Social Constructivism and Environmental Problems
- Epistemological challenges

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During the past decade social constructivist approaches to the environment have gained increasing strength within geography and the social sciences. This has raised the ultimate question; is it possible to apply a social constructivist approach to environmental problems, and yet still underpin this with a biophysically accurate perspective of environmental processes? This article revolves around this question and tries to develop an epistemological framework for approaches that seek to blend research on the social construction of environmental change with attempts to understand the nature of 'real' environmental changes. With the political ecology approach as a point of departure the article examines various forms of social constructivism, from weak to strong ones. Further it is suggested that the two theoretical thrusts of critical realism and environmental pragmatism have something to offer in this respect, as both incorporate a certain aspect of social constructivism but reject strong forms of relativism.

Introduction

The aim of this paper is to address several philosophical issues vital in the understanding of the complicated relationship between development and environment in the Third World. It will especially address epistemological and ontological implications for one interdisciplinary approach called 'political ecology', which has proved to be very fruitful in approaching the complex relationship between environmental problems and Third World development.

The political ecology approach aims at linking environmental consideration into theories of regional growth and decline. The concerns of ecology are combined with a broadly defined political economy which encompasses the constantly shifting dialectic between society and land-based resources (Blaikie & Brookfield 1987). Greenberg and Park (1994: 1) state that the two theoretical thrusts that have had most influence on political ecology are;

> '... political economy, with its insistence on the need to link distribution of power with productive activity, and ecological analysis with its broader

visions of bio-environmental relationships.' (Greenberg and Park 1994: 1)

What is in focus is the context of local history and locally specific ecologies set in a regional, national and global framework. Political ecology draws on a number of established disciplines such as biology, ecology, botany, hydrology, meteorology and geomorphology on the natural science side and sociology, anthropology, human geography and economics on the social science side. The whole concept is based on the active engagement of natural and social sciences in understanding the production and reproduction of nature and society. Blaikie (1994) suggests that political ecology should be regarded as a creative idea which brings together both contradictory and complementary notions from its origin. It is not to be regarded as a ready-made, coherent approach or theory.

The point of departure for this paper is to explore epistemological and ontological implications of a political ecology approach. One of the major philosophical problems of political ecology is that it has to relate to the epistemologies of its parent disciplines. The natural and social sciences evolve from different academic traditions which need to be regarded and incorporated in an epistemological framework for political ecology. While the natural sciences tend towards objective, reductionist and universal truths about the environment-society relationship, the social sciences open for more descriptive, idiographic and social constructivist approaches.

One of the most interesting developments along with political ecology has been the exposure of the existence of 'environmental narratives', 'dominating discourses' or 'received wisdom'. These are ruling stories about the environment-society relationship that has become institutionalized as facts. In a number of books and publications (Blaikie & Brookfield 1987, Leach and Mearns 1996, Fairhead & Leach 1996, Bassett & Koli Bi 2000) it has been shown how established 'truths' about the relations between man and society have proved to be wrong, in the encounter with thoroughly executed place-based studies.

One example of such environmental narratives is the neo-Malthusian theory which links population growth and shifting cultivation to tropical deforestation. Western policy makers have employed this view as an explanation for deforestation problems throughout the world. The political ecology approach to tropical deforestation provides a counter discourse and positions people, places and practices in relation to broader processes of social and economic change. Jarosz (1996) shows that the dominating neo-Malthusian discourse about deforestation in Madagascar has proved to be wrong in the encounter with concrete case studies in specific localities. Another example is the way in which researchers found that hill farmers in Nepal triggered landslides themselves

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because it increased soil fertility. This was seen in opposition to the dominating discourse on the subject which regarded landslides as a result of the damaging impact of population growth and commercialization (Forsyth 1995).

According to Foucault it is through discourse we construct what we experience as reality, and when we learn to think about reality in a particular way we block our ability to think in other ways (Johnston 1986). Foucault's central question, with respect to any branch of knowledge, was; what gives the claims the authoritative status of truth? To answer this question Foucault looked at the broad cultural and historical contexts that produced the truths, and the practices that the truths make possible (Howarth 1995). Some scholars (Escobar 1996, Peet & Watts 1996, Jarozs 1996) claim that the mainstream definitions of environmental problems in the Third World are socially and politically constructed to the advantage of powerful people. This is an interpretation of the Foucauldian discourse theory which presents science and the institutions which generate it as a means to reproduce the positions of power. Jary & Jary (1995) agree with this interpretation and state that the particular scientific and specialist language must be seen as a major instrument of social power and not simply a way of describing the world.

Leach & Fairhead (1998) challenge the view that discourses always reproduce the positions in power from an empirical viewpoint. They point to three aspects which tend to be overlooked. First, they highlight the fact that bureaucracies are not monolithic; second, that subsuming bureaucratic practice into discourse absolves the actors involved of consciousness, intentionality and responsibility in their deployment of science; and third, by obscuring the everyday dilemmas and situations of interaction faced by scientists and administrators this view reduces the interactions of bureaucrats and local people to a confrontation of discourses.

In this paper a broad definition of discourse is adapted which generally refer to the dominating grand theories within a field, or what Foucault terms "modernist metanarratives" (Cloke et al 1991). There is however little doubt that these discourses involve an element of social power, and are not merely neutral ways of describing the world. A historical reconstruction of environmental policy might be able to indicate a Foucauldian 'archaeology of knowledge' which might show how and why the environmental orthodoxies were constructed. In practical political ecology research this means that the connections between environmental changes and the discourses which describes the environmental changes has to be investigated thoroughly. This is a complicated matter as the two are closely linked, and discourses affect the environment continuously through policy.

The development of political ecology and its exposure of modernist metanarratives have to be seen in relation to a generally growing post-modern deconstructionist belief that the environment is socially constructed. The

deconstructivist idea is often linked to the work of poststructuralists such as Jacques Derrida, which draws attention to the way western scholars have been dependent on metaphor and figurative rhetoric to construct origin or essence through binary conceptual systems(1). According to Derrida the project of deconstruction is to reveal the ambivalence of all texts, which can only be understood in relation to other texts, and not in relation to any normative truth (Jary & Jary 1995).

These views are important in the negotiation of an epistemological framework for the political ecology approach. By debunking modernist metanarratives we have a notion that some explanations are wrong and others might be right, or at least more right. This can lead to an ontological assumption that there is a real world out there, which varies with perception. This is an important debate concerning the employment of a social constructivist perspective which has to engage in a broader discussion about positivism, relativism and realism. This paper will evolve around these matters in trying to develop an epistemological framework that can encompass the fact that environmental problems are both socially constructed and 'real'.

Social constructivism and relativism

This part will elaborate further the implication of a social constructivist view of the environment. The main problem seems to be how to incorporate different perspectives about the environment without having to adopt strong forms of relativism, in which no statements about environmental change can be rejected.

Social constructivism has become a popular term to describe a variety of approaches to science, knowledge and nature. Over the past fifteen years an interdisciplinary field of critical theory has emerged which seeks to explain and illustrate the ways in which scientific knowledge is constructed and reconstructed within late modern societies (Hannigan 1997). One of the most prominent directions within this field is the so-called sociology of scientific knowledge (SSK). This direction includes not only sociologists but also historians, philosophers, anthropologists, literary critics and to a lesser extent human geographers. They have different approaches to science, knowledge and social construction, but they have in common that they pay close attention to the details of scientific practice.

Much of the earliest work in SSK is linked to the University of Edinburgh, and came to be known as the 'Edinburgh school'. Demeritt (1996) writes that the members of the Edinburgh school challenged conventional accounts of science and scientific objectivity on several aspects. They insisted that scientific knowledge is a local construction dependent upon local practices that cannot be generalized into laws and theories as the hypothetico-deductive method suggests. Further they insist that verification and falsification of scientific theories are social

processes in which social interests are intervened. These interests are often local interests of the practicing scientists. The main questions of the SSK movement seems to be 'what comes to count as scientific knowledge' and 'how does it come to count'. This way scientific knowledge is treated as socially constructed and thus amenable to sociological analysis. Hannigan (1997) notes that regarded this way social constructivism has other advantages than merely as a theoretical stance. It can also be useful as an analytical tool, by studying the claims themselves, the claim-makers and the claim-making process.

Demeritt (1998) lists up five distinct uses of the construction metaphor, each describing a different object of construction. I will briefly describe them here and point to one direction of special interest for the epistemological project of this paper. The five typologies of social constructionism vary from mild to strong forms of relativism. At the mild end of the relativist scale we have the common-sense realism with the epistemological clam that truth-value is determined by the correspondence between representation and reality. At the other end we have the strong relativistic stand of *neo-Kantian constructivism* which points out that truth is always what the powerful believe it to be. In this view the presumed relationship between representation and object is reversed and representation is seen as giving rise to the object. The actual nature of reality plays no role in determining our beliefs about it. Kant held that there is only one system of forms of judgement manifesting itself in the structure of empirical experience and only one *a priori* geometry and chronometry manifesting themselves in forms of institutions, space and time. For Kant this would not lead to relativism. The neo-Kantians, on the other hand, by stressing that there are many conceptual systems, each of which in application to an unordered experience serves to create a world, use Kant's insight to make room for a radical epistemological and ontological relativism (Harrè & Krausz 1996).

If we turn to *social object constructivism* it preserves the ontological distinction between a social reality of human making and an underlying reality not of human constructions. The 'reality' is constructed through:

> '.... the interplay of actors, institutions, habits and other social practices of subjective belief about reality that over time congeals for the man on the street into a taken for granted reality' (Demeritt 1998: 175).

Especially feminists have used *social object constructivism* actively as a way to distinguish the socially constructed gender from the biologically given sex. This view does not differ much in epistemology from *social institutional constructivism*, which puts in focus the development of the institutions of science, and how scientists establish their knowledge of an objective reality. Important aspects within this direction are tracing, often historically, the social pressures influencing the conduct and direction of scientific research. This resembles with

the work of SSK and the Edinburgh school as described above.

Artefactual constructivists on the other hand maintain that the objects of scientific knowledge are the outcome of carefully fabricated practice that constitutes a highly preconstructed artificial reality. In this view there are no preexisting objects waiting to be discovered and represented science. This view does not deny the ontological existence of real nature, only that its apparent reality is never pre-given, it depends upon the practices in which it becomes manifest.

Within this complicated and complex terrain I will pick up the thread of *social object constructivism* and look at its epistemological and ontological contributions and implications on the study of man-nature relations. This will be done both in relation to relativism, in this chapter, and to realism and pragmatism in the next chapter.

As touched upon earlier one of the central aspects in the debate over social constructivism concerns the relative or actual nature of environmental problems. Conventional environmentalists have warned that social constructivism runs the risk of denying the harmful existence of environmental problems. Social constructivists have been accused of justifying exploitation of natural resources and environmental degradation. Soulè and Lease (1995) in the multi-authored volume 'Reinventing Nature? Responses to Postmodern Deconstruction' state that certain forms of social constructivism can be just as harmful to nature as bulldozers and chain saws. In the same publication Paul Shepard writes:

The postmodern constructivist view is that all texts, reports, narratives are but descriptions –focused chatter about an unknowable external world, psychobabble, webs of words that serve as ammunition in struggles over who dominates whom. But Derrida, Lyotard and other deconstructionists have about them the smell of the coffeehouse, a world of ironic, patronizing remoteness in which the search for generality and truth would be an embarrassment (Shepard 1995: vii).

And more fuel is provided by Katherine Hayles:

The deconstructivist paradigm, if accepted broadly, would not only threaten the privileged role of science as a source of truth about reality. It would also destroy environmentalism, since the environment is just a 'social construction'. (Hayles 1995: viii)

The critique of the social constructivist argument took off after the publication of; 'Uncommon Ground -Towards Reinventing Nature', edited by William Cronon (1995). In this publication Cronon speaks of wilderness as an 'human creation', and he states that we celebrates wilderness as the measure to which we judge

civilisation. This way we reproduce the dualism that sets humanity and nature as opposite poles. But it is important to note that by referring to wilderness as an human creation Cronon does not mean the ontological properties of wilderness, which he thinks real enough, but the epistemological qualities as a powerful concept of nature in Euro-American culture. It is probably this distinction his most fierce critics miss.

This debate raises several epistemological questions about relativism, which are fundamental and need to be considered more thoroughly. To do this it is useful to go to the roots of relativism to see what it offers of epistemological fruitfulness in this context. Too seek the roots of relativism is difficult, and to define it in a philosophical manner likewice difficult. One philosophical tradition with epistemological implications on relativism is Idealism, which is a philosophy with a long history and a deep tradition. Its basic tenant is that all reality is in some way a mental construction so that the world does not exist outside its observation and representation by the individual (Johnston 1986). This implies that knowledge is entirely subjective and ordered by individuals according to their own theoretical systems. The early eighteenth century philosopher George Berkeley developed idealism from the basic suggestion that the reality of things lies in our perception of them. The idea of subjectivism is much older and can be traced all the way back to Protagoras and the homo mensura statement. This implies that what we know of things we know only through our senses and ideas, and what is true is what is true for me (Cloke et al 1991).

Relativism in the strong sense implies not only that knowledge is socially constructed by the individual as in idealism, but also that all knowledge bears the same resemblance to truth; truth itself is what individuals or culture make of it. Idealism has theoretical implications on relativism but relativism as a distinct epistemology has few proponents in its stronger forms. Indeed, Proctor writes that:

....there are scarcely any more card-carrying relativists to be found among constructivists than among anti-constructivists. Geographers sympathetic to the social-construction-of-nature-argument take great pains to distance themselves from relativism. (Proctor 1998: 358)

In the light of this Proctor points out that most definitions of relativism are framed by opponents to relativism and that one way to define relativism might be to consider its opposite. Relativism can be regarded as the opposite of absolutism, which includes notions of universalism, objectivism and foundationalism(2). Absolutism claims that truth is objectively real and exists for all persons. Thus, seen in opposition to absolutism, relativism is an extreme case where there can be no room for nuances. This is a stance most social constructivists will disagree with. Relativism has also been viewed as the opposite of realism, although this

must refer to naive forms of realism. As we shall see later in the paper, newer forms of realism do contain certain aspects of relativism.

Harrè & Krausz (1996) point out that relativism comes in two broad flavours –sceptical relativism and permissive relativism. Sceptical relativism, -involving the notion that no description is true, can further be termed 'malign relativism'. Permissive relativism on the other hand takes the opposite, but still relativistic stance, that all descriptions are true and can thus be described as 'benign relativism'. Both forms stand in opposition to absolutism. Weaker forms of relativism emerge when softening the demands for scientific and moral absolutism and instead settling for the establishment of justified belief and acknowledging that though there are many systems of belief, some are better supported that others.

Much of the debate about relativism before the social-constructivist and post-modern deconstruction debate entered the environmentalist scene during the past decade was taking place within the field of anthropology. In fact, much of the argumentation carried out earlier resembles the recent heated-up debate referred to as the 'Cronon-debate'. For instance, Clifford Geertz in his now famous 'Anti Anti Relativism' article writes that:

'The one (fear) I want to go after is cultural relativism. Not the thing itself, which I think merely there, like Transylvania, but the dread of it, which I think unfounded. It is unfounded because the moral and intellectual consequences that are commonly supposed to flow from relativism -subjectivism, nihilism, incoherence, Machiavellianism, ethical idiocy, aesthetic blindness, and so on, do not in fact do so and the promised rewards of escaping its clutches, mostly having to do with pasteurised knowledge, are illusory.' (Geertz 1984: 263)

The arguments of the anti-constructivist lobby mentioned above has much in common with the anti-relativist stances which Geertz in this article makes an effort to settle. The dread of relativism seems to be a dread of a form of relativism that few scholars employ.

To get a better hold of the subject it could be useful to distinguish mild forms of relativism from the extreme versions. These extreme versions imply radical relativism in which all truth and related claims are equally correct or nihilism where nothing is knowable (Proctor 1998). The neo-Kantian-constructivism (see Woolgar 1988) as described above comes close to adopting a relativist stance in the strong form by stating that the actual nature of reality plays no role in determining our beliefs about it, as it is granted by human beings in social negotiation. This way the presumed relationship between representation and object are reversed and representation is claimed to give rise to the object (Demeritt 1998). This view has much in common with the idealism of Berkeley as

described above.

These views are different from relativism in its milder and in my view more useful forms, which makes the claim that our criteria for judgement are always context bound. Relativism is then a domain of multiple but finite truths, bounded on one side by absolutism where truth is one, and on the other side by radical relativism, where either everything is true, or there is no meaning to truth (Proctor 1998). In this terrain we avoid the notion that anything goes, and multiple 'truths' does not mean that everything is true, rather that when some things are true other things are wrong.

Thus, in this respect it is important to note what Hannigan (1997) stresses, that environmental problems as socially constructed entities need not undercut legitimate claims about the conditions of the environment, thereby denying them an objective reality. It is necessary both to understand the processes of production and reproduction in the tangible physical environment, as well as the way this is perceived by people through their cultural lenses. In line with this Blaikie (1994) writes that there are aspects of the environment that are more socially constructed than others. This means that we can identify a continuum of natural phenomena and processes from the uncontested to the contested and socially constructed. As an example of the former Blaikie mentions lead emission from gasoline engines that have shown to have detrimental effects upon children's learning abilities through damage to the developing peripheral nervous system. As an example of the latter the notions of biodiversity and land degradation are described as being fraught with contested definitions and uncertainty. This means that there can be room for normal positivist science within some problem-solving areas, even at the interface with a critical social science.

The form of relativism employed in such thinking has much in common with *the social object constructivism* as described above. This direction preserves the ontological distinction between a social reality of human making and an underlying material reality not of human construction which provides the basis for distinguishing true and objective scientific knowledge from subjective and socially constructed belief (Demeritt 1998). This notion is well captured by Heidegger when he notes that: 'Nature is itself an entity which shows up within the world and which can be discovered in various ways and at various stages' (Heidegger 1962:92, quoted in Braun & Castree 1998). The philosophical implications of this form of social constructivism will be explored in the next chapter were the epistemological consequences of this belief will be followed.

Critical realism and environmental pragmatism
In relation to the problems discussed earlier it seems important to find some philosophical perspectives that are in broad agreement with social constructivism, but do not embrace strong forms of relativism. This will be done by regarding the

philosophical thrusts of realism and pragmatism.

The influence of the philosophy, theory and methodology of Realism grew strong in the social sciences and particularly in human geography in the late 1980s and 1990s. The seventeenth century philosopher John Locke had great influence on the development of realism. Locke differentiated between 'primary' qualities of things (e.g. figure) and 'secondary' quality (e.g. colour). For Locke the real world is composed of primary qualities existing independent of human perception of them. In addition to this there is an 'insubstantial' world which is composed of the secondary qualities delivered by our senses (Cloke et al 1991). This implies that there exists a real world of physical things that are independent of our perception of them. This is in contrast to the idealism of George Berkeley who suggests that the reality of things lies in our perception of them.

Realism is not one single body of thought, rather it is a constellation of philosophies with the ontological proposition in common that reality exists independent of our ideas about it, and the epistemological position that reality is, to some extent, knowable. The term "naive realism" (also termed "empiricist realism" or "direct realism") advocates the view that reality is knowable through direct experience (Johnston 1986). Truth in this case is a matter of correspondence to reality proven by empirical verification. The facts of observed phenomena and changes within them can be objectively established and questions of unseen entities are irrelevant. This form of realism has been criticised over the past few decades, especially because of its positivistic implications on social science. The contemporary version of realist philosophy is more epistemologically sophisticated than its naive predecessor. This form of realism has variously been termed "transcendental realism", "scientific realism" and "critical realism", and will be discussed a bit more thoroughly in the following.

The central idea behind critical realism is basically related to the work of the British philosopher Roy Bhaskar (1975, 1989). Bhaskar suggests that even though there exists a real world, some of the most significant components of this world are not immediately observable. There are experiences, systems, and structures that can not be known in a straightforward measurable manner. Even though these components are unobservable they are real in the sense that they constitute much of what occurs in the human world. In the light of this insight critical realism might be said to have incorporated some notions of idealism, by recognising that some things are real although they are only knowable through our concepts of them (Cloke et al 1991). This is a crucial step away from naive realism, and a notion that makes it interesting in relation to the social constructivist viewpoint this paper seeks to explore.

One of the great advantages of critical realism seen in this light is that it opens for a mild form of relativism by recognising the social construction of knowledge,

without leading into radical or nihilistic relativism. On an ontological level this implies a denial of the notion that events are merely contingently related, and it opens for the existence of structures, processes and mechanisms that can be revealed at different levels of reality. It implies that realism allows for the reformation of what is 'real' as different properties of a case come to light. At an epistemological level this implies that knowledge is not a finished product which is transformed from the outside of the person to be analysed and stored inside the person. Rather it is a continually reproduced outcome of human agency. It also implies that the concept of explanation involves the supposition of explanatory mechanisms and the related attempts to demonstrate their existence (Cloke et al 1991).

One of the best ways to understand critical realism is by regarding the critique of positivism that Bhaskar (1975) provided. He especially finds strong ontological limitations to positivism and its understanding of causality, which he claims oversimplify things. Bhaskar separates three domains of reality into a stratification model containing the real, the actual and the empirical (see fig. 1). The real is the generating mechanisms and causal structures that exist independently of our access to them, and are distinct from the patterns that they generate. The actual is the events which are observable phenomena, but which are not always experienced by people. The empirical is the experiences of the events, and how they are understood by the people that experience them. According to this the structures and mechanisms are real and distinct from the events they generate, the same way as the events are real and distinct form the experiences in which they are apprehended. This means that;

.... mechanisms, events and experiences thus constitute three overlapping domains of reality, viz. The domains of the real, the actual and the empirical. (Bhaskar 1975:56).

Causality is then a tendency grounded in the interactions between generative mechanisms in the domain of the real. These activities may or may not lead to events in the actual domain, which may or may not be observed in the empirical domain (Cloke et al 1991). According to Bhaskar positivism collapses the three domains of reality into one by constituting an ontology based on the category of experience only. This way he clearly marks the line between critical realism based on the three categories of reality and naive realism (as in positivism) based on experience only.

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Figure 1. The three domains of reality (Bhaskar 1975:56)

	Domains of actual	Domain of empirical	Domain of real
Mechanism	X		
Events	X	X	
Experiences	X	X	X

On a critical basis it can be argued that we can never know if this three-tiered version of how reality works is 'true', since the only access to 'reality' is through our apprehension of it. This way Bhaskars version of realism can be blamed for reproducing the arrogant claims to objective reality as intentionally was raised as a critique against positivism. However, this is a major issue in connection with naturalism and it will not be elaborated on in this part, but will be touched upon in the concluding chapter.

So, is critical realism the answer to our search for a perspective that is in broad understanding with social constructivism, but does not embrace strong forms of relativism? Proctor (1998) seems to support this view when he states that critical realism attempts to include the ontological assertions of empiricism along with the epistemological concerns of conventionalism. This implies that ideas are social concepts that have an ontological basis but are understood via socially organised frameworks. The crux of this argument is summed up in the following quotation:

'Knowledge to the critical realist is neither wholly objective nor subjective but is in fact the result of interaction between subject and object. For critical realists, the truth content of different ideas can be compared on a relative basis: some (social) explanations are more adequate representations of reality than others, though all are, by virtue of the dialectic (subject-object) nature of knowledge, always 'partial truths'. (Proctor 1998: 361)

By regarding knowledge as an interaction between object and subject critical realism embraces a mild form of relativism, but rejects radical and nihilistic forms. This acknowledges that direct access to a pre-ordered reality is impossible and that knowledge is always incomplete. Which again means that better explanations of reality always can be found and need to be developed. This view can also be traced in the work of the more relativistic oriented SSK movement where for instance Knorr-Cetina (quoted in Demeritt1996) insists that the practice of science involves the 'enculturation of natural objects'. This leaves open the sense that there is some realm of a natural world that escapes social construction even though it can never be known as it really is.

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If we go back to the beginning of the chapter where several variations of social constructivism were listed, critical realism seems epistemologically and ontologically to resemble the social object constructivism. This must specially bee seen in relation to the mild forms of relativism that are prevalent in both directions. Also that the social object constructivism notion of a social reality of human making and an underlying material reality not of human construction (Demeritt 1996), resembles the critical realist belief in the interrelationship between the knowing subject and the object of knowledge. This way critical realism can deal with environmental problems as both socially constructed and 'real'. But is critical realism the only philosophical stance that can incorporate these notions? The following will look closer at the philosophy of pragmatism, a direction that to some extent also has the potential of meeting the requirements of this paper.

Pragmatism

Pragmatism as a philosophy developed in North America around the turn of the century, and is a movement that aimed to ground philosophical activity in the practices of daily life. Cloke et al (1991) write that pragmatism sought to negotiate the seemingly irresolvable big questions of philosophy by examining the constitution and application of knowledge in everyday life. It was initiated by Charles Peirce and William James and later by John Dewey. Pragmatists believe that actions are structured by meanings, which means subjective interpretations of the world. What is special for pragmatism is that interpretations are evaluated in terms of their practical implications, which means that truth is defined as what is satisfactory to believe in the situation. According to Johnston (1986) the simplest definition of pragmatism is:

pragmatism...... defines meaning and knowledge in terms of their functions in experience, with reference to adjustments and the resolution of problematic situations (Beck 1959, quoted in Johnston 1986 p.59)

and;

...pragmatism is a doctrine holding that the meaning and truth of thought is determined (somehow) by criteria of practical usefulness (Thayer 1973, quoted in Johnston 1986 p. 59)

At an epistemological level knowledge should not be understood as offering some unobtainable accurate representation of reality, but as an ongoing conversation between all of us (Cloke et al 1991). Pragmatism thus becomes a theory of knowledge, experience and reality maintaining that thought and knowledge are biologically and socially evolved modes of adaptation to control over experience and reality (Johnston 1986).

In this light pragmatism has much in common with idealism as discussed above. A central question then seems to be to what extent pragmatism embraces relativism, and indeed, what it has to offer in the context of the problems this paper seeks to explore.

To answer the first question first, pragmatists are often accused of relativism, though most pragmatists reject this accusation (Proctor 1998). To take a pluralistic approach is not the same as taking a relativistic one, and even some pragmatists (e.g. Rorty 1991) argue that since pragmatism has no epistemology it can not take a relativistic one. Regarded this way pragmatism can be seen as nothing more than a methodology that could lead to the assumption that pragmatism embraces empirical relativism as a symptom of pluralism. But it could also imply that pragmatism tactically adopts frames of knowledge in a decidedly unrelativistic manner (Proctor 1998). Light and Katz (1996) argue that the pragmatist pluralism does not lead to relativism. They state that:

Now the question becomes whether a metatheoretical pluralism, or a theoretical pluralism, must necessarily feed some sort of postmodern relativism. The various accounts of environmental pragmatism presented in this volume argue that they do not: pluralism of either type is at least not incommensurable with a workable, robust and critical environmental philosophy....(Light and Katz 1996:4)

By looking further at the philosophy of pragmatism we find that truth claims are being made in a mode that rejects relativism. According to the pragmatism of Peirce truth is not synonymous with belief; the cause of beliefs is the 'real' which is unaffected by the way we think of it. To every question there is a true (real) answer and it is towards that answer human thought with its inaccuracies and limitations is moving (Johnston 1986). We have no access to the real except by means of conceptual interpretation, so pragmatically the real is what thought represents it to be. This means that although we seek the final truth we can never be sure that we find it. Regarded this way pragmatism has several things in common with critical realism, in the notion that there is a truth (objective reality) which differs with knowledge about it. Critical realism and pragmatism differ, however, in the notion that pragmatism holds as true whatever thought represents it to be, while critical realism regards truth to be the objective reality.

In relation to the problem this paper seeks to explore, pragmatism offers several interesting aspects. Pragmatists are not so concerned with epistemological statements and philosophical theorising, rather as the name implies, they seek the practical consequences of ideas and actions that are interesting in relation to environmental problems. For pragmatists the essence of knowledge is problem solving capability, and thought can be seen as a means for effective action. Theorising and theories have no value in themselves, but have value as tools for

solving problems. Thus, pragmatists can not tolerate theoretical delays that philosophy may make to solving environmental problems (Light and Katz 1996). This view is interesting in a practical account and raises the ultimate question of the usefulness of philosophical theories for solving environmental problems.

Pragmatism is to vaguely defined in order to offer some epistemological solution to the problem of this paper, but its practical implication on research can be fruitful. If we look at pragmatism as a doctrine holding that the meaning and truth of thought is determined by criteria of practical usefulness, this pluralistic view opens for some interesting aspects. As elaborated on in the beginning of this paper, a central theme in political ecology is to critically consider dominating discourses within the related fields of environment and development. This implies debunking theories that are not useful to describe the present situation of environmental change. In a pragmatist view knowledge is developed via practical trial and error, which is also a useful notion within political ecology. This resembles the thoroughly executed local research which political ecology embraces. The pragmatic use of social constructivism will then correspond to the notion that a theory or a concept is true to the extent that it is useful to describe the forces behind deforestation, for example, and therefore can be acted upon.

Another way to use pragmatism fruitfully within political ecology is when a distinction is made between metaphilosophical and philosophical pragmatism as Light (1996) does. Metaphilosophical pragmatism is a pluralistic perspective on philosophical and theoretical exchange. This means that metaphilosophical pragmatism is methodological pragmatism applied to philosophical debate. The pragmatic 'benefit' here is that it provides a tool for the exchange of ideas and the resolution of philosophical conflicts and controversies. Pragmatism used in a metaphilosophical manner develops a sense that pluralism is necessary for the exchange of ideas and the resolution of philosophical conflicts. Light states that:

Therefore, this form of environmental pragmatism provides just those principles of tolerance needed to avoid irreconcilable conflict among overlapping theories of valuation that may be needed, for example, to provide the pluralism Varner claims is necessary to get holism off the ground (Light 1996: 330)

This way of adapting pragmatism at a metatheoretical level could prove to be very useful in the negotiation over inclusion of various epistemologies and philosophical stances within the natural and social sciences that engage in the field of political ecology.

So is there such a great distinction between critical realism and pragmatism, in terms of their view of nature and its constructed and (or) real existence? In spite of their similarities critical realism has more confidence in the possibility of establishing truth, which can be seen as a heritage from its more naive past. But

truth for a critical realist involves attempts to explain reality in terms of its underlying structures, which are unobservable. For pragmatists on the other hand truth is more a matter of belief, although not entirely as noted above.

One of the major arguments against critical realism is that it is so general and vague that everyone can agree with it at some level. This is also a criticism pragmatism faces but for different reasons. While critical realism has a distinct epistemology and ontology that is defined but general, pragmatism suffers from not having defined its boundaries and being ambivalent about theory. By regarding theory as secondary to action, pragmatists runs the risk of oversimplifying the complex bounds between theory and practice. If there is insufficient formulation of what the problem is, then solutions can be based on wrong assumptions, and thus not do what they are intended to do. Pragmatism lacks the notion that theory is related to actual events that are necessary to inform our understanding of these events (Proctor 1998). This view is well developed in critical realism, although critical realism tend to be a bit too epistemologically confident seen in relation to the vagueness of its reality claims.

In this paper much effort is made to find a middle ground between empiricist objectivism and strong relativism. Based on the work of Proctor (1998) I suggests that both pragmatism and critical realism have something to offer in this respect. Pragmatism emphasises the truth finding process, and thus, relativism and other philosophical positions are not an interesting concern and are therefore beside the point. Critical realism avoids the problem of relativism in a different manner. By defining an epistemology and ontology in a non-atomistic and non-empiricist manner they clear the ground for reality claims that avoid strong relativism but adopt some degree of social constructivism. By avoiding the problem of relativism in different manners they come out with different insights into the process of research as well, regarding the world in different manners, and being interested in different orders of reality.

Towards a conclusion

The aim of this paper has been to discuss an epistemological and ontological framework for an approach that can deal with various perceptions of the environment within natural and social sciences. To do this I have struggled to find some middle ground between the acknowledgement of a socially constructed nature of knowledge and real environmental problems acting and affecting the natural environment. As pointed out, critical realism touches upon both epistemological and ontological solutions to this problem. A common description of critical realism is that it attempts to uncover (environmental) reality by identifying causal mechanism layer by layer, what Bhaskar call 'stratification and emergence'. If we are going to adapt this approach in an interdisciplinary way we have to look closer at the two 'worlds' of nature and society. The most important unanswered questions then seem to be: can the causal mechanisms in the social

world be uncovered in the same way as in the natural world? Do they embrace the same ontological and epistemological properties? Is it possible to use critical realism as a theoretical stance when approaching both natural science problems and social science problems, with the aim of combining insights from both disciplines into a synthesis of environmental problems?

Within the field of transcendental realism and later critical realism this matter has been debated with special reference to the problem of how to translate a realist philosophy to social science terms, the core question being that of naturalism(3). Bhaskar (1989) suggests that there are properties in society that are legitimate objects of knowledge from a realist perspective, and that there are social forms that are a fundamental or necessary condition for any intentional action. Social forms and natural laws exist before we have knowledge about them and thus have autonomy as objects of knowledge and investigation. Social forms have causal power and hence they are present in the domain of the real (See figure 1). But unlike natural laws, social forms can be influenced by the events and experiences of human agency. This leads to the recognition of a transformational model of reality, which sees society both as causal condition and as being continually reproduced and transformed by human agency (Cloke et al 1991). Bhaskar claims that both natural and social sciences can root themselves in similar foundational ontological and epistemological assumptions; assumptions about the basic properties of 'real things' and about how we can acquire knowledge about these 'real things'.

...I am going to argue for a qualified anti-positivist naturalism, based on an essentially realist view of science. Such naturalism holds that it is possible to give an account of science under which the proper or more or less specific methods of both the natural and social sciences can fall. But it does not deny that there are significant differences in these methods, grounded in real differences in their subject matters and in the relationship in which their sciences stand to them (Bhaskar 1989: 2,3).

In the second edition of *'The possibility of naturalism'* (1989), Bhaskar shows that there are ontological and epistemological considerations that place limits on the possibility of naturalism, but that these considerations merely carry methodological impact. He further states that it is not in spite of these differences, but rather in virtue of them that social science is possible. Bhaskar claims that it is the nature of the objects that determines the form of its possible science, and to investigate the limits of naturalism is to investigate conditions which makes social science possible (Bhaskar 1989: 3).

Based on this a realist approach might suggest the ability to get closer to what actually constitutes the ecological reality made up by both nature and society by constantly seeking insight into what may lay beyond our own knowledge

construction. By stating that there are similar ontological and epistemological properties of 'real things' both in nature and society we can combine insight from various disciplines in producing a synthesis of the environmental condition. This can imply using merely positivistic scientific methods when seeking biophysical states within the tangible natural environment and using social science methods when seeking the social forms impinging on the environment. It can also be combined with critical and hermeneutic methods when approaching the human constructions of the environmental problems, with a well-defined epistemology and ontology at base. By referring to Bhaskars three domains of reality (Fig.1), and distinguishing between the domain of the real, the actual and the empirical, it is possible to identify a continuum of phenomena, some being more constructed than others. Mechanisms, events and experiences constitutes the overlapping domains of reality. Thus, mechanisms being unobservable and only made known through the events and experiences they generate, are most likely to belong to the more constructed side, and events and experiences to the less.

According to Cloke et al (1991) we have a multi-step realist strategy that implies that attention in the first place is directed to an object of knowledge that will already be defined and described in the language of the day-to-day world. This notion agrees very well with the thread of *social object constructivism* which has been followed earlier in the text. Further, they state that this object of knowledge is 'unpacked' or subject to redefinition and that the methods of knowledge will depend on how it is conceptualised, meaning that explanations are contextually specific. This ties in with the constructivist argument of dominating discourses and opens for a critical investigation of conceptualisations. The last point they make is that the effectiveness of theory-choice will depend on how well the phenomenon is explained by the selected theory, and whether any equally good alternatives are available with which to explain the phenomenon. This clearly supports the assumption earlier in this paper that a combination of critical realism and environmental pragmatism need not be such a bad idea. Especially this points in the direction of metaphilosophical pragmatism which opens for the combination of overlapping theoretical thrusts in the construction of truth resembling reality.

Pragmatism also promotes a solution to another highly relevant problem within social constructivism. Having used a social constructivist framework to deconstruct dominating discourses, social constructivism gives little guidance on how to approach the real problems of the environment. What discourses should be supported, and on what basis should we make decisions and take action? If we take in our critical realist and social object constructivism view that there exists a real world which pre-dates our experience of it, reality is given to us through different modes of engagement with it. In our practical involvement with the world we come to know reality through our experiences of the limitations of what we are able to do. In practice reality 'hits you in the face' (Burr 1998). This points

toward engaging in practice which constantly reveals the nature of reality, although this is not always interpreted correctly. The pragmatist view of defining knowledge in terms of its function in experience could be a way forward within this terrain.

In response to the dilemmas raised above a growing number of researchers are developing approaches to environment and development which blend research on the construction of biophysical explanations of environmental change with attempts to understand the nature of environmental change in a realist/positivist sense. By linking the creative idea of political ecology with a critical realist epistemology and ontology, new insight in both physical environmental changes and various perceptions and constructions of these changes can be investigated and explained in a philosophically non-contradictory manner.

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Notes

1.   Examples of these are nature/culture, masculine/feminine and rationalism/irrationalism

2.   According to Harrè and Krausz (1996: 4,5) ontological variants of these three directions are: *universalism* -there are entities which exists for all persons; *objectivism* -there are entities which exists independently of the point of view, corpus of beliefs or conceptual scheme held to or employed by any particular person or society; *foundationalism* -there is a common ontology or set of basic existents, incapable of further analysis, out of which all other existents are constructed

3.   Naturalism is defined by Bhaskar (1989:2) as: 'the thesis that there is (or can be) an essential unity of method between the natural and the social sciences. It must be immediately distinguished from two species of it: reductionism, which asserts that there is an actual identity in subject matter as well; and scientism, which denies that there are any significant differences in the methods appropriate to studying social and natural objects, whether or not they are actually (as in reductionism) identified.'

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