

Chapter One

The International Dimensions of Development Project

1.1 The postwar food order

In 1989 Harriet Friedman and Philip McMichael (1989) published an essay on ‘Agriculture and the State System. The rise and decline of national agricultures, 1870 to the present’. It proved one of the most fertile arguments of historical sociology/political economy of its time, subsequently regarded as the foundational statement of food regime analysis. Their aim was to explore ‘the role of agriculture in the development of the capitalist world economy, and in the trajectory of the state system’ - to provide a ‘world-historical perspective’, as they said (1989, 93). The notion of food regime ‘links international relations of food production and consumption to forms of accumulation broadly distinguishing periods of capitalist accumulation’ (ibid 95), and they identified two food regimes so far: a first (1870-1914) during the period of British hegemony in the world economy, and a second (1945-1973) under US hegemony in the postwar world economy.

The article was most timely, appearing when attention was being focused on a new phase of world capitalism, that of ‘globalisation’ (or ‘neoliberal globalisation’), its drivers and consequences. Some 25 years after ‘the present’ inhabited by the original article, much of that attention has focused increasingly on changes in food production and consumption, in agriculture more broadly, and on linked dynamics of global inequality and ecological destruction and sustainability – a comprehensive complex of issues in which food regime analysis has become highly influential, and generated debates about the formation, character and effects of a third food regime since the 1980s.

Food Regimes in The ‘World Historical’ of Modern Capitalism

Food regime analysis considers some fundamental questions in the changing political economy (‘transformations’) of capitalism since the 1870s:

- Where and how is (what) food produced in the international economy of capitalism?
- Where and how is food consumed, and by whom? What types of food?

- What are the social and ecological effects of international relations of food production and consumption in different food regimes?

The First Food Regime

The original formulation

Friedmann and McMichael (1989) identified ‘the first food regime’ (1870-1914) centred on European imports of wheat and meat from the ‘settler states’ of Argentina, Canada, the USA, Australia and New Zealand: ‘cheap food’ which helped underwrite British and other European industrial growth. This period of British hegemony in the world economy also saw the culmination of European colonialism in Asia and Africa (colonies of ‘occupation’) and the ‘rise of the nation-state system’ in which (former) colonies of ‘settlement’ were now independent. This provided the political basis of a ‘truly international division of labour’, comprising three principal zones:

- (1) specialised grain and meat production in the ‘neo-Europes’ (Crosby 1986) of the temperate colonies of ‘settlement’;
- (2) agrarian crisis in Europe, at least in large-scale grain production, in the face of cheap(er) wheat imports, leading to measures of protectionism in some countries and accelerating rural out-migration (including to the diasporas of colonies of ‘settlement’, see further below);
- (3) specialisation in tropical export crops in colonial Asia and Africa.

Friedmann and McMichael’s analysis of the first food regime deployed a subtle dialectic of national and international dynamics and their interactions, of which the financing of international trade through the gold standard operated by the City of London was a key foundation. Indeed, the functioning of finance capital in relation to trade, investment and borrowing by governments in different moments of modern world capitalism remains central to food regime analysis, as we shall see.

The ‘national framework of capitalism, itself contingent, was the basis for replacing colonial with *international* specialization’ (ibid 100). ‘World agriculture of the late nineteenth century had three new relations with industry, all mediated through international trade between settler states and European nations:

1. Complementary products based on differences in climate and social organization [like colonial trade, HB] gave way to competitive products traded according to Ricardian comparative advantage...':
2. 'Market links to industry clearly demarcated agriculture as a capitalist economic sector...' (for example, growing use of chemical and mechanical inputs to farming, and advances in transport, notably the railways);
3. 'The complementarity between *commercial* sectors of industry and agriculture, which originated in international trade and remained dependent on it, was paradoxically internalized within *nationally organized economies*', both in Europe and the (now independent) settler states (ibid 102, emphases in original).

The question of why the first food regime came to an end was not addressed by Friedmann and McMichael (1989), but crises of food regimes and transitions between them became more central to subsequent conceptions, especially in connection with the end of the second food regime and debate of the formation of a third regime (below).

The first food regime: elaborations

The original formulation of the first food regime was strongly state-focussed and maybe also capital- centric, with finance, trade and industrial capital, as well as states, centre-stage and agrarian capital (and other agrarian classes) largely absent. Subsequent elaborations of food regime analysis, noted in the previous section, added little to further consideration of the first regime and its crisis/demise.

Friedmann revisited the first food regime - 'framed within the general rhetoric of free trade and the actual workings of the gold standard' ((2005, 229) - which she now termed 'the settler-colonial food regime' (Friedmann 2004) and 'the colonial-diasporic food regime' (Friedmann 2005). Here she emphasises that the first food regime created 'a new class of farmers dependent on export markets' from the European immigrant diasporas of settler colonies (developing Friedmann and McMichael 1989, 100). 'Indeed, the central innovation of the colonial-diasporic food regime was the fully commercial farm based on family labour' (Friedmann 2005, 235). The emphasis on a particular *form* of farm production⁸ in specific *social and ecological conditions* is used to explain why American grain exports to Europe were so 'cheap'. This resonates a classic and familiar theme of the political economy of capitalist development, namely the price of staple

foods and its effect for wage levels, the costs of reproduction of labour power, and the expenditure of variable capital and its effects for accumulation (see, *inter alios*, recent analyses by Araghi 2003; Moore 2008, 2010a, 2010b).

Comments

One must note Friedmann's reminder (2005, 237) that 'in the first regime, the U.S. was not a dominant wheat exporter...[but one of] a number of new export regions' established by migration and settlement, including the Punjab, Siberia and the Danube Basin. This point may easily be missed in the strong focus on the USA in both the first and second food regimes, and as the key link between them (Friedmann and McMichael 1989, 94-5), and in such observations that the first food regime was 'anchored in the American family farming frontier' (McMichael 2009, 144). Maybe at play here is an instance of 'reading history backwards' from the undoubted hegemony of the USA in world capitalism and its second food regime after 1945?

In relation to the US prairies in particular, Friedmann advanced two reasons for the cheapness of their wheat exports. First, she suggested that 'reliance on unpaid labour of men, women and children - family labour - allowed them to lower costs relative to farms in England and elsewhere...Despite notorious exploitation of agricultural labourers, English farmers nonetheless did have to pay wages' (2005, 236). This resonates another longstanding and continuing debate about the relative 'efficiency' in price terms of 'family'/small-scale vs capitalist/large-scale farming, given the capacity for 'self-exploitation' of the former. In this application it seems unconvincing to me: US family farms had to meet their costs of daily and generational reproduction (the equivalent of their 'wage'); the labour of farmworker household women and children was commonly exploited in European capitalist farming too; no evidence is provided to support this explanation of the (monetary) cost, hence price, advantage of diasporic family farming.

Second, and possibly implied by Friedmann's observations of (i) a contemporaneous 'shift in measurement [of productivity, HB] from yields per unit of land to yields per person' (2004, 127), influenced by grain monoculture on much larger 'family farms' than the norm in Europe and (ii) shortages of labour in settler states, more likely in this case is that there was a notable (and growing) difference in average labour productivity in prairie family farming, manifested in prices for its grain. Moreover, that labour productivity in prairie farming benefitted from initial

and massive 'ecological rents' in the cultivation of virgin land, even if that was only temporary because of 'soil mining' (2005, 236; also Friedmann 2000, 491-4).

What of social movements and their role in the first food regime? Despite the invocation of 'social movements' by Friedmann (2005) they feature less in accounts of the first regime than they were to do subsequently, especially in the third food regime. For the period 1870-1914, they are covered only by general references to working class movements in Europe struggling (successfully) for better standards of living, including the means to eat better, and some elaboration of the 'new class' of commercial family farmers in the USA and elsewhere (ibid 238; Friedmann 2000) though they only became a potent organised political force later (Winders 2012).

And the crisis/demise of the first food regime? As noted, this has not been much explored. The 'ecological catastrophe' of soil mining was dramatised in the US dust bowl in the 1930s (Friedmann 2000, 493) but this also postdated the end of the first food regime in 1914. Otherwise we have only a more general list of factors absorbed within the 'demise of the British-centered world economy in the early twentieth century', resulting from

...national and imperial conflict among European states and the collapse of the gold standard.

Economic depression and urban unemployment following World War I, in addition to a broad agricultural crisis in Europe resulting from cheap overseas grains, resulted in widespread protectionism. Economic nationalism in Europe and the ecological disaster of the American dust bowl sealed the fate of the frontier model of soil mining and the liberal trade of the first regime. (McMichael 2013, 31-2)

In short, the end of the first food regime was clearly marked by the beginning of World War I in 1914 and what led to it. That war was followed by the uncertain 1920s, the Depression of the 1930s (both of which McMichael indicates), and World War II: three decades that prepared the way for the second food regime, above all through farm politics in the US New Deal, wartime economic organisation, and US agricultural and foreign policy after 1945 all of which have received much more consideration from food regime analysis.

The Second Food Regime

The original formulation

The period 1945-1973 saw the extension (and completion) of the international state system with the emergence of independent states from former colonies in Asia and Africa, in the context of US hegemony in the capitalist world economy and the US dollar as the medium of international trade and financial transactions (Friedmann and McMichael 1989). The emergence and functioning of the second food regime had very different effects for the capitalist countries of the North (First World) and South (Third World).

In the North there were several developments (or departures). One was that US agricultural policy, long engaged with issues of overproduction, especially of wheat and of maize/corn (for animal feeds), and its pressures on prices hence farm incomes, had moved towards price supports (versus direct subsidy of farm incomes) which encouraged further (over)production. This was now combined with foreign policy in the form of food aid that helped dispose of grain surpluses, initially to facilitate postwar reconstruction in Europe through Marshall Aid and then to the Third World under Public Law 480 (PL480) enacted in 1953.

A second, and definitive, development, was the 'transnational restructuring of [agricultural] sectors' under the stimulus of now increasingly global agribusiness corporations and their role in creating agro-food complexes, characterised by 'increasing separation and mediation by capital of each stage between raw material inputs and final consumption' (ibid 113), including through global sourcing. This was manifested in (i) massive expansion of meat production and consumption - the emergence of an 'intensive meat complex' or 'meat/soy/maize complex' (ibid 106-8); (ii) the 'durable' (or manufactured) 'foods complex'; along with (iii) substitution of (tropical) sugars and vegetable oils by sweeteners made from grain and soy oil respectively (ibid, 109).

These developments central to the second food regime also registered a more complete industrialisation of plant and livestock production, as well as its linkages (the 'meat/soy/maize complex') in the North. In the context of postwar recovery and then the boom of the 1950s and 1960s, the North experienced rising incomes and the growth of mass consumption. In Europe agricultural policy aimed to replicate the US pattern by a 'renationalization of domestic agriculture' (ibid 109), that led to some European countries also becoming surplus producers of grain (notably France) and other products which they sought to 'dump' on international markets.

For the Third World, US wheat exports (and soy oil) subsidized through PL480 were accepted, and even welcomed, by many governments as providing ‘cheap’ food to help fuel industrialisation and proletarianisation, at the cost of their domestic food farming (and in some cases with new agricultural export orientations). This marked the beginning of food import dependence for many countries of the South. At the same time, subsidized imports of US (and later EU) wheat and other products ‘remained outside the main organizational changes of capital in the agro-food sector’, leaving the emergence of powerful agribusiness corporations, and the ongoing industrialisation of farm production they promoted (or imposed), together with Third World dependence on food imports, as key legacies of the second food regime, as we shall see.

Elaborations

Subsequent elaborations of the second food regime have termed it variously ‘the surplus regime, 1947- 72’ (Friedmann 1993), ‘the mercantile-industrial food regime’ (Friedmann 2004) and the ‘U.S.- centered intensive food regime’ (McMichael 2013, 32-8). The most detailed further analysis was by Friedmann (1993), which followed the main lines sketched above in a complex and subtle argument, identifying and illustrating the interactions of a number of determinations. Here are some of the key points.

First, the ‘rules’ of the second food regime, in effect established by the USA, ‘created a new pattern of intensely national regulation’ (Friedmann 1993, 32). A key moment in this process was what Friedmann called ‘the Atlantic pivot’: ‘the corporate organization of a transnational agro-food complex centred on the Atlantic economy’, hence linking the USA and Europe (ibid 36). However, the particular type of mercantilism that structured this arrangement (centred on price supports, including export subsidies) ‘led to competitive dumping and potential trade wars, particularly between the European Economic Community and the US’ (ibid 39).

Second was the industrialization of agriculture, presumably advancing beyond the previous ‘external links’ of farming with industry (above) to transform labour processes in US and other Northern farming. This was now increasingly organised around much greater degrees of mechanisation and ‘chemicalisation’ pushed by agri-input corporations upstream of farming, as well as to meet the demands of agro-food industries downstream, both in animal feeds (the ‘meat/soy/maize complex’) and for the manufacture of ‘durable foods’.

Third, the South as a whole became the main source of import demand on world wheat markets. Import policies created food dependence within two decades in countries which had been mostly

self-sufficient in food at the end of the second world war. By the early 1970s, then, the food regime had caught the third world in a scissors. One blade was food import dependency. The other blade was declining revenues from traditional exports of tropical crops. If subsidized wheat surpluses were to disappear, maintaining domestic food supplies would depend on finding some other source of hard currency to finance imports. (ibid 38-9).

Friedmann (1993) also has a fuller account of the demise of the second food regime, centred on two linked dynamics. One was ‘a tension between the *replication* and the *integration* of national agro- food sectors’ reflecting ‘on an international scale the problem inherent in us farm programmes— chronic surpluses’ (ibid 32). ‘The *replication* of surpluses, combined with the decline of the dollar as the international currency’ contributed to ‘competitive dumping and potential trade wars’ (above). The other was that ‘transnational corporations outgrew the national regulatory frameworks in which they were born, and found them to be obstacles to further *integration* of a potentially global agro-food sector’ (ibid 39). In short, the fault lines between the ‘industrial’ and ‘mercantile’ components of the second regime - its peculiar ‘combination of the freedom of capital and the restriction of trade’ (ibid 36) - generated its crisis at the expense of the latter (see also Friedmann 2004).

The catalyst of crisis of the second food regime in the early 1970s was

the massive grain deals between the us and the ussr which accompanied Detente...

Soviet-American grain deals of 1972 and 1973....created a sudden, unprecedented shortage and skyrocketing prices. Even though surpluses returned in a few years because the agricultural commodity programmes which generated them remained in place, the tensions did not disappear, but were intensified by farm debt and state debt, international competition, and the changing balance of power among states. (ibid 39-40)

Of these factors, first, the USA and European Union (EU) provided a continuing ‘mercantilist’ element of farm subsidies into the current period of trade liberalization, much emphasized by its critics.

Second, us ‘farm debt more than tripled in the 1970s, fueled by high prices and speculation in farmland’ (ibid 40), and agrofood corporations replaced farmers to exercise the most effective lobby. ‘When the bubble burst in the 1980s, us farmers had lost their monopoly over agricultural exports, and their political weight in us trade policy.’ (ibid 42)

Third, state debt, above all in the South (and Eastern Europe), compounded by the effects of oil price hikes in the 1970s and increased borrowing, led to ‘Promotion of agricultural exports, especially those called “non-traditional” (geared to new niche markets for exotic foods, flowers, and other crops)...[as] an explicit aim of structural adjustment conditions imposed by creditors’ (ibid 50).

Fourth, international competition in agricultural commodity trade intensified with the entry or increased prominence of NACs (‘New Agricultural Countries’, by analogy with NICs ‘New Industrial Countries’) in world markets, of which Brazil notably ‘*replicated and modernized* the us model of state organized agrofood production’ (ibid 46, emphasis in original). The ‘nac phenomenon *revives the intense export competition on world markets that existed prior to the postwar food regime.*’ (ibid 46-7, emphasis added). Significantly, and postdating Friedmann’s article, the World Trade Organization (WTO) was established in 1995 to replace the General Agreement on Tariffs (GATT), founded in 1946 as one of the Bretton Woods institutions. Agricultural trade was excluded from GATT at the insistence of the USA, but subsequently became one of the most contested areas of the WTO as competition in world markets for agricultural commodities intensified, and the WTO looms large in accounts of the third food regime as a driving force in world market liberalisation (e.g., McMichael 2013, 52-4; but see also note 36 below).

Finally, the changing balance of power among states presumably refers to the erosion of US hegemony in the postwar capitalist world economy, a much debated hypothesis in the context of ‘globalisation’.

Comments

Friedmann’s more detailed and incisive account of the second food regime, like accounts of the first regime, arguably remains primarily ‘structural’ and capital centric, albeit that it provides a subtle narrative of political dynamics and arrangements in the international state system in the decades following the end of World War II. These are encapsulated, in effect, by its ‘mercantile’ elements and their consequences for its ‘industrial’ (or corporate) elements that were increasingly restricted by them and finally played an important part in the crisis of the second regime.

The strongly political dimension of the structuring and eventual demise of the second food regime addresses primarily the politics of states and inter-state bodies, and the domestic and

international forces that shape them, and in doing so created contention (and contradiction?). Similarly to accounts of the first food regime, also absent here is any prominent part played by ‘social movements’. Taking that term to refer in its broadest (and loosest?) sense to movements not based in states, nor their electoral and other formal processes (other than lobbying on government policy), the strongest candidate for a ‘social movement’ is again the US farm lobby (and by extension farm lobbies in other Northern countries), whose strength declined with the demise of the second food regime (above). While Magnan (2012, 377) mentions ‘social movements’ as a key player in the second food

regime, he does not specify who or what he means, although he offers several suggestive observations on US farm lobbies:

On the national scale, the postwar alliance between the state and the class of independent farmers eroded, as deficit politics prompted many neoliberal governments to scale back public spending on agriculture [with the ‘important exceptions’ of the EU and USA, HB]. At the same time, farm politics [in North America] became more fractionated and marginal, as farmers became increasingly differentiated by size and commodity, and continued to decline in number. (ibid 380, emphasis added)

In fact, ‘social movements’ only make a full appearance in considerations of a third food regime.

A Third Food Regime

Anticipations

From its inception, food regime analysis functioned as a critique of food regimes in world capitalism, a critique which expanded, intensified and became more explicit in the context of contemporary ‘globalisation’. The world of ‘neoliberal globalisation’ is marked by massive change and contradiction, not least in terms of the modalities of capital accumulation (including its ‘financialisation’), new technologies and markets for food and other agricultural commodities, rising awareness of ecological threat, and crises of reproduction of ‘classes of labour’. All these and other similarly encompassing, and connected, themes enter conceptualisations and debates of a third food regime, with a much greater wealth of contemporary documentation and evidential claims than deployed for previous regimes. For these reasons, this section can aim only to identify some of the key ideas and arguments concerning a third food regime, rather than try to cover all that might be assimilated to its scope.

Writing in 1989, following the demise of the second food regime and the onset of globalisation, Friedmann and McMichael (112) proposed two ‘complementary alternatives’:

1. (i) ‘truly global institutions to regulate accumulation, minimally a world reserve bank with real controls over a real world currency; and
2. (ii) the promotion and redirection of regional, local and municipal politics of decentralization...to reconnect and redirect local production and consumption’ (ibid 113)

Here there are echoes of Polanyi, starting with finance, and then moving to advocate (re-) localisation of food provisioning which, together with advocacy of small(er)-scale farming on agroecological principles, was to become a central plank of opposition to the current world food system under the banner of food sovereignty (below).

In 1993 Friedmann, addressing ‘a global crisis’ of food, concluded that agrofood corporations, having ‘now outgrown the regime that spawned them... are the major agents attempting to regulate agrofood conditions, that is, to organize stable conditions of production and consumption which allow them to plan investment, sourcing of agricultural raw materials, and marketing.’ (ibid 52) She continued, more expansively than four years earlier:

[First] the very conditions which allowed for agrofood capitals to become pivots of accumulation have created new social actors and new social problems. Second, agrofood corporations are actually heterogeneous in their interests....Classes of producers and consumers have changed radically from the time when transnational agrofood corporations were born. The agrofood sector is now focused on food - industry and services - rather than on agriculture. The character of classes, urban and rural, involved in food production has shifted. As farmers have declined in numbers and unity, and workers have lost some of their bargaining power with agrofood corporations, food politics have shifted to urban issues. As national farm policies are come under increasing pressure, the possibility arises to create a positive food policy.

To this new phase of increasing corporate dominance, with its ‘principles of distance and durability, the subordination of particularities of time and place to accumulation’ Friedmann counterposed ‘democratic principles’ that

by contrast, emphasize proximity and seasonality- sensitivity to place and time... healthy food and environmentally sound agriculture must be rooted in local economies. A democratic food

policy can reconstruct the diversity destroyed by the monocultural regions and transnational integration of the food regime. It is also about employment, land use, and cultural expression.

In short, the ecological concerns central to much discussion of a third food regime is already stated here.

A corporate-environmental food regime

In 2005 Friedmann asked ‘is a new food regime emerging?’, suggested that ‘We are due for a new food regime, if there is to be one’, considered ‘changes that might constellate into a new food regime’ and named it ‘the corporate-environmental food regime’:

After a quarter century of contested change, a new round of accumulation appears to be emerging in the agrofood sector, based on selective appropriation of demands by environmental movements, and including issues pressed by fair trade, consumer health, and animal welfare activists. (Friedmann 2005, 228, 229)

The central point is that ‘A green environmental regime, and thus green capitalism, arises as a response to pressures by social movements’ that emerged ‘in the interstices of the second food regime’ (ibid 230, 227). This process reveals the character of food regimes as based in implicit rules which then become explicit - have to be ‘named’ - as tensions intensify (as noted earlier). If successful, a new (third) regime

promotes a new round of accumulation as a specific outcome of the standoff between ‘conventional’ and ‘alternative’ food systems. If a new regime consolidates, a new frame will make terms like these redundant; it will need no name. Challengers will seek to name it, that is, to expose its implicit workings (ibid 231).

The emergence of a corporate-environmental food regime thus represents a ‘convergence of environmental politics’ and corporate repositioning, especially through ‘retail-led reorganization of food supply chains’ (the ‘supermarket revolution’, HB) aimed at ‘increasingly transnational classes of rich and poor consumers’ (ibid 251-2, see also 258). The former are located in the North together with ‘the rise of privileged consumers in large countries of the global South and China’ (ibid 252). At the same time, regulation has increasingly moved towards corporate agribusiness, facilitated by ‘*a continuing impasse among governments in the North in international organizations*’ concerning trade, hence notably the WTO (ibid 252, emphases added), and, one could add, an impasse that expresses the drawn-out demise of the ‘mercantilist’

elements of the second food regime: ‘faltering international organizations, including the WTO, are being outflanked by *private* transformations of agrofood supply chains in response to social movements of consumers, environmentalists, and others’ (ibid 253, emphasis in original).

Other important features of an emergent third food regime include declining US hegemony (ibid 255), and a continuing ‘key role’ of *national* states in regulating aspects of food and agriculture’ that ‘private capital alone cannot regulate’: ‘conditions of production such as land use and labor markets, or of consumption, such as food safety’ (ibid 257). At the same time, the thrust of capital accumulation in a third regime, and its modalities including the application of ‘standards’ by global agribusiness, ‘deepen longstanding processes that dispossess and marginalize peasants and agrarian communities, and create more poor consumers and more people without stable incomes to consume at all’ (ibid 257). The theme of peasant dispossession has become central to the more programmatic statements of a third ‘corporate food regime’, as we shall see in a moment.

Friedmann (2005, 257-9) finishes with ‘No conclusion: the contest continues’: the ‘emerging corporate-environmental food regime is already contested by the very movements it draws on’ to ‘green’ itself (to the extent that it does), with such movements themselves ‘regrouping’ (including networking internationally) like the Food Alliance in the USA and the Slow Food Foundation for Biodiversity (ibid 259).

A corporate food regime

In contrast with this tentative assessment, McMichael’s version of a global corporate food regime that has crystallised since the late 1980s (McMichael 2009, 142) is more definitive and encompassing, as indicated by the quotations in the second section of this paper.

He believes that a third food regime is distinguished ‘as a new moment in the history of world capitalism’ by ‘the politics of neo-liberalism’ (McMichael 2005, 273).

The corporate food regime is a key vector of the project of global development...characterized by the global de-regulation of financial relations, calibrating monetary value by credit (rather than labour) relations - as practiced through the privatizing disciplines internalized by indebted states, the corporatization of agriculture and agro-exports, and a world-scale casualization of labour...The corporate food regime exemplifies and underpins these trends, through the determination of a world price for agricultural commodities strikingly divorced from costs...the

world price of the corporate food regime is universalized through liberalization (currency devaluation, reduced farm supports, and corporatization of markets) rendering farmers everywhere vulnerable to dispossession as a precondition of the construction of a world agriculture. (ibid 266-7).

The first key feature of the corporate food regime, then, is its location within the general dynamic of liberalisation (of markets) and privatisation (of formerly public functions and services) at the core of neoliberal globalisation. As both effect and instrument of this dynamic, states become subservient to (global) capital, and follow the 'rules' imposed by the ideology of the market: 'a set of rules institutionalising corporate power in the world food system' (McMichael 2009, 153).

Second, 'corporate globalization' proceeds through 'mechanisms of "accumulation by dispossession"', in the term popularised by David Harvey (2003), such as the 'global displacement of peasant cultures of provision by dumping, the supermarket revolution, and conversion of land for agro-exports' (McMichael 2005, 265), with 'a state-finance capital nexus dedicated to constructing new frontiers of accumulation' (McMichael 2013, 130).

A 'world agriculture' (involving 'accumulation by dispossession') emerges for the first time, as 'a transnational space of corporate agriculture and food relations integrated by commodity circuits' (if not 'the entirety of agriculture across the earth'; McMichael 2005, 282). Its divisions of labour and markets both continue from those of the previous regime, thus 'Northern staple grains traded for Southern high-value products (meats, fruits and vegetables' (McMichael 2009, 286), and add to them, for example, the appropriation of massive areas of land in the South - 'a land grab express' (McMichael 2013, 118) - for the production of bulk staples that are not destined for direct consumption as food but as industrial inputs, both for animal feeds and increasingly for biofuels (or as 'flex crops' substitutable between food and non-food uses).

Moreover, international trade in all these leading agricultural commodities - from grain and oilseed staples to 'traditional' exports from the South (e.g., coffee, cacao, tea) to its 'non-traditional' exports of high-value FFVs (fresh fruit and vegetables, plus prawns and other aquacultural commodities, cut flowers, and so on) - takes place increasingly through global commodity chains dominated by corporate agribusiness, whether upstream and/or downstream of production and/or organising it directly or indirectly (for example, through contract farming).

One particular form of land grabbing is by (foreign) states through their sovereign wealth funds and other entities, in order to produce food (on large-scale farms) for export to their domestic economies - what McMichael terms 'agro-security mercantilism' (ibid 125-8).

Third, the corporate food regime generates an ever increasing, and ecologically destructive, industrialisation of agricultural production, 'undermining conditions of human survival', through:

- its intensive dependence on fossil fuels,
- its accounting for about a third of GHG [greenhouse gas emissions],
- its degradation of soil (intensifying dependence on petro-fertiliser),
- its destruction of biodiversity, and ultimately
- its depletion of cultural and ecological knowledges about living and working with natural cycles by wiping out smallholder diversified farming, shown to be more productive and more environmental than specialised industrial farming.

A major instance of this process is the 'neoliberalization of nature' (McMichael 2013, 130) beyond the mechanisation and 'chemicalisation' historically associated with industrial agriculture and intensified today, that is to say, the pursuit by corporations of private property rights in the genetic qualities of biological instruments of production, notably seeds and animals. This is the new frontier of GMOs (genetically modified organisms), sometimes drawing on the (re-)engineering of existing plant species appropriated through practices of 'biopiracy' and then patented under the provisions of the WTO's TRIPS (Trade Related Intellectual Property Rights).

Fourth are the effects of the corporate regime for questions indicated earlier about food: where and how is food produced and consumed, and by whom? What types of food? These questions have various dimensions which generate different, if connected, answers. Probably the most overarching answer, reflecting a feature of food regimes from the beginning but intensified in the third food regime, is the prevalence of food consumed far from where it is produced, hence a kind of generic 'food from nowhere': 'the corporate food regime embodies *a central contradiction* between a "world agriculture" (food from nowhere) and a place-based form of agro-ecology (food from somewhere).' (McMichael 2009, 147, emphasis added). A qualification to this follows from Friedmann's distinction (above) between 'increasingly transnational classes of rich and poor consumers', of which the former can afford foods branded by source, or place of

origin - and additionally certified as 'organic', 'fair trade', etc - even though they may also travel considerable distances (for example, wines, coffees, teas, chocolate).

Other issues concerning food distribution and consumption in the current regime include the health effects of industrially produced foods (with high levels of toxicity and other consequences of 'chemicalisation'), not least in 'fast foods' and diets based on them (Lang and Heasman 2004). To this can be added 'nutritionalisation': (chemical) engineering of foods in the field (as GMOs) or through processing in their journeys from field to plate, ostensibly to boost their nutritional value (Dixon 2009), as well as the damaging 'ecological hoofprint' of expanding industrial meat production (Weis 2013).

There is also the issue of the distribution of food among the world's population, and especially patterns of persistent hunger. Here McMichael (and other advocates of 'food sovereignty', on which more below) usually recognise that this is not an effect of an aggregate shortfall in global food output, despite their opposition to how much of that is produced by industrialised agriculture, and albeit that extensive conversion of land to cultivation of biofuel feedstocks reduces total food availability, other things being equal. Rather, hunger and its distribution - who goes hungry, where and why - is an effect of the extreme inequality of income distribution in contemporary capitalism (that is, of class relations), as well as of volatility in the prices of staple foods.

The last, registered in the dramatic spike in world food prices in 2007-8, may be considered an index of a crisis of the third food regime (McMichael 2013, 109-114), an 'agflation' that represented the end of an era of 'cheap food' (ibid).²⁰ Contributing to that historic moment were

1. (i) 'a long-term crisis' of industrial agriculture, marked by declining productivity growth in its grain farming and its rising production costs (because of its heavy dependence on fossil fuels);
2. (ii) 'an integration of food and energy markets', especially the diversion of crop land to biofuel production; and
3. (iii) 'an associated legitimacy grab by governments with short-term horizons deepening the crisis by sponsoring an agrofuels project.' (ibid 114).

The response of capital to the crisis was to extend further its frontiers of accumulation, especially by intensifying characteristic mechanisms of the third food regime already noted, like land

grabbing and the types of production it installs (ibid 117-125). This can only deepen the social and ecological contradictions of the corporate food regime.

This summary of a third ‘corporate’ food regime, abbreviated as it is, demonstrates both how definitive and, at the same time, how encompassing its arguments are. The summary has also given sufficient clues about the explicitly political quality of ‘the food regime project’ in the conditions of contemporary globalisation. Indeed, resistance to the current regime, it is claimed, expresses the most fundamental social contradiction *intrinsic* to the third food regime, capable not only of facilitating its ‘terminal crisis’ but generating a radical progressive alternative to it. Such resistance is exemplified by the transnational social movement La Vía Campesina (‘the peasant way’) and its programmatic goal of ‘food sovereignty’, in the context of some definitive features of the third food regime, notably its accelerated dispossession of ‘peasants’/‘family farmers’, especially but not only in the South; the contribution to that process of the liberalisation of agricultural trade (and its uneven playing field given continuing subsidies to agribusiness in the USA and EU); and the ecologically destructive industrialisation of agriculture.

McMichael writes prolifically about La Vía Campesina and ‘food sovereignty’, as about many aspects of the third food regime. Here, again for the sake of convenience, I summarise some of the key points of the final chapter of his recent book (McMichael 2013, Ch 7) which presents a comprehensive, indeed ‘world-historical’, thesis and antithesis: capital and ‘peasants’ as ‘capital’s other’ (in the term of Bernstein 2014).

Thesis derives its broadest foundation from the nature of capitalism and how it undermines the mutually reproductive relation between human society and (extra-) human nature.²² Above all, and drawing on Marx, is the definitive tension between use value and exchange value, and capital’s drive to commodify all the conditions, activities, and means of human existence in pursuit of the expansion of (exchange) value, profit and accumulation. What this entails is especially well exemplified by food, the most essential and intimate product of relations between human society and (extra-) human nature. Its historical trajectories have been traced through the sequence of food regimes in world capitalism over the past 150 years, culminating in the social and ecological destruction generalised and intensified in the period of neoliberal globalisation. At the same time, if pursued properly this (‘ontological’) understanding entails rejection of ‘development narratives’ claimed in the name of Marxism (as in other traditions of social

thought) that construct ‘modernity’ as the endless development of the productive forces, hence ‘conquest of nature’ (see also Araghi 2003).

...capital’s self-valorization imposes a violent ontology privileging a development narrative and misconstruing and devaluing other cultural claims based on quite distinct practical experience. Where capital commodifies and fractionates ecology, the price form abstracts from, and invisibilizes, biological processes...The contemporary agrarian question, then, concerns how to transcend the exchange-value consensus, as applied to agriculture. (McMichael 2013, 136, 137).

Antithesis is signalled by both the need and possibility of transcending these dynamics of capitalism manifested in the third food regime:

At this point in the story, the focus on peasant mobilisation is an acknowledgement that the human and ecological wake created by the ‘globalization’ of the corporate food regime is the central contradiction of the twenty-first century global food system. (McMichael 2009, 147)

In ‘revaluing agriculture as the key to social and ecological reproduction writ large’ (2013, 138), ‘other worlds are not only possible, but already in existence’ (ibid 134) in the form of ‘extant food cultures’ that manifest ‘a healthy logic of reproduction of social and ecological relations’ (ibid 131). That is to say, *peasant farming* which is ‘distinct from other forms of farming in prioritizing ecological value. In this sense it is unthinkable in modernist terms, and distinguished by the centrality of labour’ (ibid 146). Drawing substantially on Ploeg (2008), McMichael argues that peasant farming aims to maximise its ‘ecological capital’, to reproduce and enhance its ‘sustainability’, through

1. (i) high levels of labour intensity (hence the ‘centrality of labour’) in maintaining/restoring soil fertility and water resources, and generating practices of polyculture (vs monoculture);
2. (ii) a ‘knowledge commons’ that shares the results of experience and experiment (vs the drive of capital to ‘enclose’ or privatise all aspects of production); and
3. (iii) a culture of cooperation more generally (peasant ‘community’).

This also means that peasant farmers avoid or reduce their dependence on purchased (commodified) inputs, which strengthens their position in negotiating the sale of their produce including through alternative avenues of marketing, such as various forms of ‘farmers’ markets’.²⁴ Thus while peasants may be market producers they are not petty commodity

producers constituted within capitalism (ibid 157, note 7). Indeed, these dynamics of (relative) ‘decommodification’ characterise ‘re-peasantisation’, that is to say, shifts in the practices of existing small-scale farmers as well as the entry of new farmers who are committed to agro-ecological principles.

Smallholders are by far the majority of farmers in the world, in some estimates producing 70 percent of the world’s food, over half of which they consume themselves, with international trade accounting for only 10 per cent or so of total world agricultural output (ibid 157, note 10). Moreover, ‘several studies conclude that the relative yields of organic/agro-ecological friendly are sufficient’ to meet global food needs (ibid 151).

In short, millions (tens of millions?) of small farmers already show the way forward, as long as they are not dispossessed directly (by land grabbing) or indirectly by the politically constituted market forms and effects of the third food regime. This is where La Vía Campesina, a transnational social movement committed to mobilising for ‘the peasant way’, is crucial, as is the ‘civilizational movement’ of food sovereignty with its principle of ‘democratic rights for and of citizens and humans (*sic*)’ (ibid 150). The food sovereignty movement advances an (alternative) ‘politics of modernity rooted in a global moral eco-economy’ which is gathering in its impact, including through some UN institutions, representing ‘a shift in the balance of moral forces’ in the period of globalisation (ibid 156, 155).

1.2 Food, imperialism and dependency

Imperialism is an era of transition, and indeed of *rift*, in the sense that it tears history apart by pulling in two directions. On the one hand it is highly *reactionary* (both in militarism and politics), acting to suppress creative initiative. On the other, it ‘drags the capitalists, against their will and consciousness, into some sort of new social order . . .’ (Lenin, 1939). Thus, through the course of this era, elements of a new order are at the same time emerging and being held back. If, therefore, today’s situation may sometimes seem exasperatingly static, there could be a dynamism within this: where two conflicting forces temporarily neutralize each other, something could rapidly unblock the situation.

Imperialism has two closely linked facets: structural change within capitalism and dominance over the global South. The exploitation and resistance of the peoples of the South is always a central theme, and new structural forms of capitalism evolve in a two-way relation of cause and effect. Such forms include the rise of mega-corporations and speculative finance capital, which

serve simultaneously as mechanisms of accumulation, and structures to smother resistance. Both the corporate and finance- capital aspects of imperialism are exemplified in the food system, a system which therefore cannot be changed without challenging them.

Neo- colonialism's harsh impact on the global South

If the web of power is strong enough, a transition could be engineered from the formal colonialism of early imperialism into a 'neo- colonialism', where Southern elites are vouchsafed their own flags and anthems but remain in thrall to the core. It cannot be overemphasized how important control over a country's food supply has been as a condition for this. Cold War warrior Henry Kissinger openly boasted of using 'food as a weapon' (Linear, 1985). Conversely, it is precisely the hollow 'sovereignty' of neo- colonialism which is today being critiqued from below by food sovereignty movements.

In the process of an engineered food dependency, a major role was played by discourses of 'development' and modernization. These had two functions: smashing 'tradition' (i.e. the good side of tradition: localism, autonomous knowledge and farmer- based research); and propagating a model where the goal of development was wholly identified with industrialization, leaving agriculture starved of investment.

Thus, policies urged in the 1950s by development theorists like Walt Rostow imaged traditional societies as 'backward' *precisely because* their people were able to rely on the bounty of fertile lands (Rostow, 1958, p.159); this allegedly made them lazy so they had no incentive to become entrepreneurs. However, if the 'old' rural order had to be expunged, no autonomous modernised agriculture was allowed to take its place: to escape 'backwardness', developing nations must industrialise *rapidly* (the phrase Rostow used was 'takeoff', implying some sense of escape velocity), which meant extorting, somehow, a massive surplus from the countryside to feed the urban population *even though investment was all flowing into industry*. The result could only be to perpetuate food dependence.

Since the promise of 'modernisation' was actually hollow, the resultant social formations readily subsumed the bad side of the tradition they claimed to reject. In pre- capitalist societies (feudal, or perhaps the better term is 'tributary' – Amin, 1980), there had been a kind of balance whereby wealthy rural elites had prescribed duties of patronage. In contrast, under neo- colonialism, as Baran points out, the exploitation of populations by their domestic agrarian rulers was '... freed of the mitigating constraints inherited from the feudal tradition' (Baran, 1958,p.76): in other

words, the functional part of elite agrarian tradition was scrapped, leaving only the oppressive bit. This is why ‘modernising’ societies are often rooted in very primitive landholding structures, a point well made in the analysis of Indian society by the Naxalite revolutionaries of the 1960s (c.f. Bannerjee, 1984), and which has surely retained its relevance today.

An imperialism of resource flows, and how to fight it

For a still deeper perspective on exploitation, including its neo- colonial form, we should now consider resource flows. As we argued earlier, one way to analyse a system is through its inputs and outputs. In urban/ industrial society, linear flows replace loops (de Rosnay, 1979), inputs are thoughtlessly degraded, and excessive waste ejected. In a thermodynamic sense, we can represent the inflow as low entropy or ‘exergy’ (Hornborg, 2001), which turns into entropy when used up.

From this angle, we might approach the food system by examining only what flows into and out of it, leaving the mode of cultivation itself as a black box. Here, political ecology would consider how such flows are *controlled* and, on this topic, Malcolm Caldwell (1931– 78) made crucial contributions:

[1] in his notion of ‘protein imperialism’ he showed how the meat industry in the core exists only on the basis of global flows of nutrients (Caldwell, 1977), thus providing a model for other exploitative flows;

[2] he showed how these global flows relate to the entropy issue, i.e. the degradation of energy/ matter from a differentiated and ‘available’ form (where they constitute a resource) into a form where they become polluting waste (Caldwell, n.d.). In other words, we must see entropy and social exploitation as linked.

The deduction might be (still regarding the farming model itself as a ‘black box’) simply to liberate the food system from such exploitative flows. This would be one line of argument in favor of localism.

The above level of analysis, although somewhat helpful, is only partial. Caldwell’s weakness was to remain subject to a chemical- reductionist view of agriculture which magnifies the role of inputs, notably of nitrogen, with the result that his argument has at times a pessimistic and Malthusian tone. This results from a one- sided reading of systems theory which overstresses thermodynamic flows at the expense of complexity. In reality, the whole point is what happens

inside the ‘black box’: the magic ingredient which both keeps entropy low, and maintains the self-modifying faculty to embrace rift, is complexity. As we have argued, flows of energy into the system tend to be *negatively* rather than positively related to the effectiveness of a farming methodology, inasmuch as the more you subject the soil to *work*, the more you weaken complexity (by damaging soil structure, organisms, fungal networks, etc.). It follows that food sovereignty and agroecology must be complementary: it’s not enough merely to delink the farming system from exploitative flows without also revolutionising cultivation *itself*, in order to rebuild complexity.

More recently, the struggle against colonialism and neo-colonialism remains similarly inseparable from a restoration of sustainability within farming. Thus the great African leader and martyr Thomas Sankara (1949– 87) from Burkina Faso critiqued the food issue both as a material basis of dependency (c.f. Shufeld, 2006), and as a paradigm to understand – and therefore to fight – exploitation in a more general sense. Sankara was arguably the first statesman to link the political struggle (for land/ food, against neo-colonialism) with explicit support for agroecology, c.f. his encouragement of agroecological projects conducted by Pierre Rabhi, which still continue (Terre et Humanisme, 2014). The orientation of Rabhi’s work seems to be very much South → North and South → South: *not* about ‘introducing’ agroecology from outside, but rather enriching it, learning from indigenous techniques, which in practice *are* agroecology even if they do not use the name.

Trade specialization and the rise of globalism

The notion of free trade was proposed quite early in capitalist history, at the beginning of the nineteenth century, by David Ricardo. The justification was international co-operation in place of nationalist competition, which seemed to make sense. However, there are too many crucial issues, notably ecological issues, which the theory sweeps aside. Its basis was the notion of ‘comparative advantage’, according to which each country should specialise in *only* the few products in which it could ‘do best’ (Ricardo, 1951). We cannot over-emphasise the importance of this point: under liberalism, *free trade is equivalent to specialisation*.

The most obvious ecological issue is to discount the impact of transport (plus refrigeration, etc.), hence the whole issue around food miles, but there is also something deeper.

The natural approach was always to cultivate a wide spread of crops, since, while any given year might be disastrous for some, this would not matter because it would be good for others. Every

year is in some way 'extreme' and you may lose some crops completely: for example, the broad bean (*Vicia faba*) is prone to attack by a form of aphid, which is normally controlled by its natural predator, ladybirds (*Coccinellidae*). However, the disruption of seasons caused by climate change may lead to the latter breeding at the wrong time, in which case you lose the whole crop. Nevertheless, there will always be a bumper harvest of something else to compensate so, in that sense, there is no such thing as a 'bad year'. If you are specialised, on the contrary, both your livelihood as a farmer, and the food security of the consumer, will be jeopardised. Specialisation in agriculture is therefore antithetical to resilience. Although for the global South one could obviously say there is some comparative advantage for tropical crops, this argument is deceptive: the South's real 'advantage' under imperialism is cheap labour and lax environmental rules.

Given the exploitative potential, from an imperialist perspective the liberalisation of global trade seems a no-brainer.

Why, then, did it take so long to implement? The answer lies in the fact that a counter-trend also exists. One of imperialism's key dualities lies in the tension between its globalising face and its nationalistic/ fascist/ military face. Early imperialism, while highly internationalised at some level (notably investment), was also hyper-nationalist. In particular, wartime brought home the importance of food security as an offshoot of national security (thus an essentially militaristic definition). Accordingly, in the postwar/ pre- neo-liberal phase (i.e. 1945 through to the 1980s), a strange situation prevailed: while the General Agreement on Tariffs and Trade (GATT) began tentatively to explore free trade *in industry*, in agriculture the capitalist powers actually became more nationalistic. The UK augmented its food self-sufficiency to a point where (by the early 1980s) 95 per cent of indigenous-type food was locally grown (Barling, et al., 2008, p.11). That period in the history of food imperialism was extremely important, because it laid the foundation for where we are today. While colloquially we tend to call the global North 'industrialised' (which seems to imply the South is agricultural), in reality the powerhouse of agriculture is *also* in the North, while the South, owing to the impact of 'development' policies which throttled rural investment, must depend on imports either of food itself or of agricultural technology. Thus the nationalism of the core served to restrict and deny that of the periphery.

More specifically, the systemic power of the North is concretised under two aspects:

[1] The issue of staples (starchy crops that supply the majority of carbohydrates and are thus strategic for food security). Parts of the core where agribusiness productivity is extremely high become major staple food exporters (notably of wheat) to the South, often displacing indigenous staples (sorghum in India, maize in Mexico) in the process. Here, we again see how a system, by being simplified and homogenised, is easier to control. It is precisely on the basis of being in control of the world food system that imperialism felt safe – under neo-liberalism and globalisation, from the early 1980s onward – to realise more fully the exploitative potential of ‘free’ trade *in industry*. While a tendency to import consumer manufactures from the South was always latent in imperialism – as shown in the predictions of Hobson (Hobson, 1902) – it took a long time to realise. I would argue that it required the North to build its food empire first.

[2] Global value chains in food. The point of value chains is to fragment productive processes, sub-contracting tasks to small firms for whom the core company has no responsibility; if they go bust, someone else will pick up the contract. This has spawned a whole terminology: ‘flexibility’, ‘zero stocks’, etc. (Biel, 2000). Initially, this system was experimented with in industry but, during the latter part of the 1980s and early 1990s, the value chain approach was extended to food. With the Uruguay Round of GATT (1986–94) and inauguration of the World Trade Organization (1995), agricultural trade was subsumed into global accumulation, along with the ‘trading’ of intellectual property rights, which were of key significance for food-related technologies. From a food-regimes standpoint, there was at the same time an effect in accentuating the North-South divide: when the limitations of productivity were revealed within the global North – its focus solely on quantity had led to qualitative decline (Welch and Graham, 1999) – the intensive sector was internationalized (Marsden and Morley, 2014, p.8).

Agriculture and capital accumulation

The old farming paradigm was driven by *industrial* capitalism, in the following senses:

[1] *Politically*, the incentive was to feed urban proletarians enough to keep them docile.

[2] The *economic* incentive arises as follows: part of a worker’s pay goes to replacing her/ his subsistence, the remainder (surplus value, in Marx’ terminology) being profit. Therefore, if you reduce the cost of subsistence (within which food obviously figures strongly), profit *in the industrial sector will rise*.

These arguments still apply, but a major change came with the crisis of the 1970s when conventional sectors dried up from an accumulation standpoint. Now, capitalism depends increasingly on agriculture as a means of accumulation in its own right. We can interpret this conceptually in two ways:

(a) Rosa Luxemburg predicted, during the early twentieth-century imperialism debate (Luxemburg, 1913), that accumulation can not reproduce itself out of nothing: it must always snatch, and commodify, new realms of existence, sucking each dry before clawing in the next (this is one reason why I argued that there is an ‘entropy’ intrinsic to capitalism – Biel, 2012). When neo-liberalism came in, in the early 1980s (marking a qualitative increase of commodification at every level), it found much untapped potential in agriculture, as well as in farming-related ‘intellectual property’, notably biotechnology.

(b) As Marx revealed (Marx, 1954 [1887]), the competition of capitals creates a driving logic to replace labour by machines: in a large-scale, mechanised process, a handful of workers produce many goods, making the enterprise more competitive.

This latter tendency was initially realised in industry but has obvious implications for agriculture as well: today in parts of the global North perhaps 2–3 per cent of the population work in agriculture and, owing to the high level of technology, produce (unsustainably) vast volumes of food. Hence agriculture fully assumes the characteristic features of imperialism: concentration, agribusiness, factory farming.

Whereas the critique of productivism would address this same reality – the shift to agribusiness and mechanisation – from the stand point of increasing the productivity *of land* (so as to feed more people), the Marxian argument adds the dimension of raising the productivity *of labour*. The difference is important, because it is by no means demonstrable that concentration actually *does* increase the productivity of land: small farms may in fact be at least as productive as agribusiness, if not more so (GRAIN, 2016, p.84). The fact that the productivity of labour increases is, however, indisputable. Using this logic – which humanity does not really want or need, but is forced by the structural dynamic of capitalism to follow – the result is not just to raise unemployment but, more specifically, to effect a depopulation of the countryside accompanied by a kind of urbanisation driven more by rural dispossession than by the promise of actual urban employment.

This argument is important for how we appraise the ‘new paradigm’ addressed in FAO/ United Nations Conference on Trade and Development (UNCTAD) discourses. On the one hand, it calls for maintaining and indeed increasing *the productivity of land* (‘sustainable intensification’). On the other hand, a renewed emphasis on small farms seems to imply a *decrease in the productivity of labour* : as rural livelihoods are rebuilt, farming will become more labour- intensive (as opposed to capital- intensive); quite possibly, too, a deurbanising ‘counter- exodus’ will occur, whereby the proportion of rural population increases somewhat.

Resisting the co-optation of small farmers in a new regime of imperialism

The possibility for co-opted form of small enterprise was always latent in imperialism. It is implied by yet another of the dualities we keep encountering: on the one hand capitalism pushes towards modernity, monetary economy, the dominance of market relations, concentration (larger enterprises gobbling up small ones), and the replacement of labour by technology. *Superficially this appears very much the dominant trend*, highly typical of the imperialist phase. On the other hand, there was always a faculty for subsuming many kinds of more ‘primitive’ determinants. This is a major issue in the feminist critique of the household (Hartsock, 1983): the household was a unit inherited from patriarchal society (‘bad tradition’), and subsumed under capitalism (Biel, 2000, p.133). Furthermore, sectors of the population marked out by ascribed gender and ‘racial’ determinants, or by informal (e.g. undocumented) status, are super- exploited in activities very often labour- intensive, self- employed and non- monetarised. A similar line of argument is seen in Dependency theory, according to which, ‘insofar as primitive accumulation refers to accumulation on the basis of production with non- capitalist relations of production, it need not be prior to, but can also be contemporary with capitalist production and accumulation’ (Frank, 1978, p.241).

In this, a tactic has always been to enlist the oppressed as agents in their own oppression and, here, the relationship with technology is interesting. Household appliances were advertised as liberatory, but were really just a way of anchoring the household in a new accumulation regime. There is an analogy with farming, because the chemical- intensive paradigm would be insecure if embodied only in corporations; it must also colonise the mind of small farmers. This was possible because the pre- modern system, *as peasants actually experienced it* (i.e. circumscribed by corrupted elites in collusion with colonialism), although formally organic, was the antithesis of a low- work deep tradition; on the contrary, it imposed backbreaking toil for low yields.

Therefore, when modernism offered a false promise of liberation through a sanitised, homogenised world of chemicals and miracle seeds, a magical passport to predictable high yields free from vagaries of climate, a new prosperity, it is altogether understandable that many welcomed it.

The question is how to escape this situation today.

The kinds of paradigm- shift addressed by Kuhn (1970) were already a deeper issue (in world-view and modes of being) than typically envisaged by FAO- style ‘paradigm- shift’ discourses, but even then they took place in the minds of elite thinkers like Galileo. What we need now is something much deeper still, because it must come from below. It is a question of *conscientisation*: and whether in the work of Freire (1972), Biko (1978) or Fanon (1952), conscientisation is always about curing a colonisation of the mind. This is why the political side of the movement – food sovereignty – is inseparable from the physical cultivation methods (agroecology etc.). If you only have the politics (community autonomy, national sovereignty, etc.) without fundamentally changing the physical cultivation methods, it will be a failure and, conversely, to have only agro-ecology without the politics would be equally nonsensical.

In the absence of political radicalism, the ‘new paradigm’ might indeed be mere window-dressing for a new episode in the history of capitalism’s super- exploitation of households and small producers. This is especially likely because, in its most recent phase, capitalism has indeed adapted to embrace principles of self- organisation and complexity, at least up to a point (Biel, 2012). With industrial value- chains, the whole issue is that these function *not by destroying small producers* or even some elements of self- organisation amongst them, as in industrial clustering – but rather by corralling them into voluntary slavery. Foucault, in his work of the mid- 1970s, prophetically described a power ‘exercised through networks’, and which ‘functions only when it is part of a chain’ (Foucault, 2003, p.29). In more recent specialist literature favourable to industrial organisation we find confirmation of this, in the fetishisation of concepts such as ‘network capitalism’ (defined as the culmination of three successive steps wherein governance has been exercised respectively through markets, hierarchies and networks) (e.g. von Tunzelmann, 2003, p.369).

Although the initial focus of such a re- positioning was industry, the theory behind it actually derived from small *peasant* production. A key notion is that of ‘self- exploitation’. In elaborating this term, A.V. Chayanov (1888– 1937) showed (Chayanov, 1966) how the peasant household

organised its resources *internally* according to principles which were not capitalist (c.f. also Thorner, 1971). Parallel with this, there was also a way of exploiting what we could call a reverse alienation: earlier capitalism had caused a ‘dis- embedding’ – to employ a concept introduced in varying contexts by Karl and Michael Polanyi (Polanyi, K., 1944; Polanyi, M., 1962) – in other words, *a separation from real conditions, real place and real nature*. Now the new management literature recognises such separation to have been counter- productive, and advocates instead a re- discovery of *embeddedness* in place, in local realities, but of course subordinated to global networks. The new management theories from the 1980s thus helped capitalism prolong its rule by parasitising non- capitalist modes of organisation which might in principle be those of a new phase of human society and, in fact, this is the worst form of capitalist exploitation. It should be obvious that all these methods would be eminently transposable to agricultural smallholders.

Accordingly, even *or perhaps especially* in a model where small farms were insulated to some extent from the circuits of capitalism in their *internal* operation – so long as the buyer- driven food chains (dominated by Northern conglomerates) retain *overall* systemic control – the setup would be exploitative. It is indeed more profitable for the monetarised, fully- capitalist sector to exploit units which internalize their reproduction costs, than it would be if everything was monetarised – an argument which would apply not just to rural small farms, but also to urban food- related initiatives, including community- based ones. In this sense, both small farmers in the rural ‘new paradigm’, and the new ‘community’ discourse of modified neo- liberalism in the city, could be complementary pathways to exploitation.

If we are aware of the dangers, they could be avoided, by for example small farms and local initiatives finding an alternative pole of attraction to shield them from exploitation by global chains. This is exactly why a militant food sovereignty movement is an indispensable ingredient, although it can be supplemented by community social movements, and in this sense the city has a crucial contribution to make, for example by setting up Community Supported Agriculture schemes. The point is to escape imperialism’s perverse ‘embedding’, and move back/ forward to a *meaningful* embedding within local cultures, knowledge systems and community networks.

Food sovereignty is, after all, merely a term currently attached to an emergent process, one which by definition is more than the sum of its parts. These parts include: land reform, indigenous struggles, food networks, seed exchange, community supported small farms, co-operatives,

commons regimes in knowledge, localism, urban metabolism and many more. Such movements, generated by the reality of alienation and dispossession, are descendants of struggles going back to the origins of colonialism and class society, and the point now is to bring them together into an ensemble. The process is partly an objective one, common to self- organisation in all complex systems, and partly a subjective visioning of a better future. In any case, food sovereignty cannot fully be understood outside the context of the era within which it has arisen: that of imperialism.

1.3 The Green Revolution of the 1960's

The Green Revolution was initiated in the 1960's to address the issue of malnutrition in the developing world. The technology of the Green Revolution involved bio-engineered seeds that worked in conjunction with chemical fertilizers and heavy irrigation to increase crop yields.

Origins of the Green Revolution

In April of 1969, then president of the Rockefeller Foundation, George Harrar called a meeting to address the problem of world hunger. In attendance were 16 leaders from the world's major foreign assistance agencies that were also concerned with agricultural development. One of those in attendance was Lowell S. Hardin, author of "Meetings that Changed the World: Bellagio 1969: The Green Revolution" (Hardin 2008).

The Rockefeller Foundation had already been working with partners in developing countries to develop technology to increase food production. They held the meeting in Bellagio, Italy to emphasize the importance of scientific advancements in farming techniques as opposed to food shipments to poor countries by aid organizations. They presented the positive impacts achieved by the major international agricultural research centers. One of these achievements was the introduction of new varieties of seeds developed by plant scientist Norman Borlaug that were "stocky, disease-resistant, fast-growing and highly-responsive to fertilizer" (Hardin 2008: 471).

The 1969 Bellagio conference was the impetus for the world's agricultural-development organizations' mobilization of plans for an increase in food production, later termed the "Green Revolution". The Green Revolution quickly spread through the developing world, including the states of India. (Hardin 2008).

Farming Methods Introduced by the Green Revolution

The Green Revolution technology employed the use of new high-yielding varieties of seeds as well as chemical fertilizers. The problem with indigenous seeds was not the fact that they were

not high-yielding, rather it was their inability to stand up to heavy applications of chemicals. The new varieties were created in conjunction with the fertilizers to work together with heavy irrigation to produce higher yields. Independently, the seeds as well as the fertilizers were fairly ineffective, but used together they were promised to double or even triple crop yields (Newman 1997).

To employ the methods, Punjab was chosen as the initiation site in India. Although it is relatively dry, there had been extensive development of irrigation canals during the colonial period. Additionally, Punjab was home to many large wealthy farmers who would become the first to receive the Green Revolution packages (Newman 1997).

Impacts on Agricultural Productions

The adoption of HYVs occurred quickly. By 1970, about 20 percent of the wheat area and 30 percent of the rice area in developing countries were planted to HYVs, and by 1990, the share had increased to about 70 percent for both crops. Yields of rice and wheat virtually doubled. Higher yields and profitability also led farmers to increase the area of rice and wheat they grew at the expense of other crops. And with faster-growing varieties and irrigation, they grew more crops on their land each year. These changes more than doubled cereal production in Asia between 1970 and 1995, while population increased by 60 percent. Instead of widespread famine, cereal and calorie availability per person increased by nearly 30 percent, and wheat and rice became cheaper.

Latin America experienced significant gains as well, but the impact in Sub-Saharan Africa was much more modest. Poor infrastructure, high transport costs, limited investment in irrigation, and pricing and marketing policies that penalized farmers made the Green Revolution technologies too expensive or inappropriate for much of Africa.

Social Impacts

The Green Revolution led to sizable increases in returns to land, and hence raised farmers' incomes. Moreover, with greater income to spend, new needs for farm inputs, and milling and marketing services, farm families led a general increase in demand for goods and services. This stimulated the rural nonfarm economy, which in turn grew and generated significant new income and employment of its own. Real per capita incomes almost doubled in Asia between 1970 and 1995, and poverty declined from nearly three out of every five Asians in 1975 to less than one in

three by 1995. The absolute number of poor people fell from 1.15 billion in 1975 to 825 million in 1995 despite a 60 percent increase in population. In India, the percentage of the rural population living below the poverty line fluctuated between 50 and 65 percent before the mid-1960s but then declined steadily to about one-third of the rural population by 1993. Research studies show that much of this steady decline in poverty is attributable to agricultural growth and associated declines in food prices.

The Green Revolution also contributed to better nutrition by raising incomes and reducing prices, which permitted people to consume more calories and a more diversified diet. Big increases occurred in per capita consumption of vegetable oils, fruits, vegetables, and livestock products in Asia.

Problems with the Green Revolution

A revolution of this magnitude was bound to create some problems of its own. Critics charged that the Green Revolution resulted in environmental degradation and increased income inequality, inequitable asset distribution, and worsened absolute poverty. Some of these criticisms are valid and have been or still need to be addressed. But there is a tendency today to overstate the problems and to ignore the appropriate counterfactual situation: what would have been the magnitude of hunger and poverty without the yield increases of the Green Revolution and with the same population growth?

The Green Revolution in Asia stimulated a large body of empirical literature on how agricultural technological change affects poor farmers. Critics of the Green Revolution argued that owners of large farms were the main adopters of the new technologies because of their better access to irrigation water, fertilizers, seeds, and credit. Small farmers were either unaffected or harmed because the Green Revolution resulted in lower product prices, higher input prices, and efforts by landlords to increase rents or force tenants off the land. Critics also argued that the Green Revolution encouraged unnecessary mechanization, thereby pushing down rural wages and employment. Although a number of village and household studies conducted soon after the release of Green Revolution technologies lent some support to early critics, more recent evidence shows mixed outcomes. Small farmers did lag behind large farmers in adopting Green Revolution technologies, yet many of them eventually did so. Many of these small-farm adopters benefited from increased production, greater employment opportunities, and higher wages in the agricultural and non-farm sectors. Moreover, most smallholders were able to keep their land and

experienced significant increases in total production. In some cases, small farmers and landless laborers actually ended up gaining proportionally more income than larger farmers, resulting in a net improvement in the distribution of village income.

Development practitioners now have a better understanding of the conditions under which the Green Revolution and similar yield-enhancing technologies are likely to have equitable benefits among farmers. These conditions include: (1) a scale- neutral technology package that can be profitably adopted on farms of all sizes; (2) an equitable distribution of land with secure ownership or tenancy rights; (3) efficient input, credit, and product markets so that farms of all sizes have access to modern farm inputs and information and are able to receive similar prices for their products; and (4) policies that do not discriminate against small farms and landless laborers (for instance, no subsidies on mechanization and no scale biases in agricultural research and extension). These conditions are not easy to meet. Typically, governments must make a concerted effort to ensure that small farmers have fair access to land, knowledge, and modern inputs.

Another shortcoming of the Green Revolution was that it spread only in irrigated and high-potential rainfed areas, and many villages or regions without access to sufficient water were left out. Although evidence suggests that even in these cases villagers obtained important indirect benefits through increased employment and migration opportunities and cheaper food, the benefits were rarely sufficient to prevent further widening of income gaps. In India, for example, poverty in many low-potential rainfed areas has improved little even while irrigated and high-potential rainfed areas have progressed. Regional inequalities have worsened in China as well.

The Green Revolution has also been widely criticized for causing environmental damage. Excessive and inappropriate use of fertilizers and pesticides has polluted waterways, poisoned agricultural workers, and killed beneficial insects and other wildlife. Irrigation practices have led to salt build-up and eventual abandonment of some of the best farming lands. Groundwater levels are retreating in areas where more water is being pumped for irrigation than can be replenished by the rains. And heavy dependence on a few major cereal varieties has led to loss of biodiversity on farms. Some of these outcomes were inevitable as millions of largely illiterate farmers began to use modern inputs for the first time, but inadequate extension and training, an absence of effective regulation of water quality, and input pricing and subsidy policies that made modern inputs too cheap and encouraged excessive use also created negative environmental

impacts. These problems are slowly being rectified without yield loss, and sometimes with yield increases, thanks to policy reforms and improved technologies and management practices, such as pest-resistant varieties, biological pest control, precision farming, and crop diversification.

Often ignored, however, is the positive impact of higher yields in saving huge areas of forest and other environmentally fragile lands that would otherwise have been needed for farming. In Asia cereal production doubled between 1970 and 1975, yet the total land area cultivated with cereals increased by only 4 percent.