

## **The return of the food and energy crisis: structural problems and/or financial speculation?** Sean Thompson, November 2011

In August 2008, The Green New Deal, a fairly straightforward 'Green Keynesian' pamphlet that has had some influence on the liberal left, pointed out that capitalism's existential crisis was not simply about the effects of collapsing property bubbles in the USA and Europe. It said that

*'The global economy is facing a 'triple crunch'. It is a combination of a credit-fueled financial crisis, accelerating climate change and soaring energy prices underpinned by an encroaching peak in oil production. These three overlapping events threaten to develop into a perfect storm, the like of which has not been seen since the Great Depression.'*

For the almost half the people of the earth there is a fourth, even more urgent crisis, the crisis of hunger and food insecurity.

Of course, fluctuations in world oil and fuel prices, particularly the wild fluctuations of the last three or four years, have been in large measure the result of speculation. Indeed, all commodity trading, seeking as it does identify supply shortages to buy low and sell high, can be characterised as speculation. However, speculation driven fluctuations in oil and food prices are symptoms rather than causes of long term problems of production and supply that we face - although it is usually the symptoms of a disease that kill, rather than its underlying cause.

I believe that both the energy and food crises are structural problems that call into question the future of both capitalism and humanity. The oil crisis challenges the stability of capitalism because it is moving beyond the planet's physical capacity to supply the demand for fossil fuels in the quantity and at a cost which permits capitalism to continue a relatively uninterrupted expansion - without which it can't survive. However, the food crisis is not the result of any physical limits in the capacity of the earth to feed us. Generated as it is by capitalism's increasingly desperate need to penetrate new markets and new sources for investment, it presents both a challenge to humanity, particularly the peoples of the global South, and, as a result of their reaction to the on-going crisis, as in Egypt, Algeria, Tunisia etc., a potential challenge to capitalist hegemony almost anywhere in the global South.

### **Peak oil**

Last year, WikiLeaks released a cable revealing US government fears that Saudi Arabia may have overstated their reserves by 300 billion barrels, which is nearly 40% of their oil reserves, and may not have enough to meet growing demand. In 2009, Jeroen van der Veer, then CEO of Shell, said *'Shell estimate that after 2015, supplies of easy-to-access oil and gas will no longer keep up with demand.'*

Peak oil is the point in time when the maximum rate of global oil extraction is reached, after which the rate of production enters terminal decline. According to the International Energy Agency, it has already happened - in 2006, when production reached around 70 million barrels a day. The IEA estimates that currently producing oil fields, plus fields yet to be developed, plus fields that have yet to be found, will maintain an *'undulating plateau'* of about 68 million barrels a day between 2020 and 2035. However, the IEA also predicts that demand for liquid energy supplies will increase by more than 20% between 2010 and 2035, accounting for over half the increase in total primary energy demand. The gap will be met in part by natural gas liquids, but also by a big increase in *'unconventional'* oil. So even though peak oil may have been reached, oil production is still likely to go up in the coming period.

It is estimated that world energy demand will increase by 36% from 2008 to 2035. Non OECD countries, in particular India and China, will account for over 90% of the projected increase. China's energy demand will account for 36% of the projected growth, its demand rising by 75% between 2008 and 2035. By 2035, China will account for 22% of world demand, up from 17% today. India will be the second-largest contributor to the increase, accounting for 18% of the rise, with its energy consumption more than doubling over the next 25 years. On the other hand, aggregate energy demand in OECD countries will rise only slowly over the projection period. Nonetheless, by 2035, the United States will still be the world's second-largest energy consumer behind China, well ahead of India.

## **Unconventional oil**

The growing gap between conventional oil production and total liquid energy demand has been and will have to be met from a number of sources. The most important of these is natural gas, the production of which is projected to rise 64% between 2010 and 2035.

In addition there are a number of unconventional oil derivatives. These include extra heavy crude oil, particularly from Venezuela, oil sands, particularly from Canada, ultra deep off-shore, coal-to-liquids, gas-to-liquids and oil shales.

Unconventional oil resources are thought to be huge — several times larger than conventional oil resources. For example, two weeks ago Argentina's biggest oil and gas company confirmed a new oil shale find in northern Patagonia, with reserves equivalent to 927 million barrels of recoverable oil. It is discoveries like this that lead some - particularly in the mass media - to simply deny that there is such a thing as peak oil or that the depletion rate, estimated at around 4% a year by the IEA, is a problem. The media loves to announce new seemingly large discoveries of oil as if they are the solution to what is really an unfolding liquid fuels crisis. They point to the Tupi field off the coast of Brazil which is believed to have 8 billion barrels of oil, or the deepwater Gulf of Mexico thought to contain up to 15 billion barrels, or the 24 billion barrels in the Bakken Shale in North Dakota. It all sounds like a lot. However, since at current rates of consumption, a billion barrels of oil lasts the world only around 12 days, it's clear that such ongoing discoveries are not going to overcome the constraints we are experiencing in oil supplies.

Unconventional sources of oil are very costly to develop: they require large upfront capital investment. The energy cost involved in recovering crude oil is expressed as a ratio between the useable energy embodied in one barrel of oil over the energy required to extract it - the energy returned on energy invested (EROEI). In the 1930's, it took the energy equivalent of one barrel of oil to recover 100 barrels of crude - an EROEI ratio of 100:1. By 1970, the ratio was 25:1, today it is around 11:1.

Known oil shale deposits contain about 3 trillion barrels of oil equivalent. However, one tonne of shale yields only 30 gallons of kerogen, which has to be vaporised and then distilled into crude oil. It requires strip mining, which will destroy tens of thousands of hectares of land and pollute the water table, it currently costs \$90 a barrel to produce and it has an EROEI of between 10:1 and 3:1.

There are huge reserves of coal, which can be converted to energy liquids by blasting it with steam to gasify it, but it has 20% more carbon than oil and its EROEI is 6:1.

The oil sands contain between 1 and 2 trillion barrels, which can be extracted by using hot water to separate bitumen from the sand. However, it takes 2 tonnes of sand and

4.5 barrels of water to produce 1 barrel of oil, which contains about 20% more carbon conventional crude and has an EROEI of 7:1.

Ultra deep offshore has demonstrated its potential for disaster in the bay of Mexico and has an EROEI that ranges dramatically by location from down to as low as 3:1.

So an increasing reliance on unconventional oil will inevitably lead to both increasing environmental degradation and also to ever increasing oil price.

## **Biofuels**

Biofuels are currently being touted as the silver bullet that is going to solve the structural energy crisis. In 2010 worldwide biofuel production (ethanol and bio diesel) reached 105 billion litres, up 17% from 2009, which represented 2.7% of the world's fuels for road transport. Earlier this year, the IEA published a report suggesting that biofuels have the potential to meet more than a quarter of world demand for transportation fuels by 2050. However, even this optimistic projection came with a number of significant caveats.

The first of these was that biofuels are so expensive to produce that even with the current patchwork of subsidies it would be 2030 before they could compete with conventional oil. But the most important is the issue of land. Reaching the 2050 goal would require about 100 million hectares in order to produce the feedstock required, with another 125 million hectares for the biomass needed to generate heat and power for production - around the combined area of France, Germany, Italy, Spain and the UK. The report says, with masterly understatement *"This poses a considerable challenge given competition for land and feedstocks from rapidly growing demand for food and fibre"*.

## **The future price of oil**

Predicting oil prices is as problematic as predicting rates of global warming for much the same reason - the difficulty in separating the weather from the climate. Over the past three years, oil prices have yo-yo'ed madly. In July 2008, oil reached \$147 a barrel - and pushed an already faltering world economy into recession - but had fallen to \$35 by December. Since then it has zig-zagged back to above \$100, averaging \$102 for the year to date.

Notwithstanding the often violent fluctuations we have seen over the past period, the trend for oil prices since the 1973 oil crisis has upwards, albeit unsteadily. Even though oil prices dropped significantly in the years following the 73 crisis, they never returned to the previous levels. After more than a decade of relative stability, oil prices began to increase again during the 2000s until it hit record height of \$147 per barrel in 2008. They will continue to rise, because of the projected increase in world demand (from about 84mb/d in 2009 to about 99mb/d in 2035) driven almost entirely by non OECD countries, almost half from China alone, mainly driven by rising use of transport fuels.

Historically, the prices used by companies for project planning were always well below the carrying capacity of the world economy. For example in 2004 American operators were approving projects assuming a \$20 oil price, even though the US economy was theoretically capable of handling a price near \$60. However, in its most recent survey, Barclays Capital indicates that operators' budget assumptions have risen to \$87, which, they suggest, is the maximum carrying capacity of the US and European economies. Thus, on current trends, the oil companies will soon be approving projects that deliver oil at prices literally unaffordable to the advanced economies - plunging them once more into recession.

The IEA's long term assessment is that *'The oil price needed to balance oil markets is set to rise, reflecting the growing insensitivity of both demand and supply to price. The growing concentration of oil use in transport and a shift of demand towards subsidised markets are limiting the scope for higher prices to choke off demand through switching to alternative fuels. And constraints on investment mean that higher prices lead to only modest increases in production. In practice, short-term price volatility is likely to remain high.'*

The IEA is warning that in the medium term there is a risk of prices passing the previous peak of \$147. The IEA's annual World Energy Outlook, published last month, said that if investment in the Mena (Middle East and North Africa) region continues to run significantly lower than \$100bn a year between 2011-2015, consumers could face a near-term rise in the oil price to \$150 a barrel.

There may well be falls in the short term, of course, depending on the turn of events in the eurozone over the next few months, but the trend towards ever rising oil prices, is inescapable and irreversible. While in the short term, oil prices are extremely susceptible to speculative trading in oil futures, this is not the key factor in their inexorable climb - we face a structural crisis which can only be resolved in the long term by a world wide strategy of energy conservation in order to cut demand, plus massive and continuous investment in the development of renewable and non polluting energy sources.

## **The food crisis**

Unlike the oil crisis, which is fundamentally to do with the physical limitations on the planet's capacity to supply the demand for fossil fuels, the roots of the food crisis lie in the expansion of multinational agribusiness and the imposition of 'free trade' and the disciplines of the World Bank and the IMF on the countries of the South.

Global food prices have fallen slightly from their historic peak in February but a report by the UN Food and Agriculture Organization, published in October 10, says that high, unpredictable prices are likely to continue. The global food price index produced by the FAO reached a historic peak of 238 points in February, well above the peak of 213.5 reached in 2008. Prices have since eased and in October the index registered 216 points. However it is still 5% higher than in October 2010. In 2009, for the first time in human history, over a billion people were officially classified as living in hunger, while another two billion live in perpetual food insecurity. So today, despite unprecedented wealth existing in the world, over 40% of all human beings are either permanently malnourished or suffering from varying degrees of food insecurity

In 2008, world food prices doubled over the previous year. In Fred Magdoff's words, *'in 2008, people woke up to a tsunami of hunger sweeping the world.'* Food riots occurred in many countries in the global South and the discontent stemming from the ongoing volatility of food prices has played a critical part in the events in the Mena region this year, the so-called Arab Spring.

Although the present crisis seemed to appear out of the blue, it actually represents the coming together of long term trends and more recent developments. The long term trends include:

- Increasing large scale diversion of food grains, particularly maize, grain and soya to produce meat. [World per capita meat consumption has doubled in the last forty years.]

- The dependence of the agrochemical industries and the factory farming system on oil
- Decreased food production as a result of the adoption of 'free markets' in food production and distribution.
- The widespread movement of peasants off the land as a result of IMF mandated structural adjustment programmes.
- The increasing concentration of corporate ownership and both vertical and horizontal integration of all aspects of food production, from seeds, fertilisers and pesticides to distribution and processing, to retail.

A more recent cause of the crisis is the diversion of increasing amounts of soya, maize and palm oil into the production of biofuels (ethanol and bio diesel). For example, in 2008, around 30% of the entire US maize crop was used to produce ethanol. Estimates of the degree to which ethanol production has contributed to the rise in world food price varies from the US Department of Agriculture's less than 5% to the World Bank's approaching 80%.

In addition, the effects of global warming on world agricultural production are starting to make themselves felt. In 2008, there were major crop failures in Bangladesh, China and Australia, where wheat and rice crops were devastated by drought, forcing world prices up. In 2010, Russia banned grain exports until the end of the year because a drought had destroyed 20% of its crop. Climatologists agree that such widespread disruptions in food production will only increase with the growing instability of the climate across many regions.

These crop failures coincided with the dramatic fall of stock markets, leading to unprecedented speculation in world commodity markets, the effect of which was intensified by the very low level of global food stocks after several years in which demand exceeded supply and the speculation and hoarding at a local level by elements of the various national bourgeoisie.

These factors combined in 2008 to create a perfect storm - a storm which, although it has abated to some small degree, is still raging.

### **Free trade, the IMF and structural adjustment programmes**

Since the nineteen eighties, the Washington Consensus has increasingly dominated and determined both the terms of trade between the advanced capitalist countries and countries of the South and the internal economic and political regimes of the South, with its promotion of the dogma of 'free trade' and 'free markets'. Of course, the ideology of comparative advantage is nonsense. As Joan Robinson said *'When Ricardo set out the case against protection, he was protecting British economic interests. Free trade for others is in the interest of the strongest competitor in world markets, and a sufficiently strong competitor has no need for protection at home.'*

Except, of course, that that hasn't stopped the developed countries from subsidising their agriculture. Direct subsidies help farmers in Europe, the United States and Japan to sell below their costs of production. But there are other ways to assist the production and export of crops - for example, the various 'green' grants to farmers to operate their farms in a more environmentally sound way, or subsidised crop or income fall-back insurance. It is this that has led to the deadlock of the Dohar Round, with the EU

and the United States demanding the elimination of tariffs but insisting on the retention of their own agricultural subsidy programmes.

Over the last thirty years, virtually all the countries of the poor south have been forced to follow the prescriptions of the IMF and the rules of the WTO. The conditions they have had forced on them have always been a mixture of the same toxic ingredients; liberalising trade, the dismantling of tariffs on food imports, reduction of the role of the state through deregulation and privatisation and the reorientation of national economies towards the global market.

The Agreement on Agriculture, forced on the developing countries as part of the Uruguay Round and policed by the WTO, committed countries to opening their agricultural markets through tariff reductions on food imports and the abolition of subsidies to farming communities. This was reinforced by a range of bilateral free trade agreements. Perhaps the best known of these is NAFTA, which exposed Mexico's peasant farmers to imports from immensely powerful agribusiness companies from the USA and Canada. The result, predictably, was catastrophic for Mexico. The destruction of many rural communities and the consequential exodus to the cities have contributed to the widespread social and political disintegration of Mexico of the past fifteen years.

Another example is Haiti, the poorest country in the Americas. Until the overthrow of Baby Doc in 1986 it was self sufficient in food, but following the intervention of the IMF and the World Bank the local economy was liberalised. As a result, by the end of the 1990's rice imports from the USA had overtaken domestic rice production and the domestic poultry industry, which had been thriving, was overwhelmed by cheap dark chicken and turkey meat from US producers, for whom it was a waste product. Such examples could be repeated in country after country throughout the world

### **The green revolution, GM and transnational consolidation**

From nineteen forties to sixties, agronomists greatly advanced seed technology, particularly the ability to crossbreed very high yield hybrids. Of course, there was a downside to this: hybrids lose their 'vigour' in the second year, and yields fall heavily thereafter. So instead of saving seed from one harvest to plant in the following year, farmers who adopted the new hybrids now had to buy new seeds each planting season.

This drawback for the farmers was a great commercial opportunity for the agrochemical corporations, for it enabled them to extend their control over farming.

The USA's need to find new sources of agricultural assistance to third world countries within its share of influence created a favourable climate for the expansion of the new technology to the global South. And it seemed to work. From 1970 to 1990, the total food available per person in the world rose by 11%.

Yet levels of hunger actually rose during the Green Revolution. Per capita food production increased by 8% in South America and 9% in South Asia between 1970 and 1990, but the number of hungry people rose by 19% and 9% respectively in those regions, both key target regions the new technologies. And while the global figures show an overall drop in the total number of hungry people during this period, that decrease was actually due to the recovery of Chinese agriculture, which had not pursued Green Revolution policies. Without China, the number of hungry people in the world increased by 11%.

If it had not been for the increase in productivity made possible by the Green Revolution, many countries (such as Brazil) would have been forced to redistribute land away from large unproductive estates to smallholders, because this would have been the only way to ensure a regular supply of food for the expanding urban populations. In other words, the very dynamic of capitalist development would have required agrarian reform. This changed with the Green Revolution, as the theory was that relatively few big farmers could now produce enough to feed the cities. Smallholders, who could not produce cash crops as cheaply, began to move in their droves to the cities.

The story of GM products is much the same, if not more extreme. Over the last twenty years, on the back of the Green Revolution, the big agrochemical corporations have bought up most of the world's seed companies. The largest 10 companies now control 73% of the world's commercial seed market, with the top 3 controlling over 50%. Monsanto wasn't in the top 10 in 1996, but by 2009 was in top place with 27% of the market.

The seed sector is not the only area of the agrifood system to see rapid consolidation. For example, in 2007, the four biggest beef processors in the USA controlled about 84% of the market, and five corporations controlled around 50% of all supermarket food (Wal-Mart is of course by far the biggest). The top ten food and drink manufacturing corporations (Nestle, Kraft, Coca-Cola, Pepsi etc., control over 25% of the world packaged food market and the largest 100 corporations control 75%. The largest 100 retail companies control around 35% of food sales, with the top 10 (Wal-Mart, Kroger, Carrefour and Tesco etc.) controlling 40% of that.

US companies that developed the factory scale animal production that has blighted rural America and forced thousands of independent cattle, pig and chicken farmers either out of production or into a new form of serfdom, have expanded their operations internationally. For example, between 1998 and 2005, Smithfield Foods expanded into France, Poland, China, Mexico, Spain, the U.K., Brazil and Romania. Over that time it has put around 90% of Romania's pig farmers and 56% of Poland's out of business. Smithfield receives EU export incentives via the Polish Government and exports frozen pork products to Liberia, Equatorial Guinea and Côte d'Ivoire, selling for about half the price of local producers.

## **The land grab**

Until recently the corporations weren't directly involved with land ownership. But the latest trend is towards the outright control of agricultural land by transnational corporations and foreign governments aiming to produce food for the 'home' country or produce crops for export.

In the aftermath of the drastic increase in world food prices in 2008, some governments - several oil rich but water poor - are have become very active in leasing or buying farming land in other countries. China, Saudi Arabia, South Korea, the Emirates, India, Libya and Egypt are all active players. China owns land in Algeria and Zimbabwe and is still negotiating with the Philippines, Uganda has sold 2 million acres to Egypt for maize and wheat. Saudi Arabia has bought land in Ethiopia and is negotiating to buy a million acres in Pakistan.

And they are being aided in their efforts by the World Bank. Since the 2008 crises, the World Bank Group boasts that it 'has incentivized and facilitated' land grabs in several countries in Africa, Latin America and parts of Asia. Through its private-sector arm, the International Finance Corporation (IFC), as well as its Foreign Investment Advisory Service and program to Remove Administrative Barriers to Investment, the World Bank says it has 'worked to reform land laws and offer tax holidays that attract investors to farmland, while also providing technical assistance and advisory services to the gov-

ernments of developing countries that are in need of foreign direct investment.' The Bank estimates that in 2009 alone, foreign investors acquired approximately 56 million hectares of farmland—"an area about the size of France"—by long-term lease or purchase in developing countries.

## Conclusion

While, of course, speculation plays a significant part in worsening the current oil and food crises, it does so in the context of a chronic and ever more acute systemic crisis of capitalism with multiple facets: economic, ecological, social, food and energy. As Esther Vivas has said:

*Capitalism has demonstrated its inability to meet the basic needs of most of the world's population (access to food, housing, decent public health and education services) as well as its total incompatibility with the maintenance of the ecosystem (growing loss of bio and agro diversity, increasing climate change. This has been more dramatic in the countries of the South, which have been hardest hit by the food crisis, aggravating the structural poverty they have experienced for decades. It is clear that what has for more than fifteen years been presented as a triumphant and victorious ideology, as the only possible ideology, has in a relatively short time suffered a serious crisis of credibility and legitimacy.*

These interconnected crises are not going to go away and, caused as they both are by the mad logic of the market, they are insoluble within the context of capitalism.

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