

# SUMMARY

## THE PLACE OF E-WASTE IN CRITICAL ECONOMIC THEORY

### 1.

In the below article, I propose to reflect on the existence of *E-waste*, of electric and electronic waste, and such within the context of critical economic theory. Both newspaper reports in the regular European press, and reports brought out by activist groups such as the Basel Action Network, confirm that this waste category is growing at a rate which is much faster than the rate of capital accumulation in the world's economies. Moreover, both investigations carried out by Ministries of Northern countries, and investigations carried out by watchdog bodies underline that, although it is extremely difficult to determine exactly how large a percentage of *E-waste* is exported from Northern to Southern economies, the export of *E-waste* has meanwhile become a problem that undoubtedly is massive in scale. Hence the urgency to reflect on this waste, and analyse its meaning within the framework of critical economic theory, in particular the theory on waste.

### 2.

First, the term *E-waste* refers to the technological characteristics and the hazardous materials incorporated in this waste. It refers to a broad range of electric and electronic goods which have outlived their use for producers and consumers, are ready for disposal, and contain chemical materials considered hazardous for humans and for our natural environment. As a part of attempts to regulate the trans-border movement of these 'goods', the meaning of *disposal* has been further specified in the Basel Convention, as referring to two forms of disposal, final disposal and disposal for the purpose of re-cycling or reclamation. Whereas legal regulations regarding *E-waste* show considerable loopholes, it is nevertheless clear that *E-waste* is a type of non-commodity waste, of waste which formerly had functioned as a market commodity. Like other non-commodity waste, it has no existence in traditional Marxian or traditional 'bourgeois' economic theory.

### 3.

Further, *E-waste* being a category of waste consisting of former commodities, needs to be clearly distinguished from the main category of non-commodity waste which I have theorized earlier, i.e. cyclical waste. The latter consists of all the by-products – radioactive waste, chemical waste, etc. – which emerges from regular production processes, as the undesired by-products of these manufacturing processes. In both cases, i.e. when the by-products of manufacturing processes are disposed of, and when former electric and electronic commodities are disposed of, - society and nature tend to be burdened with hazardous substances. However, where-as the non-commodity waste that emerges at the end of a manufacturing process is *cyclical* in character, i.e. emerges in the course of the circuit of money capital itself, the category of *E-waste* quite clearly emerges at a much later point in time.

### 4.

Third, we also need to note that the category of *E-waste* comprises both former commodities which in the past had served as means of production (**MP**), and former commodities which earlier had served as means of consumption (**MC**). For instance, computers and mobile

telephones are prominent amongst those electronic items disposal of which is growing fastest. Whereas in the past computers were often in use for an average of six years, by now their ‘life-time’ has reportedly been reduced to an average two years. The average ‘life-time’ of a mobile phone too reportedly is just two years. Now, computers and mobile phones are being sold to individual consumers for their household use, but are also being employed as equipments by people employed in a wide variety of economic sectors, and notably in service sector companies. This observation that E-waste consists of both former means of production and former means of consumption is consequential, for it implies that the trajectory of *E-waste* needs to be further analyzed in terms of the consumption of the given items subsequent to their manufacturing as commodities **C’**.

## 5.

Let’s first look at the trajectory of means of production which after their consumption in capitalist enterprises end up as *E-waste*. These electric and electronic means of production belonged to the category of fixed capital of a company’s entrepreneur, in the sense that they may be bought at the beginning of the first circuit of his money capital, but unlike raw materials and auxiliary means are not fully consumed during one single circuit. Instead, these means of production are depreciated through a series of production cycles; they continue existence as commodity capital and as usable values through a series of capital circuits. In my theory on nuclear production, we have already encountered this category of non-commodity waste, when discussing the decommissioning and dismantlement of nuclear production facilities. Like the contaminated equipment of nuclear reactors which needs being disposed of when a reactor is dismantled, - electric and electronic means of production when they are disposed of, too may provisionally be characterized as *ultimate waste*.

## 6.

Let’s recall at this point, how the emergence of ultimate waste in the context of the theory of nuclear production has been represented through a specific formula. This waste had been given a distinct letter code, a letter code that resembled, yet was distinct from the letter code for cyclical non-commodity waste. Whereas the latter waste had been designated with the letter code **W** or **– W**, ultimate waste had been designated with the letter code **WW** or **– WW**. The formula required to depict how ultimate waste emerges too was a distinct formula. Whereas **– W** emerged at the end of the second phase of each individual capital circuit, alongside the new commodity **C’**, the category **WW** or **– WW** emerged at the end of a *series* of capital circuits. Following Marx’s mode of depicting a whole series of capital circuits, namely via the formula **M - ... - M’**. **M - ... - M’**. **M - ... - M’**. **M - ... M’**. etc., the formula explaining the existence of ultimate waste was stated to be **M - .... – M’**. **M - ... M’**. **M - ... - M’**. **M - ... M’** ( **– WW**).

## 7.

So far I have only discussed that portion of *E-waste* which during its ‘life-time’ had served as means of production. Clearly, where electric and electronic means of production contained hazardous materials, which cannot be disposed of without risk to humans and to our natural environment, there is a strong need to take note of their existence, by relying on the notion of ultimate waste as stated in my theory on nuclear production. However what about *E-waste* that during its ‘life-time’ had served as means of consumption? With regard to their hazardous qualities, computers and mobile phones which had been consumer items, by the end of their ‘life-time’ represent the same risk for humans and for living nature, as do computers and mobile telephones which had been commodities serving as means of production. Yet the

trajectory of these articles of consumption had been quite different from the previously discussed items, even though this *E-waste* too may be defined as ‘ultimate waste’.

## 8.

To understand the trajectory of electric and electronic consumer goods, we first need to devise a specific formula depicting human consumption under capitalism. This formula may be constructed analogous to the formula for the formula, which Marx had devised in order to depict how means and production and labouring strength are ‘consumed’ in the course of all manufacturing processes, the formula  $M - C \dots P \dots C' - M'$ . Analogous to the phase of consumption of means of production and labouring strength, being the second phase of the individual circuit of money capital,  $C \dots P \dots C'$ , - the trajectory for human consumption under capitalism may be depicted as  $C' \dots U \dots W$ , with  $C'$  referring to commodities with added value when they emerge from the manufacturing process,  $\dots U \dots$  referring to the use of these commodities by individual consumers or individual households, and  $W$  referring to the commodities at the end of the trajectory, when they are finally disposed of or sent to be recycled by their previous purchasers and users.

## 9.

Now, in order to clarify that electric and electronic goods when being disposed of by their former consumers are indeed ultimate waste, it is necessary to highlight the interconnectedness of the two trajectories, the trajectory starting with  $M$  and ending in  $M'$ , and the trajectory starting with  $C'$  and ending in  $W$ . Marx had ‘interrupted’ his analysis at the point where commodities are sold and where commodity capital is retransformed in money capital. He did not follow the trajectory of  $C'$  after it had been sold to individual consumers, believing that his primary task was to explain capitalism as production system. In moving beyond the strict parameters of the classical Marxian system, and in order to highlight the environmental consequences of human consumption under capitalism, we do require a formula expressing these consequences, even if only in a nutshell. However, in devising a formula for human consumption, we should for sure emphasize the interconnectedness of consumption proper with the process of production, which process as indicated too involves the consumption of commodities.

## 10.

Hence, the formula depicting the emergence of *E-waste* via the process of human consumption, is the formula connecting the circuit of capital aimed at the production of commodities, with the formula expressing the outcome of human consumption. This is the formula  $M - C \dots P \dots C' \dots U \dots W$ , or the formula  $M - C \dots P \dots C'(1) \dots U \dots W / C'(2) \dots U \dots W / C'(3) \dots U \dots W$ . The latter formula emphasizes the point that the purchasers of a company’s electric or electronic goods are a whole series of human consumers, and that the ultimate waste generated via the process of consumption is composed of disposed items heralding from many individual consumers. In any case, it is when depicting production and consumption proper as two combined trajectories, that we highlight the fact that *E-waste* generated through this process is indeed *ultimate waste*, just like the *E-waste* generated via the employment of electric and electronic goods as means of production. In both cases, the depiction needs to be serial.

## 11.

In conclusion: in the above presented analysis on *E-waste* I have ignored, skipped the question as to what happens to this waste after it has been disposed of. The analysis, however, has hopefully made clear that the emergence of this form of non-commodity waste in recent

decades can well be understood by employing formulas and letter codes derived from Marxian, i.e. critical economic theory. In order to highlight the economic meaning of *E-waste*, we can rely on the concept of ultimate waste as developed in the context of the theory of nuclear production, but we need to extend the area of application of this concept, and use it to refer both to means of production which are disposed of at the end of a series of cycles of capitalist production, and to refer to articles of consumption which individual consumers or households dispose of at the end of the 'life-time' of these consumable items. Although E-waste is a relatively new category in the history of the capitalist system, it is quite well possible to analyse this waste by drawing on categories and concepts devised under Marxist theory in the past.

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November 3, 2006