

Ecology and Productive Justice in Marx

Byung-Doo Choi*

맑스의 생태학과 생산적 정의

최 병 두*

Abstract : This paper aims to clarify the principles with which Marx criticized social and environmental injustice of capitalism and with which he proposed a socialist project for just society and its relations to nature. In doing so, the paper draws out a foundation on which critical ecology in general and theory of environmental justice in particular would be further developed. Some specific ideas suggested in this paper include that both Marx's critique of capitalist society and nature and his conception of socialist society and nature are grounded on two basic principles of justice, that is, needs principle and labor principle which can be drawn from his ecological conception of the relation between humans and nature; that because of his rejection of ideological character of morality, Marx was engaged in a critique of capitalist society, and not developed a theory of justice in capitalism, while he formulated a theory of (environmental) justice when he suggested a project for justice of socialist society and its relation to nature; and that his conception of (environmental) justice should not be seen merely in terms of distributive justice paradigm, but also of what would be called 'productive justice', as he understood production as an organic whole including exchange, distribution, and consumption.

Key Words : Marx, ecology, nature, labor, environmental justice, productive justice

요약 : 본 논문은 맑스가 자본주의의 사회적 및 환경적 부정의를 비판하고 정의로운 사회 및 자연과의 관계를 위한 사회주의적 프로젝트를 제안했던 원칙들을 밝히고자 한다. 본 논문은 또한 이러한 과정에서 비판적 생태학 일반 그리고 특히 환경정의 이론이 더욱 발전할 수 있는 기반을 도출하고자 한다. 본 논문에 제안된 몇 가지 중요한 점들은 다음과 같다. 첫째, 자본주의 사회 및 자연에 대한 맑스의 비판 그리고 사회주의 사회와 자연에 관한 그의 개념은 두가지 기본적인 정의 원리들, 즉 인간과 자연 간 관계에 관한 그의 생태적 개념화에서 도출될 수 있는 '필요' 원칙과 '노동' 원칙에 바탕을 두고 있다. 둘째, 도덕성의 이데올로기적 성격에 대한 그의 거부로 인해, 맑스는 자본주의 사회에 대한 비판으로 일관하면서 자본주의에서의 정의 이론을 발전시키지 않았지만, 반면 그는 사회주의 사회와 자연과의 관계에서 (환경)정의를 위한 이론적 기초를 제안했다. 그리고 끝으로 그의 환경정의에 관한 개념화는 단지 분배적 정의 패러다임으로만 이해되어서는 안되며, 그가 생산을 교환·분배 그리고 소비를 포함하는 유기적 전체로서 이해한 바와 같이 '생산적 정의'라고 부를 수 있는 것과 관련지어 이해되어야 한다.

주요어 : 맑스, 생태학, 자연, 노동, 환경정의, 생산적 정의

1. Introduction

Even though there has been a long debate around the issue of whether Marx thought capitalism and particularly capitalist exchange relations unjust or not,¹⁾ there is no doubt that Marx was consistently engaged in a critique of injustice of capitalist society. Nobody may deny that the aim of

his analysis is not to show that capitalism is a just society, but to show how capitalist production and distribution create unjustly the impoverishment, both mental and physical, of the majority of people. Indeed, Marx wrote that "[capitalist] accumulation of wealth at one pole is, therefore, at the same time accumulation of misery, the torment of labour, slavery, ignorance, brutalization and moral

* Professor, Department of Geography Education, Taegu University

degradation at the opposite pole, i.e. on the side of the class that produces its own product as capital" (Marx, 1976, vol.1, 799). In *Capital*, Marx pointed frequently to the brutal impact of capitalism on workers, i.e. the way in which capitalism transforms them into 'crippled monstrosities' barely recognizable as human beings. It is clear that throughout his analysis of capitalism, Marx's chief concern is to reveal the manner and extent to which the capitalist mode of production 'dehumanizes' individuals, making them less than human.

Marx's complaint and condemnation of injustices of capitalist society also includes deterioration of environmental conditions of working and dwelling places as well as destruction of nature in both town and country. We can find a lot of passages in the *Grundrisse* and *Capital* where he described in detail unequal and unjust environment of capitalist society. After describing some cases of this kind, for example, Marx stated that, "in its blind and measureless drive, its insatiable appetite for surplus labour, capital oversteps not only the moral but even the merely physical limits of the working day. It usurps the time for growth, development and healthy maintenance of the body. It steals the time required for the consumption of fresh air and sunlight" (Marx, 1976, vol.1, 375-376). In his early writings such as *1844 Manuscripts*, Marx often described relations between nature and human individuals, arguing that "society is the unity of being of man with nature - the true resurrection of nature - the naturalism of man and the humanism of nature both brought to fulfillment" (Marx, 1964, 137). But capitalist society denies nature as "the foundation of his own human existence": nature such as fresh air and sunlight is stolen for surplus value of capital. Nature under capitalism is denaturalized, as human individuals are dehumanized (Lee, 1990).

On the other hand, Marx appears to have subscribed to the notion that socialism (or communism) is an equal and just society, because

the productive forces required by the society have increased with the mastery of nature, and the relations of production are non-authoritative and non-coercive. For Marx, it is impossible for human individuals in this society to be treated unjustly, because he envisaged that this society is inherently democratic and non-oppressive. In a same vein, it is impossible for nature to be controlled unjustly, because he viewed that human intervention into nature in this society is intrinsically rational and non-exploitative. In Marx's view, socialism establishes a "free association of producers" in which each individual is free to develop and exercise his or her capacities in a manner compatible with the freedom of other individuals to develop and exercise their capacities. Likewise, socialism establishes a "rational regulation of humans' interchange with nature" in which nature is brought under common control of the associated producers in a manner that achieves "the least expenditure of energy" and "under conditions most favorable to, and worth of, their human nature" (Marx, 1967, vol.3, 820). Marx here appears to envision a socialist project of rehumanization of humans and renaturalization of nature.

Both Marx's critique of injustice of capitalist society and its relation to nature and his project for justice of socialist society and nature seem to provide a significant insight for theory of environmental justice, even though environmental problems in his time might be much less serious than today. Marx's condemnation of capitalism as a cause of dehumanization of humans and of denaturalization of nature does not, however, appear adequate to its own critique of injustice of capitalist society. We must ask for the ground upon or principle with which Marx can point to dehumanization and denaturalization as a compelling reason for his indictment of capitalism. Likewise, Marx's project for socialism as a society of rehumanization of humans and renaturalization

of nature does not appear adequate to its own theory of justice of socialist society. We must ask for the ground upon or principle with which Marx can draw up a socialism as a rational project for rehumanization and renaturalization.

The aim of this paper is to clarify the grounds upon or principles with which Marx criticized social and environmental injustice of capitalism and which he proposed a socialist project for just society and its relations to nature.²¹ In doing so, I hope to draw out a foundation on which critical ecology in general and theory of environmental justice in particular would be further developed. Some specific points of my view²³ include, first that both Marx's critique of capitalist society and nature and his conception of socialist society and nature are grounded on two basic principles of justice, that is, needs principle and labor principle which can be drawn from his ecological conception of the relation between humans and nature; secondly that because of his rejection of ideological character of morality, Marx was engaged in a critique of capitalist society, and not developed a theory of justice in capitalism, while he formulated a theory of (environmental) justice when he suggested a project for justice of socialist society and its relation to nature; and finally that his conception of (environmental) justice should not be seen merely in terms of distributive justice paradigm, but also of what would be called 'productive justice', as he understood production as an organic whole including exchange, distribution, and consumption.

2. Marx' s ecology and principles of justice

As Lukes(1985), Pruzan(1989), Peffer(1990) and other many commentators argue, Marx' s conception of morality and particularly his theory of justice (or critique of injustice) is predicated on his empirical, non-speculative conception of human

nature, which can exist only in relation to both nature and society. There is little controversy that Marx subscribes to a conception of human nature. Throughout his work, especially in his early writings, human nature is one of central issues which is somehow reconstructed in his dialectic and historical materialism.⁴⁾ Disagreement arises, however, regarding what exactly that conception of human nature is and the role that it plays in Marx' s work, and particularly in his concepts of ecology and justice, and of environmental justice. Thus for example, Grundmann (1991) argues for Marxist ecology in which the transformative role of humans is fundamental in relation to nature, and Pepper (1993) attempts to develop implicitly an eco-socialist theory of social justice on the basis of Marx' s conception of dialectic relation between human nature and nature, while Eckersley (1992) criticizes the anthropocentrism of Marxist ecology or of environmental justice. Thus we need first to clarify Marx' s conception of human nature.

For Marx, human nature is both 'natural' and 'social'. On the one hand, human nature is natural in the sense that all human individuals are constituted by a biological structure which specifies both the empirically given basic needs of the species (i.e. health, food, shelter and procreation) and the physical and mental capacities of the species required for the satisfaction of basic needs. In satisfying basic needs and exercising self-developing capacities, human individuals "must remain in continuous interchange" with nature. "That man' s physical and spiritual life is linked to nature means simply that nature is linked to itself, for man is a part of nature" (Marx, 1964, 112). In interchanging with nature humans unlike other species are not passive, but active. Thus, for Marx, "man is directly a *natural being* ... endowed with *natural powers of life* - he is an active natural being. These forces exist in him as tendencies and abilities - as *instincts*" (Marx, 1964, 181).

On the other hand, human nature is social in a

sense that productive activity of human individuals always presuppose their purposiveness which distinguishes human nature from other species. Human nature is also social in a sense that human individuals require each other's cooperation in order to satisfy successfully basic needs and to develop their specific human capacities. Thus for Marx, "The *human* essence of nature first exists only for *social* man; for only here does nature exist for him as a *bond* with *man*" (Marx, 1964, 137). An other reason why human nature is social, according to Marx, is that human needs are not given as a physical character, but socially determined and satisfied. Moreover, human nature is historically modified by the development of means of production in which basic needs are expressed and satisfied through historically new social forms.

It is through natural components, i.e. biological needs with active abilities, and through social components, i.e. purposiveness, cooperation and history, that human nature is conceived empirically and non-speculatively both as natural and as social simultaneously. Moreover, in Marx's conception, human nature as natural and social is an interrelating idea. What should be noted for his dialectical materialism and particularly for his conception of ecology is that "the identity of nature and man appears in such a way that the restricted relation of men to nature determined their restricted relation to one another, and their restricted relation to one another determines men's restricted relation to nature" (Marx and Engels, 1970, 51). Marx considers human nature, nature and society as parts of an interrelated whole in a sense that no one of these parts can be understood without consideration of the others.

A further important notion in Marx's view is that the relations between human individuals and nature must be seen with a mediating concept, i.e. labor. "Labor is, first of all, a process between man and nature, a process by which man, through his own actions, mediates, regulates and controls the

metabolism between himself and nature". In "order to appropriate the materials of nature in a form adapted to his own needs", human individuals must make an effort to set in motion his own natural forces. This movement is not only to satisfy their material needs. But also "through this movement he acts upon external nature and change it, and in this way he simultaneously changes his own nature. He develops the potentialities slumbering within nature, and subjects the play of its forces to his own sovereign power" (Marx, 1976, 283).

We have now several important ideas such as 'human nature as natural and social', dialectical relation between human nature, nature and society, and labor as a mediating concept for the relationship between human natures and nature. These ideas or concepts give some brilliant insight for Marxian ecology.⁵ What is more, we are now in a position that we can ask a question, what are relevant principles which provide Marx's critique of injustice or theory of justice with their moral validity? We are here confronted with problems of identifying what principles or standards of justice Marx is applying, and what grounds of explaining why he believes they possess normative validity. A proper theory of (environmental) justice requires principles which, drawn from substantive contents, can be applied to evaluate such concrete circumstances of society or environment.

From the above considerations, 'needs' and 'labor' implied in Marx's conception of human nature can be drawn out as two principles on which one can evaluate certain social and environmental phenomena, institutions, or structures as unjust, and make claims against such phenomena for just society and environment. It seems self-evident that satisfying basic needs is a fundamental affair for physical and mental existence of human individuals, though the concept of human needs should be further clarified. Although a comprehensive theory of human needs

can include both human basic needs and self-realizing abilities of human being (Doyal and Harris, 1991; White, 1996), it is important to distinguish conceptually or categorically between them.⁶ This is not merely because for Marx humans are more than an animal being in satisfying its basic needs, but because, seen from categorical distinction, needs principle in general has been connected to paradigm of distributive justice, and hence appears not appropriate to the sphere of production, as we shall see below. Thus I think, against White's (1996) argument, that needs principle alone seems not sufficient to evaluate social and environmental justice. That is, labor (especially its concept in his early work) can be seen as an other necessary principle which is provided distinctively for self-development of human capacities in relation to nature, and hence for evaluating a validity of justice proposed in a society and environment.

These two principles, that is, needs principle and labor principle, drawn from Marx's dialectics, ecological conception of human nature in relation to nature and to society need some further clarification.⁷ First of all, in my view, these principles are not merely hierarchically organized (Elster, 1985, 230), but also categorically distinguished and applicable to the sphere of distribution and that of production. These two principles can be considered as principles of (environmental) justice, only when its substantive contents are derived from the concrete base, and not from the realm of abstraction or ideology. Moreover, for Marx concepts and principles of justice are valid only if they promote the common interests, and not the interests of separate individual or of a ruling class. As Marx writes, "...communal interest does not exist merely in the abstraction, as the 'general interest', but first of all in reality, as the mutual interdependence of the individuals among whom the labour is divided" (Marx and Engels, 1960, 53). It is not 'general'

interest in imagination, and hence which might be regarded as a universal, transcultural and transhistorical criteria, but 'communal' interest in reality which would be shared by their labor in the mutual interdependence in their relation to nature.

Given Marx's ecological conception of human nature as both the natural and the social and two principles of environmental justice, we can now turn to evaluate normatively a given society and environment. That is, a society-environment is unjust, if it is unable to satisfy basic needs of human individuals which are social available and determined in a given relation to nature. Moreover, a society-environment which denies to the vast majority of individuals the opportunity for free labor to exercise their physical and mental capacities and hence to realize their own self-development. A society-environment can be condemned as unjust, not merely because the vast majority of individuals cannot maintain their mental and physical needs in their feeding, dwelling, health care, etc. at the standard present in that society, but also because they cannot have opportunities for their own life for self-realization.

Of course, to evaluate a given society and environment as just or not is different from to describe or theorize a just society-environment, because while the former is based on empirical judgement, the latter does not have no such a ground. That is, critique of injustice and theory of justice seem to have distinctive epistemological grounds different from each other. What is more, according to Marx, since a moral concept such as right and justice "can never be higher than the economic structure of society and its cultural development which this determines" (Marx, 1994, 321), we cannot develop a normative theory of justice independent of the material conditions under which such theory develops. If one develops such a theory, it would be either juridical or abstract, which can be criticized as an ideology or illusion contributing to a ruling class of that society

(Suh, 1995; Choi, 1997b).

A full detailed discussion of these epistemological and ontological problems is beyond the scope of this paper.⁹⁾ But to avoid these difficulties, I here suggest an idea that in capitalist society where we live, we can legitimately criticize certain phenomena or institutions as unjust on the basis of our experience, while it may be impossible to develop a normative theory of justice without falling into an ideological pitfall. On the other hand, we can formulate a theory of justice for a new society-environment in which an ideal of human nature is realized. However, this formulation is based at best on our desiring and practicing negation of the present world in which we suffer from unjust society and environment. I will follow this way of criticizing injustice of capitalist society and environment, and formulating a socialist theory of environmental justice, though I think that this way lacks and hence should be complemented by an intersubjective recognition in order to be a communal interests (Choi, 1997a).

3. Critique of social and environmental injustice of capitalism

1) Unjust environment in capitalist society

We now examine some social and environmental phenomena under capitalism which Marx complained or condemned as unjust. Environmental problems in the time of Marx were much less serious and less diffused than those which we experience recently. Nevertheless, Marx directed his severe criticism to social and environmental conditions of the factory and the dwelling of the industrial workers, the large agricultural estates and the rural slums. We can see in Marx's writings two kinds of serious environmental problems; one is in both urban and rural areas which were brought out

through capitalist large industry and agriculture; the other is concerned with social and environmental conditions of workers within factories. In his time, these were not merely primary places where ecological damage was inflicted most seriously, but also places where activities for extracting surplus values have been conducted most actively.

According to Marx, capitalism is historically founded upon the division between industry and agriculture. Although this division is superseded with the development of capitalism, it is historically important and receives its direct spatial expression in the separation of town and country (Smith, 1984, 40-44), as "the foundation of every division of labor which has attained a certain degree of development, and has been brought about by the exchange of commodities" (Marx, 1976, vol.1, 472). That is, as a precondition for capitalist division of labor, "capitalist production collects the population together in great centres, and causes the urban population to achieve an ever-growing preponderance". But in Marx's social and ecological view, "this has two results. On the one hand it concentrates the historical motive power of society; on the one hand, it disturbs the metabolic interaction between man and the earth, i.e. it prevents the return to the soil of its constituent elements consumed by man in the form of food and clothing" (Marx, 1976, vol.1, 637). That is, the capitalist urbanization and industrialization, concentrating population who have played a role as "the historical motive power of society", has resulted in a serious disturbance of the metabolic interaction between man and nature. It has resulted not only hindering material recycling of nature, that is, "the operation of the eternal natural condition for the lasting fertility of the soil", but destroying "at the same time the physical health of the urban worker, and the intellectual life of the rural worker" (Marx, 1976, vol.1, 637).

The same phenomena have happened in the

country which has experienced the capitalist transformation of the process of agricultural production. On the one hand "in agriculture ... appears as a martyrology for the producer; the instrument of labour appears as a means of enslaving, exploiting and impoverishing the worker". On the other hand, "in modern agriculture, as in urban industry, the increase in the productivity and the mobility of labour is purchased at the cost of laying waste and debilitating labour-power itself. Moreover, all progress in capitalist agriculture is a progress in the art, not only of robbing the worker, but of robbing the soil" (Marx, 1976, vol.1, 638). In the country with agriculture, as in town with industry, both the worker and nature are exploited and destroyed for capitalist development.

This phenomena are unjust, not merely because labor and nature are exploited and destructed, but because they are sacrificed for the purpose of capitalist development, or of capitalists' extraction of surplus value. That is, for Marx,

The more a country proceeds from large-scale industry as the background of its development..., the more rapid is this process of destruction. Capitalist production, therefore, only develops the techniques and the degree of combination of the social process of production by simultaneously undermining the original sources of all wealth - the soil and the worker (Marx, 1976, vol.1, 638).

This passage explicitly describes a contradiction of capitalist development that the productivity of nature becomes undermined as productivity in industry grows. In other words, seen from labor principle according to which human labor mediating between nature and humans should contribute to satisfying human basic needs and to realizing self-development, capitalist development is unjust, because it has led labor to its own purpose, that is, accumulation of capital,

while undermining the worker and nature simultaneously. Thus, as Parsons (1977, 19) notes, "violation of human nature is *ipso facto* violation of nonhuman nature, since man is an organic part of a wider nature. Capitalism, which both dehumanizes human and denatures nature, thus, needs a humanistic, naturalist alternative".

In the *Grundrisse* and *Capital*, Marx also describes in detail social and environmental conditions of laboring and dwelling places of industrial workers. First of all, depicting a number of cases which illustrate the temporal, spatial and environmental conditions of workers in factory, Marx describes how capitalists extend the working day, using metaphor, the 'werwolf-like hunger for surplus labour'. One of the cases is a newspapers' report on the death of the milliner, Mary Anne Walkley who died from simple over-work.⁹⁾ From this example and others described in Marx's writings, we can see how workers in Marx's time were treated unjustly. While those few noble ladies enjoyed their extravagant life, young female workers had no choice except working to the end of their life.

Perhaps there would be nobody - except Wood (1972; 1981) and others who want to interpret Marx's work without recognizing Marx's 'ironic tone' (Husami, 1978) - who can assert that this is not unjust. Indeed, far from developing their own physical and mental capacities for self-realization, the workers in capitalist society hardly satisfy even basic human needs for their survival. This extremely unjust situation was not confined to factory where the workers were directly coerced by capitalists who wanted to extract surplus labor-time and hence surplus value, while sacrificing the workers' time, space and environment for their survival. Even the need for fresh air ceases for the workers in their dwelling place, where he faced with other problems,¹⁰⁾ as Marx wrote:

Man returns to a cave dwelling, which is now,

however, contaminated with the pestilential breath of civilization... Light, air, etc. - the simplest animal cleanliness - ceases to be a need for man. Filth, this stagnation and putrefaction of man - the sewage of civilization (speaking quite literally) - comes to be the *element of life* for him. Utter, *unnatural* neglect, putrefied nature, comes to be his *life-element*. None of his senses exist any longer, and not only in his human fashion, but in an inhuman fashion, and therefore not even in an animal fashion(Marx, 1964, 148-149).

Marx's condemnation of unjust capitalist society and environment can be seen as based on both labor principle and need principle. However most passages where Marx described social and environmental conditions of the workers, he usually stressed the severe maldistribution of the conditions for needs satisfaction, for survival. This seems partly because capitalism in Marx's time might exploit the workers so to live even under a minimum standard of needs satisfaction, or as emphasized by Marx to do so. In this sense, Marx appears to have given explicitly priority needs principle over labor principle, and we should not ignore distributive justice for needs satisfaction (Peffer, 1990; Sul, 1990). But what seems to warrant the validity of Marx's critique of capitalism throughout his work must be labor principle rather than needs principle. To interpret otherwise is to think that a remedy of maldistribution of social and environmental conditions would overcome the limits of capitalist society, which is far from Marx's conception. We can find Marx's application of labor principle in his explanation of structural context of injustice of capitalist society and environment.

2) Context of social and environmental injustice of capitalism

In his early writings, Marx appears to see that unjust social and environmental phenomena occur due to money and private property, and even due

to civilization in general. Thus in his writing "On the Jewish Question", Marx states that "money is the general, self-sufficient *value* of everything. Hence it has robbed the whole world, the human world as well as nature, of its proper worth. ... The view of nature achieved under the rule of private property and money is an actual contempt for and practical degradation of nature..." (Marx, 1994a, 24).¹¹⁾ Under private property and money as a single means of measuring value, human individuals relates themselves to nature in the mode of possession, of having, and grasping. This is the very reason why an organic relationship between humans and nature becomes deteriorated and destructed. But what Marx here focuses is 'alien labor', the essence of which is money and private property, while criticizing egoism concerned with satisfaction of individual needs. That is, it is not with needs principle but labor principle that Marx attempts to see unjust institutions (e.g. religion, state, etc.) of capitalist society.

In a similar vein, Marx in *1844 Manuscripts* blames civilization in general for a 'bestial barbarisation' and violently attacks the egoism of civilized bourgeois, as a cause of both exploitation of workers and degradation of environment of factories and dwelling places in capitalist society, as we have seen above. But it is not civilization in general but the capitalist development of economy which Marx accused as a cause debasing human individuals and defiling nature. Just as capital exploits labor of workers, it also exploits environment of them. Marx here appears to condemn capitalist society and environment on the basis of needs principle: the worker "has no human needs - even his *animal* needs cease to exist". But in such a circumstance, the worker's activity (i.e. labor) is reduced to "the most abstract mechanical movement", as his or her needs reduced to "the barest and most miserable level of physical subsistence" (Marx, 1964, 149). Thus it can be said that Marx here thinks about both needs principle

and labor principle, in order to criticize capitalist society and environment.

In his later work, Marx explains more explicitly why and how both labor and nature are exploited by capital. Both human labor and nature are used for the ends of capital in the process that nature transforms its raw materials through labor so as to create, accumulate, and multiply values. In this process, the capitalist extracts surplus value as a necessity for continuing capital accumulation, for maintaining capitalist economy, while human nature and their environment in general and the workers' labor and their environment in particular are not only destructed physically, but also devalued as mere commodities which can be mobilized to produce surplus value. Thus, as Harvey describes, "the violence the capitalist class must necessarily visit upon the labourer in order to extract surplus value is nowhere more readily apparent than in the degraded relation to nature that results in the labour process" (Harvey, 1982, 108).

In Marx's view, capitalists extract surplus value through two ways: 'absolute' surplus value by extending the working day, and 'relative' surplus value by reducing the value of labor with the increasing of productivity of labor in the sectors producing 'wage goods' - the commodities the laborers needs - or by employing superior production techniques with a higher than average productivity of labor. At this juncture, we can understand how Marx's (surplus) value theory comprehends, or links to his conception of ecology. Some argue that Marx's value theory is anti-ecological because it excludes or downgrade the role of nature in production (Benton, 1989; Grundman, 1991). It is true for Marx that value is produced only by social labor, even though both labor and nature are two sources of social wealth, i.e. use-value. But it is important to see that labor is always in relation to nature, and hence "the value form qualitatively and quantitatively abstract from

the fact that wealth involves a need-satisfying people-nature metabolism, even though value is a particular social form of this material process" (Burkett, 1996, 333; Devine, 1993).

On the basis of Marx's theory of surplus-value, we can see the context under which injustice of capitalist society and environment is brought about in process of surplus-value extraction, especially in relation to capitalists' attempt to extend the working day, or to increase productivity of labor with production techniques. First of all, as Marx describes, absolute surplus value is extracted not only in terms of the theft of the worker's time itself, but as involving the theft of necessities such as rest, light, space, clean air, etc. Marx first accuses the capitalist of stealing not the worker's products, but laboring conditions of the worker such as time, space, and environment which are necessary for their need satisfaction and for their physical and mental development. That is, capital "usurps the time for growth, development and healthy maintenance of the body. It steals the time required for fresh air and sunlight", and it engages in "the systematic robbery of what is necessary for the life of the worker while he is at work ... space, light, air and protection against the dangerous or unhealthy concomitants of the production process" (Marx, 1976, vol.1, 375-376, 553).

The extraction of relative surplus value which can be gained from the increasing productivity of labor either in the sectors of wage goods or as higher than average productivity. These two ways of extracting relative surplus value, though entailing different implications in Marx's theory of surplus value, have been made possible through the growth of large-scale industry with improved production techniques and more generally the development of technology. Thus, when Marx analyzes the machinery system of large-scale industry, he also expatiates on the environmental conditions under which factory labour is performed, as provided with the effects of the

machinery and large-scale industry. That is, as workers are incorporated into a lifeless mechanism as its living appendages, the burden of toil, like the rock, is ever falling back upon them. Especially they find themselves oppressed by the noisy, dirty, unsanitary, unsafe, monotonous, fatiguing factory where they work.

The economical use of the social means of production, matured and forced as in a hothouse by the factory system, is turned in the hands of capital into systematic robbery of what is necessary for the life of the worker while he is at work, i.e. space, light, air and protection against the dangerous or the unhealthy concomitants of the production process (Marx, 1976, vol.1, 552-553).

We have already seen environmental phenomena of space, light, air, etc. as an unjust condition under which the worker is at work. But the unjust environmental conditions of workers which Marx describes here are related to a different context, that is, the capitalist 'use of the social means of production,' rather than the capitalist's coercion to extend the working day. Indeed, it is the former rather than the latter that is thought as the context more closely related to destruction of environment and unjust use of nature in contemporary capitalist society. In other words, the capitalist use of the social means of production and technology, through which capitalists may seek to gain relative surplus value, can be seen as a major course of injustice of capitalist society and environment. Marx describes effects of this not only in terms of unjust environmental conditions of workers, but also in terms of the 'domination of nature' as well as that of humans by humans (or more specifically domination of environment and labor of the worker by the capitalist).

According to Marx, all human technology arises out of natural materials, and under a natural context as material and conceptual processes of the

social relation of production. That is, "technology reveals the active relation of man to nature, the direct process of the production of his life, and thereby it also lays bare the process of the production of the social relations of his life, and of the mental conceptions that flow from those relations" (Marx, 1976, vol.1, 493n). In this sense, i.e. its original and pure form, technology or means of production is seen as a result of human effort to survive and to realize their powers. But the value of technology is universally neutral, because it is a product of the social relations of a given society. Technology in capitalist society, thus, increases productivity of labor, but which is appropriated unjustly by the capitalist for surplus value. Indeed, the role of technology is two-fold. On the one hand it is the means whereby capitalists intensify their competitiveness, getting greater productivity and devising new products to tempt consumers. On the other hand it helps to reduce labor costs, deskilling jobs and making for cheaper labor power needs (Pepper, 1993, 82).

Moreover, capitalism, with its progressing technology (and constantly expanding market), tends to objectify nature merely as a matter of utility, and thereby to subjugate nature under its domination. That is, with the advent of capitalism, as Marx states in the *Grundriss*,

for the first time, nature becomes purely an object for human kind, purely a matter of utility; ceases to be recognized as a power for itself; and the theoretical discovery of its autonomous laws appears merely as a ruse so as to subjugate it under human needs, whether as an object of consumption or as a means of production (Marx, 1973, 410).

In a long and arduous history of evolution, humans for the first time appear to establish a relation to nature in non-competitive ways, which appears to promise a full satisfaction of their needs. Human individuals now seem to be freed from the

deprivations of material goods, getting rid of a scarcity economy. In such a new relation, they can rediscover at a higher level their prehistoric sense of identity with nature. But this kind of freedom from material needs or of the mastery of nature is highly problematic and controversial. For, as Parsons describes, “man can ‘feel’ himself to be one with nature, but in a way purified of the alienating fears and anxieties that were once mixed with his primitive feelings of dependence. But this freed and purified relation of man with nature can never be achieved under the rule of capital, which doesn’t give a damn for people and nature” (Parsons, 1977, 34).

In sum, with development of technology, capitalist society has subjugated nature under human needs. Thus the capitalist force of production seem to achieve a level of which it can satisfy human requirements. But capitalist society can meet neither needs principle nor labor principle. For the mastery of nature in capitalist society has been reached through capital’s domination of labor, and the result is given benefits to just a small ruling class and not to meet basic needs of the majority of people. Thus this kind of mastery of nature should not be seen as a ‘genuine’ domination of nature.¹² It has made “earth an object of huckstering - the earth which is our one and all, the first condition of our existence [which] was the last step toward making oneself an object of huckstering” (Marx, 1964, 210). In capitalist society, both nature and other humans are there to be dominated, to be exploited and to be negated with no morality, with no justice.

4. From distributive justice to productive justice

Social and environmental injustice under capitalism seems not to be overcome with minor remedies, as Marx denies that minor alternations in capitalist social and economic structure and

institutions, especially in its mode of distribution, can be of any real advantage to workers. In his view, for example, modest and incremental, though seemingly equitable, improvements in wages do not mitigate the exploitation of labor. With such improvements in wages, workers “can extend the circle of their enjoyments, make additions to their consumption fund of clothes, furniture, etc., and lay by a small reserve fund of money. But these things no more abolish the exploitation of the wage-labourer, and his situation of dependence, than do better clothing, food, and treatment, and a larger *peculium*, in the case of the slave” (Marx, 1976, vol.1, 769).

Likewise, problems of capitalist environment such as depletion of material resources which brings about impoverishment of the majority of people, and impairment of nature’s metabolism of ecological cycles which has been generated both in urban and rural areas, seems not to be overcome through minor alternations. Indeed, while destroying both humans and nature in their relation, of course, capital “compels its systematic restoration as a regulative law of social production, and in a form adequate to the full development of the human race”. But capital’s strategies for restoration make worse qualities of nature which otherwise will long-last its fertility. That is, “all progress in increasing the fertility of the soil for a given time is a progress towards ruining the more long-lasting sources of that fertility”. Thus social and environmental injustice under capitalism yields to remedy of minor alternation of wage system or of short-term restoration of local ecosystem. For it is “capitalist production” that “only develops the techniques and the degree of combination of the social process of production by simultaneously undermining the original sources of all wealth - the soil and the worker” (Marx, 1976, vol.1, 638).

For Marx, appeals to equality or equity for distribution of wages, material resources, etc. only indicate a misunderstanding of the nature of

capitalist production. In this context, throughout his work, Marx criticizes the reformist proposals of utopian socialists, particularly of Proudhon, who argued for the equalization of wages or 'fair distribution' as a palliative to the inequities of capitalism. Attempt to alter distribution in such a way that workers receive more 'equitable' wages in exchange for their labor misapprehends the nature of capitalist production. That is, attempts to modify distribution would not free workers from the wage system. Marx, therefore, argues that a political movement designed to institute an equality of wages is misdirected and must fail, and hence, instead of mobilizing for the equalization of wages, claim for 'abolition of the wages system'. That is, distribution cannot change unless production is first altered. Thus it can be argued that maldistribution of material goods or of environmental conditions (including natural amenity or pollution) cannot be cured, unless organization of production is first transformed. In other words, we need to claim for 'productive justice first!'

Now turning to theorizing 'productive justice' in socialist society and environment, there remain several points which should be clarified. First of all, production here should be seen as labor process, or what Marx calls 'metabolism', which mediate, regulate, and control relations between humans and nature, the process in which nature is mediated through society and society through nature and hence nature is humanized while humans are naturalized. Thus, productive justice entails a just relation between nature and humans, which in turn implies a just relations between individuals, and vice versa. It is not easy, of course, to pin down what the 'just' relation between nature and humans implies. Nevertheless, in doing so, I think about what Marx calls for a socialist domination of nature, which will be discussed later. But as many commentators complain, the 'domination of nature' thesis is very ambiguous and controversial.

Thus, as Smith (1984; 1996) suggests, this thesis can be replaced with the notion of the 'production of nature', which seems to enable us to "take seriously the centrality of labour in the relationship with nature" (1996, 49) and hence to see both 'production in general' as the most basic relation between human beings and nature, and particularly the capitalist production for exchange.¹³⁾

Secondly, productive justice, if properly understood, entails justice of all aspects of society, as Marx understands production as an organic totality of society. In the 'Introduction' to the *Grundrisse* where Marx lays out the relationship between production and distribution, production is seen not merely as a particular production at a definite stage of social development, but production in general as a rational abstraction which brings out and fixes the common element, "so that in their unity - which arises already from the identity of the subject, humanity, and of the object, nature - their essential difference is not forgotten" (Marx, 1973, 85). As Harvey (1982, 41) sums up, "the general conclusion of Marx reaches 'is not that production, distribution, exchange and consumption are identical, but they all form members of a totality, differences within a unity' and that the 'reciprocal effects' between these different 'moments' have to be understood in the context of capitalist society considered as an 'organic whole' ". Thus, in conceptualizing productive justice, production considered as an organic but differential totality of humanity and nature entails relations of production which inform the nature of social relations of the whole of society including relations of distribution and exchange.

Thirdly, productive justice can be seen as a concept which settles down the long-standing debate on capitalism's justice. As we have been above, few may deny that capitalist economy has generated social and environmental injustice, and that Marx's critique of capitalism might be conducted on the basis of his conception of justice.

But on the other hand, Marx explicitly states that exploitation of the worker (and environment) is not unjust, as he depicts the circumstance that surplus value is created, as “a piece of good luck for the buyer [of labour-power], but by no means an injustice towards the seller” (Marx, 1976, vol.1, 301). Nevertheless, I want to argue simply that justice in the realm of exchange should be distinguished from justice in that of production. Even though Marx appears to deny the injustice of surplus value extraction, this is only in the realm of exchange which has been promoted in terms of juridical or ideological concept of justice. Yet, Young (1981, 252) and other commentators have argued, this kind of justice cannot be sustained in the realm of production: “on Marx’s view, the worker is treated justly as seller in the exchange of labour power for wages, but is then robbed in the production process, during which the capitalist extracts surplus value from the worker”.

Fourth, the claim for productive justice, of course, should not be seen as denying a significance of distributive justice. Indeed, Marx in his “Critique of the Gotha Program” presents a sketch of his vision of the early phase of communist society, where “the same amount of labour which [the worker] has given to society in one form he receives back in another”. Such distributive arrangements are seen as a definite ‘advance’ over those prevailing in capitalist society. Marx continues that “here obviously the same principle prevails as that which regulates the exchange of commodities, as far as this is the exchange of equal values. ... Hence equal right here is still in principle - *bourgeois right*, although principle and practice are no longer at loggerheads ...” (Marx, 1994, 320-321). Although the labor principle of distributive justice or of equal right that Marx describes here is still in a form of bourgeois principle, it is no longer ideological. That is, it seems that in this statement Marx does not deny significance of distributive justice, but that distributive arrangement according to a labor

principle of justice is defective, because its application consequently leads to inequalities among different individuals either with different incomes in their physical and mental abilities, or with different needs in their social status of marriage, number of children, etc.

Finally, the concept of productive justice enables us to envisage a new society and a ‘genuine’ relation between humans and nature in which social and environmental justice is established. I shall discuss some preconditions which Marx suggests, but here I want to see how to interpret Marx’s slogan, “from each according to his abilities, to each according to his needs” (Marx, 1994, 321). This slogan, like the polemic issue of capitalism’s justice, has been subject to a controversial scrutiny, and hence seen as no principle of justice (Buchanan, 1979), a principle of distributive justice (Husami, 1978; Pepper, 1990, 333; Sul, 1990; White, 1996), or a principle of productive justice (Pruzan, 1989). Yet here I propose that this slogan should be seen as implying both distributive justice and productive justice. For a new society after capitalism seems to require still principles of justice both in realm of production and that of distribution, though these principles are presupposed each other, and hence mutually interconnected, as production and distribution are directly integrated into an organic whole.

5. Theory of social and environmental justice of socialism

1) Productive justice of socialist society

According to Marx, in an early phase of socialism, “the individual producer receive back from society - after the deductions have been made - exactly what he gives to it. ... The same amount of labour which he has given to society in one form he receives back in another”. But, as quoted above,

Marx immediately adds that such arrangements are 'perpetually burdened with bourgeois limitation,' that "equal right here is still - in principle - *bourgeois right*" (Marx, 1994b, 321). In a common interpretation of this argument (Peffer, 1990), Marx here suggests his conception of distributive justice, by explicating the bourgeois limitation of equal right. But in my view, Marx also thinks about productive justice deficient in this bourgeois right, as he argues few pages later that "the proletariat is revolutionary relative to the bourgeoisie because having itself grown up on the basis of large-scale industry, it strives to strip off from *production* the capitalist character that the bourgeoisie seeks to perpetuate" (Marx, 1994b, 323; emphasis added). In other words, it is production system which causes simultaneously the capitalist condition of the environment and the capitalist state of the economy (Commoner, 1992, viii) and hence which should be transformed towards a new system "as potential for an alternative productive rationality" (Leff, 1993, 46; 1995).

In Marx's view, this kind of deficiency of bourgeois justice can be fulfilled in a higher phase of socialism. That is, according to him, "from each according to his abilities, to each according to his needs" (Marx, 1994b, 321). As I have argued above, this phrase can be seen as Marx's concept of socialist justice both in the realm of production with labor principle and that of distribution with needs principle. This interpretation is based on Marx's arguments that "quite apart from the analysis so far given, it was in general a mistake to make a fuss about so-called distribution and put the principal stress on it. Any distribution whatever of the means of consumption is only a consequence of the distribution of the conditions of production themselves. The latter distribution, however, is a feature of the mode of production itself" (Marx, 1994b, 322). And Marx continues to criticize that "the vulgar socialists ... have taken over from the bourgeois economists the consideration and

treatment of *distribution* as independent of the mode of production and hence the presentation of socialism as turning principally on distribution". For him, to present socialism in such a sense is to regress the real relation which has long been made clear.

But Marx himself does not make explicit the ground on which one can understand what would be just production in relation between humans and nature. Thus we need to conceptualize productive justice, following Marx further along this line on the one hand, and imaging further circumstances of socialist society and environment on the basis of desiring negation of social and environmental injustice under capitalism. As I have discussed above, Marx's slogan, "from each according to his abilities, to each according to his needs," can be seen as designating both principle of distributive justice, and that of productive justice. There is no doubt that in a higher phase of socialist society which Marx envisages, distributive justice is fulfilled through satisfying different needs of individuals, as he implicitly espouses a principle of justice for governing the distribution of the consumable social products in a socialist society. But Marx does not specify a principle of justice for governing production in general, or under socialism. Thus I want to see what Marx might think about productive justice of socialist society and environment.

First of all, we need to interpret properly what Marx (1994b, 322) means with his explicit suggestion of some preconditions for achievement of socialist justice. That is,

Precondition 1: after the enslaving subordination of the individual to the division of labour, and thereby also the antithesis between mental and physical labour, has vanished;

Precondition 2: after labour has become not only a means of life but life's prime want;

Precondition 3: after the productive forces have also increased with the all-round development of

the individual, and all the springs of common wealth flow more abundantly

These preconditions Marx suggests for socialism and particularly socialist justice are one of very polemic issues in debates. Especially, from an ecological standpoint, precondition 3 is extremely controversial, and hence should be very carefully interpreted, as implied in my discussion at the next sub-section. Though these three preconditions should be seen in relation to each other, I understand preconditions 2 and 3 as Marx's application of labor principle and of needs principle under socialism respectively. That is, I want to argue here that these passages make feasible both the labor principle, according to which "labour has become not only a means of life but life's prime want" (precondition 2), and the needs principle, according to which basic needs and all-round self-development of individuals should be fulfilled with the increase of the productive forces and abundant common wealth (precondition 3). Then we first need to clarify precondition 1 which characterizes the socialist economy in terms of vanishing 'the enslaving subordination of the individual to the division of labour', and thereby 'the antithesis between mental and physical labour'.

According to Marx in *The German Ideology*, the division of labor which he identifies between town and country as well as between industry and agriculture tends to transform personal powers into material powers, and hence to diminish personal freedom. Thus he writes,

The transformation, through the division of labour, of personal powers (relationships) into material powers, ... can be only be abolished by the individuals again subjecting these material powers to themselves and abolishing the division of labour. This is not possible without the community. ... only in community [with others has each] individual the means of cultivating his gifts in all directions; only in

the community, therefore, is personal freedom possible (Marx and Engels, 1965, 83).

Seen from these passages, in his argument for 'enslaving subordination of the individual to the division of labor', Marx seems in general to think about 'the transformation of labor into self-activity', as he states later in the same work that "only at this stage does self-activity coincide with material life, which corresponds to the development of individuals into complete individuals and the casting-off of all natural limitations. ... The individuals ... are no longer subject to the division of labor" (Marx and Engels, 1964, 93). Marx here already prescribes preconditions of socialist community which are mutually interrelated. Realizing self-activity means that individuals are no longer 'subject to the division of labor', nor in the thrall of any 'natural limitation' (that which is not purposively planned and hence not controlled by individuals). These phrases can be seen not only as being manifest Marx's commitment to a standard of freedom as self-activity,¹⁴ as Peffer (1990, 59) understands, but also his conception of preconditions for socialist justice.

In a more specific sense, when he argues for vanishing 'the antithesis between mental and physical labour', Marx seems to problematize the extraction of relative surplus value in capitalist society, in which labor is really subjected to capital. According to Marx,¹⁵ the 'real subjection of labor to capital' arises when capitalists begin to reorganize the labor process itself in order to acquire relative surplus value. While capitalists mobilize the powers that arise out of the detailed division of labor, and profit from the increased productivity of labor that results, workers are increasingly subjected to the 'despotic' control of capitalists. Moreover the specialization of workers on specific tasks may allow them to be simplified, and hence to be performed by workers with little knowledge

or skills (Harvey, 1982, 107-108). This unjust circumstance results in the separation of mental from physical labor, and extended further by the employment of machinery and the advent of the factory system with more detailed division of labor. In this circumstance, while the mental labor tends to be converted into a power 'of capital over labor,' the majority of workers are reduced to mere de-skilled physical labor, and hence women and children can be brought into the work force more easily. The antithesis between mental and physical labor should be vanished in order that kind of circumstance in which labor power is devalued and depreciated and subjected to capital (and also its relation to nature is degraded) is overcome.

In addition to these preconditions for formation of socialism and particularly for socialist justice, it is also worth to clarify other qualities of socialist society and nature. Indeed, in the "Critique of the Gotha Program", just before prescribing justice of socialism in its early and its higher phase, Marx mentions about some conditions of socialism. From those passages, we can see at least three conditions for socialist (especially productive) justice: ① "common ownership of the means of production," ② no exchange of products, and ③ direct participation or incorporation of individual labor into the "total labor" (Marx, 1994b, 320). These conditions for socialism can be seen in comparison with, and hence for transformation of capitalist injustice.

First of all, in Marx's view, under capitalism, the ownership of the means of production by the bourgeoisie leads directly to the slavery of individual workers. Although "man from the outset behaves towards nature" and "the primary source of all instruments and objects of labour" is nature, the bourgeois ascribes 'supernatural creative power' to labor on the ground that "since precisely from the fact that labour is determined by nature, it follows that the man who possesses no other property than his labour power must, in all

conditions of society and culture, be the slave of other men who have made themselves the owners of the material conditions of labour" (Marx, 1994b, 316). Thus Marx envisages a socialist society in which all means of production are communally owned, and hence no one is capriciously subject to the dominance of others because no owners exist who could exploit non-owners.

Further, under capitalism most individuals indirectly obtain their means of subsistence through an act of exchange mediated by money. Yet in Marx's view, exchange in capitalist society which presupposes exchange value already implies compulsion over individuals, though it appears to be not unjust on the surface. Thus, Marx argues that the elimination of exchange value creates the possibility of having a society in which a community of genuinely free individuals can be established. "In exchange value, the social connection between person is transformed into a social relation between things: personal capacity into objective wealth. The less social power the medium of exchange possesses ... the greater must be the power of community which binds the individuals together" (Marx, 1973, 157). In this community, there is no system of exchange to serve as intermediary between a worker's labor and his or her means of subsistence to satisfy needs. That is, people appropriate the means of their subsistence through the direct consumption of the fruits of their labor.

And further, under capitalism the sole condition of a worker's existence over which he or she can exercise control is located in his or her ability to labor. However, a worker's control over labor-power becomes a reality only when capitalists choose to employ it, though in the result the worker once again comes to lose the control over his labor-power as soon as it is employed by capitalist. Unlike this kind of illusory control of labor and of coercive participation into the work, workers under socialism controls their labor power, and participates into production through an association

of free individuals. They are free in the sense that they create social conditions such that there are no obstacles present to deter them from participating in and benefiting from their labor. Individuals participate equally in the organization and planning of production (with the elimination of private property and abolition of exchange). The free, equal, democratic participation of all in production eliminates the possibility of manipulating production for private advantage, regardless of the natural inequalities of strength or intellect that may exist among individuals.

Now, Marxian conception of justice for socialist society and environment can be defined. Socialist justice is justified on the ground of labor principle, according to which "labour has become not only a means of life but life's prime want," and needs principle, according to which basic needs and all-round self-development of individuals should be fulfilled with the increase of the productive forces which also "makes the springs of common wealth flow more abundantly." Its more detailed substance can be defined as follows: by abolishing the division of labor, human individuals subject the material powers and their relation to nature to themselves; by vanishing the antithesis between mental and physical labor, labor power and its relation to nature is revalued and restored; through communal ownership of means of production, human individuals are free from the dominance of others; through direct appropriation - without exchange - of the means of subsistence, individuals' needs are satisfied directly by the fruits of their labor; and through free and equal participation into production, human individuals control their labor and create their labor' condition.

2) Relation between humans and nature in socialist society

As I have mentioned above, one of preconditions

for socialism (or, for social and environmental justice under socialism) which Marx suggests is "the productive forces [that] have increased with the all-round development of the individual, and all the springs of common wealth flow more abundantly" . This passage integrates two implications, one emphasizing 'the all-round development of the individual' and the other stressing 'all the springs of common wealth flow more abundantly' . For the first implication, in Marx's view, as long as human individuals are a natural being who experience material needs, they are compelled to produce the means of their subsistence. Yet humans become genuinely free only when they can go beyond such a mere production, and hence engage in activities for 'all-round [self-]development' of themselves. That is, in Marx's view, "The realm of freedom actually begins only where labour which is determined by necessity and mundane considerations ceases; thus in the very nature of things it lies beyond the sphere of actual material production" (Marx, 1967, vol.3, 820).

Marx, then, describes how the relation between humans and nature looks like in this situation (that is, in socialist society), as follows.

With this development this realm of physical necessity expands as a result of his wants; but, at the same time, the forces of production which satisfy these wants also increase. Freedom in this field can only consist in socialized man, the associated producers, rationally regulating their interchange with Nature bringing it under their common control, instead of being ruled by it as by the blind forces of Nature; and achieving this with the least expenditure of energy and under conditions most favorable to, and worth of, their human nature (Marx, 1967, vol.3, 820).

Marx here again juxtaposes two implications, one concerned with the increase of forces of production, and the other with freedom of socialized humans

who bring nature under their common control. That is, Marx here puts together two implications which appear contradictory with each other at a first glance, but as if there is no contradiction in such a juxtaposition.

Indeed, according to Marx's analysis of capitalism, the most potent ways of increasing productivity of labor are through division of labor into specialized tasks, and replacing labor by machines. The increases of productivity are also sought by increased scales of production, in 'vertically integrated' units (as we can see today in Fordism). But this kind of ways of increasing productivity or of increasing forces of production promotes the process of de-skill production, thereby not merely decreasing the value of labor power, but also subjugating labor under capital. Thus, as I discussed above, Marx claims for vanishing 'the enslaving subordination of the individual to the division of labour', and thereby 'the antithesis between mental and physical labour'. But even though the abolition of the division of labor may enable human individuals to subject the material powers and their relation to nature to themselves, it may reduce at the same time forces of production in socialist society.

Marx's conception of socialism can be seen as a project to overcome capitalism in which Marx discerns two kinds of tendencies contradicting each other: one is the "subjection of nature's forces to man", the expansion of man's productive forces to meet to his needs; the other tendency is the inertia and failure of the existing system of social relations with respect to controlling the new power and wealth in the interests of the vast majority. This seems to give a rationale for his project for socialism, but does not answer to the question, how can Marx's project for socialism with the increase of productive forces on the one hand, and with the common control of interchange with nature without the division of labor be realized in reality? Indeed, it is because of this question that Marx's

conception of ecology, especially in relation to his argument for the increasing forces of production in socialist society has been a target of concentrated fires by anti-Marxist environmentalists.

One possible way to overcome this problematic in Marx's conception is to focus on the role of technology under socialism. Although the development of technology seems to be leading us towards an ecological catastrophe, it is not technology as such, but precisely contemporary technology which takes place under the sign of domination or alienation (in Marx's sense) that requires such a critique. Thus, as Pepper (1993, 121-2) understands, Marx "envisages freeing productive forces by first turning against capitalism, and then developing them in ways that capitalism would not." This includes, for example, Mumford's (1934, 161-162) idea of "production under the 'real association' between people which modern machinery could make possible". Grundmann (1991a, 1991b) adopts this kind of interpretation: that is, through collective social control, unalienated technology allow people to 'step aside' from much production and become many-sided personalities rather than appendages to a machine.

But both Mumford and Grundmann are ambiguous about development of technology. Mumford predicts that increasing productive forces would create an eventual 'liberation from the machine,' as knowledge becomes more holistic. Development of technology however does not mean more knowledge, and more knowledge does mean neither more liberation from the machine, nor more control of nature: indeed more knowledge in the 'instrumental' form is a cause of environmental degradation. What Grundmann emphasizes with his metaphor of 'mastery of the violin' is indeed this kind of one-sided instrumental control of nature. This is why Grundmann is criticized by Benton (1992, 68), who wants "to sustain Marx's commitment to the idea of socialism as the embodiment of a qualitatively new,

aesthetically and spiritually more fulfilling relation to nature”.

Indeed, technology is a social product, but appears like an autonomous force, responding to the imperatives of the market in capitalist society. A change in technology, thus, cannot be separated from changes in the way that technology is conceived, developed, and organized, or in the social order within which it is embedded. In this sense, it can be said that for Marx the increase of productive forces in socialist society is not merely amount to an increase in quantity, but to a qualitative transformation of it. Any attempt to interpret (whether affirmatively or critically) Marx’s notion of the increase of productive forces in socialist society in a continuing expansion of those in capitalist society fails to see this qualitative transformation of the relation between humans and nature. Indeed, Schmidt (1971, 163) and Grundmann (1991b, 113) cite with approval, and Benton (1992, 67) and Smith (1996, 49) endorses, W. Benjamin’s statement of this view that “technology is not the mastery of nature but of the relation between nature and man.” It is also in this view, I think, that Winner (1986; cited in Pepper, 1993, 121) suggests, “we should try to imagine and build technical regimes compatible with freedom, social justice and other key political ends”.

Thus another possible way to overcome the problematic in Marx’s conception is to give more attention to the context and purpose of applying technology, rather than to focus directly on technology itself. What should be achieved in socialist society is the purposive and moral control of the human’s ‘interchange’ with nature rather than the instrumental control of nature itself. This means that increase of productive forces, development of technology, or control of nature is not an end, but means of human life in harmony with nature. Under socialism, of course, production in the relationship between nature and humans continue to satisfy fundamental human needs, but

would take a different form from that under capitalism. For Marx, the guiding principle of socialism is the establishment of an organization of production subject to common and rational control by all those who participate in production. Through a direct distribution of outcomes of communal production, human needs are satisfied without subjecting human individuals both to alien external nature and to exploitative social relations. Thus socialist society still requires both productive justice and distributive justice for controlling the relations between humans and nature and those between human individuals themselves.

Moreover, Marx’s argument for “rationally regulating [humans’] interchange with Nature” can be seen in his description of concrete grounds of which such interchange is made. That is, in his view, the rational regulation of humans’ interchange with nature can be achieved “with the least expenditure of energy and under conditions most favorable to, and worth of, their human nature.” Marx seems to add this phrase as a concrete substance which supports his normative argument. Thus, finally, we need to examine what Marx means “the least expenditure of energy and under conditions most favorable to, and worthy of, their human nature,” In doing so, we can see the nature of economic efficiency and social and environmental justice of socialism in comparison with those of capitalism.

First, we pose a question, in what sense does Marx see the possibility of establishing a relation between nature and humans in which the ‘expenditure of [both natural and human] energy’ can be held to a ‘least’ level? Under capitalism, For Marx, “the more a country proceeds from large-scale industry as the background of its development... the more rapid is this process of destruction, ... undermining the original sources of all wealth - the soil and the worker”, and “the increase in the productivity and the mobility of labour is purchased at the cost of laying waste and

debilitating labour-power itself" (Marx, 1976, vol.1, 638). It is the process of production of exchange-value, or of extraction of surplus value, that promotes the increase in productivity and mobility of labor with large-scale industry which has brought about rapid destruction of nature, large expenditure of energy, and more elimination of waste as well as debilitation of labor-power. Thus, for Marx, the possibility of achieving the minimum expenditure of energy is rooted in the notion that the labor of individuals is significant to communal production only insofar as it embodies a use-value for satisfying directly human needs, that is, insofar as communal production eliminates exchange value as a determinant of production.

Another question is; in what sense does Marx see the possibility of rational regulation of humans' interchange with nature "under conditions most favorable to, and worthy of, their human nature?" Capitalism requires capitalists to appropriate as much labor time from workers as possible in order that the former exploit the latter's labor-power and thus extract surplus value and hence maintain extended reproduction of capital. On the basis of capitalist production, labor-power is of no value to capitalists, if workers do not sacrifice their free time for 'unpaid' labor. To capitalists the exploitation of labor-power is synonymous with the employment of as much labor time as possible that workers can spare on a daily basis. Without the transformation of human labor-time into surplus value, the accumulation of capital cannot continue and hence capitalist society cannot maintain itself. Thus under capitalism, capital "usurps the time for growth, development and healthy maintenance of the [worker's] body, [and] steals the time required for the consumption of fresh air and sunlight." Thus, for Marx, it can be said that humans' interchange with nature in capitalist society is far from, or entirely opposite to, providing environmental conditions which are most favorable to, and worthy of, human nature.

In contrast, Marx argues that under socialism the labor-time which workers expend in production will be kept at a minimum level. The minimum level of labor-time is maintained through communal production which aims to meet the material needs for daily subsistence. Moreover, communal production, transcending the mere material requirements of basic needs for daily survival, provides individuals with free-time for self-development of both themselves and others. Thus for Marx, "The general reduction of the necessary labour of society to a minimum, which then corresponds to the artistic, scientific, etc., development of the individuals in the time set free" (Marx, 1973, 706). That is, "on the basis of communal production, the determination of time remains, of course, essential. The less time the society requires to produce wheat, cattle, etc., the more time it wins for other production, material or mental" (Marx, 1973, 172-173). Thus, Marx thinks that socialist society would realize a possibility of rationally regulating humans' interchange with nature under "conditions most favorable to, and worthy of, human nature," by minimizing labor-time for satisfying their basic needs, while providing them with most free time for their self-realization.

Thus in a certain sense, I think, economy of energy, both material and human, saving both natural resource and human labor-time under socialism, ultimately reduces the socialist economy itself, while expanding the possibility to satisfy human basic needs and the opportunity to realize human potential capacities. Thus the productive forces under socialism appear to be reduced in volume. But socialist economy is not measured in a way that capitalist economy is measured in terms of money or of capital accumulation. Of course, socialist society has to distribute its useful resource and social labor-time in a purposeful way, in order to achieve a production adequate to its overall needs. Thus the efficiency of resource and labor-

time on the basis of communal production, along with the just and equitable distribution of them, remains an economic and ecologic law of socialist society. But the rationally regulating interchange with nature, achieved with 'the least expenditure of energy' and resources and hence the least emission of pollutant materials, is not driven by mechanism of infinite accumulation of capital, but organized on the basis of equal participation in communal production and most satisfaction of their needs and self-development of their capacities through just distribution.

6. Conclusion

Since the early 1980s, especially in the United States, the environmental justice movement has challenged the existing state of political economy and culture, including dominant environmental discourses, and endeavored to produce new constructs of environmental theory and practice. But Marx's work has been hardly considered in this context (Harvey, 1996), even though it does not without doubt exhaust the ideal of environmental justice. In this paper, thus, I investigated Marx's conception of ecology and justice, focusing particularly on the grounds upon which Marx criticized social and environmental injustice of capitalism and upon which he provided a socialist project for social and environmental justice. In doing so, I tried to interpret Marx's conception of justice, by drawing out and applying three sets of analytical and epistemological concepts, that is, principle of needs and that of labor, critique of injustice and theory of justice, and productive justice and distributive justice.

These three sets of concepts, I think, are very important for formulating a foundation for critical theory of environmental justice. But they should not be overemphasized so as to be abstracted from substantive contents of Marx's conception of

justice. Indeed, for example, the capitalist mechanism of surplus value extraction should be seen as problematic *a priori* to judging it just or unjust. In this sense any moral theory, including that of environmental justice, has to be connected to, and based on, a substantive analysis of the context under which certain phenomena are to be evaluated as just or unjust. This is the very implication of Marx's argument that "right [and justice] can never be higher than the economic structure of society and its cultural development which this determines" (Marx, 1994, 321).

Notes

- 1) For some important contributors to and commentators on the debate, see Cohen, Nagel and Scanlon (1980), Lukes (1985, 48-59), Geras (1985; 1992), Peffer (1990, ch.8) etc.
- 2) Further, we must ask for the ground upon which Marx can argue for a revolutionary practice for transformation toward a just society and environment in which both nature and humans realize their own nature. In my view, while the first two grounds can be found in Marx's own work, the last ground seems to be hardly found in his own work, though I will not deal with this problematic in this paper. I think it is this ground that western Marxism, especially the Frankfurt School from Lukacs to Habermas and Honneth has attempted to find.
- 3) To develop these views, I am much indebted to Pruzan (1989) among others.
- 4) According to Marx in *1844 Manuscripts*, we should not see human nature in an abstract generality; neither in Hegelian sense, as a kind of what man might be if given an ideal situation in which to develop, nor in Fauerbach's materialist sense, as "an abstract species being lived in equally abstract natural surroundings" ('Introduction' to Marx, 1964, 18). Marx's rejection of the speculative, abstract concept of human nature is in fact a rejection of all those who would propose universal character of human nature (Geras, 1983).
- 5) This is not to say that the concept of human nature in Marx early work can exhaust Marxist ecology, but that this concept can be a starting point for it. Marx's analysis of capitalist society (including environmental problems) in his later work is as much important as his concepts in his

- early work, and should be seen in relation to the latter.
- 6) According to Ollman (1976, 74-78), for Marx, "need refers to the desire one feels for something, usually something which is not immediately available ... For Marx, man not only needs but he also feels them." On the other hand, "in a literal sense, the term 'power' as used by Marx, can be substituted for other ordinary equivalents like 'faculty', 'ability', and 'capacity' etc. But in that case one misses the real meaning of Marx's use of the term. Power also means the potentiality and the possibility of becoming more, in changed circumstances, from what it already is". Thus "as elements in Marx's conception of reality, powers are related to their own future forms as well as to other entities in the present".
 - 7) I never think that these two principles do exhaust our inquiry on the ground for Marxist theory of environmental justice. I think Marx's conception of justice lacks an other important principle, that is, what would be called 'discourse principle' for evaluating 'recognition justice', which Habermas (1991), Honneth (1995) among others wants to formulate, though I do not take into account this principle in any detail.
 - 8) I do not think that these problematics in Marx's conception of morality or of justice can be resolved from a 'realistic' perspective which can be drawn from Marx's work itself. See for this kind of attempt, Kane (1995).
 - 9) According to this report, she with other girls worked, on an average, 16½ hours without break, and often 30 hours during such a season as they had to "conjure up magnificent dresses for the noble ladies invited to the ball in honour of the newly imported Princess of Wales." Before she fell ill on Friday and died on Sunday, she "had worked uninterruptedly for 26½ hours, with sixty other girls, thirty in each room. The rooms provided only ⅓ of the necessary quantity of air, measured in cubic feet" (Marx, 1976, vol.1, 364).
 - 10) Marx also describes here housing rent problem of the worker: that is, the worker can continue to occupy his/her dwelling place only precariously, because it is "for him an alien habitation which can be withdrawn from him any day - a place from which, if he does not pay, he can be thrown out any day. ..." (Marx, 1964, 148-149).
 - 11) In this sense, Marx cited the ecological protest of Thomas Munzer against the private ownership of fishes, birds, and plants.
 - 12) Although I do not discuss here on the domination of nature thesis itself, it has a long history in the philosophical and ecological discourse (Leiss, 1972; Harvey, 1996).
 - 13) Production here includes not only the production of material things but also that of ideas or consciousness, as Smith quotes Marx's argument that "the production of ideas, of conceptions, of consciousness, is at first directly interwoven with the material activity and the material intercourse of men, the language of real life" (Marx and Engels, 1964, 47; cited in Smith, 1984, 36). According to Lefebvre (1991, 68-69), the concept of production has two senses: "In its broad sense, humans as social beings are said to produce their own life, their own consciousness, their own world. ... 'Nature' itself, as apprehended in social life by the sense organs, has been modified and therefore in a sense produced". But Marx and Engels narrow down this broad sense; "what they have in mind is things only: products. This narrowing of the concept brings it closer to its everyday, and hence banal, sense - the sense it has for the economists".
 - 14) According to Peffer's (1990, 58) interpretation, Marx here "utilizes the hybrid concept of 'self-activity' - hybrid because it combines the notion of free (i.e. self-determined) activity with that of creative (i.e. self-realizing) activity.
 - 15) Although 'formal subjection' is sufficient for the production of absolute surplus value and comes about as soon as workers are compelled to sell their labor power in order to live, workers in this circumstance retain substantial control over their traditional skills and over the methods employed, and hence separation of physical (simple) from mental (skilled) labor does not occur.

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