Marxism and Ecology – Notes on Some Theoretical Developments

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'Man lives on nature – means that nature is his body, with which he must remain in continuous interchange if he is not to die. That man's physical and spiritual life is linked to nature means simply that nature is linked to itself, for man is part of nature.'
– Karl Marx, 1844, Economic and Philosophic Manuscripts.

'A decade and a half ago the contribution of Marx and Marxism to the understanding of ecology was seen in almost entirely negative terms, even by many self-styled ecosocialists. Today Marx's understanding of the ecological problem is being studied in universities worldwide and is inspiring ecological actions around the globe.'
– John Bellamy Foster, 2014 (Foreword to 'Marx and Nature, A Red and Green Perspective' by Paul Burkett, 2014)

We live in an era of intensified privatisation, capitalisation and commodification of nature and degradation of the environment on a global scale. These processes go on even as scientists keep repeating the stark warning that human activity in the past century and a half has caused serious and irreversible damage to the earth as an ecosystem. According to a report issued by the Stockholm Resilience Centre (SRC) in January 2015, processes such as climate change, loss of biosphere integrity (biodiversity loss and species extinction), land-system change (deforestation, for example), and altered biogeochemical cycles (phosphorus and nitrogen) have already crossed safe planetary boundaries. These four are among nine processes for which scientists have set planetary boundaries; the other five being: Stratospheric ozone depletion, Ocean acidification, Freshwater use, Atmospheric aerosol loading (microscopic particles in the atmosphere that affect climate and living organisms) and Introduction of novel entities (e.g. organic pollutants, radioactive materials, nanomaterials, and micro-plastics). These planetary boundaries, says one of the authors of the report, 'do not dictate how human societies should develop but they can aid decision-makers by defining a safe operating space for humanity.'1 The message is, respect the boundaries.

The SRC's findings and presentation of the ecological challenges have no doubt enriched the ongoing debates on environment and development and the future of our biosphere. There are different, and often competing, theoretical interpretations of the 'global environmental crisis'. The solutions offered vary too. In this article, I briefly introduce some of the theoretical developments within the Marxist tradition. There is, indeed, a growing body of Marxist scholarship on capital-nature relations and the global environmental crisis. After all, the history of the past one and a half century the scientists are talking about is a part of a longer history of capitalism and a world system dominated by the capitalist centres. The rather short history of 'socialism' since October 1917 until the fall of the Berlin wall and the end of the cold war is even more disappointing as far as the environment is concerned. On the other hand, as Foster and Magdoff remind us 'the Soviet Union in the 1920s had the most developed ecological science in the world and was extremely advanced in introducing ecological practices. All of this, however, was obliterated in the subsequent purge under Stalin.'2

As the quote at the top of this article indicates, the young Marx (he was 26 in 1844) saw humans as

part of nature. In his critique of Feuerbach's 'contemplative and inconsistent materialism' Marx noted that the nature that preceded human history did not exist any longer (except perhaps on a few Australian coral islands of recent origin), as humans have been transforming both themselves and nature through their interchange with nature. 3 He developed these ideas further in his various writings and showed how capital exploited both labour and nature while at the same time alienating human beings from themselves and from nature. The Grundrisse and Capital are rich in insights and analytical discussions on the dialectics of capital and nature. In these works, Marx theorises and empirically illustrates not only the Promethean transformative power of the capitalist mode of production but also its destructive side. He shows that the immanent logic of capital accumulation via surplus value appropriation is no respecter of national or natural boundaries and that for capital nature is purely an object, a matter of utility. A boundary is only a barrier to be broken through. That is how capital works. 'Every boundary (Grenze)', writes Marx, 'is and has to be a barrier (Schranke) for it. Else it would cease to be capital – money as self-reproductive.'4 Thus, it is no wonder that planetary boundaries set by science are not easy to protect in a system whose driving force disregards the distinction between boundary and barrier and continuously reshapes nature and the human world to serve the interests of big capital.

However, there was a lack of a sustained and systematic Marxist theoretical treatment of the environmental question in terms of the dialectics of capital and nature for more than seven decades since the beginning of the 20th century. In hindsight, this may appear surprising as the world witnessed a widespread surge in Marxist theory and socialist and national liberation struggles inspired by Marxism during the same period. In the 1960s, environmental movements and environmentalist ideologies were beginning to dominate the debates on global environmental issues. Environmentalists were attempting to portray Marxism in negative light as a 'productivist' and anthropocentric theory that disregarded the natural limits to growth. The Marxist left had to confront this challenge, and confront it did. The story of the intellectual background to the revival and development of Marxist ecology as a critical field of study since the 1980s is edifying indeed, as narrated by Foster (2000; 2015) and Foster et al (2010).5

Ecological studies flourished without bureaucratic interferences in the early years of the Soviet Union. For instance, Vladimir Vernadsky published his outstanding work 'The Biosphere' in 1926, and the world-renowned plant geneticist Nikolai Ivanovich Vavilov discovered the original centres (named Vavilov Centres) of domestication of plants. As documented by Foster (2015), Marxist theorist Nikolai Bukharin, and historian of science Y. M. Uranovsky, generalized the emerging ecological knowledge in terms of historical materialism. However, the free development of such knowledge was suppressed after Stalin took over the leadership of the Communist Party of the Soviet Union. Many natural scientists including Vavilov were labelled 'traitors' and imprisoned, as 'Lysenkoism' began to dominate the biological sciences at the behest of the Party leadership (see Foster 2015 for details).

In the same period, there were significant developments in Marxist theory outside the Soviet Union. Unfortunately, they failed to pay sufficient attention to the environmental question. For example, the intellectually influential trend of Western Marxism, initiated by Georg Lukacs, Karl Korsch, Antonio Gramsci and others in the 1920s and taken over by the Frankfurt School, had focused rather exclusively on Marx's concept of praxis ('practical materialism') leaving little space for a Marxist approach to the issues of nature and natural sciences. Arguing that the dialectical method was limited to the realms of history and society, Lukacs (1923) was rather dismissive of Engels's Dialectic of Nature as a work influenced by Hegel's mistaken lead.6 It must, however, be noted that Gramsci had strong reservations about Lukacs's position, although he did not explore the dialectics of capital and nature in his theoretical writings.7 The Western Marxists were resisting the positivistic influence within the Marxism of

their time. But their theoretical approach paved the way for 'a fashionable Marxist epistemology which has become locked into an idealist theoretical practice', in the words of E. P. Thompson (1994), 8 who was a staunch critic of Althusserian Marxism. The Frankfurt School's approach to nature was highly influenced by Lukacs's thinking. This is evident in Alfred Schmidt's (1962) major work 'The Concept of Nature in Marx', in which he argues that materialism and dialectics are incompatible. As examined in detail by Foster (2000) and Foster et al (2010), Western Marxism's handling or neglect of this crucial part of the Marxist theoretical legacy had contributed to a widespread perception that Marxism was 'anti-ecological.' It is worth recalling here that, on another front, there was the big debate on development and underdevelopment in which several Marxist and neo-Marxist scholars and activists from the North and the South participated. The neo-Marxist theories on dependency and underdevelopment that held sway over development studies in the 1960s and 1970s did address the exploitation of natural resources in the 'periphery' by the 'centre'. However, they did not go far enough to address the environmental consequences of extractive economies and underdevelopment.9

The debates on the environmental crisis and the controversies it generated about 'limits to growth', the causes of 'resource scarcity' and environmental degradation, and the meanings of nature in the 1970s-80s provided a major impulse for radical scholars to look beyond Western Marxism and to return to the original works of Marx and Engels in order to move forward. This led to the revival and growth of Marxist ecology. It is important to note that it is an interdisciplinary field of Marxist scholarship characterised by divergent positions and debates arising out of them. There are different and even conflicting interpretations of Marx's statements and discussions on society-nature relation within the Marxist camp. There are those like Michael Lowy who argue that Marx had tended to adopt an uncritical attitude toward the industrial civilisation's destructive relationship to nature because of his Promethean conception of the forces of production as 'the principal vector of progress.' Ted Benton, James O'Connor and some other Marxists hold similar views. Paul Burkett (2014) challenges these interpretations in his detailed reconstruction of Marx's social scientific approach to nature, society and environmental crisis. Besides those mentioned already, other major contributors to Marxist ecology include David Harvey, Jason Moore and several others associated with journals such as Monthly Review, Capital, Nature, Socialism, and New Left Review. Marxist ecologists view and analyse today's ecological challenges in historical perspective. From a Marxist ecological point of view, society and nature coevolve, and hence a historical approach to current environmental issues.

Metabolic rift, environmental overdraft and ecological imperialism

Marx was an acute observer and analyst of the impact of capitalist industrialisation, urbanisation, agricultural intensification and long distance trade on human development, natural resources and the environment. He noted that the town-country division was causing an 'irreparable rift' in the metabolic interdependence between society and nature. 'Metabolic rift' is a term introduced by Foster to denote Marx's conceptualisation of the 'environmental problem' as it unfolded with the advance of capitalist industrialisation in the 19th century. In his analysis of large-scale industry and agriculture in Capital (Volume 1), first published in German in 1867, Marx observes:

'Capitalist production collects the population together in great centres, and causes the urban population to achieve an ever-growing preponderance. This has two results. On the one hand, it concentrates the historical motive power of society; on the other hand, it disturbs the metabolic interaction between man and earth, i.e. it prevents the return to the soil of its constituent elements consumed by man in the form of food and clothing; hence it hinders the operation of the eternal natural condition for the lasting fertility of the soil. Thus it destroys at the same time the physical health of the urban worker, and the intellectual life of the rural worker.'10

Marx closely studied the scientific works of the German agricultural chemist Justus von Liebig, who warned that the intensification of agricultural production in Europe was actually robbing the soil of its nutrients as the nutrient cycle was being broken due to the export of the produce to distant urban markets. Liebig's own critical view of capitalist agriculture developed over a long period based on his own research. Marx was influenced by Liebig's (1862) findings and it would seem that he adopted the concept of metabolism (stoffwechsel) from Liebig.11 Marx returns to this issue in Volume 3 of Capital, where he states that the division between town and country and the long distance export of agricultural produce create 'conditions that provoke an irreparable rift in the interdependent process of social metabolism, a metabolism prescribed by the natural laws of life itself.'12 He noted in Volume 1 that capital converted one part of the globe into industrial centres and another part into areas supplying agricultural products and raw materials to the former. The solution to the depletion of soil fertility took the form of largescale imports of nutrient rich guano from Peru into the farms of Europe and the USA in the 19th century. Subsequently, the manufacture of inorganic fertilisers and other agro-chemicals became a major industry. This along with the production of high yielding varieties, irrigation infrastructure development and mechanisation contributed to the industrialisation of agriculture.

The environmental consequences and the social costs of this model of chemically intensive agriculture have been studied and highlighted by many researchers and activists.

The ongoing global expansion of capital also means the globalisation of metabolic rift, changes in the division of labour, and environmental crises in a world of unequal power relations and uneven development of capitalism across space and time.

Historically, the town-country differentiation and the consequent metabolic rift was linked to what Marx called primitive accumulation, which 'is nothing else than the historical process of divorcing the producer from the means of production.'13 Primitive accumulation – as classically exemplified by the case of rural England – involved a process of separation of the farming and herding populations from their means of production by the emerging capitalist class. This was a process of enclosure and privatisation of lands, which were largely under communal and feudal forms of tenure. The state provided the legislation to institutionalise modern private property in land. Primitive accumulation precedes capitalistic accumulation. It is not an outcome of capitalist production but its starting point. The dispossessed and pauperised masses had no option but to sell their own labour power for a wage to the class that had dispossessed them. The wageworkers constituted the proletariat. This highly complex process is a global phenomenon and the manner in which it happens varies according to historical and geographic contexts and the nature of the state. In England, Marx writes in Capital (Volume 1), the history of this expropriation and the making of the working class is 'written in letters of blood and fire'. In the global South, Western colonial powers introduced new property regimes and created export economies based on plantation and other systems of cash crop monoculture and on mining of resources to meet the demands of the industrial countries. There were also large-scale enclosures of forests as nature reserves and protected areas. These changes displaced rural populations and transformed landscapes and deprived the former of their traditional livelihoods. In the absence of major labour absorbing industrialisation, the dispossessed people often found themselves caught in a combined and protracted process of pauperisation and proletarianisation, in which the former remained dominant.14 The more recent waves of land grabbing in Africa and Asia are evidence of an ongoing global process of primitive accumulation or 'accumulation by dispossession' in the era of finance capital and neoliberal imperialism.15 The divorce of the producers from their means of production and their conversion into wage labourers was not only the starting point of capitalist production but also of the rift in the interdependence between society and nature.

Foster and his co-authors have addressed the political economy of the 19th century guano trade between Peru (which was heavily indebted to Britain) and the Western countries as a case of unequal ecological exchange 'to compensate for the "environmental overdraft" that characterized industrial agriculture in Europe and the United States.'16 The unequal exchange, which went on for forty years until the guano deposits were depleted to uneconomic levels, involved the import and extreme exploitation of thousands of indentured Chinese 'coolies', as there was a shortage of labour in Peru. The transformed landscape left behind by the guano trade was 'like anything that reminds one of death and the grave', as described by the author of *'Peru in the Guano Age'* 17 This is an example of ecological imperialism, as documented and argued by Foster et al.

Ecological imperialism has a long and complex history as it involved the appropriation of natural resources from the South by capital from imperialist centres. The capitalist competition for high value natural resources has intensified indeed. Foster and Clark (2004) identify the following defining features of ecological imperialism:

'the pillage of the resources of some countries by others and the transformation of whole ecosystems upon which states and nations depend; massive movements of population and labour that are interconnected with the extraction and transfer of resources; the exploitation of ecological vulnerabilities of societies to promote imperialist control; the dumping of ecological wastes in ways that widen the chasm between centre and periphery; and overall, the creation of a global "metabolic rift" that characterize the relation of capitalism to the environment, and at the same time limits capitalist development.'18

This definition of ecological imperialism needs to be viewed in the broader context of the 'new imperialism' or 'capitalist imperialism' of our time, particularly since the advent of neoliberalism in the 1970s. David Harvey defines capitalist imperialism 'as a contradictory fusion of the politics of state and empire…. and the molecular processes of capital accumulation in space and time.'19 Two logics of power characterise this 'contradictory fusion', one territorial and the other capitalist. In the politics of state and empire, imperialism operates as 'a distinctively political project on the part of actors whose power is based in command of a territory and a capacity to mobilize its human and natural resources towards political, economic and military ends'. In the other, imperialism works 'as a diffuse political-economic process in space and time in which command over and use of capital takes primacy.'20 Between the two logics, 'it is the capitalist logic that typically dominates, though,... there are times in which the territorial logic comes to the fore.'21

From this theoretical perspective, for capital, it is not always a case of territorial conquest or control in order to exploit high value natural resources and open up opportunities for accumulation. In today's world, imperialism relies on a combination of hegemony ('soft power') and domination (coercive power).

'Hegemonic state power is typically deployed to ensure and promote those external and international institutional arrangements through which the asymmetries of exchange relations can so work as to benefit the hegemonic power. It is through such means that tribute is in effect extracted from the rest of the world. Free trade and open capital markets have become primary means through which to advantage the monopoly powers based in the advanced capitalist countries that already dominate trade, production, services, and finance within the capitalist world.'22

In general, the capitalist logic is the driving force behind accumulation by dispossession (e.g. land grabbing in the South by foreign capital including Chinese, Indian, Korean and Arab capital), which has been going on in many developing countries without direct military intervention. This has been facilitated by the hegemonic policies and institutional pressures exercised through the international financial institutions (World Bank, IMF) and the World Trade Organisation by the power of the US and its European allies.23 However, imperialist powers do wage wars, which

can be characterised as 'resource wars'. The invasion and occupation of Iraq by the US and its allies and the permanent military involvements of these powers in the oil-rich Persian Gulf are clear examples of the use of 'hard power' to secure control over vital resources.

The 'resource curse' thesis put forward and defended by some mainstream scholars does not go beyond stating that 'developing countries whose economies depend on exporting oil, gas or extracted materials are likely to be poor, authoritarian, corrupt and rocked by civil war.'24 This description is empirically correct in many cases, but it is at best only a part of a complex story of ecological imperialism as it does not situate the 'curse' in the global political economy. As Perelman observes:

'A rich natural resource makes a poor country, especially a relatively powerless one, an inviting target – both politically and militarily – for dominant nations. In the case of oil, the powerful nations will not risk letting such a valuable resource fall under the control of an independent government. Especially one that might pursue policies that do not coincide with the economic interests of the great transnational corporations. So, governments that display excessive independence soon find themselves overthrown, even if their successors will foster an environment of corruption and political instability.'25

Another aspect of ecological imperialism has been conceptualised as 'ecological debt' by some activist groups.

'Ecological Debt refers to the debt owed by Northern, industrial countries to Third World countries on account of historical and ongoing resource plundering, environmental degradation and the disproportionate appropriation of environmental space to deposit toxic wastes and greenhouse gases. The external financial debt owed by countries of the South to Northern creditors is much smaller than this ecological debt.'26

This is also a key issue in the discourses and debates on global environmental justice. These debates have tended to create a North-South polarisation on matters such as historical responsibility for climate change induced by industrialisation. The position of south-based environmental movements is that, historically, the industrial North has appropriated the global commons without any restraint, while also contributing to the major share of greenhouse gas emission. Hence, there has to be a transfer of wealth as repayment of the historical atmospheric asset debt (an ecological debt).27

As Harvey (1996) says, discourses on environmental justice do not exist in isolation from beliefs, material practices or power relations.28 Bourgeois conceptions of justice – including environmental justice – are subservient to concerns for economic efficiency and endless capital accumulation. There is a need to find a transcendent emancipatory discourse that can help the particularist and place-based environmental movements to progress towards broader and stronger alliances against both ecological imperialism and resource capture by domestic capitalists and political, military and bureaucratic elites at the expense of the wellbeing of society.

The second contradiction of capitalism – as the point of departure for 'ecological Marxism'

The contradiction between the relations of production and the forces of production is central to Marxist analysis of the capitalist mode of production. In 1984, James O'Connor, the founding editor of the journal 'Capitalism, Nature, Socialism (CNS)', propounded a thesis based on another, the so-called second, contradiction of capitalism:

'(T)he point of departure of an "ecological Marxist" theory of economic crisis and transition to socialism is the contradiction between capitalist production relations (and productive forces) and the conditions of capitalist production, or "capitalist relations and forces of social reproduction."29

O'Connor states that his approach is in contrast to that of the 'traditional Marxist theory', which

takes the contradiction between capitalist production relations and productive forces as the point of departure to explain capitalist crisis and the transition to socialism. By focusing on the conditions of production, O'Connor draws attention to ecological, personal and communal aspects of production that are 'external' to the capitalist relations of production but, at the same time, essential for the reproduction of capital. He elaborates on three kinds of production conditions defined by Marx:30

• External physical conditions: Today these conditions of production are discussed in terms of the viability of ecosystems, the adequacy of atmospheric ozone levels, the stability of coastlines and watersheds; soil , air and water quality etc. One may add climate change to this list.
• Personal conditions of production (labour power): These relate to the factors affecting the physical and mental wellbeing of workers. These factors include housing and living conditions, work environment, access to quality healthcare and education, and the overall quality of life of workers and their families.
• The communal, general conditions of social production: In current terms, these include 'social capital', and socio-spatial structures including urban and rural infrastructure and their changes over time.

O'Connor draws attention to the points that the conditions of production are not capitalistically produced and that capital impairs its own conditions of reproduction by externalising costs in the form of pollution, environmental degradation and hazards to human and non-human life. The focus on the second contradiction leads to a theorisation of economic crisis that is different from that based on the first contradiction (i.e. the contradiction between production relations and productive forces), in which economic crisis is about over-production of capital (the realisation crisis). This type of crisis is linked to demand, while a 'liquidity crisis' or under-production of capital arising out of the second contradiction comes from the supply side. The private costs externalised (on to nature, labour power and infrastructure) by individual capitals in their pursuit of profit turn into 'social costs', which inevitably enter the costs on all capitals at some point and thereby cause lower profits. 'In ecological Marxism', writes O'Connor, 'economic crisis is the cauldron in which capital restructures the conditions of production also in ways which make them more transparently social in form and content.' 31 Thus, crisis forces capital and the state to adopt measures that go beyond relying on the market alone. However, the prevailing political forces and struggles against degradation of the conditions of production and for social security and environmental protection would play a major role in determining the type of policies and actual measures adopted. The interventions may include regulation of the labour market and land use, population and health policies, environmental standards, urban planning, resource planning, toxic waste disposal planning etc.

O'Connor states that the processes of over-production and under-production of capital are not mutually exclusive and that a 'study of the combination of the two processes in the contemporary world may throw light on the decline of traditional labour and socialist movements and the rise of "new social movements" as agencies of social transformation.'32 On other hand, he seems to be contradicting himself when he later asserts that the 'first contradiction of capitalism is internal to the system; *it has nothing to do with the conditions of production,* whether these are interpreted economically or in socio-political terms'33 (my emphasis). This raises some issues about the consistency of O'Connor's theoretical framework, to which I shall return shortly.

O'Connor is highly critical of post-Marxism, which he argues has monopolised discussions of conditions of production by framing them in terms of struggles for "radical democracy" by multi-class 'new social movements' in a "post-industrial society". He argues that the excessive stress on 'site specificity' and 'difference', which actually have to do with the diverse nature of the conditions of production, by post-Marxism

prevents broader unity and makes any universal demands impossible. This is not the way to go if the goal is to democratise the state, as it cannot be achieved without the working class and a united struggle for democracy. The impact of environmental problems is heavier on the poor, including the working poor and other marginalised groups, than the well-to-do. There is a class dimension to these issues even though they are more than class issues. Capital's fight against public spending on environmental protection, healthcare, and emancipatory education, and controls on private investments to protect nature is clear evidence of the workings of class interest. O'Connor further argues that ecological Marxism, which takes the second contradiction as the point of departure provides an alternative to post-Marxism and a way to reframe the political agenda of the new social movements.

O'Connor draws attention to a neglected aspect of Marxist theory and offers a theoretical framework to examine capital-nature relations and the limitations of the 'new social movements' that ideologise 'difference' and 'site specificity.' However, his inconsistent position on the relationship between the two contradictions and his claim that his approach is in contrast to that of what he terms the 'traditional Marxist theory' are problematic. He has been criticised by Burkett (2014) for artificially separating the two contradictions. The first contradiction is characterised by the exploitation of labour by capital, which enjoys social and political power over labour. In Marx's analysis capital's exploitation of labour and appropriation of nature are inter-twined. Thus, it does not make sense to emphasise the second contradiction at the expense of the first. Making the point that according to Marx 'the exploitative appropriation of natural and social conditions occurs not just through their commodification but also through their free appropriation by capital', Burkett suggests that 'from Marx's perspective, O'Connor's attempt to relegate capital's socialization of the conditions of production to a "second" cost-side contradiction is simply implausible.'34 Theoretically, there is a need to restore the intersection between the two contradictions. Capitalism, however, is a system of multiple contradictions, and struggles may take different forms depending on the socio-economic and environmental impact of particular contradictions. An understanding of this may be helpful in explaining the diverse forms of struggle occurring in different sites and at different times. Harvey (2014) identifies seventeen contradictions of capital as an economic engine and classifies them into three categories: the foundational contradictions (7), the moving contradictions (7) and the dangerous contradictions (3). The foundational contradictions are: use value and exchange value; the social value of labour and its representation by money; private property and the capitalist state; private appropriation and commonwealth; capital and labour; capital as process or thing, and; the contradictory unity of production and realisation. The moving (or transformative) contradictions: technology, work and human disposability; division of labour; monopoly and competition: centralisation and decentralisation; uneven geographical developments and the production of space; disparities of income and wealth; social reproduction and; freedom and domination. The dangerous contradictions: endless compound growth; capital-nature relation and; the revolt of human nature: universal alienation. This work is an 'X-ray into the contradictions of capital' and, as admitted by Harvey himself, the approach 'is somewhat unconventional in that it follows Marx's method but not necessarily his prescriptions.' In the Epilogue, he offers a list of ideas or mandates 'derived from the seventeen contradictions – to frame and hopefully animate political praxis.'35 It is not possible to provide a summary of Harvey's book here. I shall, however, be drawing on some parts of it, particularly on the chapter on Capital's relation to nature, in the section that follows.

Reproduction of Capital and Nature

'Capital', as Harvey puts it, 'is a working and evolving ecological system within which both capital and nature are being constantly produced and reproduced.'36 This process is riddled with contradictions and the social and natural limits to accumulation assert themselves at various points,

and capital strives to overcome them. 'The nature that results is something that is not only evolving unpredictably of its own accord (because of the autonomous random mutations and dynamic interactions built into the evolutionary process in general) but actively and constantly being reshaped and re-engineered by the actions of capital.'37 The capitalist state plays a variety of enabling roles in the production and reproduction of capital and nature.

Indeed, the self-reproductive dynamic of capital generates barriers that undermine capital's own prospects of expanded reproduction. The periodic economic crises are a manifestation of this immanent character of capital. 'Capitalist production', says Marx (Vol.3), 'constantly strives to overcome these immanent barriers, but it overcomes them only by means that set up the barriers afresh and on a more powerful scale.'38 He continues:

'The true barrier to capitalist production is capital itself. It is that capital and its self-valorisation appear as the starting point and finishing point, as the motive and purpose of production; production is production only for capital and not the reverse, i.e. the means of production are not simply means for a steadily expanding pattern of life for the society of the producers.'39

Driven by the profit motive, the system thrives by turning use values into exchange values, and the above quote highlights the contradiction between the two. Capitalist crisis is actually a crisis of extended reproduction of capital. It means a breakdown in the self-valorisation process. There are different and often competing interpretations of Marx's accounts of crisis. The key categories in explaining crises are over accumulation (or surplus) of capital, the rise of finance capital and its domination over industrial capital, the disproportionality between capital goods producing and consumer goods producing sectors, and the law of the tendency of the rate of profit to fall. It is beyond the scope of this article to review the debates on Marxist theories of crisis. The following points are relevant to my purpose. Over accumulation of capital – i.e. surplus capital, and the existence of unemployed labour at the same time are a structural contradiction of capitalism. Crises are an inherent character of capital, and it is through crises capital recomposes itself and renews its march towards endless accumulation. The process of renewal often involves disinvestment and abandonment of particular sites of capital's activity, as capital moves to new and promising areas and sectors of investment. Capital operates globally and liberalisation and the advancement of science and technology have removed many obstacles to its free mobility and to the commodification of nature. Capital can abandon sites it has degraded in the processes of resource extraction, production and waste disposal and move on to accessible new sites on the globe. In this regard, discoveries of new reserves of key resources such as oil, the real possibilities for input substitution, and competition among developing countries to attract foreign direct investment are positive factors for capital. In this way, capital can overcome particular natural limits and go on reproducing itself on an extended scale while leaving behind a trail of environmental destruction, abandoned assets and deprived communities. '(I)t may be perfectly possible for capital to continue to circulate and accumulate in the midst of environmental catastrophes. Environmental disasters create abundant opportunities for a "disaster capitalism" to profit handsomely.'40

Capital encloses, privatises and commodifies nature in parts, while the environment at large (including the essential ecological processes) defies enclosure and commodification. Non-commodified nature, which is external to market relations, plays an indispensable role in the reproduction of capital and the capitalist system as a whole. It includes the biophysical conditions of production, which capital appropriates as 'free gifts'.41 Thus, the sway of capital extends over non-commodified nature as well. As already noted, capital appropriates the global commons in various ways. The piecemeal commodification of nature and the externalisation of wastes affect the essential ecological processes and the environment with adverse consequences for human and non-human life. Capital, nonetheless,

is capable of turning environmental problems, defined as market failures or externalities by mainstream economic theory, into new opportunities for profit making by fabricating new resource and environmental management regimes with the aid of technological and institutional innovations. The capitalist system has its academic and ideological defenders at various levels from the global to the local. These groups provide the technical analysis of environmental problems and pro-capital interpretations of 'sustainable development' or 'green economy' to assist policy makers. There is indeed a global network of epistemic communities in the form of 'think tanks' and policy advisors serving the interests of capital. The system is often successful in co-opting environmental movements. That is capital's way of responding and adapting to both nature's reaction and societal resistance to its destructive side.

It seems capitalism is incredibly resilient and can go on forever. Then what about its impact on the biosphere. Burkett (2014) offers the following warning based on his reading of Marx's analysis of capital-nature relation:

'with its exploitative scientific development of productive forces, its in-built tendency to "reproduce itself upon a constantly increasing scale", and the attendant extension of production's natural limits to the global biospheric level, capitalism is the first society capable of a truly planetary environmental catastrophe, one that could ultimately threaten even capital's own material requirements.'42

Even though such a scenario is perfectly conceivable, Harvey (2014) raises the following argument:

'If there are serious problems in the capital-nature relation, then this is an internal contradiction within and not external to capital. We cannot maintain that capital has the power to destroy its own ecosystem while arbitrarily denying that it has a like potential power to clean itself and resolve or at least properly balance its internal contradictions.'43

Harvey also says that 'it is unlikely that capital will take the necessary action without struggle, both between its warring factions and with others who are affected by the cost-shifting that so conveniently goes on. The reason problems persist are political, institutional and ideological and are not attributable to natural limits.'44 Furthermore, he observes that 'In many instances local environmental problems have improved, while it is the regional and above all the global problems that have deteriorated. As a result, the capital-nature contradiction now exceeds traditional tools of management and action.'45 This reminds us of the dangers of localism in framing struggles against environmental degradation and for social justice, and the need for broad-based emancipatory knowledge and programmes for transformative struggles.

Decommodification and Sustainable futures: Rekindling socialist imagination

'From the standpoint of a higher socio-economic formation', writes Marx, 'the private property of particular individuals in the earth will appear just as absurd as the private property of one man in other men. Even an entire society, a nation, or even all simultaneously existing societies taken together, are not the owners of the earth. They are its possessors, its beneficiaries, and have to bequeath it in an improved state to succeeding generations, as boni patres familias.'46 Indeed this idea underpins various notions of sustainable development today. However, the hegemonic discourse on sustainable development is inspired not by an emancipatory epistemology but by an ideology of sustaining the global capitalist order. Human labour and nature are the two fundamental sources of wealth. Capital alienates one from the other in order to exploit both. This separation is a necessary condition for it to commodify labour power and nature as far as possible and recombine them as 'factors of production' in an economy driven by the profit motive. The commodification of nature goes on at an accelerated pace in the era of neoliberal globalisation. De-commodification of labour and nature is an essential condition for a radical reunion of society and nature as the basis for disalienation (i.e. ending economic, social and

political alienation), sustainable human development and emancipation. This should indeed be at the core of a broad theoretical premise for a deconstruction of the hegemonic discourse on sustainable development and for imagining sustainable futures. Such a theoretical approach would open the way for a critical analysis of ongoing struggles for environmental and social justice in order to understand their potentials and limitations.

Societal resistance to commodification has a long history and continues on diverse fronts as exemplified by the struggles against commodification of land, water, genetic resources, education and health care. These resistances take place in a variety of historical and political economic contexts. The struggles are organised around demands for particular rights and their protection through progressive institutional reforms of the existing system. Indeed, the collective call is for the state to discipline capital. Karl Polanyi's (1957) thesis on the 'double movement of history' in nineteenth century Europe, characterised by the continuous expansion of the market and 'a countermovement checking the expansion in definite directions', captures the society's resistance to the social dislocation and environmental damage caused by commodification in a context of capitalist industrialisation.47

Continuous struggles in Europe paved the way for the emergence of the capitalist welfare state of the twentieth century. In the Nordic countries, social democratic reforms had decommodified education, healthcare and some other aspects of social security to significant extents within a capitalist system. In the North in general, the sustained popular campaigns by environmental movements led to various forms of state intervention to address 'environmental externalities' and enforce environmental standards. However, since commodification is the universal rule of capitalism, there is no guarantee that the decommodification of particular services is irreversible in such a system. The neoliberal waves of privatisation in the industrial countries and in the South are clear evidence of this. The governments have invoked the efficiency argument to justify the privatisation and the consequent commodification of social security. The result, however, is a shift from a human needs based (i.e. a universal rights based) provision of certain essential goods to a market driven or purchasing power-based approach. The closing and privatisation of coastal and other commons and a growing reliance on market solutions to environmental problems are another trend in industrial and developing countries. A lesson from these developments is that the imperatives of capital accumulation drive the capitalists and the state to not only intensify commodification and privatisation but also enforce measures that weaken and suppress mobilisation and collective action by working class and social movements.

Indeed, capitalism is capable of surviving its contradictions by externalising the costs of its survival onto society and nature. 'Capitalism', as Harvey writes, 'will never fall on its own. It will have to be pushed. The accumulation of capital will never cease. It will have to be stopped. The capitalist class will never willingly surrender its power. It will have to be dispossessed.'48 This may not sound new, but it rekindles the socialist imagination. It is a call for
a collective engagement in imagining a radical alternative around which numerous struggles can coalesce as a broad movement against capital's power and all forms of oppression, and for building a new ecologically sensitive socialist order. This is a position shared by different Marxist theorists, and they have broadly articulated their ideas of a post-capitalist order. Harvey offers a set of mandates derived from his 'Seventeen Contradictions'. Foster et al propose an ecological socialist revolution based on Marx's vision of sustainable human development and emancipation. Earlier in 2000, in an article entitled 'Rekindling Socialist Imagination – Utopian vision and working-class capacities', Leo Panitch and Sam Gindin identified ten dimensions of a future socialist order. Capitalism, they say, is the "wrong dream" and 'only an alternative that is just as universal and ambitious, but rooted in our collective liberating potentials, can replace it.'49

These are just three of several contributions to an expanding discourse on reimagining socialism. It is not possible to discuss them in this article. They deserve to be critically reviewed in a separate article.

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7. In his long critical commentary on Bukharin's *'Theory of Historical Materialism: a popular manual of Marxist sociology'*, Gramsci makes the following *'Note'*: 'One must study the position of Professor Lukacs towards the philosophy of praxis. It would appear that Lukacs maintains that one can speak of the dialectic only for the history of men and not for nature. He might be right, and he might be wrong. If his assertion presupposes a dualism between nature and man, he is wrong because he is falling into a conception of nature proper to religion and to Graeco-Christian philosophy and also to idealism which does not in reality succeed in unifying and relating man and nature to each other except verbally. But if human history should be conceived also as the history of nature (also by means of the history of science) how can the dialectic be separated from nature? Perhaps Lukacs, in reaction to the baroque theories of the *Popular Manual* has fallen into the opposite error, into a form of idealism.' Antonio Gramsci, Selections From Prison Notebooks, Lawrence and Wishart, 1971: 448

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35. David Harvey, Seventeen Contradictions and the End of Capitalism, Oxford University Press, 2014: 294

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38. Karl Marx, (1894), Capital, Volume 3, English edition, Penguin Classics, 1991: 358

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40. Harvey, 2014: 249. As Harvey further notes (249-250), 'And capital has never shrunk from destroying people in pursuit of profit. This was true of the recent appalling tragedies of fires and building collapses in the textile mills of Bangladesh that have claimed the lives of more than a thousand workers. Toxic waste disposal is highly concentrated in poor and vulnerable communities (some of the worst sites in the USA are in Indian reservations) or in impoverished parts of the world (toxic batteries are taken care of in China in insalubrious conditions and old ships dismantled at considerable human cost on the shores of India and Bangladesh). Deteriorating air quality in China is reported to have reduced life expectancy in the population by more than five years since 1980.'

41. Marx's reference to capital's 'free appropriation' of certain natural and social conditions has been misunderstood by some critics who have used it to support their argument that Marx believed that nature was an unlimited source of free gifts of resources. As Burkett shows, this misunderstanding has to do with the critics' misunderstanding of Marx's labour theory of value. '(W)hen Marx speaks of capital's "free appropriation" of natural and social conditions, this is not meant to imply that such conditions are costless or infinite from a total, society-wide standpoint. Rather, capitalistic free appropriation only means that no *wage labour* is required to produce certain conditions serving as material or social vehicles of value production and accumulation. This free appropriation certainly does not imply the conditions being appropriated have no opportunity cost or alternative use from a social point of view. The same could be said about a broader, transhistorical conception of free appropriation covering all those natural and social conditions whose existence, while helping to generate *saleable or unsaleable* use values, does not require the expenditure of labour time, *commodity-producing or otherwise.'* Burkett, 2014: 73

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