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Ecological Modernisation Theory in Debate: A Review

ARTHUR P.J. MOL and GERT SPAARGAREN

Ecological Modernisation Theory has been faced with various challenges from different theoretical perspectives throughout the years. This contribution reviews the various debates ecological modernisation ideas have been engaged in. The article starts with a historical perspective on some of the earlier debates that paralleled Ecological Modernisation from its birth in the early 1980s to its maturation. These initial debates with earlier neo-Marxists and deindustrialisation/counterproductivity theorists were formative for Ecological Modernisation Theory, but are no longer all of similar relevance today. Subsequently we concentrate on more contemporary discussions, which only to some extent reflect similar topics. We will respectively enter into discussions with constructivists and post-modernists on the material foundation of social theory, review and refine the controversies with eco-centrists on radical versus reformist environmental reforms and contribute to neo-Marxist understanding of social inequalities in environmental problems and reform.

I. Introduction

On several earlier occasions we [*Mol, 1995; Spaargaren, 1997*] – as well as numerous others – have noticed that environmental sociology in particular, and the environmental social sciences more generally, have matured as full-fledged subdisciplines in the last decade. One of the social theories that both profited from and contributed to the maturation of the environmental social sciences is the Ecological Modernisation Theory. Originating from the early 1980s, the Ecological Modernisation Theory has become in a remarkably short time a well-established set of ideas, founded in general social theory and supported by a growing number of case studies.

It should not surprise us that as a new theory, and in becoming one of the more prominent theories within environmental sociology,[1] ecological

This contribution profited much from the comments of David Sonnenfeld, an anonymous referee and the discussions in the Research Committee 'Environment and Society' of the International Sociological Association's World Congress in 1998.

modernisation theory has generated questions and criticisms, from outside and within. If there is anything proponents and opponents of Ecological Modernisation Theory can agree upon, it will be that this theory provides a useful vehicle for organising some of the most pressing contemporary theoretical debates in the environmental social sciences, in a similar way neo-Marxist environmental sociology did in the 1970s and 1980s.

In this review we will contribute to the further maturation of environmental sociology – and the other social sciences – after the turn of the millennium by reviewing the recent debates in which Ecological Modernisation Theory is engaged. Our aim in dealing with some of the more prominent contemporary debates in environmental sociology is (i) to respond more explicitly to the various positions in these debates in environmental sociology, (ii) to clarify further the position of various ecological modernisation theorists in these debates, and (iii) to improve our understanding of the issues at stake.

In reviewing the debates Ecological Modernisation Theory has been engaged in, we will start in section II with a historical perspective on some of the earlier debates that paralleled Ecological Modernisation from its day of birth in the early 1980s to its maturation. These initial debates were formative for the Ecological Modernisation Theory, but are no longer all of similar relevance today. In three subsequent sections we will concentrate on more contemporary discussions, which only to some extent reflect similar topics. We will respectively enter into discussions with constructivists and post-modernists on the material foundation of social theory (section III), review and refine the controversies with eco-centrists on radical versus reformist environmental reforms (section IV) and contribute to neo-Marxist understanding of social inequalities in environmental problems and reform (section V).

II. Ecological Modernisation's Early Debates

If we want to understand the first debates to which Ecological Modernisation Theory has contributed significantly or in which Ecological Modernisation Theory was a central object, we have to be aware of two interrelated circumstances that prevailed during those debates. First, these initial debates of the (early) 1980s took place against the background of both the state-of-the-art of the environmental debate in the late 1970s and early 1980s and the main or dominant currents in environmental sociology at that time. Second, criticism of Ecological Modernisation Theory was focused on the specific contents and outline of the first phase of Ecological Modernisation Theory (Mol and Sonnenfeld, this volume). And this specific outline sh[illegible] to so[illegible]tent [illegible]ders [illegible] as a [illegible]reac [illegible]irec

the dominant schools of thought in environmental sociology and the environmental debate in the late 1970s and early 1980s.

Not surprisingly, the major controversial topics in which the Ecological Modernisation Theory was engaged at that time were put forward by the two dominant schools of thought of the 1970s: the counter-productivity or deindustrialisation theorists and the neo-Marxists. In this section we want to argue that on the one hand some of the original issues raised by these scholars can no longer be interpreted as adequate criticism of Ecological Modernisation Theory, although these issues still return frequently. On the other hand, however, we observe that other topics raised during these initial debates return in the 1990s, albeit in different forms and using different conceptualisations, showing both continuity as well as progress in the debates in environmental sociology.

Deindustrialisation and Technological Fix

Ecological Modernisation Theory can only be understood by taking into account the debate from which it originates. Debates which were dominated by a theory that can be labelled as demodernisation, deindustrialisation or counter-productivity [*Spaargaren and Mol, 1992; Mol, 1995*]. This latter perspective had a strong position among Western European environmental movements and social scientists in the 1970s. Ecological modernisation challenged the core ideas of the demodernisation perspective.

It was especially during the first phase of Ecological Modernisation Theory in the 1980s that debates concentrated between these two perspectives [cf. *Huber, 1991; Mol and Spaargaren, 1993*]. Ecological Modernisation Theory challenged the environmental movement's traditional idea that a fundamental reorganisation of the core institutions of modern society (the industrialised production system, the capitalist organisation of the economy and the centralised state) was essential in entering a path of long term sustainable development. Building upon more widespread criticism of the modernisation project, counterproductivity theorists such as Otto Ulrich, Rudolf Bahro, Barry Commoner and Hans Achterhuis claimed that it was also environmental and ecological deterioration that could be held as proof of the modernisation project being a dead end.

The adherents of Ecological Modernisation Theory acknowledged the need for some fundamental transformations within the modernisation project to restore some of its structural design faults that had caused severe environmental destruction, but claimed that these transformations do not imply that one has to do away with those institutions of modern society that are involved in the modern organisation of production and consumption. In hat [illegible] Ecol[illegible]l M[illegible]satic[illegible]ory [illegible]e see[illegible] line [illegible] nore

general modernisation theories that were so vehemently criticised by demodernisation theorists, although ecological modernisation theorists managed – especially in their later contributions – to incorporate some of the fierce criticism that challenged Parsonian functionalism and related perspectives [cf. *Von Prittwitz, 1993b; Spaargaren, 1997*].[2]

The central debates on technology are closely related to the controversies between deindustrialisation/demodernisation perspectives and Ecological Modernisation Theory, although neo-Marxists have also contributed to that. Perhaps the most often quoted critique against Ecological Modernisation Theory from its days of origin is related to its technological optimism and its supposed technocratic character. In his analysis of recent contributions to environmental sociology Hannigan [*1995: 184*] claims Ecological Modernisation Theory is 'hobbled by an unflappable sense of technological optimism', a conclusion quite similar to that of the Dutch environmental sociologist Egbert Tellegen [*1991*] and the German sociologist Peter Wehling [*1992*]. Redclift [*1999*] contrasts in a more or less similar way ecological modernisation (as a techno-economic management strategy) with more profound, fundamental and deep cultural transformations.

Maarten Hajer [*1995*] has in some ways incorporated the debate on technocracy within the ecological modernisation project by designing two variants of ecological modernisation: a techno-corporatist ecological modernisation and reflexive ecological modernisation. While in the former ecological reform is purely a techno-administrative affair, the latter points at practices of social learning, cultural politics and new institutional arrangements. A similar attempt is made by Christoff [*1996*], identifying weak (that is, economic-technological) and strong (institutional-democratic) ecological modernisation.

Hajer, Christoff, and others such as Dryzek [*1997*] and Neale [*1997*], in fact closely resemble the distinction made in the early days of Ecological Modernisation Theory by Joseph Huber [1985] between a more technocratic and a more sociocratic development path, albeit that Huber himself was not very consistent in his plea for a more sociocratic version of ecological modernisation [cf. *Spaargaren and Mol, 1992*]. His Schumpeterian model of technology-induced social change gave room for such technology-optimism critique as for instance Peter Wehling [*1992*] has extensively argued for.

More recently, Ecological Modernisation Theory adherents have made numerous efforts to (i) adapt this Schumpeterian model and Huber's original technological optimism, and (ii) show the selective reading of the technocracy criticism regarding later contributions to Ecological Modernisation Theory. In the processes of institutional reform technological

transformations have their place, although they are not as central as its critics wants us to believe, and certainly not in the sense that technological change forms the motor of, and determines, these reforms. In addition, the conceptualisation of technology and technological change has widened considerably, from the original add-on technologies that were so severely criticised in the 1970s to 'structural change of socio-technological systems' [cf. *Mol et al., 1991; Jänicke et al., 1992; Neale, 1997; Jokinen and Koskinen, 1998*], making claims about its technocratic character less adequate.

We think that regarding both interrelated topics, debates have changed considerably in character. On the one hand they have moved more to the periphery of the environmental debate, while by the same token they strongly reappear in distinct form using different concepts. The deindustrialisation perspective as an overall theory and alternative has lost most of its attraction in the contemporary environmental debate. Especially since the Brundtland Report that started the third wave of environmental concern, demodernisation perspectives do no longer succeed in challenging the core features of Ecological Modernisation Theory. At the same time, some of the most severe technology criticism of the 1980s has resulted in major changes and refinements of the Ecological Modernisation Theory, making the repetition of similar challenges in the mid-1990s inadequate.

Nevertheless, the continuation of discussions on these kinds of topics can be illustrated by analysing the environmental connotations of the notion of reflexive modernisation. Following the debates on the character of contemporary societies, Ecological Modernisation Theory has more recently been positioned *vis-à-vis* reflexive modernisation ideas, especially in its confrontation with Risk Society Theory [*Mol and Spaargaren, 1993; Von Prittwitz, 1993b; Mol, 1996; Cohen, 1997; Blowers, 1997; Buttel, 2000*].

Initially, the counterposition of Ecological Modernisation Theory in its first phase – as developed by especially Huber and Jänicke – versus Risk Society Theory was emphasised [cf. *Mol and Spaargaren, 1993*]. In fundamentally criticising science and technology, the earlier contributions to Risk Society Theory paralleled deindustrialisation/demodernisation perspectives to a major extent. As Risk Society Theory – via the writings of Ulrich Beck [*1986* and later] – was originally closely associated with Reflexive Modernisation ideas,[3] it should not surprise us that Ecological Modernisation Theory was initially interpreted as being in contradiction with Reflexive Modernisation and as a proponent of the phase of high or simple modernisation that preceded the era of late or reflexive modernisation [cf. *Wehling, 1992*].

More recently, the similarities between Reflexive Modernisation as the umbrella theory, and Ecological Modernisation and Risk Society Theory as

its substantial parts, have been highlighted [cf. *Mol, 1996; Hogenboom et al., 1999; Cohen, 1997; Hajer, 1995*]. These similarities refer, among others, to the transformation of the old political institutions of the nation-state in environmental reforms and the emergence of new sub- and supra-national political arrangements, the new role of markets and economic actors in triggering environmental protection, and the increasing uncertainty and insecurity around environmental risks and management strategies following the changing role of science.

Still, some clear distinctions remain between the latter two as commentators outside both schools of thought have recently pointed out [cf. *Hannigan, 1995; Blowers, 1997; Buttel, 2000*].

The Sustainability of Capitalism

The possibilities, actuality and desirability of a green capitalism, put first and rather provocatively on the agenda of Ecological Modernisation Theory by Joseph Huber, have resulted in an equally extensive debate. Scholars as diverse as Allan Schnaiberg [*1980*], David Goldblatt [*1996*] and James O'Connor [*1996*] have all, using different concepts, attacked the possibilities of an ecological sound Capitalism. James O'Connor's second contradiction of capitalism, Schnaiberg's treadmill of capitalist production and Goldblatt's criticisms of Giddens' limitation to the industrial dimension of modernity in understanding the environmental crisis, are used to point out the important role capitalism plays in environmental deterioration. Neglecting capitalism and failing to attack the fundaments of the capitalist world order will result in superficial and cosmetic environmental reforms that are unable to resolve the ecological crisis in any fundamental way. Moreover, such measures will rather strengthen the capitalist mode of production as it makes capitalism less in need of a green critique [cf. *Dryzek, 1995*] and it promotes and facilitates the continuation of established socio-economic practices that are to the benefit of those in power [*Blühdorn, 2000*].

Ecological Modernisation Theory deviates from this view, even though its position towards capitalism has changed throughout the various phases of its history (see Mol and Sonnenfeld, this volume). While initially the contribution of capitalism to the 'expansion of the limits'[4] was celebrated by Ecological Modernisation Theory, more recently a nuanced position regarding capitalism is presented. It is not that capitalism is considered to be essential for environmentally sound production and consumption (as neo-liberal scholars want us to believe), nor that capitalism is believed to play no role in environmental deterioration. But rather that (i) capitalism is changing constantly and one of the main triggers is related to environmental concerns, (ii) environmental' [illegible] und [illegible] uctio [illegible] d c[illegible] ptio [illegible]

possible under different 'relations of production' and each mode of production requires its own environmental reform programme, and (iii) all major, fundamental alternatives to the present economic order have proved unfeasible according to various (economic, environmental and social) criteria.[5]

Consequently, mainstream ecological modernisation theorists interpret capitalism neither as an essential precondition for, nor as the key obstruction to, stringent or radical environmental reform. They rather focus on redirecting and transforming 'free market capitalism' in such a way that it less and less obstructs, and increasingly contributes to, the preservation of society's sustenance base in a fundamental/structural way. While it can be argued – as some commentators do – that this debate should be considered as rather abstract and outdated, especially since the 'end of history', it shows at the same time continuing relevance regarding two sets of controversies: (i) it is connected with discussions about presumed shortcomings of Ecological Modernisation Theory in analysing conflicts of interest in environmental reforms, and (ii) more concrete or down-to-earth controversies in contemporary environmental politics and policies are to some extent inspired by the earlier (and to some extent continuing) debate on capitalism. We will turn to both related sets of issues respectively.

Conflictual models of social change that dominate neo-Marxist theories have inspired some authors to emphasise Ecological Modernisation Theory's presumed undertheorised notions of power [*Leroy, 1996*], lack of attention to social contexts and ethical issues [*Blowers, 1997*], neglect of emancipatory concerns [*Blühdorn, 2000*], and absence of human agency [*Smidt, 1996*]. According to these and other scholars, Ecological Modernisation Theory analyses environmental reforms primarily via Schumpeterian, evolutionary models that result almost automatically in the greening of production and consumption, without paying sufficient attention to severe struggles between interests (groups) and to normative, ethical or moral reflections and debates [cf. *Sarkar, 1990; Leroy and Van Tatenhove, 2000; Blowers, 1997: 854*].

In reviewing these debates, we want to draw two conclusions. First, these observations are accurate as far as they relate to the first generation studies in Ecological Modernisation Theory (see Mol and Sonnenfeld, this volume). There is indeed considerable merit in neo-Marxist analyses of environmental conflicts. Ecological Modernisation Theory can profit – and has already to some extent, we would argue – from that in refining its analyses of social change. Secondly, these observations can be considered less adequate as far as they focus on and respond to the more recent general idea in Ecological Modernisation Th[illegible]y of [illegible] reasi[illegible] *unda*[illegible] conflicts about environmental reform programmes in industrialised

countries in the late 1980s and 1990s. This observation by ecological modernisation theorists of environmental interests becoming increasingly 'salonfähig' is, however, not pre-given, but constantly (re)produced by struggles and clashes between diverging interests, changing ideologies, and historical transformations in other social arenas, as ecological modernisation theorists have stressed in theoretical elaborations [cf. *Spaargaren and Mol, 1991, 1992*] and detailed case-studies [cf. *Hajer, 1995; Mol, 1995; Rinkevicius, 2000*]. To the extent that evaluations of Ecological Modernisation Theory qualify these more recent contributions as simple evolutionary and system theoretical projections of the future, we consider them as less adequate.

The fundamental debate regarding capitalism (our second point) also echoes to some extent in more 'down-to-earth' debates for instance regarding the discussions on market versus state involvement in environmental policy (with subjects as diverse as privatisation, the adequacy of distinct policy instruments, state failure versus market failure, deregulation, the modernisation of state governance, etc.) and distributional consequences of environmental problems and reforms. With respect to the first group of topics it can be concluded that they seem no longer to be that controversial, as the growing consensus on the discussions on market based instruments versus command-and-control strategies, the increasing role of non-state actors in environmental policy and the new governance styles that seem to replace the old hierarchic state models, show [cf. *Weale, 1992; Sarinen, forthcoming; Mol, Lauber and Liefferink, forthcoming; Hogenboom et al., 1999; Mol, Spaargaren and Frouws, 1998; Leroy and Van Tatenhove, 2000*]. Also these controversies are decreasingly related to neo-Marxist criticism of capitalism, as the debates on privatisation and deregulation seem to exemplify. We think that neo-Marxist scholars have recently especially proved the relevance of their models in forcefully putting on the agenda the unequal distribution of both environmental problems and the social consequences of environmental policies [cf. *Schnaiberg et al., 1986; Schnaiberg and Gould, 1994; Gould et al., 1996*, also Pellow *et al.*, this volume]. It is in these studies that the so-called conflictual models of social change prove their value. We will deal more extensively with these issues in section V.

Summary

Our analysis of some of the initial debates on Ecological Modernisation Theory thus far should not be interpreted as an attempt to devalue or 'silence' criticism of Ecological Modernisation Theory. Our aim has been to make two points. First, we have tried to show how some of the initial debates around Ecological Modernisation Theory have become less relevant or adequate today for several interrelated reasons: (i) Ecological Modernisation Theory profited from these critiques by reforming and refining itself as Mol and Sonnenfeld (this volume) also point out, (ii) the environmental and academic discourse on the environment has changed so that contemporary debates deviate on several points from those in the late 1970s and early 1980s, and (iii) the social circumstances in terms of environmental disruption, actual environmental reforms and the role principal actors play in them, have changed considerably in this period. Where recent commentators persist in reassembling the same points of criticism of Ecological Modernisation Theory, we consider them as 'outdated'. In that sense the debate has made progress.

Secondly, we wanted to stress – and will persist in doing so in the following sections – that no matter how distinct and/or refined contemporary debates involving ecological modernisation seem when compared to their ancestors of the (early) 1980s, we should not overlook the continuities. While on some of the topics indicated above discussion seems to have come to a close, other topics continue to stay – though sometimes in different forms – on the agenda for environmental sociology. And to some extent new theoretical 'alliances' are formed as. For instance, on most of the controversies we will elaborate below (social constructivism and the materialist dimension of environmental problems; deep ecology; social inequalities), Ecological Modernisation Theory parallels neo-Marxist ideas.

III. The Materiality of Environmental Problems

The first contemporary controversy we want to focus on is the position of the materialist dimension in sociology, and the claim of ecological modernisation theory – as we interpret it – that this materialist dimension should not be reduced to social facts only. To enter this controversy with especially postmodernists and strong constructivists, we need a short historical introduction into to the emergence of environmental sociology via human ecology.[6]

It has become common understanding within environmental sociology that our relationship with nature or the environment cannot be taken for granted any longer but has to be reflexively organised. This can be done in different ways, and within environmental sociology we think at least three major schools of thought can be distinguished in this respect: the human ecology tradition, the ecological modernisation school of thought and postmodern views of the environment. These three environmental sociological perspectives are directly related to the wider sociological debates on the character of modernity. As will become clear in this section, the human ecology tradition can be understood as a reaction to the long

neglect by 'mainstream' sociology of the materialist dimension of social practices and institutional developments. Ecological modernisation, together with risk-society theories and some moderate versions of constructivism, are the environmental pendants of reflexive modernisation perspectives. The last tradition, including strong or relativist constructivism, can be labelled green postmodernity perspectives.

Beyond Human Ecology

The value of human ecology in all its different forms – and its contribution to the emergence of environmental sociology in the 1970s – is the fact that nature and the environment are no longer simply disregarded or done without. The border, or sometimes the iron wall, between the social and the natural as it was created and sustained by most of the classical sociological thinking was criticised, and a more reflexive mode of relating the social and the natural was argued for. The social should not be treated in isolation from the natural, as modern societies are an inherently 'materialistic' affair. The environment is not the passive realm of risks and opportunities that exists somewhere 'out there', waiting to be used one day and one way for serving mankind. We cannot explain or understand the human project by referring to 'endogenous' or 'internal' social facts only. History is an inherently natural affair, and human ecology in general and the HEP–NEP debate' within environmental sociology in particular have contributed to the better understanding of this naturalness of history.

The unsatisfactory element of human ecology – from the classical Chicago School via Peter Dickens' influential book *Society and Nature* [*1992*] up to present forms of so-called 'deep ecology' of which Jagtenberg and McKie [*1997*] are recent representatives – has to do with the tendency to try to restore the interrelationship between the social and the natural world in such a way that they seem to underscore the view that all facts, events, goals, outcomes, patterns etc. *as we know of them*, are socially mediated. There is no such thing as the 'biotic community' when this should mean sub-social or non-social. The naturalness of history is mirrored by the historicity of nature [*Harmsen, 1974*].

Ecological modernisation theory contributes to the redefinition of the borders between modern societies and their social and natural environments. The need for such a redefinition in social theory is fully recognised, and in this respect there is general agreement with the proponents of the HEP-NEP approach and other human ecologists. Ecological modernisation theorists equally argue that the notion of 'environment' should be taken seriously and not left un- or undertheorised by social scientists by first constructing a city-wall as a border between social sys[illegible] and [illegible] 'out[illegible] natur[illegible] viron[illegible]s' ar[illegible] n ar[illegible]

that 'social facts should be explained by using social facts and factors alone'. What is conceived of as 'social' – for example, that what happens inside the city-wall – cannot be explained without reference to the natural, without taking into account the relationships with the outer-world. In fact, this has become one of the central notions in all contributions to the ecological and reflexive modernisation perspectives.

Within ecological modernisation theory – and much in line with neo-Marxist scholars such as Schnaiberg [*1980*] and Bunker [*1985*] – it is agreed that we must go beyond the social by taking into account naturalness, substance flows, energy flows, materials circulating throughout human societies etc. However, in restoring the analytical priority of the environment we should not throw away the baby with the bath water. The crucial difference between ecological modernisation theory and the human ecologies of different kinds is the contention that we must not replace the former disregard of nature with some form of present-day biologism or ecologism.

The former disregard of nature from the side of most of the classical and post-war sociological theories is linked to the crucial design-fault in some of the major institutional clusters of modern societies [*Giddens, 1990*]. When analysing the industrial mode of production and consumption, the attention of most sociologists used to be focused exclusively on factors such as capital, technology and labour. Environmental factors were regarded as 'external factors' in the sense not only of being 'available for free' but also in terms of being of secondary importance when it comes to explaining the dynamics of industrial production and consumption. When ecological modernisation theorists talk about 'repairing' this design fault of modern industrial production and consumption, they request that environmental factors should not only be taken into account, but also that they are structurally 'anchored' in the reproduction of these institutional clusters of production and consumption.

To illustrate the fact that something more serious is at hand than only 'pricing' things that used to be regarded as 'external costs' – the solution as it is pursued by most of the economists working in the neo-classical tradition – ecological modernisation theorists use the more encompassing vocabulary of 'rationalising production and consumption'. This notion refers to ecological rationalities (such as the closing of substance cycles and extensification of energy-use) that have a meaning 'of their own', implying that they are independent *vis-à-vis* other – for example, economic – rationalities that are involved in the reproduction of production-consumption cycles [cf. *Spaargaren, 1997*]. We see a whole new area of concepts emerging, which try to give this ecological r[illegible]ality [illegible]l, [illegible]nomic and political impact: environmental accounting and bookkeeping,

annual environmental reports, green GNP, environmental efficiency, environmental productivity, environmental auditing, etc. It is these kinds of concepts that establish a link between ecological modernisation as a general theory of societal change on the one hand and ecological modernisation as a political programme or policy discourse on the other.

The recognition of the need to compare, link and sometimes mate ecological rationalities with other types of rationalities involved in the industrial mode of production, distinguishes the ecological modernisation approach from more 'principled eco-centrist approaches' which ascribe ecological criteria an almost absolute priority above other rationalities (as we elaborate upon below).

Postmodern Critiques of (Green) Grand Narratives

Some will conclude from this short outline that we are dealing here with nothing less than a new grand narrative in the making. Isn't the idea of the materiality of social systems, and the accompanying notion of ecological criteria and rationality involved in their reproduction, in principle a trans-historical and trans-cultural concept? Can one reasonably argue that the imperative of the 'sustainability' of social systems is in fact a universal one?

When understood in this way, it makes the fact of postmodern authors being among the most fierce critics of this approach understandable and predictable. Ecological Modernisation Theory is seen as a remnant of the old modernisation theories and an extension of the Enlightenment project, and it have has been especially the knowledge claims that are at the foundation of ecological transformation which have been challenged by postmodern perspectives. Indeed, postmodern critiques of ecological modernisation theory are as fierce as the more traditional critics working from a de-industrialisation perspective used to be. The focus of these postmodernists, however, is no longer on the need for 'dismantling' the institutions of modern societies instead of just 'repairing' them, as the debate on the 'technological fix' character of ecological modernisation would have it. Nevertheless, postmodernist critiques are in some respects even more radical in their consequences than those of counterproductivity theorists, because they question the very fact that sustainability criteria could or should be developed in a feasible way whatsoever.

Blühdorn [*2000*] seems to be a recent, rather radical, exponent of this position by (re)starting the debate on what the ecological problem exactly is, and ending up with the conclusion that environmental problems are no longer there: 'to the extent that we manage to get used to the non-availability of universally valid normative standards, the ecological problems ... simply dissolve'. Environmental change is no longer seen as problematic by large

segments of contemporary world society in any universal way. According to these postmodernists this plurality and diversity of environmental problem definitions radically devalues any ecologist critique against modern developments, although this consequence is not yet fully acknowledged by the majority of the members of contemporary, so-called postmodern, societies. Nevertheless, late modern society, according to Blühdorn, cannot escape the transition from a modernist to a 'postmodernist politics of nature' and this fact makes the analytical value of ecological modernisation theory of no use at all for postmodernists.

The main objective of these radical postmodernists seems to be to show that all borders are time- and spacebound 'social constructions' which can be 'played upon' now that we have become aware of this fact in our postmodern times. So also the ways in which the borders between societies and their environments are created and sustained – from the Club of Rome in the early 1970s on to the International Panel on Climate Change -experts[8] of the late 1990s – can and must be criticised in order to 'liberate' us from the grand narratives of which the ecological crisis is only the latest plot. No distinction can be made between more or less 'objective', 'true' or widely held intersubjective understandings of reality. More moderate branches of postmodernism, such as Gare [*1995*], are less radical in their conclusions and rather seem to use postmodernist critiques in arguing for a new grand narrative, in which natural science and scientists do play a role in revealing the environmental crisis and speaking for the environment.

When trying to evaluate the relevance of postmodern perspectives for environmental sociology in general and in relation to ecological modernisation theory in particular, it is important to distinguish between different brands of postmodernism and between the different meanings of the term itself.[9] However, distinguishing different brands of postmodern theory or schools of thought within the postmodern tradition hardly seems to be possible due to the complicating fact that the denial of borders is one of the constituting features of postmodern thinking. Some authors from the reflexive modernisation school-of-thought who are judged influential in postmodern circles, have fiercely rejected the postmodern label. Consequently, it is necessary to be very precise when dealing with certain ideas of authors referred to as postmodern.

The Social Construction of Sustainability

According to postmodern thinking, every grand narrative can and should be deconstructed and shown to be arbitrary to a great extent. Since the need for sustainable development is one of the few problems to be recognised and accepted as a challenge to society all around the world, this seems to be a privileged objective for some postmodern critics.

Within environmental sociology the debate that postmodern authors triggered is reflected in the frequently cited dispute on 'realism' versus 'constructivism'. Several authors have contributed to this debate, thereby referring to postmodern issues and ideas in an implicit or explicit way [cf. *Yearley, 1991; Hannigan, 1995; Dunlap and Catton, 1994*]. Standpoints vary from 'hard' or radical to 'soft' or moderate constructivism. The radical or relativist variant of constructivism seems to have as a particular goal to deconstruct or dismantle the naive beliefs that come along with environmental stories about global change, nuclear waste or soil erosion.[10]

From the observation that the environmental discourse has been changing from the early 1970s to the late 1990s with regard to priorities, definitions and approaches, it is concluded that environmental problems do not have a 'real', 'objective' existence but are instead the result of a process of framing certain social problems by certain social actors in a very specific, sometimes arbitrary way. As these relativist constructivists would have it, sustainability as grand narrative, dominant discourse or 'story line' stands in need for a deconstruction, showing that the story could have been framed otherwise, leading to different kind of conclusions and priorities.

Ecological modernisation theorists are not immune to the kind of epistemological issues touched upon by the relativist constructivists. In his book on ecological modernisation, Hajer [*1995*] seems to end up taking a position which is not too far away from where postmodernists would feel comfortable. In a similar way Peter Wehling [*1992*] evaluates the initial position taken by Huber, Jänicke and other ecological modernists in the 1980s as being insufficiently aware of the limitations of modernisation theory in general and ecological modernisation theory in particular. A more 'reflexive' approach is requested, especially when dealing with the role of science and technology in promoting sustainable production and consumption.

Von Prittwitz [*1993b*], Mol [*1996a*], Cohen [*1997*] and others have addressed the challenge to confront ecological modernisation theory with the debate on late- or reflexive-modernity as it has been developed by Beck, Giddens, Lash and others. Although it is doubtful whether it has ever been the case, under the condition of reflexive modernity the ecological modernisation of production and consumption can no longer be thought of or designed in terms of undisputed facts, values and futures. The ecological risks of reflexive modernity are no longer simply accepted on the authority of (natural) scientists, even more so if they at the same time also claim to have a privileged position in pointing out the best or most promising route towards a sustainable future. Science and technology are indeed disenchanted, and this has some potentially far reaching consequences for the ways in which environmental problems are perceived by lay-actors as well as policy makers.

The fact of science and technology being no longer undisputed and bereft of that special kind of authority bestowed on them in earlier times should not be confused with epistemological issues that explain the crucial differences that exist between the natural and the social sciences. When environmental problems are discussed, these two major – but, in principle, separate – issues are very often intertwined or dealt with simultaneously. This can be said to be the case when for example the 'social' (for example, 'constructed') character of the climate change narrative – explained in terms of different interest groups, media and environmental movements all contributing to a specific mix of policies – would be presented in a way that tries to prove the more encompassing (postmodern) statement that the environmental crisis is something that is 'invented' by social actors and groups whose interests are served best by making a lot of noise about this or that particular social problem. Blühdorn [*2000*] seem to fall victim to this position in claiming that ecological rationality is nothing more than power politics and big money.

What tends to be denied then is the fact that environmental problems do have a 'real' existence. They belong to the type of problem which needs to be analysed and understood not only as social constructs but also in terms of the language of the natural and biological sciences. If we ignore this fact, we would end up were we started in environmental sociology, namely with the HEP–NEP distinction, with postmodern constructivist environmental sociology as the latest variant of exemptionalist thinking.

IV. Radical Eco-Centrism versus Environmental Reformism

Some branches of radical eco-centrists and ecologists have questioned Ecological Modernisation Theorists regarding their rather moderate proposals for environmental reform. Some of the proponents and representatives of radical ecological restructuring criticise Ecological Modernisation ideas for not giving the environment pride of place in criticising current social developments and designing future trajectories. On this debate we now want to concentrate, by elaborating on the distinction between ecologism and environmentalism. Consequently, we will focus on the meaning of 'radical' and the various dimensions of radicalism, putting the sharp dichotomy between radicals and reformists into perspective.

According to Andrew Dobson, 'the first and most important point to be made about ecologism is that it is not the same as environmentalism' [*Dobson, 1990: 13*]. The important difference is that ecologism is about being radical while environmentalism definitely is not. Where environmentalism can be seen as a sub-plot in a main story such as [illegible]

values or patterns of production and consumption. Ecologism – meaning *real Green* values, *real Green* movements and *real Green* politics – is about 'the desire to restructure the whole of political, social and economic life' [*Dobson, 1990: 3*].

For this reason, from a perspective of (deep) ecologism, the (West) German Greens are no longer Green and neither are Friends of the Earth International nor Greenpeace. They all have taken on the guise of environmentalism, a kind of watered down ideology which is just seeking a cleaner service economy, sustained by cleaner technology and producing cleaner affluence. They are no longer questioning Baconian science, western technology and the 'Promethean project to which the Enlightenment gave birth' [ibid.: 9].

Now Andrew Dobson is not telling us something completely new, nor is he the only one contributing to the debate by firm statements on the present state of affairs in the environmental movement. A decade before, the social ecologist Murray Bookchin wrote an 'open letter' to the ecology movement to express his concern with 'the widespread technocratic mentality and political opportunism that threatens to replace ecology by a new form of social engineering' [*Bookchin, 1980: 79*]. Many founders of the environmental and anti-nuclear movement had by then (USA in the early 1980s) become 'managerial radicals, operating *within* the system in the very name of opposing it'.

Other authors are dealing with the same phenomenon, although making different judgements about green radicalism. Robert Goodin, for example, in his *Green Political Theory* tries to 'rescue the greens from themselves' by showing to them that their unconventional and colourful political style, their principled way of life and their 'signing so unanimously and so firmly on to the principles of deep ecology' [*Goodin, 1992: 43*] are obstacles to the content of green politics becoming accepted by a broader part of the electorate. While agreeing that 'shallow' and 'deep' ecology are really different views, he invites the self-styled greens to be prepared to consider more shallow versions of the deep ecology creed.

But were they to do so, Peter List argues in his book *Radical Environmentalism*, radical environmentalists run the risk of losing just those characteristics that make them different. This is because 'the concept of radical environmentalism derives its meaning partially from its dissimilarity to other forms of environmentalism'. Where 'moderate environmentalism' assumes that the environmental crisis can be resolved by modifying attitudes, changing laws, government policies, corporate behaviour and personal lifestyles, radical environmentalism is different in insisting on the need for *fundamental alterations* in values and structures and for demanding *deep and systematic changes* in philosophy and tactics [*List, 1993: 2*].

It would not be very difficult to find within the environmental literature many more examples of dichotomies aimed at contrasting 'radical ecological worldviews' and 'fundamental structural change' with their pragmatic environmentalist counterparts. The point to be made, however, will be clear also without a prolonged *tour d'horizon*. Within social scientific literature on the environment, the main challenge for sociologists and anthropologists is often thought to arise from that stream of thought which most authors at the same time regard as being the dominant view in present-day environmental discourse: (radical) ecologism. The question that emerges from this overview is how we can understand and explain the positions in the debate on radical ecologism versus moderate environmentalism and how we assess these positions.

Sometimes the position one takes on these matters is treated as a more or less psychological affair. Being in the camp of radical ecologists is about being a pessimist by nature: you do not think the bridge can (or ever will) be built. Optimists, however, just start constructing something, using any bricks and steel available to get the building process going. Pessimism versus optimism should explain why social-democrats were in favour of the MIT-report 'Limits to Growth', while its basic conclusions were rejected by liberals and communist alike. Their perception of the environmental message was determined by their general stance on the 'Enlightenment process' [*Bakker, 1978*].

Others do not even bother to connect catastrophic or cornucopian attitudes with basic western political streams of thought. They just state that: 'optimists include: economists, engineers, physicists, and Europeans' [*Luten, 1980: 130*]. We think, however, that there is more to it than psychology; we should move beyond the position that the assessment of current affairs is just a matter of personal opinion or state of mind. It must be possible to approach these matters from a more sociological point of view, analysing the dynamic and historical relationship between shifting environmental ideologies and ever-changing social realities. In doing so the first step is an analytical refinement of the idea of radical reform, which makes it possible to move beyond the rather crude dichotomies discussed so far.

Intermezzo: The Episodic Characterisation of Environmental Reform

How do we define the exact moment when a process of 'modifying attitudes, changing laws, government policies, corporate behaviour and personal lifestyles' is said to evolve into a state of affairs which can be qualified as the 'restructuring of the whole of political, social and economic life'? [*List, 1993: 2*]. Are we just playing with words or is there something more to be said about the character of the process of environment induced social change. How do we distinguish analytically an ecological revolution

from a radical rupture or trend-break, and where do we just speak of a process of incremental environmental change? Obviously a key factor involved here is the time-horizon of the process. What seems a slow, gradual but steady process of change today may turn out to be a wholesale restructuring of industrial society some decades from now. What we need then are criteria which can be used to delineate and categorise the different modes of social change.

One of the key concepts enabling us to analyse social change is the notion of *episode*, introduced by Giddens. 'To characterize an aspect of social life as an episode is to regard it as a number of acts or events having a specifiable beginning and end, thus involving a particular sequence' [*Giddens, 1984: 244*]. The scale of an episode can range from the transition between types of societal totality via modes of change affecting the main institutions of a society to the disruption of daily life which results from going through a divorce. To assess the nature of a specific episode we have to analyse empirically its *origin, type, momentum and trajectory* [*Giddens, 1984: 245*]. Answers must be provided on the kind of structural principles or contradictions (for example, the human–nature relationship) which are at the origin of the episode; the episode has to be typified in terms of its intensity c.q. the degree to which the existing institutions (of what kind?) are reshaped or disrupted; finally things have to be said about the pace and the direction of the changes involved.

When (radical) proposals for environmental reform are put forward without considering the type of questions as formulated above, we think little or nothing can be said about their possible impact in the future development of modern societies. Without going into great detail, we want to clarify in the next two sections the different positions in the debate on radical reforms and specifically assess the mode of social change that is implied in the ecological modernisation perspective *vis-à-vis* its eco-centrist opponents.

Environmental versus Social Change

There seem to be various flavours in radical ecologism but we will focus on those streams that stands for basically two things. First, a critique of the anthropocentric view of the interrelation between humans/society and nature/the environment. Second, a critique of industrial society and its technology for disregarding the (physical) limits to growth/development. As most radical ecologists authors have it, both points of critique – on modern societies' culture and structure respectively – cannot be resolved unless there is something like a revolution, a radical and profound alteration of the basic institutions of modern society. The e[illegible] nme[illegible] [illegible]oses [illegible] society which cannot be dealt with using the

conventional sociological theories on social change and which cannot adequately be resolved within the present-day institutional make-up of modern societies.

At the roots of the environmental crisis are the culture and structure of western industrial society as they were shaped over two or more centuries. All attempts to remedy the problem without basically questioning the overall structure and culture are bound to fail. If we are precise, radical ecologism is at the same time radical on its environmental goals as radical on the existing social structure and culture. Some authors within the radical ecologism perspective add additional radical claims at the same priority level (on democracy, emancipation, social justice/equality, etc., often neglecting possible conflicts between these priorities), while others give ecological goals pride of place. The basic presumption is usually that radical reforms of society's culture and structure not only contribute to, but are a prerequisite for, these desired goals.

To a major extent Ecological Modernisation Theory shares with radical eco-centrists such as Robyn Eckersley [*1992*], John Dryzek [*1987; 1997*] and the later André Gorz [*1989*] the starting position that environmental claims are subsumed in society's structure and culture and that consequently production and consumption processes should be radically improved regarding their environmental impact. However, it diverges from radical ecologism on two levels. First, Ecological Modernisation perspectives – and these are of course not alone or unique in this – do not give environmental objectives an undisputed priority above other societal objectives. Consequently, environmental reforms should not only be judged on their contribution to preserving the ecosystem, but also on other – sometimes conflicting – social values. And although the current relatively marginalised position of environmental interests (for example, *vis-à-vis* economic interests) allows some priority setting on environmental goals today, this cannot be an indisputable position based on some kind of 'objective' reason. Second, radical proposals for environmental improvement do not automatically entail radical societal change in the sense promoted by eco-centrists. Ecological Modernisation Theory claims that not only the environmental debate, but also actual social practices and institutions involving society-nature interactions, are already transforming to a major extent within the boundaries set by the current institutional order, showing that a tight coupling of environmental improvements and radical social change can at least be questioned. There is no – or better: no longer any – simple one to one relationship between radical environmental goals and radical social transformations, as eco-centrists seem to believe.

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Cotgrove [*1992: 110*] and Paehlke [*1989: 190*] have both (independently) analysed the uncoupling of two dichotomies: the left/radical versus conservative politics and ideologies run no longer parallel to the dichotomy on green and anti-green positions. More recently this argument has been echoed by, among others, Giddens [*1994*]. While in the early 1970s being green usually meant propagating radical and left politics and ideologies, this is no longer automatically the case from the mid-1980s onward according to Paehlke and Cotgrove. Ecological Modernisation Theory has extended this analytical observation about the domains of politics and culture/ideology to that of economy, of actual activities of production and consumption. The environment becomes relatively independent (now from the economy), ultimately having as a consequence that a capitalist or rather market-based system of production and consumption does not necessarily contradict significant environmental improvements and reforms in any fundamental way. More production and consumption in economic terms (GNP, purchase power, employment) do not have to imply more environmental devastation (pollution, energy use, loss of biodiversity) [cf. *Mol, 1995; Spaargaren, 1997*]. Within principally the same modern institutional lay-out (a market economy, an industrial system, modern science and technology, a system of welfare states, etc.) we can thus look for – and design – radical environmental reforms. Although the principal institutional lay-out will not change beyond recognition, power relations, pricing, priorities in R&D, investment patterns, and physical planning – to name but a few – will alter significantly following radical environmental reform. In the end, the empirical question will of course remain whether these radical environmental reforms will be sufficient to deal with the – to a large extent socially constructed – criterion of sustainability.

Putting Radical Ecology into Practice: 'State of Being' versus 'Code of Conduct'

The counter-positing of an eco-centric and a techno-centric worldview had its mobilising effects in the early 1970s. In the birth period of modern environmentalism, this newly emerging ideology found itself confronted with a dominant world-view and a mode of production and consumption in which there was no role to play for environmental considerations. In order to establish itself as a counter-ideology, environmentalism/ecologism was more or less forced to focus on a limited set of issues which had the best mobilising potential and which were regarded as the most central elements of the emerging environmental ideology. The question of putting these fundamental principles into practice was either postponed or resolved by adhering to a personal political or communal commitment and a green lifestyle, with the latter aimed more at expressing new environmental values rather than final improvements in society's environmental performance. This diagnosis of the situation during the early seventies and the environmentalists' answers to it looks very familiar to us, but is it still relevant for the state of affairs a quarter-century later?

If we are to believe Andrew Dobson and others, the situation early members of the environmental movement were confronted with, is still largely relevant today. The political practice of contemporary modern society offers few or no points of reference for a deep or radical green political ideology, and the points of entry within the socio-economic sphere are still difficult to discern. In sum, there still are very few possibilities for developing 'dark green' principles into a 'code of conduct' within politics or business. This is why, according to Dobson, it would be better if we accepted the fact that radical ecologism only lends itself to be expressed in a certain state of mind, a kind of contemplative (critical) reflection on reality as it is [*Dobson, 1990: 47–63*]. In short, the attitude that fits ecological radicalism best is a certain *'state of being'* which cannot and should not be translated in a direct way into a *'code of conduct'*.

Ecological Modernisation Theory diverts from such an analysis on two main points. First, radical ecologism underestimates the current environment-induced transformations in social practices and institutional developments in especially industrialised societies. The penetration of environmental considerations into the board rooms of the major political and economic organisations, their nestling on the agendas and their impact on the performance of these organisations and institutions can no longer be analytically neglected, although it can still be criticised as being 'too little, too late'. But the fact that environmental considerations are increasingly institutionalised, and no longer wither away with the first economic depression or crisis, gives radical environmentalists a point of entry to the traditional and dominant institutions and organisations that 'rule the capitalist world-economy'. This observation increasingly resonates in the daily practices of established environmental non-governmental organisations such as Friends of the Earth International, Greenpeace and the World Wildlife Federation.

Second, the separation of a *'state of being'* from a *'code of conduct'* paves the way for a radical but rather noncommittal attitude, that combines 'politically correct' contemplations with environmental destructive productive and consumptive activities. Ecological Modernisation Theory deliberately emphasises the close relationship between analysis and criticism of the current state of affairs on the one side and actual transformations and designs of institutions and social practices on the other. Some critics have argued that this has the risk of becoming too 'narrow-minded', becoming caught too much in the present situation without having

the possibility of exploring options beyond the existing and dominant societal paradigms. Although there exists a tension between building on existing structures and patterns of action on the one hand and the final desired *'state of being'* on the other, the opening up of windows for '*realistic* utopian models for the future' [*Giddens, 1990*; emphasis added] seems a better alternative than either the noncommittal attitudes towards radical ecologism of both postmodernists and radical eco-centrists, or the business as usual scenarios of the mainstream neo-liberal political and economic elites.

V. Social Inequalities and Ecological Restructuring

Whereas in the 1970s environmental activists criticised core institutions from the outside for not taking environmental considerations into account, the 1990s are characterised by parallel processes of penetration and transformation of these core institutions by environmental considerations and interests. This process should of course be understood as neither evolutionary nor deterministic, neither irreversible nor 'smooth', as we argued above. We also pointed out that the social struggles and social inequalities that go together with processes of ecological restructuring have originally found a prominent place in, among others, current neo-Marxist studies; and Ecological Modernisation Theory might profit from that.

In this section, then, we elaborate on the relation between ecological restructuring and social inequalities and struggles within a framework of Ecological Modernisation. In dealing with such inequalities, and positioning Ecological Modernisation Theory more clearly towards them, we can make a distinction between (i) inequalities in the relation between humans and nature; (ii) inequalities as distributional consequences of environmental policies; (iii) inequalities related to environmental risks. Global inequalities, which to some extent cut across the last two types, will be our last focus.

Social Inequalities

The inequalities between humans and nature can be seen as the most abstract form of inequality, and have been a key interest for environmental philosophers. The dominant view among them is that the causes of our environmental crisis are to be found in an anthropocentric culture in which there is no room for an intrinsic value of nature. To stop the exploitation of nature, our culture and our attitudes towards nature have to change dramatically: the 'interests' of nature have to be taken into account.

This rather abstract basic idea has resulted in very practical and essential questions, ... for... by ... we c... ider... as the ...p ec...

movement – ranging from groups on animal liberation through to Earth First!: What is the value of a cow other than its meat and milk? Why do we spend millions of dollars on the well-being of dogs, cats and horses, while millions of other species (cows, pigs, chickens) are largely neglected in terms of well-being? And in line with these emerging claims for animal well-being, is it not about time that we developed rights for/of nature?

We have frequently placed security nets under social classes and groups to protect them against too drastic consequences of our modern society. Just as the growing (complexity of) human interdependencies resulted in basic human rights being protected by these security nets, should the growing complexity and interdependencies in our relation with nature not result in basic rights for non-human entities, secured by institutions?

Unfortunately there seems to be a world of difference between the academic debates among these environmental philosophers and the kind of questions raised by activists and among policy-makers. It would enrich the academic debate if the abstract and fundamental questions of environmental philosophers on the intrinsic value of nature were connected with the concrete context of industrial food production and consumption, and included late modernity's changing power relations within and beyond these sectors that (can) contribute to the reproduction and transformation of unequal human–nature relations. The connection of rather abstract contributions of various environmental philosophers with more substantive analyses on industrial food production and consumption that is so characteristic of Ecological Modernisation Theory, could also amend the latter's often quoted limited definition of nature [cf. *Spaargaren and Mol, 1992; Mol, 1995; Blühdorn, 2000*].

This leads us to the second category of inequalities. It has been especially neo-Marxists that have contributed to our understanding that (i) environmental problems are unequally distributed among groups/classes in modern society, (ii) radical environmental reforms are obstructed by the contemporary capitalist structure of modern society, and (iii) radical environmental reforms in this society often results in unequal consequences or distributional effects. While traditionally the emphasis of neo-Marxists has been on the first two categories, more recently – and following developments in society's environmental performance – a shift has taken place to the last one. Environmental policies and strategies often have dissimilar socio-economic (and sometimes even environmental and health) consequences for distinct economic groups or classes. In a more or less similar way, environmental policies can conflict with other – that is non-economic – social or political priorities aiming to improve the position of various social categories, including women, ethnic minorities, and residents of peripheral regions ... goes ... out ... the ... ribut... effe... the ...mic

sphere frequently – but not always and not by definition – overlap with those on non-economic issues. These distributional effects of different kinds result in distributional conflicts around environmental policies, as Schnaiberg *et al.* [*1986, 1994*] have started to analyse in detail already more than a decade ago. Distributional conflicts in their turn can frustrate radical environmental reforms and should therefore not been left untouched, even not by the most technocratic proposals for environmental reform.

More environmentally sound houses, cars, food and services are to a major extent still the privilege of the rich (and are used to some extent as a new means of distinction), while the poor are most strongly confronted with raising environmental taxes on water, energy and food. This close link between social classes and environmental reform has for a considerable time paralysed radical proposals for environmental reform due to left-wing opposition (see labour union protests against attacks on polluting industries; social democratic objections to eco-taxes). The neglect of distributional effects by environmental authorities, among others, can also severely affect public support, especially amongst the lower and middle income strata, for these reforms. In a similar way, the emancipation of women has increased private car use considerably, and environmental policies to discourage car use can – and often do – directly interfere with the possibility of young mothers returning in the labour process after giving birth (depending of course on the specific local circumstances and other policies).

While examples of detrimental effects of environmental reforms on the less well-off and disadvantaged minorities are numerous, environmental policies can also support the material and non-material improvements of the poor and disadvantaged social groups, especially in those cases where they have been unequally victimised by environmental risks. The environmental justice movement in the USA[11] has pointed out the process of passing on environmental problems to the poor and/or ethnic minorities for many years. A radical environmental reform of the waste dumps and pollution production complexes in the less well-off areas – as increasingly proposed – would also improve the material and non-material position of these neighbourhoods (for instance, by increasing house prices and reducing health risks).[12]

This second category of inequalities results in conflicts between and interest representation of distinct social groups, as neo-Marxists have shown in numerous empirical studies and theoretical elaborations. Distinct from other, more traditional, social and economic problems, however, environmental conflicts do not follow a predictable path of static opposing parties and interests. Farmers can one day be victims of environmental deterioration (see large infrastructure projects, air pollution), while the next day they turn into polluters and consequently become victims of radical

environmental reforms (see pesticides and fertilisers). Or, as can be concluded from social movement research, the environmental movement has no longer a natural enemy, nor a natural ally. The environmental movement has to enter into constantly changing coalitions according to issue, time and place: women's organisations, employers, unions, recreation and leisure organisations, public transport representatives are all one day opponents, while the next day they may be allies in fighting for radical reforms. In that sense, environmental struggles cross traditional (economic and other) interest lines and divisions in society and should be analysed as an independent – that is non-reducible – category, as Ecological Modernisation Theory has suggested.[13] In that sense, those neo-Marxist schemes which claim direct parallels between traditional class struggles and environmental struggles, might prove fruitful in individual empirical cases, but have lost their overall theoretical and analytical value.

This brings us to the third category of inequalities connected to environmental reform. It has been especially Ulrich Beck [*1986*] who contributed to our understanding that modern environmental risks add a new social dimension to the other two inequalities. According to Beck, global environmental risks are democratic, both in the sense that they make no difference for distinct social classes, and in that traditional class differences are no longer adequate to understand the distribution of these risks among the population. Who can escape the greenhouse effect, the mad cow disease, or the pesticides 'circle of poison'? Often new 'class' divisions of environmental inequalities are formed: the vegetarian against the meat eater (the mad cow disease associated with Creutzveldt-Jacobs); the outdoor worker against the indoor employee (skin cancer by UV-b). Buttel [*2000*] and others are of course right in criticising Beck's over statement of the dissolution of classes in the distribution of risks in late modernity. The rich generally still have a better chance of protecting themselves against or escaping from such environmental dangers. Although in some cases '*wegreisen hilft letzlich ebensowenig wie Müsli essen*',[14] for most environmental risks, one can argue that locational patterns, life styles, and economic protection opportunities do make a difference. But Beck is right in observing the tendency that socio-economic categories (classes) and environmental risks no longer run parallel by definition, and in noticing that all members of modern society have – in some way or the other – to 'deal with modern environmental risks' under conditions of increasing uncertainty and the growing inability of the old institutions of science and politics to give final conclusions on how to live and act.

In conclusion, we could state that there is still an unequal distribution of environmental risks, but (i) these divisions follow to some extent new distributional patterns in late-modern society and (ii) these risks affect all in

their growing uncertainties about how to cope with them. But – we would add [*Mol and Spaargaren, 1993*] – this is especially true in those cases of a growing complexity of interdependencies on an international or global level.

Global Inequalities

The international or global inequalities related to environmental disruption and reform can either be interpreted as a fourth category, or as a combination of the second and third category mentioned above, as the lines of reasoning run parallel to some extent. Similar to the analysis above, insights about the distributional effects of both international/global environmental problems and the reform strategies to combat them, can help us to understand the difficulties and obstacles in reaching global environmental improvements. Although Szasz and Meuser [*1997*] rightly criticise the complete separation of national studies on environmental inequalities and international studies on the unequal access to environmental resources, resulting in missing opportunities for theoretical cross-fertilisation, we should not fall victim to simply 'upscaling' our still basically nation-state oriented conceptual efforts to the global level, as seem so typical of – also more recent – modernisation theories [cf. *Beck, 1996*].

Ecological Modernisation Theory has been developed initially in a limited number of West European countries and its postulates, hypotheses and empirical references still partly mirror this geographical focus. Some authors, for instance, have made a direct link between ecological modernisation and neo-corporatist policy arrangements, suggesting that the latter form an essential precondition in the political modernisation towards self-regulation and participative and consensual policy-making. [cf. *Weale, 1992; Dryzek, 1997; Neale, 1997*].[15] These and other kind of analyses have raised questions regarding the generalisability and value of this theoretical framework for other countries.

Investigations regarding the geographical limitations of Ecological Modernisation Theory initially concentrated on developing countries [cf. *Sarkar, 1990; Mol, 1995;* also Frijns *et al.*, this volume] to be followed by studies on New Industrialising Countries and transitional economies in Central and Eastern Europe. The latter countries were believed to have more in common with the European states which gave the theory its original foundation [cf. *Sonnenfeld, 1996*; also this volume; *Rinkevicius, 2000; Mol, 1999b*; Gille, this volume]. The general conclusion to be drawn from these studies is that the (analytical) value of Ecological Modernisation Theory for analysing processes of ecological reform in these non-West European contexts is limited, depending especially on both the specific institutional lay[illegible] of th[illegible]on-st[illegible]n qu[illegible] (in[illegible]st w[illegible]e We[illegible]rope[illegible]

ones) and the degree of 'environmental institutionalisation' that has already taken place.

Also, at the global level we can identify studies that point to the close relationship between material prosperity on the one hand and environmental disturbances and reforms on the other. Internationally, the poor regions, countries and groups are believed to be among the major sufferers of both environmental threats as well as radical environmental programmes, while they would contribute relatively little to global environmental problems. Examples are to be found on climate change (the Alliance Of Small Island States [AOSIS] being the poor victims), on biodiversity (the tropical rain forest countries, and especially the indigenous people), trade and environment, etc.[16] At the same time we are also witnesses of contrasting studies: the – heavily contested – World Bank study [*World Bank, 1992*] on the Green Kuznets curve arguing that beyond a certain point of development the (relative) contribution to global environmental threats diminishes *vis-à-vis* lesser developed countries, studies analysing the environmental improvements of foreign direct investments in developing countries (see Zarsky [*1999*] for an overview), and studies arguing for and showing the incorporation of environmental considerations in the policies and practices of international organisations and institutions, such as the World Bank, the IMF and the various environmental regimes such as the climate convention [cf. *Haas et al., 1993*], so that environmental reforms go together with economic development in the less wealthy parts of the world. Similar to our evaluation of the national distributional effects of environmental problems and policies, we may also conclude that global environmental inequalities no longer can be seen as, or reduced to, a sub-category of social inequalities.

In an earlier contribution [*Mol, 2000*] we have argued from an ecological modernisation perspective that globalisation processes do have consequences for the environment and the distribution of environmental effects. But while in the 1970s economic globalisation (or global capitalism as some would prefer to call it) was primarily related to increasing the unequal distribution of environmental effects, recent developments imply that no general, overall conclusion can be given on globalisation's net positive or negative environmental effects, or on the distribution of these effects around the globe. The institutionalisation of environmental considerations in some of the major global organisations, institutions and dynamics, the growing use of environmental resources (biodiversity, 'pollution rights', natural resources) by 'peripheral' countries and regions in international (economic) struggles and conflicts, and increasing environmental transparency at the global level result in distinct environmental inequalities *vis-à vis* those in the 1970s. And this insight about new environmental inequalities which no longer follow established

patterns of economic and political inequalities is, in fact, what Ecological Modernisation Theory has to offer the more traditional and well established international studies on environmental conflicts and its distributional effects.

VI. Epilogue

In reviewing the debates Ecological Modernisation Theory has been engaged in from its date of birth in the early 1980s, we have made a separation between some of the initial controversies, notably with counterproductivity theorists and neo-Marxists, and more recent topics and discussions. We have emphasised how the more recent discussions differed from the initial ones, as both social reality (in terms of institutional developments, social practices and environmental discourses) has changed and the more recent contributions have profited from and are built upon the earlier ones. In that sense, a simple repetition of these initial criticisms against Ecological Modernisation Theory is no longer adequate.

Secondly, we have tried to show what kind of contributions ecological modernisation perspectives can offer regarding three contemporary controversies in environmental sociology: discussions on the material foundation of social theory, debates on radical versus reformist environmental reforms and further understanding of social inequalities regarding environmental problems and reform. In doing so, we have not only tried to clarify the position taken by Ecological Modernisation Theory *vis-à-vis* other schools of thought in environmental sociology (eco-centrists, postmodernists, human ecologists, neo-Marxists, social-constructivists). We also tried to take these debates some steps further by integrating perspectives and explaining the differences that persist between the schools of thought. In doing so we hope to have contributed to the further development of environmental sociology and the environmental social sciences.

Regardless of the position taken in the various debates Ecological Modernisation Theory is engaged in, this contribution shows that the environmental social sciences have developed from a marginal and subsumed area of sociology and other social sciences, as became evident during the HEP-NEP controversies, into a full-fledged subdiscipline. And – in addition to other theoretical perspectives – Ecological Modernisation Theory has made a significant contribution to that development. In that sense, the institutionalisation of the environment in the various social science disciplines mirrors the institutionalisation of the environment in institutions and social practices of modern society.

NOTES

1. Several observations seem to justify the claim of growing popularity of ecological modernisation theory. The fact that at both the 1998 International Sociological Association and the 1998 American Sociological Association sessions were organised on ecological modernisation theory gives some evidence of its prominent status in environmental sociology. In addition an international conference on Ecological Modernisation Theory was organised in 1998 in Helsinki. In analysing a recent handbook of environmental sociology, Buttel [*1997*] noticed that ecological modernisation theory is slowly becoming one of the few more coherent theories in environmental sociology that is to some extent promoted and defended actively. Recent volumes and special issues of journals that focus on this theory contribute to that [cf. *Spaargaren, Mol and Buttel, 2000; Van der Straaten et al., forthcoming; Geography, forthcoming*].
2. The strongest points of critique against Parsonian functionalism and other modernisation theories are related to the evolutionary models of change and their lack of an adequate theory of action, which do not sound unfamiliar in reviewing the initial contributions to the Ecological Modernisation Theory [cf. *Spaargaren and Mol, 1992*].
3. In his major work *Risikogesellschaft*, Ulrich Beck [*1986*] seemed to intermingle the notions of Risk Society and Reflexive Modernisation, while in his more recent work the notion of Reflexive Modernisation has the connotation of the overall analytical notion, which refers to the more apocalyptic dimensions of the modernisation process.
4. Instead of the 'limits to growth', the expansion of the limits was celebrated by first generation Ecological Modernisation theorists, as technological innovations would constantly move these limits further, making the 'treadmill of production' no longer a fundamental contradiction to sustained environmental quality. More recently, the issue of ecological limits has re-entered environmental sociology in a different form, where strong-contructivists deny the existence of any 'objective' or intersubjective limits, while ecological modernisation theorists and neo-Marxists seem to move more to a nuanced realist position (see section III below).
5. This does of course not mean that capitalist production is sustainable, or that one can no longer analyse the detrimental environmental consequences of a capitalist organisation of production. That can be and is still done. But it does affect the political consequences of and value given to such analyses in terms of their social support and their impact on actual transformations and alternatives.
6. This section draws to some extent on the introductory chapter in Spaargaren, Mol and Buttel [*1999*].
7. The debate between the Human Exemptionalist Paradigm (HEP) and the New Ecological Paradigm (NEP) was triggered especially by Dunlap and Catton in a number of publications [*Catton and Dunlap, 1978; Dunlap and Catton, 1979, 1994*].
8. The IPCC is the umbrella institution under which the scientific community reported on the certainties and uncertainties regarding the greenhouse effect. Growing consensus within the IPCC proved a necessary condition for political decision-making within the Framework Convention of Climate Change.
9. For instance, Jagtenberg and McKie [*1997*] consider themselves postmodernists but on the environment they take an eco-centrist position of the kind that is so vehemently criticised by Blühdorn [*1999*], who also claims to talk from a postmodernist perspective. In a similar way Zygmunt Bauman [*1993*] considers himself a postmodernist, although his definition of environmental problems and his elaborations of desirable solutions resemble deindustrialisation and demodernisation ideas, rather than the postmodernism of Blühdorn and others.
10. Freudenburg [*1999*] made the interesting – and largely valid – observation that constructivists seems to be preoccupied with deconstructing the seriousness of environmental problems, while they completely neglect the deconstruction of those increasing number of groups and ideas that propagate the non-existence of environmental deterioration.
11. Environmental justice ideas have resulted in close collaboration between activists and

scientists. For a recent overview of studies from an environmental justice perspective, see Szasz and Meuser [*1997*].

12. This environmental clean up of less well-off areas might, of course, turn into increasing property values that have as an ultimate result the displacement of the poorer part of the population that could only afford to live there due to low land and house prices. The actual material/economic effect in concrete situations clearly depends on various factors.
13. This parallels the perspective of many so-called New Social Movement theorists, who distinguish environmental and other 'new' movements from the 'traditional' class-oriented labour movements [cf. *Offe, 1986; Dalton, 1990; Jamison et al., 1990*].
14. 'In the end, moving away helps as little as eating muesli' [*Beck, 1986: 97*].
15. In extensive research on the emergence of so-called joint environmental policy-making in European countries with strong corporatist traditions (the Netherlands, Denmark and Austria), we have investigated these close relationships between corporatism and political modernisation [*Mol, Lauber and Liefferink, 2000*]. It proves that there is no simple relationship between (neo-)corporatism and political or ecological modernisation: Austria, being the ideal-type corporatist country, fails some of the typical characteristics of political and ecological modernisation.
16. These relations will be dealt with in more detail in a forthcoming book which analyses the relations between globalisation and environment from an ecological modernisation perspective (Mol, forthcoming).

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