

Ecology as a New Paradigm and Environmental Justice

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생태학의 재인식과 환경정의

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Abstract : Even though the modern world becomes more affluent materially, unequal production and distribution of natural environment has been increased. Ecology as a new paradigm for the 21c needs a theory of environmental justice for a knowledge and practice with which the increasing environmental inequality would be resolved. Existing studies on environmental justice have focused mainly on application of various philosophical traditions of justice theory, especially liberalist, Marxist, and postmodern theory of justice, into the world of natural environment. Some theorists like Wenz, Harvey, and Low and Gleeson have considered such theories of (environmental) justice and tried to synthesize them, pointing out some difficulties in each tradition. They seem not to have developed a coherent theory of environmental justice, though their attempts help us to see characteristics of each theory. This paper suggests a conceptual distinction of justice into three categories, that is, distributive justice, productive justice, and recognition justice, which correspond respectively the relation between humans, the material relation between humans and nature, and their symbolic relation. And each category of justice can be considered respectively on the basis of principle of needs, of labor, and of communication, and may have some insights from Rawlsian theory, Marxist theory, and critical theory or postmodern theory of justice.

Key Words : Ecology, environmental ideology, environmental justice, productive justice, recognition justice

요약 : 오늘날 세계는 물질적으로 풍요롭게 되었지만, 생태위기의 발생과 더불어 환경문제를 둘러싼 불평등이 감소하기 보다는 오히려 증대하고 있다. 21세기를 위한 새로운 패러다임으로서 생태학은 이러한 불평등을 극복하기 위한 지식 및 실천으로서 '환경정의'의 개념 또는 이론을 필요로 한다. 진정한 환경정의론은 한편으로 생태학의 규범적 측면들을 발전시키면서 다른 한편으로 이의 이데올로기적 동원을 막을 수 있는 이론적 및 실천적 토대가 될 것으로 기대된다. 환경정의에 관한 개념적 연구는 주로 사회정의에 관한 철학적 전통, 특히 자유론, 공리주의, 계약론을 포괄하는 자유주의적 정의론, 맑스주의적 정의론 및 포스트모던 정의론 등에서 도출된 주요 개념들을 자연환경에 확대시키고자 한다. 환경정의에 관한 몇몇 학자들, 대표적으로 웬즈(Wenz), 하비(Harvey), 로와 그리슨(Low and Gleeson) 등은 다양한 전통들 위에서 제시된 (환경)정의론들을 면밀히 고찰하여, 이들 각각의 한계를 제시하거나 문제점들을 지적하고, 나아가 이들을 종합하고자 했다. 이들의 연구는 환경정의에 관한 다양한 이론들의 특성을 이해하는데 많은 도움을 주지만, 그 자체로 일관성 있는 이론으로 발전하지는 못했다. 이 글에서 제시되는 환경정의론은 인간들 간의 관계, 자연과 인간들 간의 물질적 관계, 그리고 상징적 관계 등에 상응하도록 정의를 3가지 차원, 즉 분배적 정의, 생산적 정의, 승인적 정의로 구분하고자 한다. 이들은 각각 필요의 원칙, 노동의 원칙, 그리고 의사소통의 원칙에 기초하며, 또한 각각 자유주의적, 특히 롤즈의 정의론, 맑스주의 정의론, 그리고 비판이론이나 포스트모던 정의론에서 많은 시사점들을 얻을 수 있다.

주요어 생태학, 환경이데올로기, 환경정의, 생산적 정의, 승인적 정의

1. Ecology, new paradigm or new ideology

It is well known that both geography and

ecology are concerned with the relation between humans and environment(or nature)¹⁾. Modern geography, founded by Ratzel and Vidal de la Blache at the end of the 19C, has tended to fall into

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a dualism between humans and environment, as implied in the controversial arguments for environmental determinism or possibilism. In contrast, ecology, launched by Haeckel at the same period, has tended to see the relation between humans and environment as an organic whole, as implied in the concept of ecosystem. Because of this kind of conceptual advantage, ecology appears more attractive than geography in attempt to deal with environmental problems and to develop a new paradigm for society and environment in the future².

There are of course some difficulties and limitations in the existing concept of ecology. In order to be such a new paradigm, ecology should be reconstructed in several aspects that

1. ecology should be free from its traditional debate between ecocentrism and anthropocentrism, and comprehend not only the relation between nature and humans, but also the relation between humans mediated by nature(or natural resources);
2. ecology should not regard nature as merely static, but explore and theorize dynamic mechanisms and principles inherent in the relations between humans and environment, and between humans;
3. ecology should not only extend its material flows of the ecosystem to human society, but also extend symbolic relationships between humans to the relation between humans and nature so as to see value embodied in the relation;
4. ecology should be concerned with practical knowledge and morality through which we can transform the existing relationship between natural environment and human society in crisis and open a new vision for future society and environment.

As ecology has to tackle those issues which seem to belong to the field of social science and humanity, there arise new problems. First, dealing

with human society on the extension of nature or as a subsystem of the whole ecosystem, one may face with an epistemological question, that is, how to connect the study of nature with that of human society. Although I will not consider this problem in any details, 'scientific realism' which has explored a possibility of naturalism, would be suggested for solving this problem. Moreover, it can be argued that a method which covers both natural and social science should not be oriented toward instrumental rationality. It is rather 'ecological rationality' which must be implied in such an alternative method, in order to recognize that the relation between nature and humans includes not only material(thus instrumental) flows but also immanent ethical values, and hence that this relation is not an one-way relation between the dominate and the dominated, but mutual relation that supports each other(Dryzek, 1987, 1990).

Furthermore, as ecology deals with normative problems of rationality, value and ethics, it may be used as a new kind of ideology for disciplining humans, while it still can be used as a new vision for liberation practice(cf. Peet and Watts, 1997). The use of ecology as an ideological device becomes possible in the 'risk society', in which the dark sides of progress increasingly come to dominate social discourse(Beck, 1995). In a circumstance of self-endangerment and the devastation of nature with uncertainty and instability of future, ecological knowledge might be mobilized to make people docile to domination. as implied in some ecological apologies such as the 'tragedy of the commons' and the 'principle of lifeboat', and further in the concept of ecological imperialism or fascism. Even though this kind of ideological uses of eco-knowledge is an extreme case, recent ecological discourse is partly characteristic of a disciplinary science that can be mobilized by dominant forms of geo-power or 'green governmentality' (Haila and Heininen, 1995; Luke, 1995).

Seen from the above considerations, we need to

replace instrumental rationality with ecological rationality on the one hand, and to prevent it from a possibility of ideological use on the other. That is, we need to see how postmodern critique of Enlightenment and Marxian notions of ideology open the way of more serious consideration of alternate forms of environmental practice and knowledge (Peets and Watts, 1996, p.261). Harvey (1996) wants to go further along this line. Posing a question, how environmental discourses in a society conditioned by postmodernity can get rid of its ideological character, he wishes to take the environmental justice movement beyond the phase of rhetorical flourishes into a world of strong coherent theory and practice. I think that the concept of environmental justice would provide a vital and comprehensive implication for ecology as a new paradigm, since this concept would be a (or, even the) criterion by which one can orient to and evaluate ecological rationality, and provide the means of which one can overcome the disciplinary character of ecology.

2. The emerging concept of environmental justice and its diversification

The concept of environmental justice has been advocated first by practical activists who have struggled for local movements of environmental and living community in the United States since the 1980s, and then supported by many academic studies as well as environmental policy of the government. The environmental justice movement has challenged the traditional environmentalism and mainstream environmental movements, and wanted to develop alternative forms of environmental knowledge and practice (Chiro, 1996). Environmental justice groups associate environmental problems with race, class and gender, and provide many important ideas for

environmental justice, such as rejection of the division of society and nature, significance of urban environment in which most people now live, integration of different kinds of social movements, and hence, most importantly, connect social justice with environmental justice (Harvey, 1996, ch.13).

Environmental justice is not only concerned with the relation between nature and humans, but also with that between humans. Thus, ideas of nature, for environmental justice groups, are tied closely to ideas of community, ethnic identity, and cultural survival, which include relationships to the land that express particular ways of life (Hampson and Reppy, 1996; Gottlieb, 1997). Environmental justice is served when people can not merely satisfy their basic needs but also realize their highest potential (Bryant, 1995, p.6). The environmental justice movement "twins ecological with social justice goals in quite unique ways", by pursuing a "coupling of the search for empowerment and personal self-respect on the one hand with environmentalist goals on the other" (Harvey, 1996, 386-7). The environmental justice movement has spread its influences throughout the United States with a wide network among small groups on the basis of local communities, especially upon environmental policies of Clinton government in the United States.

The environmental justice movement also has promoted both empirical and theoretical studies on environmental (in)justice. The boom of study on many issues of environmental justice since the early 1990s can be found in a series of books and journals with a special edition for it (Pepper, 1993; Cooper and Palmer, 1995, Bryant, 1995). Many empirical studies have revealed serious environmental injustice, pointing out uneven locations of pollutant plants or environmental facilities, inequalities in protection against environmental hazards, discriminatory impacts of toxics and dangerous contaminants, etc (Bullard, 1993, 1994; Hofrichter, 1993; Szasz, 1994). Some researchers have found

that the race is the most important factor of environmental injustice in the United States, and hence used the concept of 'environmental racism' (Bullard, 1993; Westra and Wenz, 1995), while others have argued that not only the race but also the class and the gender should be seen as causes of environmental injustice (Heiman, 1996), and hence there arise debates on environmental (in)justice even on the level of empirical study (Cutter, 1995).

Yet the major concern in this paper is conceptual or theoretical studies on environmental justice, especially some attempts to (re)formulate its theory in relation to a specific or mixed tradition(s) of philosophy and social thought on justice. Such traditions of philosophy and social thought include libertarian theory, utilitarian theory, contractarian, especially Rawlsian theory, Marxist theory, postmodern theory of justice, as summarized in the Table 1, while other many theories and concepts such as the Kantian theory of justice, the virtue theory, the concept of human rights and of animal rights and so on have been introduced and made the study on environmental justice affluent,

diverse, controversial and even contradictory (Wenz, 1988; de-Shalit, 1995). Each theory has its own principles which constitute and specify its contents, and which can be traced back to some classical thinkers, as shown in the Table 1.

The libertarian theory, the utilitarian theory, and the contractarian theory of environmental justice seem to be rooted in the same ground, that is, liberalism, in a way that they share some common points; that justice is understood in terms of responsibility for human relations; that social balance and harmony by justice are emphasized; and that the main concern in their arguments is distributive justice. These liberalist theories of environmental justice may deserve attention for a liberalist reform of society for environmental equality, resolution of environmental conflict, and distribution of equal or fair share of each person or group, but they can be criticized because of their ignorance of the essential causes which have brought about such environmental injustices in capitalist societies (Reppy and Hampson, 1995; De-Shalit, 1997).

Table 1. A variety of theory of environmental justice

Tradition		Principles	Important contents	Classical thinkers
Liberalist theory of environmental justice	Libertarian	freedom and compensation	All actions except those which make a serious influence upon life and property of others are allowed, but a proper compensation should be given, if these actions have made a damage to them	J Lock, R Nozick
	Utilitarian	maximum well-being with common goods	Certain actions or policies that maximize well-being of humans are promoted; but if benefits from environmental development make a larger damage on well-being given by environmental preservation, these can be regulated in terms of common goods.	Bentham, J.S.Mill
	Contractarian	maximum and fairness	The use of resources, income to pay for them, and self-respect for free from environmental damage should be distributed equally, except the case that unequal distribution can improve the situation of the least group of people	Rousseau, J.Rawls.
Marxist theory of environmental justice		need and labor	People have equal opportunities to participate in the relation between nature and humans mediated by common labor process, and take the common products for each need.	Marx.
Postmodern theory (including deep ecology) of environmental justice		difference and symbiosis	Symbiosis of humans with nature and difference between humans in their nature are the potential of development, and hence the otherness should be respected, and the ecological and cultural difference should be recognized.	Spinoza, Nietzsche, A.Naess

Other kinds of theory of environmental justice can be suggested from the perspective of Marxism or of postmodernism as alternatives to those liberalist theories. Those who are interested in the traditions of Marxism and/or postmodernism criticize commonly the concept or theory of (environmental) justice as an ideology which might be used by dominant forms of political and economic power to justify themselves, on the one hand. But, on the other hand, these traditions appear to give some important insights for conceptualization of environmental justice.

Theory of environmental justice in the tradition of Marxism may put an emphasis on the communal participation in the labor process which mediates nature and humans, as well as on the just distribution of produced resources for need satisfaction of people(Choi, 1997; also cf. Harvey, 1996). When one considers Marxist theory of (environmental) justice from the perspective of distributional justice, it seems to share a common part with liberalist theory of justice which invokes egalitarianism in its demands for a fair distribution of environmental advantages and burdens. But The former would focus upon the results of just distribution, while the latter as formal or procedural justice would stress a fair process of distribution. Yet, a major potential contribution of Marxism for theory of environmental justice seems to lie in what may be called as 'productive justice', rather than distributive justice, as we shall see later. The Marxist theory of environmental justice, of course, would not be free from a criticism, because of its overemphasis upon the material dimension in the relation between nature and humans, and of its presupposition of seemingly unrestricted development of productivity in human history.

The postmodern theory of environmental justice puts its emphasis upon symbiosis or self-realization in the relation between nature and humans, and ecological and cultural difference between places or between social groups(Cheney,

1989, 1990; Frodeman, 1992, Gandy, 1996). This theory, standing mainly on the broadly ecocentric position, can be traced back to the thought of Spinoza and/or Nietzsche, and can be found in several strands of environmentalism which have been called as radical ecology, that is, deep ecology, eco-feminism and other arguments of scholars who can be classified as postmodern philosophers such as Deleuze(Hayden, 1997). While pointing out that the predominant logic of contemporary culture reveals its lack of interests in others as themselves, they argue for the respect of the otherness in their place and culture, and for the recognition of the existence of ecological and cultural difference without any coercion to negotiation. These arguments lead them to 'bio-regionalism' (Cheney, 1990, p.6) The postmodern theory of environmental justice provides some important suggestions especially for conceptualizing the symbolic dimension of the relations between nature and humans, and between humans. But this theory seems to fall into an ecological mysticism due to its emphasis upon the immanent value of nature itself. It also, like those liberalist theories, tends to ignore the structural context of environmental injustice.

3. Some attempts to synthesize theories of environmental justice

All theoretical positions on environmental justice which we have considered in the above seem to be valid, while each can be subjected to philosophical critique. Thus after examining a number of possible theories of environmental justice, Wenz(1988, p.311) argues that "each theory failed when taken by itself". One may therefore admit a plurality of theories of environmental justice, using one theory in one kind of situation and a different theory in a different kind of situation. But, as Harvey(1996, pp.398-9) argues, when we abandon the search for a coherent theory

applicable to a diversity of environmental issues arising at different situations, we would be confronted with a question of “why one particular blend of principles rather than another”, and hence with a situation that “force decides” between equally plausible but competing blends of principles. When this sort of situation gets worse, “environmental justice ... can become a totalizing project unless we build in some explicit defence against this tendency” (Low and Gleeson, 1997, p.32). Some commentators who envisaged such a problem in a plurality of theories of environmental justice have attempted to resolve it in one way or another that those diverse theories would be synthesized.

Wenz(1988) is the first among philosophers and social theorists who have examined a series of possible theories of environmental justice and tried to synthesize them. He surveys, explains, and analyzes almost every conceivable theory of environmental justice, and then presents what he calls the “concentric circle theory”, a pluralistic version of environmental justice. The main elements of this theory are based on his idea of the closeness of relationships, the idea that moral obligations extend outward from the agent in varying circles of closeness. For example, obligations concerning both the satisfaction of preferences and positive rights are stronger depending on the closeness of the recipients;

nevertheless, even remote positive rights take precedence over the satisfaction of preferences, however close(cf. Table 2). Wenz’s theory has a great significance in a sense that it examined most possible moral positions on environmental issues (but except the Marxist theory and postmodern philosophy), and suggested his own alternative. But his pluralistic theory seems not to provide principles which are applicable to conflicting obligations between various kinds of natural entities (e.g. animals, species, the soil, and so forth). Moreover his theory is concerned with the relationships between humans, and humans and environmental constituents, only from the perspective of distributive justice.

Identifying some difficulties in Wenz’s pluralistic theory of environmental justice, Harvey(1996, p.397) compares environmental discourses and principles of social justice and suggests a set of pairings between them: ‘the standard view’ with utilitarian theory, ‘ecological modernization’ with contractarian theory, ‘wise use’ doctrine with libertarian view, and the environmental justice movement with egalitarian (or communitarian) principles of justice. Furthermore, according to Harvey, “each of these broadly anthropocentric theoretical positions has its biocentric analogue, as shown in the Table 3. Harvey’s study on environmental justice is suggested on the base of his more philosophical

Table 2. Wenz's concentric circle theory of environmental justice

Position within the concentric circle	inward ← → outward			
	Contents of obligation	Satisfaction of preferences	Positive rights	Negative rights
Subjects of obligation	between humans	between humans and (domestic) some animals	all subjects-of-a-life	non-sentient entities in nature
Applicable theories of justice	libertarian and efficiency theory	theory of human rights	theory of animal rights	(ecological evolutionism)
Strength of obligation	strong ← → weak			
Priority of obligation	posterior ← → prior			

Table 3. A comparison of environmental discourses and theories of social justice, and its biocentric analogue, suggested by Harvey.

Theories of social justice	Environmental discourses	Biocentric analogue (extension of the terrain of rights to all subjects-of-a-life)
Utilitarian theory	'Standard view'	Extension of rights to as many species as possible in terms of their ability to flourish and to multiply
Social contract theory	Ecological modernization	A strong appreciation for rights of the less well-off(endangered species) as well as a conservative approach to habitat transformation
Libertarian theory	'Wise use' doctrine	Strong doctrines of animal rights
(Radical) egalitarian theory	The environmental justice movement	Mutual recognition of all species and habitats

Table 4. Progressive and regressive tendencies of political philosophies with a relation to environmental justice

	Feminist and postmodernist theory	Market theory	Green (ecological) theory
progressive tendencies	Plurality, diversity and group solidarity	Respect for the individual, and freedom of exchange	Connectedness with nature
regressive tendencies	Fragmentation of opposition, and moral relativism	Anti-politicism, concealment of power structures	Dehumanization of nature

source: Law and Gleeson, 1997, p 39

and theoretical conceptions on justice, nature and geography of difference, which would have a wide influence upon the field of socio-ecological theory. But he has not yet formulated his own theory of environmental justice which might be developed through a synthesis of various classical thoughts on justice, or through a reconstruction of Marxist theory of justice and of ecology.

The study of Low and Gleeson(1997) is one of the most recent attempts to orient to a synthetic theory of environmental justice. They distinguish "just distributions of environmental values, that is, 'justice in the environment' from the just relationship between humanity and nature, that is, 'justice to the environment', and explore the connection between them, envisaging a recovery of the progressive elements in social and environmental discourse. Especially, they argue that "the discourse within the three philosophical traditions", that is, postmodernist(and feminist) theory, market theory, and green (ecological)

theory, "seeks to reconcile in different ways the political practices of emancipation and tolerance, the conditions of particularity and universality, and human exploitation of nature with the conservation of the planetary ecosystem. A theory of environmental justice must make a statement about the mode of reconciliation of these practices and conditions"(p.37).

According to them, even though each theory has both progressive and regressive tendencies, "a theory of environmental justice should be built around the progressive tendencies"(see Table 4). The study of Low and Gleeson seems to be of significance for understanding which elements of each tradition of political philosophy should be emphasized in order to develop the theory of environmental justice with the progressive tendency. But they could not be free from a plurality of philosophical traditions, and hence could not provide a coherent theory of environmental justice.

4. A synthesis of theories of environmental justice

Seen from the above considerations, there is not yet a synthetic theory of environmental justice which might integrate systematically existing traditions of philosophy and social theory. Some issues stand out in order to develop a proper theory of environmental justice, which include that theory of environmental justice should concern relations not only between natural environment and human society, but also between humans in society; that it should grasp both the material and the symbolic dimensions of relations between nature and humans as well as between humans; that it should explore general principles inherent in those relations, and evaluate whether the relations in the real world are just or not; and that it should prevent itself from a possibility of ideological use for existing social orders and prevalent relations of domination.

A prudent consideration on these issues would enable us to categorize the real world into three kinds of relations, that is, the relation between humans mediated by natural resources, the material relation between humans and nature mediated by labor, and the symbolic relations between humans and nature mediated by discourse(see Table 5). These three kinds of relations refer to three categories of environmental justice, that is, distributive justice, productive

justice, and recognition justice. Even though these three categories of (environmental) justice are related to each others, each category has its own principle inherent in each relation, which can be applied to evaluate whether the relation in real situation is just or not. These three categories of environmental justice have its ground not only on the three basic relations in the reality, but only on the three kinds of extension of justice in the spheres of society, that is, social, economic, cultural justice. Moreover, each category of environmental justice might not be consists of an entirely new principle and contents, but can draw out some essential parts of them from classical traditions of philosophy and social theory on justice.

Most scholars who are interested in environmental justice (from whether liberalist or Marxist perspective) consider it in terms of 'distributive justice' for just distribution of material resources. Rawls' theory of justice seems to be the most sophisticated one among theories of distributive justice, even though it has several problems³⁾. Distributive justice is of great importance for equal satisfaction of needs which are required necessarily for human life. Distributive justice thus refers to needs principle. The paradigm of distributive justice however tends to ignore the context of social structures and institutions in which useful resources are distributed, and does not deal with non-material relations between nature and humans as well as between humans(cf.

Table 5. Three categories and principles of environmental justice

Category of justice	Distributive justice	Productive justice	Recognition justice
Dimension of justice	Relations between humans, mediated by natural resources	Material relations between humans and nature, mediated by labor	Symbolic relations between humans and nature, mediated by discourse
Principle of justice	principle of need	principle of labor	principle of communication
Extension of social sphere (of justice)	extension of the sphere of society (social justice)	extension of the sphere of economy (economic justice)	extension of the sphere of culture (cultural justice)
Philosophical tradition	Liberalist (esp. Lawls') theory of justice	Marxist theory of justice	Critical theory or postmodern theory of justice

Young, 1990, ch.1; Fraser, 1995). Furthermore, it can be criticized in a sense that according to this paradigm nature would be regarded merely as resources which should be distributed in any way between people.

A proper theory of environmental justice should not remain in the category of distributive justice, but go further to comprehend the category of 'productive justice' which is concerned with the relation between nature and humans mediated by labor (Pruzan, 1989). Marxist ecology seems to provide a decisive insight for formulating this category of justice. According to Marx, people transform the external nature by labor, and at the same time transform their own internal nature. Production can be seen as labor process, or what Marx calls 'metabolism', which mediates, regulates, and controls relations between humans and nature. Though it is not easy to pin down what the 'just' relation between nature and humans implies, just production means one conducted by labor which is not forced by others, not alienated from nature, but mutually recognized and communally controlled, and hence which not merely satisfies human basic needs with its results, but also fulfills all-round self-development in its process. Productive justice thus refers to the principle of labor (Choi, 1997). But, here, the concept or theory of productive justice appears not to deal with ethical problems inherent in the relations between nature and humans, if labor is seen only in terms of production of useful materials.

The theory of environmental justice thus should contain the part of what has been called 'recognition justice', which is concerned not only with mutual respects between humans but also mutual recognition between nature and humans. Critical theory and/or postmodern concept of justice (including arguments of multi-culturalism) seem to be very significant for the concept of recognition justice. Even though the concept of recognition (justice) can be traced back to Marx's

early concept of labor "which is so normatively charged that he can construe the act of production itself as a process of intersubjective recognition" (Honneth, 1995, p.146), it can be found in both Habermas' theory of communicative action which presupposes intersubjective relations between humans, and postmodern theory of justice which emphasizes the otherness and recognition of difference (Young, 1990). This concept of recognition (justice) would be extended to the relation between nature and humans. 'Just' relation between nature and humans means that they are mediated materially by labor with double affirmation in a sense that it also mediates humans on the one hand, and that they are mediated symbolically by mutual recognition in a sense that all entities in nature presuppose affectionate care between each others and hence symbiosis. The mutual recognition between humans and nature requires not only communal controls of material production but also those of cultural production with restructuring of human consciousness.

5. Conclusions

As the world faces an ecological crisis, it increases rather than reduces inequality in the relations between nature and humans as well as between humans. Ecology now needs to redefine itself in order to tackle this problem of inequality, and hence to overcome the crisis. Especially, in doing so, ecology should deal with not only material relations between them, but also morality in general and environmental justice in particular inherent in the relations.

This paper tried to provide a theoretical foundation on which a theory of environmental justice would be developed with three categories of justice that correspond to three kinds of relations that we can identify in the real world and to three principles that we can draw from traditions of

philosophy and social theory on justice. It is necessary to note that the theory of environmental justice with these three categories of justice should not be used to justify, but only to criticize actual relations in the real world, and hence it would be called *the critical theory of environmental justice*.

Notes

- 1) This paper is an abridged English version of Choi(1999) in Korean, which was written as an introductory paper of my study on 'ecology and environmental justice'.
- 2) This simple comparison of geography with ecology is not to evaluate which kind of academic knowledge is superior to the other. but to search for a direction of geography in the future. For a recent reconsideration of ecology, see Merchant(1994) and Hayward(1994)
- 3) See for an attempt to conceptualize environmental justice in terms of the Rawlsian theory of justice and its critique, Singer(1988) and Theo(1995).

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