

István Mészáros' contributions to understanding of the metabolic rift: initial report for critical Environmental Education

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Abstract

This work focuses on an analysis of the contributions of István Mészáros' bibliographic works to the understanding of the metabolic rift between humankind and nature and their connections with Critical Environmental Education. With this report, the research seeks for intellectual elements that can contribute to a reasonable critique of the educational field. Starting from a methodological approach, the most appropriate method for the bibliographic analysis that the present article treats is the materialistic dialectic itself. The document then gives comments on Mészáros' principal works on the unsustainability of the production system of capital in all its forms. In his analysis of the environmental problem the planet faces today, the philosopher points out that the intrinsic need for expansion of the system, relationship between conflict and war to the reproduction of capitalism, segregation of labor and capital, make the system unsustainable. Hence, Mészáros

proposes a type of education that goes beyond capital as a philosophical proposal for the area under analysis.

Keywords: *Environmental Education, Sustainable Development, Socialism, Dialectical Materialism.*

Introduction

In November of 2017, the world was surprised by the emergence of a recondite natural phenomenon, the Hurricane Irma, the strongest Atlantic hurricane ever observed (Nasa, 2017). Irma intensified into an extremely dangerous high-end Category 5 storm with top sustained winds of 180 mph, the most powerful Atlantic hurricane ever measured in the north of Caribbean, east of the Gulf of Mexico and Florida (USA). Perhaps the term "surprised" is not exactly suitable for this type of event since the Intergovernmental Panel on Climate Change has repeatedly alerted the world to the catastrophic consequences of the global warming process we are facing. One such consequence is the greater number of hurricanes, tornadoes and tropical storms, as well as their increased strength and potential for destruction. In addition, global warming should also be responsible for the drop in the food production and the consequent increase in hunger and misery around the world (Fao-Ipcc, 2017).

Most of the capitalistic society, as an inescapable outcome of the logic of capital, have been affected by social inequality and poverty. That means to affirm that social inequality has as its “[...] political-pedagogical and ideological axis the class division, whose repercussions enter the social life of the subjects in the fields of work, economy, culture, education other fields of daily life” (Silva, Costa and Santos Bernardi, 2015, p484).

The governments of various countries and groups critical of capitalism have been concerned about the growing concentration of wealth in the hands of an ever-smaller number of people/companies. Most of the world's population has been reducing its per capita income in recent years, as the recent report by the World Bank (Mendez Ramos, 2019). In addition to the tragedies linked to climate change and economic context, the search for raw materials for the production of goods within the current system also has adverse consequences to the environment. The recent Brumadinho dam disaster in Brazil is an example of infrastructure failure with catastrophic consequences. Over 240 people were dead and 32 reported missing, and nearly 400 more were rescued alive (Souza Jr, 2009). The environmental impact is massive and difficult to quantify. This disaster is linked to the extraction of minerals made in order to optimize Vale's profits, leaving aside the environmental concern. That said, it is important to note that a global change is necessary because if the current productive system continues to evolve, capitalism will remain being taken in privilege to the structure and not towards the inhabitants of the planet. Environmental Education is an integral part of this need and stands as a driving force behind the change. In this sense, we seek inspiration from pedagogical elements and teaching theories that have as reference the philosophical field of critique, whether of origin in orthodox Marxism or neo-Marxism (in its multiple aspects). We can allocate in this vast field thinkers as, for example, Freire (2006), Foster (2000), Hill and Boxley (2014), and of course, the István Mészáros (1995, 2005, 2009). Despite their differences and ideological multiplicity, these authors bathe in the waters of critical thinking, serving as inspiration for the thought associated with Environmental Education. As Freire (2006) stated in his book *Pedagogy of the Oppressed*, education does not transform the world; Education changes people; People transform the world.

Thus, the present text proposes to answer the fundamental question: What are the contributions of István Mészáros' work to the development of a critical understanding about metabolic rift and this connection with Environmental Education in the context of the structural crisis of capital?

Mészáros is one of the greatest philosophers that the Marxist historical materialist tradition has yet produced. His work remains well-nigh alone today in the depth of its analysis of Marx's theory of alienation, the structural crisis of capital, collapse of Soviet societies, and some indispensable circumstances of the transition to socialism (Foster, 2000, 2013). The understanding of these points is fundamental for the development of Environmental Education of a critical nature and of revolutionary praxis.

However, before entering the spheres of the Hungarian author's work, it is imperative to make explicit the Marxist view on the metabolic relationship between human being and nature.

The Marxist conception of humankind and nature metabolic interaction

The categories of metabolic fissure and metabolism between humanity and the environment, fundamental elements for understanding the philosophy of István Mészáros, had their origin in the biography of Marx. For this reason, it is believed that it is relevant to briefly highlight this genesis.

Considering that Marx did not write directly on the environmental problematic nor on Environmental Education, several authors emphasize that it is possible to find connections between the texts of the German philosopher and the mentioned environmental field (Clark and Foster, 2010; Foster, 2000; Loureiro and Cunha, 2008; Schmidt, 1971). The dialectical and materialist perspective conceived by

Marx in his writings serves as an inspiration and starting point for a broad and deep analysis of the reality that surrounds us.

The centrality of the approach of metabolism in Marx's thought has been recognized for a long time, though its full significance has rarely been grasped until recently (Foster, 2000). One of the fundamental categories of Marxist work is labor. Labor, that is, the vital activity of being, is exposed in Marxist theory as being a primordial act of maintaining life, the mediation between the human being and nature. By this act, that requires reason, reflection and intentionality, teleological act, the human being transforms nature and, at the same time, it transforms humankind (Marx, 2010a).

Moreover, it is in this process that human being, a being of praxis, does not change nature alone, at the same time he transforms himself and social relations, because the vital activity, the labor, gives him conditions to be a creator and a self-creating being (Hill and Boxley, 2014).

The subject is not new within the field of Marxist thought since Alfred Schmidt (1971) already addressed it. More recently, when it comes to the topic, literature and other researchers have been focusing on the subject (Burkett, 1999; Castree and Christophers, 2015; Foster, 2000, 2013; Han, 2010; Mészáros, 1995; Moore, 2017; Smith, 2008; Tsoubaris and Georgopoulos, 2013).

In the specific case of the question of environmental Marxism within the Brazilian spectrum, some literature on the subject is found in the literature (Lipietz, 2003; Loureiro and Cunha, 2008; Loureiro et al., 2009). Lipietz (2003, p9, free translation) points out that there is a reasonable diversity of views within

the field of Marxism itself, and that its reference to the theme can be understood as:

I am referring to Marxism as an application, by a group of thinking individuals, of common ideas and interests, in a way of thinking a set of representations, some basic hypotheses; As a compass to find the right direction in any concrete situation; And as a guide to transformative social action.

As can be seen in the previous paragraphs, there is already a discussion about the theme of environmental Marxism (or ecosocialism) in Brazil and in several countries of the world. However, there is still little research on the contributions of Mészáros to the theme in question. Thus, we understand that it is relevant to develop academic investigations that advance in this direction.

The subject has gained strength more recently, especially from the 2000's, as exposed by Clark and Foster (2010, p1):

The rediscovery over the last decade and a half of Marx's theory of metabolic rift has come to be seen by many on the left as offering a powerful critique of the relation between nature and contemporary capitalist society. The result has been the development of a more unified ecological world view transcending the divisions between natural and social science, and allowing us to perceive the concrete ways in which the contradictions of capital accumulation are generating ecological crises and catastrophes.

One of the central ideas that has given way to the so-called ecological Marxism (or ecosocialism) is the metabolism between human being and nature (Castree and Christophers, 2015; Smith, 2008; Tsoubaris and Georgopoulos, 2013). For Clark and Foster (2010) writing in the nineteenth century, Marx produced ecological insights that are significant to us today in understanding the human relation to ecological complexity and our society.

Alfred Schmidt (1971) already pointed out that the founder of historical and dialectical materialism introduced a new understanding of man's relation to nature. This understanding, in turn, it is closely linked to the category of labor. The work developed by the human being connects the natural environment to the previous ideation of man and his labor tools. We can find references to this idea in the Economic and Philosophical Manuscripts of 1844: “It is just in his work upon the objective world, therefore, that man really proves himself to be a species-being. This production is his active species-life. Through this production, nature appears as his work and his reality” (Marx, 2010a, p277).

Marx (1859) had given the concept of metabolism (*stoffwechsel*). He defined the labor process as the metabolic relation between humanity and nature. In the texts written between 1857 and 1861, Marx already pointed out that the present form of capitalist production generated a limitation in human life, since it segregates the labor of the worker from full metabolism with nature:

It is not the unity of living and active humanity with the natural, inorganic conditions of their metabolic exchange with nature, and hence their appropriation of nature, which requires explanation or is the result of a historic process, but rather the separation between these inorganic conditions of human existence and this active existence, a separation which is completely posited only in the relation of wage labour and capital (Marx, 1859, p427).

Later in his most relevant scientific writing, Marx provides an exposition of his critique of political economy in *Das Kapital*. In the first book of the title indicated, the author states:

So far therefore as labour is a creator of use-value, is useful labour, it is a necessary condition, independent of all forms of society, for the existence of the human race;

it is an eternal nature-imposed necessity, without which there can be no material exchanges between man and Nature, and therefore no life (Marx, 2010b, p34).

Through labor, human being becomes human, and nature becomes human nature. However, for his labor to become a true human activity, human being must not only produce it for himself. Human labor is intrinsically a social activity. From this perspective, the development of work is likewise the development of man. Following the same critical connotation, it can be inferred that we are a specimen of nature that constitutes itself as such and constitutes the individuals who “[...] belong to it by constant metabolism with the outside, what makes us into 'active natural beings', a vital activity that guarantees the existence of individuals and society” (Loureiro and Cunha, 2008, p241, free translation).

This metabolic relationship with labor, we can infer that there is a crucial importance of Marx’s ecological materialism in helping us to comprehend the emerging Great Rift in the earth system, and the resulting necessity of an epochal transformation in the existing nature-society metabolism. In this regard, Foster (2000, p163) resorts to the thought of the founder of historical and dialectical materialism, saying:

Marx employed the concept of a "rift" in the metabolic relation between human beings and the earth to capture the material estrangement of human beings within capitalist society from the natural conditions which formed the basis for their existence - what he called the everlasting nature-imposed condition[s] of human existence.

Another researcher who deals with the same theme is Moore (2017, p1), he makes it clear that in the blooming of the Red-Green Thought, “[...] metabolic rift thinking is surely one of its most colorful varieties. The metabolic rift has

captured the imagination of critical environmental scholars”, becoming the way to critique capitalism’s troubled relations in the biosphere.

In this sense, the need for maximum exploitation of nature and human beings by the capitalist production model, seeking to maximize profit and economic power, makes the system environmentally and socially unsustainable. Hence, it is not possible to speak of sustainable development within unsustainable capitalism.

Capitalist production is therefore a threat to the maintenance of the social-natural axis that maintains the biosphere. In other words: “The material use-value requirements of capitalist production, in particular, are unencumbered by the producers’ prior social ties to nature”. (Burkett, 1999, p61).

Nonetheless, we shall argue that “[...] Marx’s belief in the historical progressivity of capitalism is not based on an anthropocentric preference for material wealth over nature”. (Burkett, 1999, p149). Thereby, communism, within the Marxist perspective, must be understood as an alternative way of producing goods, which takes into account the natural and human limits of time and resources.

In dialectical opposition, communism would be a way to overcome the current metabolic rift between human and nature, through cooperative and free labor. Marx himself is emphatic in this statement:

This communism, as fully developed naturalism, equals humanism, and as fully developed humanism, equals naturalism; it is the genuine resolution of the conflict between man and nature and between man and man — the true resolution of the strife between existence and essence, between objectification and self-confirmation, between freedom and necessity, between the individual and the species. Communism is the riddle of history solved, and it knows itself to be this solution (Marx, 2010a, p.297-298).

In line with this view, we understand that the emphasis on the centrality of Marx's notion of metabolism had to be carried on by Mészáros (1995, 2005, 2009). The author in his works makes full-scale critique about the capital's alienated metabolism, including its environmental effects. In addition, it is exactly on this subject that discussions will be made in the following section.

Methods

After the explanations made in the previous themes on the subject to be developed in the present investigation, as a research method, we proceed through a bibliographic search of the author's works (Mészáros, 1995, 2005, 2009) and perform reading Mészáros on his own terms, without, however, discard those contributions who preceded us in the subject of this study.

Starting from a methodological approach, the most appropriate method for the bibliographic analysis that the present article treats is the materialistic dialectic itself. Marx (2010b, p11) explains his dialectical method with a focus on research on the material world:

In the social production which men carry on they enter into definite relations that are indispensable and independent of their will; these relations of production correspond to a definitive state of development of their material powers of production. The sum total of these relations of production constitutes the economic structure of society - the real foundation, on which rise a legal and political superstructure and to which correspond definite forms of social consciousness. The mode of production in material life determines the general character of the social, political and spiritual process of life.

Thus, Marx (2010a, 2010b) placed social reality on the historical plane, ploughing a soil fertile and totally current. The author points out the sphere of human knowledge movement in the abstract plane and the plane of the social

reality that we live. Rise from empirical as the starting point, known only in the appearance of the phenomena to know effective of the forces, mediations and multiple determinations that produce this reality, research. In this process of successive elaborations, theoretical categories, which are indispensable tools, but not sufficient and nor static.

To begin the discussion of a rigorous research based on dialectical historical materialism, the foreground stands out the contrast between what is initially conceptualized as idealism and what is conceptualized as materialism.

Idealism, like materialism, originated from ancient Greece with the most predominant in the nineteenth century. Such philosophical tendencies are contradictory, where idealism has the primacy of the idea and on the other, materialism, has the primacy of matter. These tendencies present ways of understanding reality and the relation of the subject to the world. The debate of dialectical historical materialism starts from the Marxist conceptions of Karl Marx and Friedrich Engels, which embraces the understanding of human reality and how, and under what conditions, these human beings produce their material existence. From this perspective, therefore, lies the materialist conception as the law that seeks to understand reality and phenomena, from their contradictions and from the transforming action of the human being into a society (Kosik, 1976).

Therefore, it would be the possibility of a scientific method that seeks to translate the relation of concreteness-the concrete produced-as synthesis of multiple relations-historical forms of production. To illustrate: A bottle, produced by the human being, is never just a bottle. But the bottle produced by the human being, brings together several stages of transformation of nature and the social relations that led to this production in a given model and pattern. Therefore, the bottle is human labor produced by various hands and subjects in different historical

situations. Thus the appearance of things hides the essence of things in a movement that understands reality, sometimes revealing, sometimes hiding. To catch this movement and to understand it is the purpose of this method.

We intend to follow this dialectical perspective and to objectify this, we will highlight material aspects related to the theme from a local (Brazilian) (Brasil, 2019; Freitas et al., 2019, Souza, 2019) and structural (global) (Addington and Muschert, 2019; Guttman, 2017; Ibbetson, 2019; Magyar, 2019). and will interweave those things with Mészáros' vision with objective and phenomenal aspects of the political and socio-environmental world.

They allow us to penetrate into the deeper tissue investigated reality. In this process, the categories, in order not to ruin their character historicity, need to be reconstructed with the specificities given by the investigated reality. Following this line of dialectical and materialistic thinking, after the immanent reading (methodological procedure) of Mészáros and related authors to the socio-environmental theme, we will next turn to the presentation of the results and their discussion.

The exposition of the text will divide into two interrelated stages: the first one is the analysis of the Marxist conception of the metabolic interaction between human and work-mediated nature; the second one brings the initial notes of Mészáros' thoughts about the theme and its importance for Critical Environmental Education.

Results and Discussion - Mészáros' environmental thinking: initial report

The Marxist philosopher István Mészáros (Budapest, 19 December 1930 - 1 October 2017, Margate, UK) is a reference author for those who wish to

understand the destructive logic of capitalism. Mészáros has a long and profitable history of intellectual elaboration and political action. He began his life as a worker in his hometown, which gave him the means to pursue his degree in philosophy from the University of Budapest (Brotherstone, 2018).

A student and direct collaborator of the Hungarian philosopher G. Lukács, with whom he worked directly at the University of Budapest in the first half of the 1950s at the Institute of Aesthetics, graduating in 1954. After exile in 1956 due to the invasion of Soviet Union troops, taught at several universities throughout Europe, becoming one of the main references of contemporary Marxist thought (Brotherstone, 2018). Mészáros was a scholar of several intellectuals, such as Hegel, Lenin, Rosa Luxemburg and Lukács.

Mészáros had contributed very actively to the critique of the capital system, always emphasizing, in its vast theoretical production, the inextricable link between economics and politics, as defended by Marx and Engels. The theoretical legacy left by Mészáros is undoubtedly indispensable to understand the world in which we live.

From István Mészáros' viewpoint (1995, 2005, 2009), capitalism has been entering in a process of structural crisis, characterized, for example, by successive financial crises. In addition, the author states that the immense expansion of speculative adventure has shaken the financial capital and the productive branches of economies in recent decades.

From Mészáros's point of view, crises reveal the structural segregation between the production of commodities and human needs and, thus, between the imperatives of expansion and self-valorization of value, in contrast to the

demands put forward by the development of humanity and its relation with nature. More profoundly, the analysis of the works of the Marxist author (Mészáros, 1995, 2005, 2009) in recent years shows the development of a structural crisis. Citing the Hungarian philosopher's words, the present historical period of the capital's structural crisis manifests itself in four fundamental aspects:

- (1) its character is universal, rather than restricted to one particular sphere (e.g, financial, or commercial, or affecting this or that particular branch of production, or applying to this rather than that type of labour, with its specific range of skills and degrees of productivity, etc.);
- (2) its scope is truly global (in the most threateningly literal sense of the term), rather than confined to particular countries (as all major crises have been in the past);
- (3) its time scale is extended, continuous - if you like: permanent – rather than limited and cyclic, as all former crises of capital happened to be.
- (4) its mode of unfolding might be called creeping - in contrast to the more spectacular and dramatic eruptions and collapses of the past -while adding the proviso that even the most vehement or violent convulsions cannot be excluded as far as the future is concerned: i.e, when the complex machinery now actively engaged in 'crisis-management' and in the more or less temporary 'displacement' of the growing contradictions runs out of steam. (Mészáros, 1995, p680-681).

A question mark that emerges from the philosophy of the Hungarian thinker is to point out that the structural crisis we are experiencing today cannot be fully understood if we do not refer it back to the social structure in its entirety. This means that in order to clarify the nature of this crisis, which is increasingly serious and lasting, affecting the whole world today, we must consider the crisis of the capitalist system in its multiple dimensions. For the crisis of capital that is experienced today is a structural crisis that covers everything.

Mészáros insisted, dispose of capitalism's ecological contradictions, since the fundamental environmental problem stemmed from the logic of capital itself, geared to infinite quantitative economic expansion, and thus in antagonistic relation to any truly sustainable pattern of development.

A basic contradiction of the capitalist system of control is that it cannot separate the idea of "progression" from "devastation", no matter how catastrophic the outcome. The increasing growth of everyday waste production in our homes, supermarkets and industries are a material example of this contradiction. This understanding is fundamental to think of a critical Environmental Education and committed to a socio-environmental transformation that goes beyond capital.

In Meszaros' understanding, the more the system releases its productive power, the more it unleashes its destructive power; and the more its volume of production increases, the more it is bound to bury everything under mountains of waste. The concept of economic growth is radically incompatible with that of "control" of the production of capital, which necessarily brings outrage to outrage by first using, on greedy waste, the limited resources of our planet. Then aggravating the result through pollution and of the poisoning of the human and natural environments, with its massive production of pollutant and effluent residues. A philosophy that carries with it this critical look regarding the production/distribution of goods is of fundamental importance for Environmental Education.

Nowadays, it continues to witness the deepening of the structural crisis of the capital system. Its destructiveness is visible everywhere, and it shows no signs of diminishing. For the future, the way we conceptualize this crisis is crucial in order to find a solution. Moreover, education as a whole is fundamental to discuss the

limits and overlap of this system, including its Environmental Education strand, in formal-school and informal spheres (through nongovernmental organizations, popular social movements, neighborhood associations, labor unions, political parties, among others).

For the same reason, it is also vital to reexamine some of the most significant solutions proposed in the past. Here we will be able to mention, with a shorthand brevity, the contrasting points of view that have been defended in the past and indicate the fate they know today. This reflective role regarding our history and our culture is also responsible for Environmental Education.

Regardless of whether an environmental educational activity occurs in the city or in rural areas, one of the topics always discussed in schools and communities is agriculture and the origin of our food. Faced with this theme, an environmental educator can talk critically with his students about current productive practices, mediating knowledge. For István Mészáros, large-scale, mechanized agriculture and long-distance trade intensify the metabolic rift in the soil nutrient cycle. The vision of the Marxist thinker meets the literature of the area (Castree and Christophers, 2015; Foster, 2000; Loureiro and Cunha, 2008; Moore, 2017; Schmidt, 1971; Tsoubaris and Georgopoulos, 2013), and can contribute greatly to the critical thinking of Environmental Education. As a way of analyzing the material reality, one can reflect on the Brazilian cases of the Mariana and Brumadinho disasters, cities in which the dam ruptured with mining wastes, causing the deaths of hundreds of people and inestimable environmental damages (Freitas et al., 2019). In Mariana, 19 people lost their lives after the rupture of the Dam, a period of 43.7 million cubic meters of contaminated mud leaking into the river Doce. At Brumadinho over 240 people were dead and 32 reported missing, and nearly 400 more were rescued alive (Souza Jr, 2009). The environmental

impact is massive and difficult to quantify. This disaster is linked to the extraction of minerals made in order to optimize Vale's profits, leaving aside the environmental concern.

Private company Vale was responsible for these environmental incidents. The Brazilian Public Prosecutor's Office and several government agencies have condemned the company to pay billions of fines, but so far the company has not yet paid the required fees. Instead of pursuing real solutions, Vale took advantage of the tragedy to profit by using a nongovernmental organization created by itself as a shield to gain time with the authorities, refusing to comply with the settlement with justice and leading the dispute to the slow Brazilian judicial path.

The frequency of these disasters demonstrates that the current assets for monitoring integrity and generating alerting managers, authorities and the public to ongoing change in tailings are, in many cases, not working as they should. =The complexity of phenomena of this nature can only be apprehended in its totality, in the dialectical category, when a philosophy such as that of Mészáros is based, capable of indicating the contradictions of the system, opening the way to an educational and pedagogical discussion on this theme.

The empirical elements of the degeneracy of the capital metabolism are less and less contemptible, revealing themselves at very prominent points. As an example, the tendency is for the fall in the rates of profit, the growth of the indebtedness and public and private to the delayed stagnation in the production. Once exposed, what best denounces this crisis is the so-called financialization, that is, the exuberance of financial accumulation in the face of the limitation of real accumulation. In a more intimate analysis, financialization cannot take as the cause of the structural crisis, but only as one of its manifestations.

Klink and Souza (2017) admonish that financialization, expressing the growing importance of finance in the modus operandi of our capitalist system, has emerged as a key concept in various heterodox approaches over the last dozen years - be they Post-Keynesians, American Radicals, Marxists or French Regulations. The discussion about financialization was not only stimulated by the depletion of the regulation pattern of the international monetary system, it triggered a greater volatility in the key macroeconomic variables (exchange, interest and commodity prices).

For István Mészáros (1995, 2005), the structural crisis causes a permanent and irreversible disturbance in the functioning framework of capitalism. In the current phase of development, it is the first time in history that capitalism is being shaken to its foundations as a global system, given that the crises that preceded it, however virulent they may have been, were partial, example, the crisis of 1929 and those that occurred at the beginning of the 21st century.

One of the examples of this market logic, financialization, can be analyzed materially from what occurred during the crisis broke America's housing bubble in 2007/08 and then plunged the entire Global economy into a steep debility during 2009. It was only the strange policy response of the world's leading economies which barred this crisis from becoming another depression akin to the one we skilled in the 1930s (Guttmann, 2017).

Synchronized by the newly upgraded G-20 global governance structure, the United States, the European Union, Canada, Japan, China, and key emerging-market economies (Brazil, South Africa, etc.) used a combination of massive bank bailouts, unconventional monetary policy. Fiscal stimulus packages and explicit commitment to maintain open borders to turn around the debt-deflation

spiral that was triggered when the bankruptcy of Lehman Brothers abruptly paralyzed the world's money markets in September 2008 (Klink and Souza, 2017). Of course, part of the overcoming the crisis was financed by the states, in the clearest logic of the privatization of the profits of the financial system and the social division of dividends, the hallmark of social control.

We expected this structural crisis is to worsen considerably in the coming decades, becoming deeper, entering not only the world of global financial expectation, but also in all territories of socio-economic and cultural life. Still, for Mészáros, while the worst was thus avoided, the crisis has left us facing long-term stagnation as is typical for the slow-growth downswing phases of long waves, it's a continuous crisis.

Mészáros (1995, 2005) intuits his own tone, always marked by the destructive and explosive character of the structural crisis, but attributes skepticism to the readers of his works. The thinker points out that it would be naive to suggest that henceforth there would be no way out of capitalist expansion and manipulative displacement of many of its problems. Capitalism has been looking for an exit to overcome crises. The author warns that crises arise directly from the fundamental contradiction of the system itself, that is, the irreconcilable antagonism between capital and labor. This, in turn, manifests itself in the brutal intensification of exploitation rates (social and environmental), raised to increasingly unsustainable levels.

The consequences of the structural crisis are severe, especially for the poorest. The system “[...] is now actively engaged in producing a global food crisis on top of all of its other crying contradictions, including the ever more pervasive destruction of nature” (Mészáros, 2009, p39). Faced with its structural crisis, the

system that extends everywhere violates our relationship with nature, undermining the fundamental conditions of human survival and natural elements, especially flora and fauna.

Besides the unequal concentration of wealth, “[...] capital must assert its absolute domination over all human beings, even in the most inhuman form if they fail to conform to its interests and its drive for accumulation” (Mészáros, 1995, p114). The desire to make a profit, fundamental point in this system, always comes first. Neither the degradation of nature nor the pain of social devastation carries any meaning at all for this system.

For Mészáros (1995, p173), this is why in the course of historical development capital “[...] not simply happened to fatefully overreach itself on every plane - even in its relationship to the basic conditions of social metabolic reproduction - but sooner or later was bound to do so”.

In addition to these ideas, the author warns that the planet Earth and its inhabitants have been suffering the harmful consequences of this crisis, because the capital “[...] blind expansionary drive is incorrigible because it cannot renounce its own nature and adopt productive practices compatible with the necessity of rational restraint on a global scale” (Mészáros, 1995, p179).

Another central problem of this structural crisis is militarism and the production of weapons of high destruction power are important elements that the capitalism has been resorting to in times of crisis. Countries with developed capitalism, like the USA, spending more than \$ 150 billion annually with the war industry, heavily invest in this area. In this theme, Mészáros (1995, 2009) points out that this is a great environmental danger, as it can lead to global catastrophes.

In the military field, the endless wars that capital has generated since the emergence of monopoly imperialism in the last decades of the nineteenth century, and the still more devastating weapons of mass destruction that have emerged in the last eighty years.

Mészáros explain about the economic models of the nexus of military spending and economic growth, as well as military Keynesianism and the military-industrial complex. Including an account of the Marxist crisis theories, Elveren (2019) brought an update on this discussion, indicating that there is focuses on military spending as a counteracting factor to the tendency of rate of profit to fall. Using a range of econometric methods and adopting a Marxist perspective, he provides comprehensive evidence on the effects of military spending in USA on the rate of profit for more than thirty countries. The findings of the book shed light on the complex linkages between military spending and the profit rate by considering the role of countries in the arms trade. In this sense, recent attempts to counter the intensifying symptoms of the crisis by the cynically camouflaged nationalization of astronomic magnitudes of capitalist bankruptcy, out of yet to be invented state resources, only highlight the deep-seated and antagonistic causal determinations of the capital system's destructiveness. For what is fundamentally at stake today is not simply a massive financial crisis but humanity's potential self-destruction at this juncture of historical development, through both military conflagration and the ongoing destruction of nature (Mészáros, 2009).

Thus, even humanity's distant future must be perilously auctioned because the capital system as such must always pursue its own course of action, as soon as possible, "[...] ignoring the consequences even if they foreshadow the destruction of the elementary conditions of social metabolic reproduction" (Mészáros, 2009, p177).

Capital system spontaneous mode of metabolic control cannot turn itself into a system with clearly identifiable...socioeconomic microcosms. The particular socioeconomic reproductive units of capital taken separately are not only not capable of spontaneous coordination and totalization but also diametrically opposed to it if allowed to follow their disruptive course.

In the path of the historically irreversible circumstance which is its entry into a downward productive phase, the capital system has become inseparable from an increasingly intense need for militaristic expansion. In its internal productive logic, there is a tendency towards the criminal and wasteful establishment of a permanent war industry, which goes hand in hand with the warlike conflicts that are necessarily associated with it.

On the other hand, the ever more wasteful use of vital and strategic material resources, manifests not only the increasingly destructive articulation of the structural determinations of Capital on the military level - through legislative manipulation and social control strategies - but also the increasing usurpation of nature, characteristics of the structural crisis of capital as indicated by Mészáros (1995, 2005).

Thus, some events that have occurred in American schools, such as the shootings followed by death at Columbine High School (1999) and at Arapahoe High School (2013), can also be listed as aspects related to the military and militarist culture. The easy access to deadly weapons by the population, the linking of violent propaganda, games, and films can be indicative that our young people are being influenced by this industry (Magyar, 2019). In the face of these tragic events, there have been discussions about individual and collective control over threats of the same nature (Addington and Muschert, 2019). However, the

analyses that have been made on these facts are restricted to the psychological aspects of the shooters, the facts that originated their desire for retaliation from other students, Bullying and legal issues. There is a gap on the structural relations that link the need for armaments to the maintenance of the current capitalist system. At this point, again, the philosophy of Mészáros seems to be relevant to the understanding of the theme.

The theme is not restricted to the USA, in Brazil there are also several similar cases. The most recent occurred in the year 2019, when ten people were killed at an elementary school in Brazil at Professor Raul Brasil State College in the Suzano city (Ibbetson, 2019). On the other hand, the current Brazilian president, Jair Bolsonaro, explicitly supported by representatives of the armament industry during his presidential campaign, signed a decree that changes rules on the acquisition, registration, registration, possession, possession and commercialization of arms fire and ammunition. The legal document extends to several groups the possession of firearms, facilitating the commercialization of these (Brasil, 2019) The obligation of social control is all the more vital when we consider what Mészáros demands the absolute limits of capital, mainly in regard to the emerging environmental crisis. All social metabolic orders have intrinsic or absolute limits which cannot be transcended (customs, traditions and legal apparatus) without forcing a qualitative transformation to a new mode of control. The failure to act in the face of an environmental crisis of such scope should not come as a surprise given the union between politics, justice/legislation and economics. In dialectical opposition to capital in its various natures, the Hungarian Marxist philosopher points out that it becomes necessary the establishment of a historically new mode of “[...] mediating the metabolic exchange of humanity with nature and of the progressively more self-determined

productive activities of the social individuals among themselves” (Mészáros, 1995, p757).

From this perspective, education plays a fundamental role. On one hand, education can be understood as an ideological apparatus of the capitalist system, in which educational institutions serve to introduce or internalize aspects that are necessary for the development of the system - conformism, obedience, specialty of knowledge, etc. On the other hand, the author proposes an education that performs a new function; it goes beyond the capital. In his words:

[...] a powerful social force cannot be overcome by the fragmented action of isolated individuals, as the causal structural determinations of the criticized order must be rivaled and contested in the causal domain, in its own terms of reference: that is, by the form historically sustainable approach to a coherent structural alternative. (Mészáros, 2005, p86-87, free translation).

That is why the ideology inaugurated by Marx is more relevant today than ever. For only radical systemic change can offer historically sustainable hope and a solution to the future. Environmental Education integrates this process of revolution.

However, this change cannot solely come from individual teachers. More directly, Mészáros shows that oppositions to the system made by environmentalists - carbon credits, recycling, increased rates for polluters, sustainable development, *et cetera* - have clear limits. The system can adapt itself and incorporate some advances required by these opposition groups, but this remains in the growing process of exploitation, that is, “[...] the capital system conveniently fades away, irrespective of how many setbacks and defeats the

politically organized forms of 'single issue' movements [Environmentalism, Feminism] might have to suffer in the foreseeable future” (Mészáros, 1995, p40). Following our immanent analysis, we find in the book *Beyond Capital*, an excerpt that makes clear the vision of Mészáros on the environmental theme. For the Hungarian philosopher it is necessary to develop and fight for another form of production system (communism), for capitalism is threatening the Earth itself:

The systematic devastation of nature and the continued accumulation of the powers of ultimate destruction - globally to the tune of well over one trillion dollars per annum - indicate the frightening material side of capital's absurd logic of development, together with the complete denial of the elementary needs of countless starving millions: the forgotten side and receiving end of the wasted trillions. The paralyzing human side of this development is visible not only in the obscenity of enforced 'underdevelopment' but everywhere even in the capitalistically most advanced countries (Mészáros, 1995, p685).

Analyzing the work of the Hungarian thinker, we can find strong indications of the development of a Critical Environmental Education. Mészáros (2005) sets out his educational vision in the book *Education beyond the Capital*, in which he points out the relevance of education as a resistance praxis to the ideology of capital. Revolutionary education, beyond the Capital, comprises educational spaces in a dialectical relationship with society and the dominant mode of production. It is not enclosed within walls of schools and universities since it expands to confront the system.

We need an Environmental Education connected with this revolutionary logic, “[...] a coherent and sustained anti-internalization activity that is not exhausted in *denial* - no matter how necessary this is as a phase in this enterprise [...]”, said Mészáros, “[...] and that defines its fundamental objectives, such as the creation

of a *concretely sustainable* alternative to what already exists.” (Mészáros, 2005, p56, free translation, italics in the original).

Following the reasoning proposed by Mészáros (2005, p76, free translation), a critical Environmental Education task “[...] is simultaneously the task of a broad, social, and emancipatory transformation. Neither can put in front of the other. They are inseparable”.

Conclusions

It is relevant to emphasize in this final part of this text that Mészáros (1995, 2009) does not make critiques based only on capitalism. He analyzes all forms of capital, including those developed within countries of socialist experience, which did not eliminate capital. For the Hungarian philosopher, the socialism of the Soviet Union and other countries failed to eliminate fully capital; they only transported the lord of production to the state. Indeed, these experiences represent a breakthrough and a dream that has partially come true in these societies, although one has yet to rethink that dream.

Bringing the conceptions of Mészáros to the philosophy field, we can make some link between metabolic reef and Environmental Education, and so design another type of education. It is the revolutionary task for environmental educators to implement a critical education beyond the capital, in terms of post-neoliberal policies, “[...] it is still a challenge for critical and transformational intellectuals. Thus, there are many tasks to be engendered” (Silva, Costa and Santos Bernardi, 2015, p487).

We believe it is necessary to develop more intensive and in-depth research on Mészáros’ bibliography. We hope to continue investigating the philosophical and

environmental reasoning of such author, so that we may be able to find elements for developing an Environmental Education linked to a revolutionary praxis in a theory for transcending capital.

Finally, after analyzing the bibliographical works of Mészáros, we understand the limits of capital in its diverse cultural, political, environmental and social branches. These limits have contributed greatly to the growth of the metabolic fissure (rift) between human and nature. That being said, it is important to emphasize that education beyond capital must be thought from the logic of teaching not as a mere knowledge transference, but as awareness and life testifying. Only by getting rid of the chains of neoliberalism and capital, in all its forms, shall the human being obtain his full freedom.

To be a critical environmental educator, there is a historical need to teach students environmental and social branches of the capital. In this perspective, teaching is reiterating, by the power of critical knowledge, that the rights we do not exert are the rights we waste. In other words: “[...] within the confluence of critical education with education beyond capital, there is an important challenge: reasoning education as use value, not as trade value” (Silva, Costa and Santos Bernardi, 2015, p487).

Analyzing the biography of Mészáros can be understood three fundamental contributions to the field of Environmental Education. The first appears on the epistemological plane, in the understanding of the structural crisis of capital and metabolic rift. By accepting the complex and prolonged essence of a structural crisis, which is neither episodic nor fugitive, and manifests itself in a given historical time, conditioned by the sense of an epoch, it is in the cumulative interrelationship of the whole that the question is decided, even under the illusory

appearance of normality. This is because in a structural crisis there cannot be a particular symbolic instance. Without understanding the totality and the systemic relations and implications of particular events, one loses the notion of real significant changes and the corresponding levers of a possible strategic intervention that can positively affect the problem, due to its systemic transformation, capital in its multiple dimensions.

Second is associated to the field of formal education of schoolchildren, universities and in places of directed education (museums, parks, zoos, among others), areas in which the critical literature of environmental education is scarce. Traditionally, environmental education of a non-critical nature, often already incorporated by the capitalist system itself as a reproductive mechanism, as in so-called "green capitalism", predominates in these fields.

Finally, the third contribution of Mészáros can be linked to social movements, non-governmental organizations, residents associations, et cetera. The materialistic and dialectical view of the Hungarian philosopher's Marxism can favor a analysis of the conjugation that allows the groups and their individual participants to analyze the world around them, creating elements for overcoming the socio-environmental contradictions of capitalism through the creative praxis of the human being.

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