating the process whereby new loops and alignments begin to form.