'Enter the Dragon': The ecological disorganization of the Chinese Treadmill of Production in Africa

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Abstract

This article draws on the theory and recent research on 'ecological disorganization'- which Lynch et al. (2013:1) define as 'the ways in which human preferences for organizing economic production consistent with the objectives of capitalism are an inherent contradiction with the health of the ecological system'- to explore the 'corporate violence' (see, for example, Zizek, 2011; Lazzarato, 2011) apropos of Chinese investment in Africa. In line with other ecological disorganization theorists (for example, Zizek, 2011; Lynch et al, 2013; Lynch and Stretsky, 2013), we show how the deployment of Chinese capital in Africa constitutes subjectivation (from net national indebtedness but also individual exclusion from land and goods market), and how this subjectivation inexorably underwrites ecological disorganization (from polluted waterways, population displacement and conflicts

Introduction; Ecological disorganization as 'violence of capitalism'

Criminologists and development theorists have lately tended to engage with the 'harms' of capital (Lazzarato, 2011; Kovel, 2007; Foster, et al. 2010), with growing literature highlighting, in particular, the environmental harms of corporations (Stiglitz, 2012; South, 1998; Ruggierro, 2013; White, 2011, Klein, 2002). Such critique has singled out the issues of power inherent in access, exploitation and pollution of nature, and how this constitutes, for those who lack such power, a form of subjectivation (Lazzarato, 2011; Zizek, 2014). This subjectivation has also been related to contemporary externalization of harms through transnationalization (under what is commonly known as 'globalization') (Stiglitz, 2012; Gros, 2003; Aas, 2007). The conclusion drawn is that such harms are borne, not just by the biological system as a whole (in terms of species loss, displacement and so on) but also by the multiplier effect on health and safety (from conflicts and displacement over natural resources, corruption and loss of revenue, deaths from mudslides or diseases, from cancers to respiratory diseases) (White, 2011; Ruggiero, 2013; South, 1998; Ruggiero and South, 2013). Recently, criminologist have also shown us not only the widespread extent of such harms, but also how this harm, by definition, is a form of violence (Lynch 2013; Ruggierro and South, 2013). The bottom line of what has come to be referred to- by Lynch and Stretsky (2013) and Ruggiero and South (2013) for example- as a 'harms approach' is that, behind the lure of capitalism lurks the dangerous social and economic consequences which deserve on-going assessment. This assessment has taken the shape of interdisciplinarity with recent works (by White 2011; Lynch 2013), for example, constituting a green criminology, whose apriori task has been to demonstrate how crimes of the environment should be explained, sometimes over-and-beyond the confines of the traditional methodologies and theories of 'street' harms (Lynch and Stretsky, 2013, 2013; Ruggierro and South, 2013).

In tandem with these works, the present paper, drawing on the theory and research relevant to 'ecological disorganization'- which Lynch et al. (2013:1) define as 'the ways in which human preferences for organizing economic production consistent with the objectives of capitalism are an inherent contradiction with the health of the ecological system'- explores interdisplinary understanding of the 'corporate violence' (see, for example, Zizek, 2011; Lazzarato, 2011) apropos of Chinese investment in Africa: We seek a clearer analysis of the surge in Chinese capital in Africa- how much is involved? How is it spread? Who benefits, and/or loses? What is the impact to the environment? How can these impacts be explained? In line with other ecological disorganization theorists (for example, Zizek, 2011; Lynch et al, 2013; Lynch and Stretsky, 2013), we claim that capitalism constitutes a form of 'crime against nature' (Kovel, 2007; Foster et al. 2010), not only in its mode of extraction (which uses of finite resources, leading to infinite harms), but because even before capitalism makes contact with nature, capital (or to be specific, finance) already exists as a form of 'violence' against the 'precariats' of the lower social-class (see also, Lazzarato, 2011; Zizek, 2011; 2009). That is to say; before it makes contact with nature (in a specific jurisdiction), capital is already an affront to those in that jurisdiction who have to be alienated or constrained to pave way for it (either as workers whose wages rise or fall in line with the preferences of the investment or, collectively, as citizens of a country who have to meet the interest rates charged on the economy by the lender (Lazzarato, 2011; Zizek, 2014). The capitalist mode of production is a form of a form of victimization, *ab initio*: As a system of production, capitalism is based on unequal ownership of the means of production, with the lender (creditor) positioned to create, demand, and count on the 'subjectivity' (the promise to pay and the availability to be punished for not meeting repayment) of the debtor (Lazzarato, 2011; Zizek, 2014).

In the standard rendition, in Marx (1974) for example, the owners of the means of production must employ labour to operate the means of production, whereas that labour is provided by the working class who, under capitalism, have no alternative but to offer its labour for sale to the owning class. The owners of the means of production organize production in such a way that labour is exploited to generate surplus value-that is value over and above the cost of production-which the capitalist then retains. *In nuce*, this volume of surplus value which the capitalist class retains indexes the exploitation (of labour) in the production process. Here, capitalism is avowedly a mechanism of exploitation to the extent that the *raison d'être* of investment is the maximization of this extracted value (what is conveniently known as 'profit'[i]) (see also Lazzarato (2011; Zizek, 2014; Lynch et al. 2013).

Ecological Disorganization and the Treadmill of Production

Apropos of Marx, ecological Marxists (for example, Foster 2000; Burkett 2006) have elaborated this conflict *in lieu* of nature, showing us how, in order for production to begin and to expand, inputs into the system must be available and also must expand: In other words, for capitalism to expand, it must increasingly consume larger quantities of natural resources which, in turn, leads to the escalation of ecological destruction through consumption of nature's raw materials in the production process. However, in contrast to the capitalist system- which envisages infinite expansion of resource consumption- nature is finite: Even as an (anthropocentric) system of production (Foster 2000; Burkett 2006), nature only self-replenishes through conservation, so that outside this logic, the only outcome is a form of environmental instability- for instance increases in pollution, harmful radiation, disappearance of species of animals and plants and so forth.

In order to account for the ways in which the capitalism–nature contradiction constitutes a form of ecological disorganization, Schnaiberg (1980) introduced the concept of '*Treadmill of Production'* (ToP): Capital, Schnaiberg argued, should be envisaged as a 'treadmill' which is constantly on the move, seeking new ways, new places even (under what, today, we call globalization), to replicate itself, to maximise itself[ii]. As Schnaiberg argued, the post-world war transition from 'organic' forms of capitalism- that is, the use of direct/human labour- to its ‘inorganic’, mechanized forms, meant the exploitation of nature relied increasingly on chemically and energy-intensive forms of value extraction. The result of this shift was, as Lynch et al. (2013: 1002) show, the deployment of ‘ecological additions’ and ‘ecological subtractions’- the former being the pollutants that the *ToP* adds to the environment, and the latter being the collection of raw material input into the treadmill and the forms of ecological damage created in accessing those materials- in the process of capitalist accumulation. As Lynch et al. insightfully conclude:

> As the ToP increased the use of chemicals in production to intensify and replace human labour, it began to produce large quantities of chemical pollution. The release of energy-related pollution followed suit as the treadmill consumed larger and larger quantities of fossil fuels… withdrawal effects include operations such as: the mining of minerals, coals, ferrous and non-ferrous metals, chemicals and precious stones; the drilling for oil, natural gas and other fossil fuel sources; and the harvesting of wood. These effects can also include the consequences of withdrawal, such as the impact of changing the landscape through mining on ecosystems, or the effects caused by withdrawing a significant volume of water to facilitate withdrawal processes, or the pollution of land, air and water associated with withdrawal processes (2013: 1003).

What about the state?

Schainberg once observed how the dialectic of conflicting values/interests plays out at the level of the state. Although the state bears the (simultaneous) twin imperatives of enhancing economic development, on the one hand, and meeting the social needs of its constituents, on the other, the state is also, Schnaiberg argued, the organizing institution for capitalist accumulation (and exploitation) par excellence; the irreplaceable cog of transnational value-extraction (even though for the most part its role is subordinate to that of capital). Here is Schainberg:

> In the first role, state officials seek to increase capital accumulation and tax revenues, in part through fostering greater industrial access to natural resources. Conversely, in their latter role, state agencies are pressured to provide clean air, clean water, and safe communities to their electorates. States thus oscillate under varying sets of social, economic and political pressures between syntheses

> of this dialectic: the economic, in which use-values are largely dismissed, the managed scarcity, in which considerable volatility in state responses to exchange-value and use-value interests occur (Schnaiberg, 1993: 1[iii]).

What Schainberg is teaching us is that the state usually underwrites ecological disorganization in two ways: First, through an economic synthesis approach- which has predominated in industrial societies. In this arrangement, the state largely fosters capital accumulation, and supports primarily the exchange values of ecological systems, with only the most severe ecosystem disorganization being attended to (and only when it threatens productive systems). The state is very active when the exploitation of nature meets the conditions of NIMBY-ism (not in my back yard); when, for example, a state's multinational corporations are active far from its territory. A state in such condition will turn a blind eye to the 'externalized' harms created by capital incorporated in its jurisdiction, sometime using its laws to buttress the exonerating claims of its corporations, or by turning a blind eye to the 'corporate veil' staged in legal ambiguities (see also, Klein, 2002; Gros, 2003; Aas, 2007). The state "environmental" policies are localized and short-term under this approach too. Secondly, there is the 'managed scarcity' approach, where the state attempts some minimal regulation of access to ecosystems by various classes of users, for example using state agencies to keep an 'objective' (fake) balance between environmental exchange values and use values for competing actors- including 'arbitrating' the conflicting interests of its own citizens and those of the 'investor'[iv].

We shall illustrate this point, apropos of the 'bilateral relations' between Ghana and China in artisanal mining, below. But, suffice to say that, the problem for the state here- and important for our reading of the 'violence' of Chinese capital in Africa- is that struggles around (natural) resources in the modern era are primarily variants of the managed scarcity synthesis. Under this ideology, capital owners (including foreign nationals and the state muscle behind them) work hand-in-glove with managers (including officials of their own government) to amplify the extraction of value by skewing citizen consciousness in two directions: (1) that resource extraction is compatible with citizen use-values, and (2) when this persuasion fails, that citizens' own exchange-value needs must take precedence over their use-value interests. That is, as part of the creditor-debtor matrix of 'bilateral' finance agreements, the interest of the creditor (say, China) are projected as a necessary 'win-win' with those of the debtor (say, Ghana), as long as the debtor bears the consequences of any other outcome. The borrower and the lender are, in this sense, anything but equal: As Zizek (2014) would argue, both are free, but while the creditor's freedom is real, the debtor's freedom is 'merely formal': The latter is free to borrow more (to clean up the pollution, or repay the first loan, or at a higher interest and so forth).

The indebted man; capital and outsourced risks

This is the thesis of Lazzarato's (2011) 'indebted man', where debt is deployed as a mechanism of governance, with the post-independence African state, for example, being pressured by multilateral lenders (and former colonial powers) to accept conditionalities even those which involve the transfer of the consequences of bad policies to its citizens already suffering from chronic scarcity of basic services (Wrong, 2009; Moyo, 2009). As Lazzarato observes,

> 'The debtor-creditor relationship…intensifies the mechanisms of exploitation and domination at every level of society, for within it no distinctions exist between workers and the unemployed, consumers and producers, working and non-working populations, retirees and welfare recipients. Everyone is a debtor, accountable to and guilty before capital. Capital has become the great creditor, the universal creditor… Through the public debt entire societies become indebted. Instead of preventing 'inequalities', the latter exacerbates them (2011: 8).

What Lazzarato is teaching us is how, in today's global capitalism, debt works across a whole range of social practices and levels, from a nation state down to an individual. As part of the hegemony of neoliberalism (Zizek, 2014), the logic of market competition is extended to all aspects of social life, so that, for example, health and education- or even political decisions (voting) themselves- are perceived as investments made by the individual in his or her own dimension as an investor. The collective indebtedness, sometimes out of arrangements entered between ruling elites and multilateral lenders, are taken as collective entrepreneurial decisions by the citizens; national growth (in GDPs etc.) signals good investment decision-making (and is rewarded as such with more debt), while poor growth is an investment offence (punishable by downgrading of 'ratings', or the rollback of investment in social safety nets)[v].

Alongside this logic, poverty is a diagnosis of poor decision-making, by the entrepreneur-of-the-self, so that it is right to punish this failure through the EU's 'austerity measures' (in the case of Greece in Europe) or *International Monetary Fund* IMF's 'structural adjustment programmes' (in the case of Africa) or forced eviction of communities from ancestral land to pave way for the next Chinese-financed windmill, or rail, or mining site. In both instances, the ground is already rigged, to use a familiar metaphor, in favour of the one with something to show (cue capital) in regard to the endless rounds of entrepreneurship-of-the-self-appraisals (see also, Lazzarato, 2011; Varoufakis, 2013). In the recent round of 'austerity Europe', this appraisal of entrepreneurship means, for example, that the worker is no longer perceived as merely labour power, but as personal capital making good and bad 'investment' decision as s/he moves from job to job therein in/decreasing his/her net capital worth. The implication of this is that risks (financial, ecological, and psychological) are outsourced from the company and the state (or insurance and banking institutions) to the individual: Social protections are individualized (privatized) to align them to market norms, and thus they are no longer guaranteed, but are conditional on the performance of the individual whose life is opened up for assessment. As Zizek (apropos of Lazzarato, 2011) observes;

> As individuals become poorer through the shrinkage of their salaries, and the removal of social provisions, neoliberalism offers them compensation through debt, and the promotion of shareholding. In this way, wages or pensions (deferred salaries) don't rise but people have access to consumer credit and are encouraged to provide for retirement through personal share portfolios; people no longer have access to housing but have access to housing credit/mortgage; people no longer have access to higher education, but can take out student loans; mutual and collective protections are dismantled but people are encouraged to take out personal protections (2014:42).

How about China, or to be specific, China-in-Africa? Does the same logic hold? Let us, before analysing the role of Chinese capital give a brief introduction to the scope of Chinese investment in Africa.

The 2 Chinas in Africa

There is agreement among those who follow China-Africa relations that state-owned and private Chinese companies have become major investors in Africa over the past 15 years. Indeed, China-Africa cooperation, while not a new thing[vi], has been scaled up recently through a range of targeted investments which make China, in comparative terms, the single largest bilateral source of annual foreign direct investment (FDI) to Africa's 54 countries (Ncube et al. 2010; Moyo, 2012; Xiaofang 2013). Nonetheless, there is considerable confusion as to what constitutes Chinese investment in Africa- is it the acupuncture clinics by private Chinese citizens; is it the multi-billion dollar loans from China to African governments (usually tied to infrastructure contracts for Chinese construction companies)?[vii] Based on the perspective of the analyst, two Chinas have emerged in recent critique: First, there is the glorified, valorised China which gratuitously lends to Africa- on the priorities and terms of the latter. This china has been much celebrated in recent commentary with Piet (2007) and Moyo (2009; 2012), for example, reminding us how more than 2,000 Chinese companies have invested in Africa's energy, mining, construction and manufacturing- the sectors which the West's FDI would not touch[viii]. Here, China's state-owned oil companies are active throughout the continent, with the most aggressive being *China National Petroleum Corporation*, which has vast interest in the emerging hydrocarbon hotbed of East Africa (Kenya, Uganda, Sudan, Ethiopia). CNPC has for example invested up to $10 billion in Sudan's oil sector, and close to $6 billion in Guinea's bauxite and alumina projects (Moyo, 2012; Ncube et al. 2013)[ix]. The thrust of the 'good' China argument is that, at the precise period when western companies were withdrawing their investments in vital infrastructure- or tying their involvement to conditionalities (which usually favoured the political interests of their home countries- China began to increase significantly its investment in Africa. Here, China took advantage of opportunities (created by the lacuna of Western exit, after the 2008 banking crisis)[x].

The involvement of China in Africa has also been underwritten by the narrative of shared history, especially Chinese support for the anti-apartheid and other emancipatory struggles which rocked Africa in the 70s and 80s (Brautigam, 2009; Downs, 2007). Moreover, at the period in which Africa was collapsing under the burden of the IMF's '*Structural Adjustment Programmes*', China provided aid to many African countries[xi]. The Chinese, according to this narrative, have just the recipe for Africa's rise: Chinese 'concessional' loans, for example, are not conditional; their interest-free repayment can be easily rescheduled; they are aimed at the projects that generate income and make recipient countries self-reliant; they do not bear conditionalities on good governance, fiscal discipline, and other conditions usually attached to western aid. (The last point is particularly alluring to African regimes which, on the whole, may feel threatened by internal and external demand for political liberalization and democratization which are also parts of western donors' conditions (Haroz, 2011; Kobylinski, 2013).)

In a nutshell, the 'good China' thesis is that, unlike the West, China did not and does not foist itself on African government- nor does China attempt to 'colonize' Africa: That African leaders consider a closer economic and political relation with China as a guarantee for future economic prosperity considering China's accomplishments within a short period of time. Simply put, the presence of China means, yes Africa can; after all, the Chinese, a new global power, once occupied a position similar to Africa's!

But, there is also the 'bad China': China's engagement with Africa is largely ideological, aimed, first, at securing resources, notably crude oil, to power its modern, growing economy and to support its expanding industrial base. The argument here is that China's presence in Africa is primarily due to the fact that the recent rapid growth of China's manufacturing sector has also created increased domestic demand for natural resources (including oil, gas and precious metals such as aluminium, copper and iron ore) which Africa has in abundance (Haroz, 2013; Kobylinski, 2013). Secondly, Africa's population presents a potential market for Chinese products: While Chinese growth relies heavily on manufacturing sector, it needs a new and dependable consumer market to sustain its steep developmental trajectory (Ncube et al. 2013; Moyo, 2012; Konings, 2007). This should mean, it is claimed, that China is, after all, not different from the west; China has merely moved in to capitalize on precisely the liberalization conditionalities imposed by the west (including massive layoffs of workers, parastatal privatization and so forth). As Moyo (2012) and Kobylinski (2013) also point out, when African countries, under western pressure, liberalized their key protected sectors (from agriculture to telecommunications) many of the beneficiaries where Chinese firms which had hitherto been shut out of the market.

In that sense, the rise of China has in fact, been catalysed not only by the privatization of publicly-owned enterprises in China, but also by the availability of new investment opportunities outside China, and especially Africa through 'sweetheart' deals. Through these 'sweetheart deals' the Chinese government is able to act as a guarantor to the capital of its public and private corporations; through state-state contracts with African governments, China is able to use its political muscle to smooth the way for Chinese capital flow, but also to block any demands resulting from the negative impact of such capital. As an example, although Chinese 'concessional loans' may be low-yield, they are also Chinese priorities because they eliminate competitive bidding; although through such loans infrastructural construction in Africa has been expedited, this is achieved at the expense of other important assessments, such as environmental audits; Contracts also bear conflict-of-interest arrangements which would be unacceptable elsewhere- say, when the builder is also contracted to finance and carry out environmental impact assessments (See also, Moyo, 2012).

Nonetheless, due to the 'win-win' attractiveness of these loans, many African countries have secured disproportionately large loans (sometimes the size of their annual GDPs) for 'infrastructure beauty contests': In East Africa, for example, the Chinese have guaranteed loans of more than $1 Trillion to neighbours Kenya, Tanzania and Uganda; each country is building 'mega ports' and 'super rails', never mind that the optimum capacity for only one of such project will not be met in the next decade[xii]. As a result of the resulting debt spiral the IMF has expressed concern over the risks of credit downgrades for these economies, which of course means that they will be locked out of the mainstream market, and back again into the hands of China as the only available lender[xiii].

In all cases the concessional loans only serve to generate interest in Chinese labour, finance and manufactured goods- how? In Ghana, to take one example, China has signed agreements on economic and technical cooperation to enable Ghana obtain concessional grant and interest free loans- which in return gives access to China to bid for share in Ghana's Oil jubilee field, cocoa, waste copper, gold and other non-renewable natural resources (Jiang and Jing, 2010). With loans from China export-import bank (Exim Bank), Ghana has constructed, *inter alia*, a national theatre, the Bui Hydroelectric

Dam, the Afefi Irrigation Project, the Dangme East District hospital, the Police and Military Barracks, Kumasi Youth centre, the office block of ministry of defence and three rural schools. This is just one example of the burgeoning bilateral exchange (in favour of China) between China and the Africa country. As an example, Ghana, with an annual import bill of more than $200m worth of Chinese goods, is now one of the favourite beneficiaries of Chinese loans, but also Chinese manufactured goods.

Chinese credit and Africa's (debt) subjectivity

So, the indirect result of Chinese loans is not only increased African indebtedness- through widening trade deficit- but distortion of industry. As Teddy (2006) argues, although Africa is benefiting from the skills transfer from the Chinese, the presence of Chinese companies with massive capital and political clout has squeezed the life out of local entrepreneurship. Simply put, local business can withstand neither the financial muscle nor the cheap Chinese contract quotes. In Angola, for example, Malone (2008) claims that up to 70 per cent of public tendered work go to the Chinese who, in turn, make use of their imported workers. Similarly, in Kenya, only ten textiles factories are still in production, compared to 2 hundred factories, less than 10 years ago. So, on top of the transfer of revenue (through debt repayment) to China, we also see the presence of China in Africa as an opportunity for Chinese export of labour, which gives China an important opportunity to diffuse the pressure of its youth unemployment at precisely the time when the average African country has unemployment rates of 40 per cent (Malone, 2008; Ncube et al. 2010; Stevens and Kenan, 2006)[xiv]. For some (such as, Johnson, 2014: 4), then, Chinese presence in Africa constitutes a new form of imperialism, one of a new kind in which in addition to 'resource theft' the benefit to Africa are dubious, because of the low quality of infrastructure done by Chinese companies.

The present Sino-Africa arrangement, Malone (2008) argues, gives the Chinese the upper hand over Africa's mineral resources and its people: China takes about seventy percent of all timber from Africa, with the continental logging industry dominated by a handful of Chinese companies which pay local labourers less than a dollar a day. Chinese monopoly has, according to Malone (2008), also fuelled a new form of dictatorship, involving extensions of presidential term-limits, so that 'China-friendly' regimes can 'finish off' contracts signed with China. The Chinese not only supply Mugabe's regime with military hardware, they also supply both sides of an African conflict- for example the conflict between Sudan's feared Janjaweed militia (responsible for war crimes in Darfur) as well as the Sudanese government which (in theory at least, since President Omar Al Bashir has been indicted for War crimes by the ICC) fights the militia. As Rice (2011) points out, Chinese action in African could be the first signs of the transnationalization of (otherwise) domestic Chinese clump-down on human rights: There are anecdotal reports[xv] of the presence of China People's Army on the streets of Mutare in Zimbabwe, allegedly terrorising locals because of their political opposition to the regime of President Mugabe. Be the case as it may, China's involvement in Africa's internal affairs (surprise!) has led to strong resentment towards Chinese workers and traders[xvi]: In Sudan and Ethiopia rebel groups have shot and killed Chinese workers because they were seen as proxies of the local government[xvii]. There have been similar attacks in Zambia and elsewhere apropos of Chinese 'invasion' of local small-scale business and industry.

Nonetheless, the issue that has aroused the most interest is the matter of Chinese capital and what it portends for ecological disorganization in Africa. As Taylor (2007) has argued, Chinese extraction of resources in Africa does not come with proper feasibility studies of the environment, meaning, as an example, that Chinese interest in Africa's crude oil products (in Ghana, Sudan or Angola), forestry and fishing resources (In Cameroon, Guinea or Congo) or minerals (in Zambia, such as cocoa, cotton, gold, timber and industrial diamond as their main import may be disastrous to local business and the natural environment.

Perhaps it is the case of Chinese involvement in Ghanaian 'artisanal' mining which best illustrates the environmental impact of China in Africa.

China's ecological disorganization in Ghana's artisanal mining

In Ghana artisanal, or small scale, mining contributes close to 80% of gold exports (which, in turn constitute 40 per cent of the country's GDP), as Sarpong (2013) argues. Artisanal mining employs close to 50000 small scale miners operating in the different regions of the country. Following several years of irregularities the country passed, as part of its mining laws, the '*Provisional National Defence Council Law 218' (PNDC Law 218)* in 1989. The law defines a small scale miner as an individual or group of people (not exceeding 9) who extract the minerals without the use of machinery or chemicals (see also, Hilson and Porter 2013: 245). The power of this delimitation was in granting artisanal miners licence concessions for mining activity on parcels of land not bigger than 25 acres (so long as the mining is carried out by native Ghanaians). Concessions include tax and royalty exemptions of 3 years, as long as the gold is sold to licenced gold buyers. Ghanaian laws also prohibit mining without appropriate health and safety measures, including environmental impact audits, so that, as Yakubu (2002) also notes, the use of explosives such as dynamite are prohibited in all forms of small scale mining in Ghana.

But, the laws which regulate Ghanaian artisanal mining are also very porous: As an example, it is possible for individuals to violate the terms of their concession by bribing local officials, such as chiefs whom the central government has tasked with the registration of mining land. As a result, today's artisanal mining is not only dominated by Chinese (foreigners) who, as Hilson (2010) explains, directly purchase land and permits from local officials (or from the *Ghana Investment Promotion Centre*), but such officials own shell companies on behalf of the Chinese. Today's artisanal mining is thus not only foreign-owned and operated, but also mechanized. According to Antwi (2014) what used to comprise of traditional methods of panning has now been transformed by influx of Chinese stone-crashers, excavators and other highly sophisticated machinery. Meanwhile, as Ofori-Atta (2015) shows, artisanal mining laws do not explicitly spell the procedure for disposing chemicals (perhaps because the use of chemicals was not envisaged). Today, in various parts of Ghana, the use of chemicals in Chinese-owned concessions has polluted the land and rivers so much that the immediate burden is how to relocate the local population or cope with the period pandemics of waterborne diseases (see also, Hilson, 2010; Hilson and Porter, 2005; Hirsch, 2013; Tong, 2013).

In typical cases, once a Chinese-controlled shell company has exhausted the mines it moves on to the next region leaving the community to suffer the consequences of pollution. And, because of the *ad hoc* nature of licencing, in the end there is no one to hold accountable for pollution. In these circumstances, Hirsh (2013) shows how mercury and cyanide spillages by Chinese illegal miners pose a great threat of destruction to fresh water sources, marine life and local people: As an example on October 2011, artisanal miners released large quantities of water polluted with cyanide and mercury into river Asuman and its tributaries. This was claimed to be an accidental spillage, but it was followed 2 weeks later by a second spillage, which contaminated the local swamp (and the wider environment of the Ashanti region). Since then, local residents have reported cases of neurological disorders in unborn children (perhaps caused by mercury concentration in the drinking water and fish[xviii]).

Hilson and Porter (2005) were already aware of this when they argued that artisanal mining would cause significant damage to the environment, including the removal of a large portion of surface vegetation. Since the inception of the Chinese mining in Ghana's small scale sector, Hirsch (2013) now shows us, about 80 per cent of the vegetation over Kyebi, a mining area in the eastern region of Ghana, has been eroded[xix]. In all cases, as Ntibrey (2001) had earlier warned, the uncovered trenches and pits that are left over become filled with water which breeds mosquitoes causing malaria. This forces local communities out of their land, further leading to land conflicts. Hilson and Porter (2005) have similarly shown how Chinese-dominated mining is linked to pervasive land conflict within the Western Ghanaian regions of Tarkwa, Prestea, Bogoso, Aboso and Nsuta. These conflicts have displaced more than 30,000 (people from 14 communities) in the last 10 years.

It gets more interesting: China, as part of its economic partnership with Ghana, is obligated to provide loans to the private investments of its citizens. Majority of these loans, as Tong (2013) and Hirsch (2013) show have been attractive to the Chinese owners of shell companies involved in artisanal mining. This has driven the price of mining land beyond the reach of the ordinary Ghanaian, or motivated the local owners to sell to shell companies. Moreover, as part of bilateral agreements which allow free-flow of Chinese investments into Ghana, there is now a vibrant entrepreneurial class of Chinese owners of mines, who employ Chinese artisanal miners who, in turn, have family renting out land (with Chinese loans) to put it to other uses such as agriculture. As Read (2014) argues, about 4500 Chinese have been given work permits to stay and work in Ghana, and the number is growing. Ghana has received $3 billion as part of

Chinese loans on the proviso that Chinese must be allowed to stay and work in Ghana. But, as Read also points out, approximately another 2000 Chinese have illegally found their way to settle in Ghana to mine gold. These illegals entered Ghana on tourist or visiting visa but consequently connected with relatives or fellow Chinese citizens who helped them to settle by buying residence and work permits. There are similar stories: Antwi (2013) shows how Chinese finance has changed Ghana: Chinese construction workers initially come to build roads (as part of bilateral concessional loan agreements). These bring in more friends and family. Corruption in Ghanaian immigration services allow them to obtain work permits. This allows them to obtain loans from Chinese government, and buy up land or local companies, and the cycle repeats itself. These factors have placed the value of land out of the reach of ordinary Ghanaians who also find that they are no competition when it comes to getting loans to buy elsewhere. What started as small-scale mining is now, as Read (2013) and Antwi (2013) point out, one of the main drivers of Ghanaian rural-urban migration (usually to the slums of Accra and other major towns).

Conclusion: Chinese finance and ecological disorganization

The conclusion to be drawn from the example above is how, through unorthodox financing arrangements which allow the Chinese to evade conflict-of-interest sanctions, Chinese capital has become the face of ecological disorganization: The Chinese Treadmill of Production is thus not just about the collapse of African industry under the weight of cheap Chinese import; it is also about polluted rivers and land, and communities which have been evicted (albeit indirectly) from their land. In this sense Chinese finance is working contrary to integrated development in Africa: Rural-urban migration and the resultant conflicts over diminishing resources are an aspect of the Chinese Treadmill of Production in Africa, the clearest rendition of ecological disorganization. Artisanal mining is just one example of the thousands such case studies of ecological disorganization happening all over Africa, from Chinese funded railways which cut through protected heritage sites and national parks, to the connections between Chinese investment and illegal trade in wildlife parts and how the diminution of wildlife resources is fuelling conflict (see, for example, Kushner 2013; Johnson, 2014; Antwi 2014). We could also cite the ‘domino effects’ of illegal child labour (such as the use of children in digging, transporting and washing or panning of gold and diamond) all over Africa where, as the ILO estimates, close to 2 million children work in illegal mines (see Hilson and Porter, 2005; Kushner, 2013; Johnson, 2014) .

The methodology of the modern Treadmill of Production has been the expansion of production away from localized subsistence and into national and international markets, through so-called globalization. As critics of Globalization (for example, Stiglitz, 2012; Lazzarato, 2011; Zizek, 2014) have showed however, transnationalization of finance bears with it a dark underbelly. The above analysis has mapped and discussed the contours of the Chinese behemoth apropos of this dark side. What we have encountered is the beast of death, pollution, conflict and displacement, which hides behind the benevolent figure of the Chinese state. The toxic mix of local and localized corruption in Africa, together with the isolating echelons of international finance (through the conditionalities of the Washington consensus of the IMF and WB) leave Africa firmly in the grip of China which, as it were, is only too kin to diffuse local pressure by financing its externalization.

This is not new or unique to Africa, however: Although the resultant institutional and class structure of the treadmill (from the west's 'have-yachts' to its poor 'benefit thieves') is complex and variable, the recent trend is acceleration of the gap between the poor (who also have no democratic voice) and the rich, absent any political intervention: The institutional apparatus of the modern treadmill impels investors, managers, workers, and state bureaucrats to demand ever-greater ecosystem utilization, to accompany ever-greater capitalization of production (Zizek, 2014; Lazzarato, 2011)

Schnaiberg (1980) already diagnosed this condition when he observed that economic market actors of the treadmill routinely emphasize the exchange-values (through corporate gifts, corporate expenses refunds…) rather than use-values flowing from ecosystem usage, with state actors aiding and abetting allocations of economic surplus from the treadmill (through tax-cuts for the wealthy, funding transfer payments and other allocations from the treadmill). There are ample African examples of this, and some of them have been cited above.

In conclusion, the 'globalized' world is one of near-hegemonic power of the institutionalized treadmill (especially transnational banks and insurance) through which the dominant capitalist class (in the shape of wealthy shareholders, but also powerful nations which control multilateral lenders, or influence weaker ones) continues to extract its surplus value. Here, the treadmill's major social institutions (especially the neoliberal state and non-state actors) play the role of diffusing the dominant narrative of the necessity of accelerating the treadmill, with the minor issue being (1) to generate more surplus, and (2) how to allocate the surplus that has been generated. China-in-Africa is the clearest example of how the Treadmill of Production results in ecological disorganization.

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[i] In Marxian analysis, the amount of profit is partially determined by the rate of surplus value and partially determined by expanding production—that is, by increasing the volume of goods produced and sold (Marx 1974). Thus, in order for profit to expand, the production process and the exploitation of labour must both constantly increase. Marx analysed this process in the production phase and assumed

that the input for production—raw materials and capital—were prerequisites for the initiation of production.

[ii]Schneiberg's thesis is that:

1. Societal production in industrial societies involves withdrawals from and additions to natural ecosystems, in the process turning ecosystem elements into social resources, producing exchange values and profits in the markets of the treadmill of production;
2. Such withdrawals and additions disorganize the physical-biotic structure of these ecosystems, while producing these exchange values; iii. Ecosystem disorganization2 decreases the use values of ecosystems, restricting, among others, social access to recreational habitats, health-sustaining biological supports (air, water, food), and also future levels of social production (exchange values).

[iii] White (2013: 255) agrees with this reading of the state role in ecological disorganization when he observes that the most criminogenic agents of environmental harm within a global capitalist political economy are 'members of a state's capitalist class, operating within the institutional context of transnational corporations'.

[iv]A third synthesis is an ecological one. Here the state attaches a primacy to ecological system protection, emphasizing use-values (including the value of preservation of existing species and habitats) over exchange values. This is consonant with the proposals of "deep ecologists" and neo-Marxists who advocate a reorganization of the social relations of production. Their goal of a sustainable society is, however, rarely supported by modern states.

[v] Along the same veins, the absence of 'subjective' violence, cue the absence of any forms of picketing-against depressed wages or bad investment decisions by national elites- is rewarded by high ratings in 'ease of doing business' or 'transparency' indices, so that, presently, the most draconian regimes (Ethiopia, Rwanda, China etc.) are also increasingly being held up as totems of good management to be envied and emulated

[vi] The first phase of Chinese engagement with Africa began during the Bandung Conference of Non-Aligned Nation in 1955. There was a substantial improvement in the relationship towards the end of 1950s as a result of its worsening ties with the Soviet Union. China then was looking for allies in Africa to establish a counter balance weight to Soviet hegemony and western imperialism.

[vii] These loans tend to go to resource rich countries such as Angola, Democratic Republic of the Congo and Ghana and are usually repaid by shipping natural resources to China. These loans are not FDI; they are commercial deals, albeit often with a concessionary loan component.

[viii] The bulk of China's FDI has been concentrated in a relatively few countries. Between 2003 and 2007, five countries—Nigeria, South Africa, Sudan, Algeria and Zambia—accounted for more than 70% of China's FDI. While these countries remain important recipients, others such as Guinea, Ghana, Democratic Republic of the Congo and Ethiopia have joined the list in recent years. In 2010, Ethiopia had, for example, 580 registered Chinese companies operating with estimated investment capital of $2.2 billion. Some of this new FDI is coming thru Chinese special economic and trade cooperation zones. China is working with African counterparts to establish seven of them: two each in Zambia and Nigeria and one in Mauritius, Egypt and Ethiopia.

[ix] Chinese investment is not limited to public investments, however: Privately-owned Huawei and publicly-traded ZTE have become the principal telecommunications providers in a number of African countries where, while most of their activity is sales, their operations are so large in some countries that they have established huge local offices

[x] As others (for example, Ncube et al. 2013) observe, however, because Western companies began investing in Africa much earlier, their cumulative investments far exceed China's FDI in Africa. As of the end of 2010, for example, the U.S. Bureau of Economic Analysis calculated that cumulative U.S. FDI in only Sub-Saharan Africa (SSA) totaled $54 billion. U.S. FDI flows to SSA in 2010 reached $3.4 billion.

[xi] Others have in fact read the period of African stagnated growth as the same period of Chinese absence; Ncube et al. (2013) claim that, as the Chinese 'turned inwards' to align their hitherto socialist onto a capitalist market approach[xi], the period left an important vacuum which was enough for the west to embed itself through the multilateral institutions it controls. Others (for example, Downs, 2007; Haroz, 2011) see it differently: China has only been involved in Africa through symbiotic periods which suited its goal of externalizing its surplus or conquering new sources of raw materials.

[xii] See for example http://mobile.nation.co.ke/blogs/New-railway-is-not-value-for-money-/-/1949942/2207034/-/format/xhtml/-/qupvukz/-/index.html

[xiii] First of all, one needs to recognize that the Chinese government imposes no political conditions on African governments before signing contracts either for exploration or other economic activities. Secondly, Chinese firms are willing to invest where western companies are unwilling.

[xiv] Malone (2008) argues that, China, whose population has more than trebled from five hundred million to one billion in a space of five decades has forced Beijing to enter bilateral trade with Africa, with the ambition of offloading about three hundred million of its nationals to Africa.

[xv] See for example, http://www.independent.co.uk/news/world/africa/chinese-troops-are-on-the-streets-of-zimbabwean-city-witnesses-say-811796.html

[xvi] Actually, as a result of such direct threats (to its labourers in Africa, China has significantly ramped up its contribution to United Nation peace-keeping forces in Sudan, although it has been involved longer than is assumed (Gill and Reilly 2007: 37).

[xvii] See, for example, http://www.chinadaily.com.cn/china/2007-04/24/content_858956.htm

[xviii] The people of Tarkwa in western region and Kyebi in eastern region are very much prone to neurological diseases. The International Labour Organisation (1999) reports that fatality rate in small scale mining sector is 90 times higher than large scale mines. Hazards like heat, humidity and lack of oxygen have exposed the people in mining communities to visual disorders, dermatological, muscular and orthopaedic sicknesses.

[xix] There are similar stories elsewhere across Africa: In Zimbabwe, where (Chinese-funded) artisanal mining is also common, about 100000 hectares of land has been lost to illegal (diamond) mining in the Maranga region.