

# MARXISM AND ENVIRONMENTAL THEORY: REVISITING THE FORMULA ON VALUE CREATION

## 1. Introduction

In the below essay I suggest to once again revisit the Marxian formula for value creation. In previous essays I have provisionally argued – provisionally, since my discussion was incomplete -, that Marx’s basic formula for the creation of value through capitalist production of new commodities needs to be revised in order to account for the effects of such production on human health and on nature. Marx’s formula  $c + v + s$  rightly expressed the fact that labour is exploited; it credited the workers who are employed in industrial factories with being the source of the additional value that is embodied in the commodities emerging from the manufacturing processes. While Marxian theory thus was deeply respectful towards human labourers, the formula for value creation nevertheless was ‘defective’ in this sense that neither was nature’s contribution to the value of new commodities highlighted, nor the fact that capitalist production is intrinsically detrimental to human health and to our natural environment. Hence, the Marxian formula for value creation needs to be re-elaborated, for instance through devising and incorporating letter codes to account for the negative use value of capitalist technologies, being their damaging impact, - and to account for negative exchanges values, being the expenditures which ultimately need to be made in order to remedy negative health and environmental effects. In this essay I intend to complete my basic discussion on the revision of Marx’s stated formula  $c + v + s$ , and I will do so by proposing four formulas, which help to give expression to the *extractive* character of the capitalist system, and help to highlight capitalism’s tendency to (mis-)use nature as a sink or *dump*.

## 2. The Differential Value Formulas For Extractive and Processing Industries

My first step, then, is to re-reflect on the fact that some industries draw on nature as a source *directly*, whereas other industries do so *indirectly*. In my essay on the extractive industries I had argued that there is a need to differentiate between two *sub*-Departments of Production, two subdivisions together constituting the first Department of Production (I), being that for production of the Means of Production (MP). Under the subdivision (A) are located all those mining sectors and other extractive industries (the fishing industry, wood logging, etc.) which appropriate resources from the earth, such as in the form of metals and fossil fuels, or from forests, oceans and other eco-systems, and transform these into marketable commodities. Under the subdivision (B) are located all those industries which obtain raw materials not by extracting them, but by buying them from other capitalist enterprises. These latter industries thus do not appropriate nature’s resources directly, through a process of extraction, but *indirectly*. Whereas Marx had spoken of one undifferentiated Department I (MP), covering both mentioned types of industries, there is a need to distinguish clearly between extractive and processing industries, since their relationship to nature as *source* of capitalist production processes is distinct (1).

Further, I had argued that the formulas for the individual circuit of (money) capital which correspond to these two distinct types of industries, are differentiated as well. In the case of the *processing* industries, it suffices for the formula to bring out the fact that during the manufacturing process in these industries the commodities bought during the first phase of

the capital circuit are simply put to work. In this case, the second phase ... **P** ... of the circuit does not occasion incorporation of any new materials drawn from nature, but occasions the reworking of raw materials procured during the circuit's first phase. In the case of the *extractive* industries, however, the situation is a different one. Here the phase ... **P** ... is not a phase of the reworking, but of appropriation of natural resources from nature. Hence we need to give expression to the fact that a new element enters the circuit during the circuit's second phase, an element to be designated as (**\* N**). By counter-posing the letter codes for the 'manufacturing phase' of the *extractive* industries, ... **P (\* N)**... to the letter code for the manufacturing phase of the *processing* industries, ... **P** ... , we thus give expression to the differential relationships of the subdivisions (A) and (B) of Department I (**MP**) to nature (2).

However, our process of rethinking cannot be restricted to the formula for the individual circuit of capital, but also has to extend to the Marxian formula for value creation. This formula, as indicated credits labour with being the source of all additional value which is embodied in new commodities, the additional value in the **C'** flowing from ... **P (\* N)**... and from ... **P** ... . However, in the case of the extractive industries, as argued in a previous essay, the surplus value **s** in the new commodities, which commodities further comprise the value parts **c** and **v** , cannot be exclusively ascribed to the toil of the labourers. For although there is no doubt that labourers employed for instance as miners in extractive industries deserve recognition and respect for the heavy toil which they perform for the sustenance of human societies, there is no doubt that nature also and quite directly contributes to the value of these new capitalist commodities. Hence, critical economic theory cannot continue to rely on an interpretation which suggests that labour is the exclusive source of all surplus value in all capitalist industries; critical theory needs to reformulate the formula for value creation, such as to make sure that the double origin of surplus value, human labour and nature, be clearly stated. This we can do by inserting the letter code (**I/n**) after **s** , by proposing the formula **c + v + s (I/n)** instead of Marx's formula **c + v + s**.

The above reflections then result in two distinct formulas for value creation, one formula corresponding with value formation in the extractive industries, and the other formula corresponding with value formation in the processing industries (in Department I and II). In the case of the extractive industries, which together constitute subdivision (A) of Production Department I (**MP**), the fact that nature is directly drawn upon to 'produce' new raw materials as commodities for sale on the capitalist market, and the fact that arduous human labour at the same time is relied upon to extract nature's wealth, - these facts signify that both nature and human should be credited with being the source of surplus value. Hence, the value formula **c + v + s (I/n)** as value formula for the extractive industries. However, in the case of the processing industries, which together constitute the subdivision (B) of the first Production Department (**MP**) (and Department II) there is only one source of surplus value. Here nature enters the production process only at the start, in the form of raw materials and auxiliary means bought on the capitalist market. Hence the new value which is created, the added value incorporated in the new commodities which emanate from the manufacturing process, can be ascribed entirely to the workers and their toil. In this case, that of I (B)(**MP**) (and that of Department II), the correct formula for value creation then is (remains) **c + v + s (I)**.

### **3. The Value Formulas Reflecting Health and Environmental Damages**

We have not yet finished our discussion on the redesigning of Marx's formula for value creation, for we have so far only addressed *one part* of capitalism's effect on nature.

The discussion so far only covers the relationship between capitalist enterprises and nature as a *source*. It already leads to a dramatic revision, reformulation of Marx's historical formula, since the crediting of nature with a part of value creation *does* imply that Marx's formula was somehow incomplete. Nevertheless, the revisions required in order to fully do justice to nature, in order to provide a fully scientific assessment of the relationship between the world capitalist system and our planet earth, are more extensive even than what has been suggested so far. For we also need to reflect on the way capitalism has been employing nature as a *dump*. And in order to do so, yet further revisions are required in the Marxian formula on value creation. It is as if Marx had invented an extraordinary formula, which genuinely promoted the liberation of the working class, and yet, if applied in the way in which it was stated by Marx, would tragically lead the working class astray, since the formula did not educate us to respect nature, our planetary system of the earth (3).

In my first essay on an innovative, labour/nature theory of value, I had argued that Marx's formula for value creation could be rethought, such as to incorporate the negative health and environment consequences of capitalist production (4). These negative effects, I argued then, could be conceptualised by introducing the twin concepts of negative use-value and negative exchange-value, bearing the letter codes *wu* and *we*. The first concept, to recall, teaches us to admit that all capitalist production processes and all capitalist production technologies do affect the health of company workers and/or of people living in the areas surrounding factories, as well as the health of our eco-systems. The second concept, that of negative exchange value, teaches us that all these mentioned detrimental health and environmental consequences of capitalist manufacturing *may* result in capitalist costs, in expenditures which are quite separate from the expenditures made by capitalist entrepreneurs towards production of surplus value. Thus, my initial reflections on the detrimental effects of capitalist production resulted in an initial reformulation of the Marxian formula for value creation. It then resulted in the formula  $c + v + s - wu/we$  (5).

Further, in my brief essay on the marginalist school I had argued that, from a logical and historical perspective, we need to fundamentally differentiate between two situations, - the one being the situation where detrimental health and environmental consequences do *not* lead to the making of expenditures in order to redress these consequences, - the other being the situation where health/environmental effects *do* lead to incurring expenditures, either by capitalist companies causing those damages themselves, or by the capitalist state (6). These two differential situations can be expressed in two differential formulas. Value creation which is accompanied by negative health and environmental effects, which are *not* translated into capitalist costs, may be stated through the formula  $c + v + s - wu$ . On the other hand, value creation which *is* accompanied by negative health and environmental effects which *do* get translated into financial costs – not matter whether these are borne by entrepreneurs themselves or by the state -, can be expressed through the differential formula  $c + v + s - wu/we$ , the formula already mentioned in the previous paragraph. These two innovative formulas do constitute a continuum with Marx's formula on value creation, at the same time while constituting a departure from this formula.

However, the given formulas do not yet incorporate the differential significance of capital accumulation in the extractive industries – as opposed to capital accumulation in the processing industries. They do not incorporate the fact that nature is relied on as a source, that nature is relied on both as source and as dump. In order to take account of these factors – alongside the fact that value formation is affected by capitalism's detrimental health and environmental effects – we need to differentiate not between *two*, but between *four* different

formulas. First – in the case of the extractive industries we have two distinct formulas. One formula, which states that nature contributes to value creation, and that accumulation bears damaging health/environmental effects but without leading to costs, is the formula  $c + v + s (n/l) - wu$ . The other formula states that nature contributes to value creation just as labour does, and further states that accumulation bears health and environmental costs which also result in financial expenditures. This formula is the formula  $c + v + s (n/l) - wu/we$ . Both are formulas which exclusively apply to the extractive industries, to industries located in the subdivision (A) of the Department for production of means of production (MP). And yet they are crucial formulas from a perspective of capitalism's relationship with nature.

Again, the formulas mentioned in the paragraph preceding the previous paragraph do not reflect the full meaning of value formation *in the processing industries* either. For in order to express the fact that accumulation in the processing industries is possible singularly thanks to the labour of these industries' workers, and yet that such accumulation is accompanied by detrimental health and environmental consequences, we need *two* differential formulas. The first formula, that of  $c + v + s (l) - wu$  expresses the fact that accumulation in the processing industries is possible thanks to the workers' toil, and further expresses the fact of damaging consequences, but without such consequences resulting in capitalist costs. The second formula is the formula  $c + v + s (l) - wu/we$ , which expresses the fact that surplus value creation in the processing industries can wholly be ascribed to the workers, as well as expressing the situation where manufacturing in processing industries does have detrimental health and environmental effects, at the same time while resulting in capitalist costs made to remedy those effects. These then are two conditions of accumulation which tend to prevail in subdivision (B) of Department I (MP) (and in Department II (MC)); they are conditions which have prevailed through different phase in the capitalist world system since the Industrial revolution took place. In short, a closer reflection on Marx's formula on value creation and nature results in *four* basic new formulas.

#### 4. Conclusion

In this essay I have reflected critically on Marx's historical and innovative formula for value creation. My argument, it may be underlined in this conclusion, has not been that Marx was wrong. In fact, any discussion on value formation under capitalism necessarily has to start from Marx, who amongst nineteenth century economists alone did put forward a formula that scientifically expressed the truth of labour exploitation, crediting labour with the creation of surplus value which capitalist entrepreneurs appropriate. After Marx's death, bourgeois economists, foremost the school of the marginalists, have tried to demolish Marx's labour theory of value, and replace it with a subjectivist value theory (7). However, the point is not that Marx's objective theory of value should be replaced, or that his method of crediting workers with value creation should be discredited. The point is rather that his theory was *incomplete*, especially if looked at from today's perspective; that we should work hard to enrich his theory so as to incorporate effects of value creation on nature, alongside the effects on human beings as (co-)creators of capitalist wealth.

Above I have tried to show that such an approach, of revision with the aim of enrichment, can be fruitful, that it leads to a true refinement of Marx's unique theory. First, I have brought out that we can differentiate between industries where *labour and nature* contribute to the creation of surplus value, and industries where *only labour* contributes. Subsequently, I have combined this differentiation with the differentiation between two situations where capitalist industries bear detrimental effects for humans and for our natural

environment. The outcome in the end is the affirmation that the process of value creation can best be highlighted through four basic formulas, being the formula  $c + v + s (n/l) - wu$ , and the formula  $c + v + s (n/l) - wu/we$  for the process of value creation in the extractive industries; and further, the formulas  $c + v + s (l) - wu$ , and the formula  $c + v + s (l) - wu/we$ , for the process of value creation in the processing industries. All these formulas are intended to enrich the objective theory of value, and to express respect both to industrial workers and to nature as joint creators of the world's wealth.

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### **References:**

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- (3) for a comprehensive discussion on Marx's ecological thinking, see e.g. Paul Burkett, *Marx and Nature. A Red and Green Perspective* (St.Martins Press, New York, USA, 1999); and John Bellamy Foster, *Marx's Ecology. Materialism and Nature* (Monthly Review Press, New York. USA, 2000);
- (4) Peter Custers, 'Towards a Labour/Nature Theory of Value' (September 29, 2005);
- (5) *ibid*;
- (6) Peter Custers, 'The Twin Concepts of Negative Use- and Exchange-Value' (December 21, 2005);
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