People and the Planet 2013 Conference Proceedings

This article was first presented at the *People and the Planet 2013 Conference: Transforming the Future*, RMIT University, Melbourne, Australia, 2–4 July.

All articles published in this collection have been peer reviewed.

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Publisher: Global Cities Research Institute, RMIT University, Melbourne, Australia
Year: 2013
Editor(s): Paul James, Chris Hudson, Sam Carroll-Bell, Alyssa Taing

Series URL:
http://global-cities.info/news-events/conferences-forums/conferences-proceedings

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Urban Sustainability, Jobs and the Environment

JERRY HARRIS

Abstract: Sustainable cities cannot exist without sustainable jobs, but technology and globalization have destroyed the old mass base industrial economy. Information technologies deskilled and reduced the need for labor, particularly in those industries that provided a decent standard of living for the working class. These technologies also created new tools for capital investments that led to the financialization of capitalism, widespread speculative stocks and a growing gap between productive labor and wealth. At the same time globalization opened the door to millions of new workers, undercut the ability of governments to design and implement national developmental strategies outside of neoliberal constraints, and largely destroyed the social contract. The economic crisis coincides with a deep ecological crisis of which global warming is only one important aspect. The toxic chemical soup and fossil fuel pollution in which our cities stew degrades our health and quality of life with every breath. The solution points to building an urban environment with sustainable jobs based in the green economy and run with democratic principles of control and community responsibility. Cooperatively-owned businesses under local control and situated in the broad and growing field of green technologies can be an important step towards building the sustainable cities of the near future.

Keywords: Capitalism, cooperatives, financialization, globalization, green technologies, sustainable cities.

1. Introduction

To build sustainable cities we need sustainable jobs. Not just sustainable in the economic sense of decent wages and conditions of work, but also as part of a sustainable green society. But can this be accomplished within the limited logic of capitalist market rationality, particularly in its most brutal neo-liberal form? One of the most dynamic aspects of capitalism is its never-ending impulse to develop new technologies. This innovative energy springs from its competitive nature, and is often pointed to as the path to job creation and sustainable energy. But a deeper examination of how capitalism makes use of new technologies presents a less hopeful picture. In many ways globalization and technology have led to the loss of jobs, destructive financial markets, and a retreat from alternative energy. Below I will examine these three areas, as well as an alternative approach to creating a truly democratic and sustainable economy.

2. Losing Industrial Jobs

From 1978 to 1983 I worked at US Steel in South Chicago as a machinist apprentice. The mill had been there for over 100 years, located in the biggest steel manufacturing area of the world, an area that stretched in a 20-mile crescent along the southern border of Lake Michigan from Gary, Indiana to Chicago, Illinois. To become a skilled journeyman machinist takes five years and includes learning three-dimensional blueprint reading, trigonometry and metallurgy, as well as how to operate complex machines like lathes and milling machines. Additionally we went to school inside the mill once every six months for a 40-hour course. If we didn't score at least 74 per cent correct on the final test we could be fired. All-in-all it was an interesting job that combined both knowledge and physical skills and led to secure, well-paying jobs.

One day we came to work and instead of getting blueprints our foreman gave us sheets of paper with numbers and letters printed on them. They had converted our lathes, adding new computer control technologies, which had begun to sweep through many industrial skilled jobs. Now all those angles, speeds, and cuts we had learned to do manually were coded onto a chip, and the chip inserted into the machine. Our blueprint had been replaced with a keyboard attached to the machine and we were reduced to simply centering metal pieces onto our machines, punching in the code, and watching the machine do all the cuts we had spent years learning to do. Instead of working our machine, we stood around watching it work itself.

Deskilling had come to the machine shop, and with it, lay-offs. The efficiency and speed of the new technology meant the end of the apprentice program, and not only in the machine shop. The fact was that new technologies were being applied to the entire industry. The old, large integrated mills with thousands of workers were being replaced with mini-mills organized around new ways to make steel. In one day US Steel laid off 800 apprentices and shut-down every program. It didn't matter what skill you were learning—machinists, electricians, carpenters, pipe fitters—we were all shoved out the door. A few years later the entire mill was closed, along with Republic Steel, Youngstown and Wisconsin Steel, and massive lay-offs from Inland and US Steel Gary Works. A number of things happened. Hundreds of minority workers and women who had just gained access to skilled apprenticeship programs through discrimination suits and affirmative action never completed the programs, and were thrust back into unskilled labor; many of the small businesses that served the community went bankrupt as unemployment sapped the community of income; youths, now facing a future without jobs, joined gangs; and a vibrant working-class community and culture died.

All this made sense from the point-of-view of the capitalist market. Technology that can replace workers makes a corporation more profitable and more efficient. And competition compels each company to lower their costs and satisfy their stockholders. The process spread through the entire industrial sector, and with the advancement of computer technologies deskilling also hit the service industry and professional fields. Of course information technology created new fields and new jobs, but not near enough to replace what was destroyed. Communities like South Chicago and cities like Detroit have never recovered. Nor has any social or economic strategy been developed by the political and corporate elite to create sustainable jobs. Trapped within a narrow and dogmatic box of neo-liberal ideology, more austerity for those already suffering is the only answer capitalist society seems to offer.

3. Technology and Financial Speculation

One area of the economy that has exploded and created wealth is finance. The use of information technologies has given rise to hundreds of new financial markets and commodities. Unfortunately these speculative markets resulted in the deepest economic crisis since the Great Depression of the 1930s. This is not a crisis for the top one per cent. Their income, like a launching rocket, has escape earthly bounds. But for 99 per cent of the population their incomes have either stagnated or plunged into an ever-deepening pool of insecurity and poverty.

The manner in which financial firms have developed and applied information technology has caused a rupture between socially-necessary labor and wealth. Traditionally capitalist firms have relied on their workers to produce value. This value was shared between the working class and the firm's owners. If this meant a mansion for the capitalist, it also meant home ownership, health care, and a vacation for the worker. But in today's speculative markets one can become immensely rich with only a very limited amount of labor involved.

Let's take the money market as an example. The money market makes currency a commodity rather than a form of exchange. Money buys and sells money. What financial firms are looking for is *arbitrage*, or the difference in the price of a currency that exists in the same moment of time but in different places. So, if Goldman Sachs wants to buy $100 million worth of Euros, their computers search for prices in financial markets throughout the world. These are computers reading other computers at speeds which divide seconds into billions of parts. If the Goldman Sachs computer finds Euros for sale in Frankfurt for $1.3256 and at the same time finds Euros for sale in Tokyo for $1.3271, it will buy in Frankfurt and immediately put those Euros up for sale in Tokyo. Other financial firms' computers that didn't see the arbitrage will start to buy those Euros in Tokyo. So within a few seconds, or if slow maybe a few minutes, Goldman Sachs will have made perhaps one-tenth of a cent on each dollar, which on 100 million dollars will mean a one-million-dollar profit.

But where is the socially-necessary labor to make the one million dollars in profits? If it was a steel company it would have been calculated as how much labor is necessary to make a ton of steel, or if an auto factory, how many man-hours of labor to produce a car. Such labor would involve thousands of workers. In the money markets there are computers running on algorithms written by a handful of well-paid and highly skilled mathematicians and programs. Once these algorithms are up and running no human input is necessary, and so Goldman Sachs maintains giant warehouses filled with computer servers, but empty of people. In fact, well over 50, 000 servers are running such programs and they operate day in and day out in a virtual world of computers reading each other and searching for numbers and formulas. And when the algorithms recognize the numbers they are looking for they do a deal. Speed is so important in this matrix-like world that financial corporations attempt to locate their servers as close as possible to the Society for Worldwide Interbank Financial Telecommunication (SWIFT) computers, the giant system in New Jersey through which billions of dollars of deals are processed every second. Since information travels one billion feet per second on fiber optics the closer you are the faster you receive information. The faster your information the more profitable you are.

Money markets trade $1.7 trillion each day. It's hard to understand what a trillion is, but here is one way to make sense of the number. One million seconds is twelve and a half days. One trillion seconds is 36 thousand years. In ten days this market is as big as the annual GDP of the United States. Yet it is only one among hundreds of speculative markets that have been created by financial firms using digital information technologies. Consequently, the fabulous possibilities created by the revolution in information are deformed to serve destructive and socially meaningless forms of wealth. Capitalism is now able to make individuals immensely rich by producing nothing of value. No car, no pair of shoes, no health care is created in such markets.

The consequence of this rupture between wealth and labor is the destruction of the social contract. Why maintain a good public education system, decent wages, or well-functioning public health care when you no longer need the working class? Austerity in the North, IMF structural adjustment programs in the South, and neo-liberal ideology all go hand-in-hand. When a growing and powerful sector of the capitalist class no longer sees its wealth dependent on production, but rather on financial markets, a social crisis is bound to erupt.

Let me offer one last example in this section. In Chicago there is one hedge fund CEO that made in income $800 million in 2012. The city had a budget short fall of $600 million. The answer to the problem by Mayor Rahm Emanuel, President Obama's former chief of staff, was to close 50 public schools, plus mental health clinics and hospitals, and attack the Chicago Teachers Union. But let's step-back for a moment. This one hedge fund speculator could have donated $600 million to the city, and still had $200 million of private wealth remaining. And that's just one year's income. More income than anyone reading this article will make in their entire life time. Schools, hospitals, health clinics, and other public services could have been kept open. But capitalist rationality doesn't question this inequality. Why should this CEO even care about the Chicago working class when he makes his money in global financial markets? Meanwhile Mayor Emanuel, a business Democrat wedded by his own personal wealth to finance capital, didn't even consider a city tax on the Chicago Board of Trade, one of the largest speculative markets in the world.

4. Green Energy and the Global Market

Green energy would seem to be a new technology that the market would welcome, but displacing existing fossil fuel energy has proven difficult because of their monopoly position, wealth and political clout. Solar, wind, thermal, and biomass energies make-up only two per cent of the world's energy use, but you would never get this impression when reading through alternative energy business websites, which boast of growth rates often between 40 to 50 per cent. But growing from one per cent to two per cent is a 100 per cent growth rate, so website figures are often misleading.

The current economic crisis opened up a unique opportunity for governments to promote jobs and growth through expanding subsidies to wind and solar power. Government support is often the only way useful new technologies can gain a foothold in the market until they are competitive. China took this route, going from almost no wind and solar manufacturing to

leading the world in both areas within five years. This brought down costs significantly, expanded needed capacity, and made alternative energy competitive with fossil-fuel pricing.

A world functioning with a sustainable ecological market would have welcomed such a development, but capitalist rationality saw these developments as a threat. As prices dropped so did profits rates, undercutting stock prices and causing bankruptcy. As production rose the market couldn't absorb the new panels and turbines, and so overcapacity became a problem. This led to lay-offs, closed factories, and a general crisis, particularly in the solar panel industry. In a world where global warming continues to worsen, and where people daily choke on air pollution caused by oil and coal, only capitalism could declare an overcapacity in green manufacturing. In reality, the world needs every turbine and every panel that rolls off the assembly line. Not only is there not an overcapacity, but an actual *under* capacity exists. An environmental market that makes sustainability a priority would develop a global program for a planetary problem using the full capacity of green manufacturing. Instead, competitive markets have resulted in undercutting the development and distribution of the very technology we need.

To understand this better we can examine some facts from the global market. In the solar industry China has seven of the top ten manufacturers in the world, which include LDK Solar, Suntech, Yingli and Trina Solar. With $67.7 billion in public and private funds in sustainable energy, China has the largest investments in the world and brought down the price of panels some 70 per cent since 2010 (Clark 2013). But Chinese production rose solar panel global capacity to 70 gigawatts in a world market only buying 30 gigawatts. One result saw Suntech, the world's largest panel manufacturer, cut production by 40 per cent and fall into $1.6 billion of debt (Hook 2012). Under competitive pressures and a lack of demand, Li Junfeng, president of the Chinese Renewable Energy Industries Association, said the 'country's solar panel industry was like "a patient on life support" that would have to undergo radical consolidation and cuts to emerge from the crisis of overcapacity.' He added, '…there is no way to solve this crisis (without) powerful market competition and cruel elimination' (quoted in Hook 2012). In response to the growing bankruptcies the government rolled out a plan to quadruple solar power use to 35 gigawatts by 2015.

In Europe, under neo-liberal austerity policies, state incentive programs virtually disappeared. As *Forbes* noted, 'the solar manufacturing world began to crumble and, along the way, we saw the demise of high-profile US startups such as Solyndra and Abound Solar and the bankruptcies of long-time players such as Q-Cells in Germany. Dozens of companies in the US, Europe and Asia have gone under' (Wang 2013). The industry shake-out hit Siemens, which dumped their solar technology business all together. The German company Solon closed its doors. And, although the world's leader in 2007, Germany's Q-Cells became insolvent in 2012. BP shut their solar divisions in 2009, and Shell gave up on solar production in 2012 (Bryant 2012). Additionally Sharp, one of the largest and strongest solar module makers, lost $66 million in 2011 and abandoned all manufacturing and distribution in the United States and Europe.

In the United States, plunging prices and global competition caused General Electric to cut jobs and delayed plans for a number of projects, including a new 400 mega-watt facility in Colorado. SunPower suspended production at six of their 12 solar cell production lines and cut solar panel production by 20 per cent in the Philippines, where they laid-off about 900 workers. First Solar

shut-down its large German factory and stopped plans to establish new production sites in Viet-Nam and Arizona. Moreover, three US companies representing about 20 per cent of US solar panel productive capacity went bankrupt (Wang 2012).

The *New York Times* offers an instructive insight on the competitive impact:

> 'Just a few years ago, Silicon Valley investors were pouring money into solar technologies and talking about how they would bring the same kind of innovation to green energy that they had to the computer chip. But few anticipated that prices for silicon, the main component of traditional solar panels, would plummet or that Chinese manufacturers, backed by enormous subsidies from their government, would increase solar production capacity by a factor of 17 in just four years. The resulting plunge in solar panel prices wiped out the dream of a new Solar Valley. Despite making advances in the new technology, known as thin-film solar, the American companies just couldn't compete...Last year, venture capital financing in the solar sector plummeted nearly 50 percent' [sic] (Cardwell and Bradsher 2013).

So the dreams of venture capital and high-tech entrepreneurship, the very elements market boasters parade as the best of capitalist innovation energies, succumb to the deformed logic of competition. Falling prices, increased capacity, and government subsidies, the exact elements needed to make green energy a widely adopted reality, instead caused its bankruptcy.

5. A Sustainable Economy

An alternative to the problems above is to create sustainable jobs, under democratically controlled production, based in the green economy. This may not be the whole answer, but it is an important part of the picture. Worker-owned and worker-run cooperatives have a long history of proven efficiency, productivity and innovation. It's not hard to understand why. When people share direct ownership they cease to be a cog in the profit machine of someone else. Instead their creativity is set loose and decisions are made with the general good and solidarity as guiding principles.

Mondragon in Spain is the best known and largest worker-owned cooperative in the world. Started by the priest José María Arizmendiarrieta with five workers in 1956, Mondragon has grown to 100, 000 worker-owners with annual revenues of $20 billion. It has its own university, its own bank, and a diverse set of 255 enterprises that includes one of the largest food market chains in Spain. It's basic principals include the following: education; the sovereignty of labor; the instrumental and subordinate nature of capital; democratic organization; open admission; participation in management; wage solidarity; inter-cooperation between the companies units; social transformation and universal nature. With Spain suffering a depression Mondragon has avoided lay-offs through collective discussions among all workers to cut their work week to four days and limit wages. Sustaining jobs and a vibrant economy in Basque was a clear alternative to the usual scenario of factories shut-downs with jobs shipped to low-wage countries.

There are other important examples of cooperatives, and they reflect a diverse history, each with its own strengths and weaknesses. In Venezuela the government created a school to teach workers and the poor how to run cooperatives. Upon graduation they hold discussions on what types of business to start, obtain low-interest loans from the government, and set to work. Over 150, 000 such cooperatives now exist. During the devastating crisis that hit Argentina in 2001 many capitalists abandoned their businesses and fled the country. Workers responded by taking over some 200 enterprises, turning them into cooperatives. The struggle to hold onto legal ownership and make a successful business has not been easy, but today about 10, 000 workers continue to be owners of their companies. In Cuba, as thousands of workers are laid-off from their state jobs, the government has begun a program to form widespread cooperatives as an alternative form of socialist employment. Lastly, in northern Italy there is a deeply imbedded culture of small and midsize cooperatives started before World War II. After the war the Italian Communist Party promoted the creation of cooperatives as part of their long-term strategy of establishing alternative institutions from which a new society could one day be built.

In the US an exciting effort has begun in the old Midwest industrial city of Cleveland, Ohio. The city has 15, 000 vacant buildings and more than 3, 300 acres of vacant land while its large Black population has a poverty rate of 30 per cent. Evergreen Cooperatives has begun to create democratically controlled, sustainable jobs, in the field of green technology. It is a collective effort by Cleveland's city government, state universities, hospitals, progressive academics, and community activists centering their work in a Black community with an average family income of $18, 000 per year. Today Evergreen has three ventures: Evergreen Laundry, the largest industrial laundry in the state of Ohio, using a non-toxic green washing process and filling contracts from local universities and hospitals; GreenCity Growers, a year-round hydroponic greenhouse capable of producing more than three million heads of fresh lettuce and nearly one million pounds of basil per year; and Ohio Cooperative Solar, which installs solar panels on the roofs of the city’s biggest nonprofit health, education, and municipal buildings (Alperovitz, Howard, and Dubb 2009). The Evergreen cooperatives have well under 200 worker/owners, but it's a demonstrative model that lights a pathway out of the destructive neo-liberal market. It also reveals a wide base of support for a real alternative, not only in the community it affects, but among all those seeking a more humane and just society.

Conclusion

One of the great myths of capitalism is that the only market is the capitalist market. As Margaret Thatcher put it, ‘there is no alternative.’ But the exchange of goods has been going on for thousands of years in many different forms. The question for our near future is can we build a sustainable market operating with a different set of values and goals? One that combines economic democracy, innovation, government planning and a relationship to nature that is sustainable? To do so the hegemonic ideology of capitalist rationality must be replaced with an ecological consciousness that allows for political, cultural, and biological diversity. A new world is possible, and we must go forward to build it.

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