

The Planetary Rift and the New Human Exemptionalism: A Political-Economic Critique of Ecological Modernization Theory

Organization & Environment
25(3) 211–237

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DOI: 10.1177/1086026612459964

<http://oae.sagepub.com>



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Abstract

Environmental sociology must address two challenges, emanating both from without and within. The world is faced with a growing planetary rift, as planetary boundaries are being crossed. At the same time a new exemptionalism in the form of ecological modernization theory has arisen within environmental sociology, resurrecting many aspects of the human exemptionalist model characteristic of post-Second World War modernization theory that environmental sociology in its formative years opposed. The answer to these two challenges, it is argued, lies in the development of a political-economic and rational-historical critique of the capitalist environmental regime in the traditions of Marx and Weber. This demands, however, the outright rejection of the new exemptionalism.

Keywords

exemptionalism, ecological modernization theory, environmental sociology, new ecological paradigm, human exemptionalist paradigm, metabolic rift, Weber, capitalism, Marx

The 21st century is likely the decisive century for the future of humanity. We are rapidly leaving the Holocene geological epoch that nurtured human civilization over the last 10,000 to 12,000 years. Rifts in planetary boundaries—including not only climate change but also ocean acidification, species extinction, the disruption of the nitrogen and phosphorus cycles, loss of freshwater sources, land cover removal, and chemical pollution—are approaching points of irreversibility and cumulative, catastrophic change, as defined by contemporary science (Foster, Clark, & York, 2010; Rockström et al., 2009). The scientific consensus now says that if we burn *even half* of the present, economically feasible reserves of fossil fuels, we will reach a 2°C increase in global average temperature—marking the boundary beyond which climate change will become irreversible and out of our control. A 2°C increase in global average temperature is associated with total carbon emissions of one trillion tons. At current emission rates that gives us at best to about 2043, a mere 31 years—and the longer we delay in making the necessary reductions in emissions the sharper the future cuts will need to be (Allen, et. al. 2009; Cullen, 2010;

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Meinshausen et al., 2009; Solomon, Plattner, Knutti, & Friedlingstein, 2009; Trillionthtonne.org, n.d.).¹ World leaders failed in Durban in 2011—as they had previously failed in Copenhagen in 2009, Johannesburg in 2002, and Rio in 1992—to make any movement at all toward introducing the fundamental social changes necessary to cope with this planetary crisis.

To make matters worse, despite its growing contributions to environmental analysis, social science has thus far failed to confront this growing planetary crisis with the seriousness it deserves. Ironically, this applies today even to environmental sociology. Environmental sociology arose out of a critique of what William Catton and Riley Dunlap famously called the “Human-Exemptionalist Paradigm,” the notion that human beings were exempt, due to technology, from environmental constraints.² Catton and Dunlap argued that a paradigm shift was urgently needed in our relation to the environment that would replace the Human Exemptionalist Paradigm with a New Ecological Paradigm, or postexemptionalist sociology (Catton & Dunlap, 1978; Dunlap & Catton, 1994). To complement this, Dunlap and Van Liere (1978) introduced the New Ecological Paradigm Scale as a way of determining the extent to which the needed shift was occurring in the consciousness of society as a whole. In its most recent version (Dunlap, Van Liere, Mertig, & Jones, 2000), the New Ecological Paradigm Scale is built around five facets, including recognition of (a) limits to growth, (b) non-anthropocentrism, (c) fragility of nature’s balance, (d) untenability of exemptionalism, and (e) ecological crisis (see Dunlap, 2008).

Yet, notwithstanding this critical background, environmental sociology is now seeing the rise within its ranks of what I will refer to here as a “new exemptionalism,” distancing itself from all five of these facets, in the form of ecological modernization theory. In this view, the unlimited growth of capitalist industrial society is perfectly possible, and ecological crisis can be surmounted, through the “incorporation of nature” within “the capitalist economic process” via technological changes and market mechanisms (Mol, 1995, p. 41). Here, previous exemptionalist (or modernization) views are seen as justified, but requiring a higher level of “reflexive” development. In presenting such neo-exemptionalist views, ecological modernization theorists sharply criticize other environmental-sociology traditions as “coquetting with ecology,” and oppose all “ecocentric” approaches to environmental politics (Mol & Spaargaren, 2000; Spaargaren & Mol, 1992).

Environmental sociology today is therefore faced with a double challenge, emanating both from without and within: developing the social means to combat the planetary rift, and confronting the new exemptionalism, which threatens to overthrow environmental sociology as a critical tradition. With respect to the latter challenge, the problem is to be found not so much in the concept of ecological modernization itself, which is obviously useful in limited contexts, and reflects real-world processes, but rather in the elevation of ecological modernization into an overall environmental *theory* resurrecting the basic postulates of human exemptionalism.³

According to this new exemptionalism, what is needed in the human relation to the environment is mainly fine-tuning of the productive apparatus. A sustainable management of nature is thought possible with limited social intervention, involving the introduction of a more reflexive ecological modernity, which can be implemented without fundamentally challenging social relations. This demands economic reform, with an eye to greater efficiency, but no break with the dominant structures of capitalist production and consumption or its accumulation imperative. As Gert Spaargaren and Arthur Mol emphasized in introducing the ecological modernization perspective to a U.S. audience two decades ago in *Society and Natural Resources*: “The ecological modernization approach” pays “little attention to changing relations of production or to altering the capitalist mode of production altogether. The ecological restructuring of modern society is limited to changing the organization of production and consumption activities and does not extend to Schnaiberg’s treadmill of production” (Spaargaren and Mol 1992, p. 336; see also Mol

1995, p. 12). In other words, it is an approach that is concerned in a limited way with the forces of production and consumption relations, but not with the relations of production themselves.

This is a technocratic view aimed above all at the defense of the status quo via instrumental means. Capitalist industrial society, we are told, can “dematerialize,” thereby “decoupling” economic flows from material flows. This will allow the basic process of modernization and economic growth to continue as before on an unlimited basis through the implementation of new technologies and market mechanisms (Mol, 2002). Nevertheless, the weaknesses of this approach are especially evident when it comes to such planetary issues as climate change, associated with the rapidly growing ecological footprint of the world economy.

Previous criticisms of ecological modernization theory, of which there are many (see, e.g., Gould, Pellow, & Schnaiberg, 2008; York & Rosa, 2003; York, Rosa, & Dietz, 2010), have primarily been based on the treadmill of production perspective, representing a diametrically opposite frame rooted in neo-Marxian theory, or have focused more concretely on the empirical weaknesses of ecological modernization analysis.⁴ Here, in contrast, the emphasis will be on the theoretical critique of ecological modernization in terms of its own internal logic, reflecting its limits and contradictions as a theory and laying bare the concrete interests it represents, as expressed in the works of ecological modernists themselves.

Ecological modernization theory, it will be argued, is in fact well named, since it belongs to the same family as the earlier modernization theory of the post-Second World War years: the *locus classicus* of the Human Exemptionalist Paradigm. Ecological modernization theory presents itself as a higher phase of the modernization process, beyond traditional modernization—a “reflexive ecological modernization” (Mol & Spaargaaren, 2000, p. 20). Nevertheless, it has the same final result as traditional modernization theory in that human beings are seen as ultimately exempt from natural conditions. In the age of climate change and other planetary rifts, it will be argued, this view represents: (a) a dangerous and irresponsible case of technological hubris, (b) a fateful concession to capitalism’s almost unlimited destructive powers, and (c) the intrusion of denialism into environmental sociology itself. The answer to this challenge is to be found in the further development of a political-economic and rational-historical critique of capitalism and its environmental regime, building on foundations constructed by the classical sociologies of Marx and Weber.

Exemptionalism and Sociological Theory

The new, ostensibly reflexive, exemptionalism represented by today’s ecological modernization theory can no more lay claims to a direct connection to classical sociology than can the earlier, post-Second World War exemptionalism. Classically, sociology has provided powerful insights into the nature and significance of environmental change, well ahead of the current ecological age. Karl Marx was concerned with local and regional climate change induced by human actions, and increasingly visible throughout the globe, observing that “climate and flora [have been shown to] change in *historical* times.” Human civilization, he wrote, “leaves deserts behind it,” a problem that was intensified under capitalism (Marx & Engels, 1975, Vol. 42, pp. 558-559; see also Foster, 2011b, pp. 5-6). He critically addressed what he saw as the metabolic rift between human beings and nature, revealed in the removal of nutrients from the soil and their shipment in the form of food and fiber hundreds and sometimes thousands of miles to the cities where they contributed to pollution. This is what Justus von Liebig called the “*Raubbau*” (robbery or overexploitation) system, which developed with capitalist production (Marx, 1867/1976, pp. 636-638; Marx, 1863-65/1981, pp. 948-950; see also Foster 1999; Foster 2011a, p. 4).

Max Weber (1914-1920/1968, p. 70) too often referred to “climatic changes,” that is, changes in the climate, as constituting a major force in the development of human societies (though he

did not consider the possibility of human-induced climate change). Weber was especially concerned about the fateful dependence of industrial capitalism on an “inorganic” environmental regime rooted in fossil fuels and the destruction of “organic” relations to nature. Like Liebig and Marx, he saw this as part of the overall *Raubbau* system associated with capitalist production—the robbery of the soil, the destruction of forests, and the “squandering” of natural resources and energy (Foster & Holleman, 2012).

Weber developed a devastating ecological critique of the ideas of the German Nobel Prize-winning chemist Wilhelm Ostwald, an early scientific precursor of the ecological modernization perspective and the founder of energetics. Ostwald (1909) argued that through new technological means, particularly solar-based technologies, and by maximizing energy efficiency, humanity could permanently overcome its problems of ecological scarcity. Weber (1909/1984, 1910/2005) deconstructed Ostwald’s analysis on the latter’s own grounds (the second law of thermodynamics), revealing the weak entropic bases of Ostwald’s argument, in what is considered one of the classic contributions to the formation of ecological economics. Ostwald’s failure to accept the reality of energy-resource scarcity generated by capitalism—that is, the exemptionalist tendency in his thought—was, Weber argued, a result of Ostwald’s own “fanaticism for ‘productivity,’” arising from the subordination of science to capitalist objectives (Weber, 1909/1984, p. 56; see also Foster & Holleman, 2012; Martinez-Alier, 1987).

Ecological modernization theory is thus not rooted in the general viewpoint of classical sociology, which embraced ecological rift questions, but rather grew out of the entirely different conditions represented by post-Second World War modernization theory. Although the question of *modernization* in the broad sense was crucial to classical social theory, affecting many of its core theoretical distinctions (*Gemeinschaft and Gesellschaft*, traditional and rational-bureaucratic authority, and mechanical and organic solidarity), *modernization theory* in the strict post-Second World War sense was absent from classical sociology and arose *sui generis* in the 1950s. It emerged principally in the Cold War years as a paradigm aimed at legitimizing Western liberal institutions.⁵ Although drawing on earlier views of capitalism, and particularly on Weber’s notion of rationalization, post-Second World War modernization theory transformed these in the process of constructing a rigid, unilinear development model at sharp variance with the deeper, more probing traditions of classical sociological analysis.⁶ This was particularly evident in its promotion of crude human-exemptionalist notions of the conquest of nature, in contrast to the more historically mediated, environmentally conscious views of classical sociology.

Modernization theory was concerned first and foremost with the promotion of the ideology of Cold War liberalism. For Edward Shils, one of the primary developers of this perspective, writing in 1959:

“Modern” means democratic and equalitarian, scientific, economically advanced and sovereign. . . . “Modern” means being western without the onus of following the West. It is the model of the West detached in some way from its geographical origins and locus. (Gilman, 2003a, pp. 1-2)

Likewise, Robert Bellah, whose early work was devoted to the articulation of modernization theory, declared that liberalism “was the primary ideology of modernization” and could be identified with the West. It thus constituted the endpoint of social evolution (Bellah, 1970, p. 69; Gilman, 2003a, p. 19). However, the foremost figure in the development of modernization theory was Harvard sociologist Talcott Parsons, who sought to provide a wider discourse for sociology, embodying a broader cultural logic of rationalization, of which economics was simply a “special case” or subsystem. Parsons’s approach and vocabulary were then used to articulate a dominant version of liberalism as modernization, within an imputed normative-rational realm.

Modernization theory, constructed on a Parsonian basis, incorporated as its structural-functional core such concepts as functional differentiation, rationalization, and individualization (Parsons and Smelser, 1956, pp. 6, 307-309; also Camic, 1989, pp. 52-62, 71-95; Gilman, 2003a, pp. 80-85; Seippel, 2000, p. 300).

Characteristic of modernization theory was its adoption of what Weber (1903-1905/1975, p. 118) had critically referred to as a “metaphysical . . . belief in ‘progress.’” Indeed, “to be modern,” as Jeffrey Alexander (1990, p. 16) put it, “is to believe that the masterful transformation of the world [including all of nature] is possible, indeed that it is likely.” Post-Second World War Western modernization theorists saw perpetual, unilinear economic development, celebrated by W. W. Rostow’s *Stages of Economic Growth*, as an inherent product of capitalist institutions, rooted in the conquest of nature. Rostow (1960) defined “maturity,” his fourth stage of economic development, which he identified with Western Europe, as

the stage in which an economy demonstrates that it has the technological and entrepreneurial skills to produce not everything, but *anything that it chooses to produce* [italics added]. It may lack (like contemporary Sweden and Switzerland, for example) the raw materials or other supply conditions required to produce a given output economically; but its dependence is a matter of economic choice or political priority rather than technological or institutional necessity. (p. 10)

A shortage of raw materials or other natural supply conditions, then, could be surmounted by various means at the stage of economic maturity, no longer constituting a fundamental constraint to a country capable of producing “anything it chooses to produce.” (Only the United States, according to Rostow [1960, pp. 10-11], had reached the fifth and highest stage of “high-mass consumption” or “post-maturity,” marked by the diffusion of welfare and security, and the rise of the automobile.)

A major challenge to this belief in inevitable progress, modernization, and growth emanating from liberal institutions was provided by the development of ecological theory in the late 1960s and early 1970s, most notably by the Club of Rome’s publication of *The Limits to Growth* (Meadows, Meadows, Randers, & Behrens, 1972). This served to bring the exemptionalist basis of modernization theory into the open, as the sociological mainstream desperately sought to derail the idea of limits to growth, viewed as a threat to the modernization perspective. Thus, in *The Coming of Post-Industrial Society* and other works, Daniel Bell (1973) attacked the limits to growth from the standpoint of modernizing ideology. As Bell (1977, pp. 18, 21) wrote, “If one thinks only in physical terms, then it is likely that one does not need to worry about ever running out of resources.” There was no ecological basis, therefore, for questioning the capitalist juggernaut. “Economic growth,” he declared, “is desirable, possible, and necessary.” Indeed, “economic growth,” as Bell (1976, p. 231) indicated admiringly, has become “the secular religion of advancing industrial societies.” His argument in *The Coming of Post-Industrial Society* specifically attacked the “spectre of Doomsday” presented by ecological analysis, spurning this as an outgrowth of classical “Malthusian-Ricardian scarcity” and the stationary state notion of John Stuart Mill. “The next hundred years,” he wrote, would be characterized by the “compound interest” of economic growth, overcoming all ecological limits to expansion. “Land” was “always abundant”; resources were there for the taking if seen in economic rather than material terms. For the first time, human hunger and subsistence needs were being solved (Bell, 1973, pp. 463-466).

Likewise Seymour Martin Lipset (1979, pp. 18-24) defended modernization theory against limits of growth conceptions, arguing that population had probably doubled for the last time in the 1970s. Lipset believed that substitutes could be found for whatever natural resources were in short supply, proclaiming that he tended “to be an optimist about growth and innovation.”

Another influential post–Second World War sociologist and modernization theorist, Robert Nisbet (1980, pp. 334–339), complained that “doomsday predictions,” claiming that economic growth would have to cease, resources and materials use would have to be curtailed, and large areas of land and water would have to be protected as ecosystems, were gaining ground in modern society. It was therefore necessary to defend the concept of “modernization, so long cherished by the great majority of Western intellectuals” against this growing ecological attack. In an article titled “The Rape of Progress,” Nisbet (1979) criticized environmentalists for refusing to accept “new and vital forms of energy making growth possible,” such as nuclear power. The biggest threat that the limits to growth perspective represented, according to Nisbet, was “the complete disappearance—among intellectuals, not yet perhaps the majority of the people—of faith in progress.” Such challenges to progress were exaggerated and irresponsible, “given still-untapped sources of energy” and possibilities for greater efficiency and modernization.

The Rise of the New Exemptionalism

Looking at today’s ecological modernization theory, it would be hard to miss the close family resemblance to earlier post–Second World War modernization theory. This strong genealogical link is in fact emphasized by the principal proponents of the ecological modernization doctrine themselves. Maarten Hajer (1995, p. 33) describes ecological modernization in traditional modernization terms as “a policy strategy that is based on a fundamental belief in progress.” In attacking eco-socialist theories, such as those of Rudolf Bahro (Germany), André Gorz (France), and Barry Commoner (United States), Spaargaren (1997, pp. 9–11) claims that they wrongly sought to overturn the mainstream modernization current of “industrial society theory” as this was “developed by Daniel Bell and others.” Eco-socialists are thus faulted for rebelling against what they saw as modernization theory’s “naïve belief in the essentially benign character of technology and its lack of class-analyses.”

According to Spaargaren (1997; see also Mol, 1995), ecological modernization theory was an outgrowth of postindustrial society views “put forward by Daniel Bell, Alvin Toffler,” and others. The foremost theorist of modernization, he stressed, was Talcott Parson, who used it

to denote. . . rather “neutral” concepts [such] as rationalization, functional differentiation and the development of subsystems like economy, politics, law and religion. It [modernization] also came to represent a model of social change in which social systems were driven from lower to higher stages of development by factors stemming (only) from within the social system itself. . . . So modernization theory . . . represented both a set of “neutral” in the sense of formal concepts as well as a set of substantive, normative concepts and procedures. (pp. 17–18)

Post–second World War modernization theory, Spaargaren (1997, pp. 17–18; 2000, p. 54) tells us, was constructed on these functionalist-positivist foundations, as laid by Parsons and Bell. It was then supplemented, beginning in the early 1980s, by thinkers like Joseph Huber (2009) to take into account the issue of the modernization of the environment itself.

The basic assumptions of modernization theory are thus carried forward within the ecological modernization perspective. Spaargaren, like other ecological modernization theorists, makes the human-exemptionalist claim that there is no serious conflict between capitalist modernity and sustainability (viewed in terms of the perpetuation of industrial-capitalist society), and hence no reason to abandon the basic modernization project.⁷ And just as ecological crisis offers no obstacle to unlimited modernization, class struggle, as in the post–Second World War end-of-ideology perspective (identified in particular with Bell, 1960), constitutes no barrier to perpetual capitalist

industrialization. "Class conflicts," Spaargaren and Mol (1992, p. 330) contend, "belong typically to the birth period of industrial society and lose their significance during the later phases of its development."

This smooth transition from early post-Second World War modernization theory to today's ecological modernization theory reflects nothing so much as a continuous relation to institutions of dominance, defining both perspectives. "The ideas of the ruling class," Marx and Engels (1975, Vol. 5, p. 59) famously observed, "are in every epoch the ruling ideas." "Modernization" as a ruling idea is a case in point. The term *modernization* in ecological modernization discourse is an expression of conformity to dominant institutions, which are seen as the very epitome of *modern*. When Szerszynski, Lash, and Wynne (1996, p. 19) wrote in *Risk, Environment, and Modernity* that ecological modernization constitutes "a new dominant paradigm in the politics of the environment—that is, a new truth of growth and sustainability," they rightly recognized that no concrete evidence in support of this contention was necessary. This was because what they were claiming for ecological modernization, in referring to it as a "dominant paradigm," was not simply its *predominance* as a social scientific category within environmental discourse, but, more importantly, its conformity with prevailing interests and institutions, that is, a position of cultural (or ideological) hegemony, designated as inherently modern and modernizing.

Thus, ecological modernization exponents frequently point to leading political and corporate figures and establishment pundits (as well as to hegemonic international organizations and processes)—rather than to leading natural scientists or environmental social scientists—as evidence of the "dominance," that is, the power within the establishment, and hence the "truth," of their ideas. For example, David Schlosberg and Sara Rinfret (2008, pp. 258-267), in writing about "Ecological Modernisation, American style" point to Al Gore, Thomas Friedman, Paul Hawken, and Wal-Mart (and even to movie stars such as Tom Hanks) as icons of ecological modernization, in order to celebrate its establishment connections.

Hajer (1996), as a leading proponent of ecological modernization, points straightforwardly to its hegemonic position within environmental policy discussions, which he attributes to its adherence to the "institutionalized" language and mores of the power elite:

The dyed-in-the-wool radicals of the 1970s had a point but failed to get it through. This was partly due to the rather unqualified nature of their *Totalkritik*. The new consensus on ecological modernisation is here attributed to a process of maturation of the environmental movement: after a radical phase the issue was taken off the streets and the movement became institutionalised as so many social movements before it. With the adoption of the discourse of ecological modernisation its protagonists now speak the proper language and have been integrated in the advisory boards where they fulfill a "tremendously important" role showing how we can design new institutional forms to come to terms with environmental problems.⁸ (p. 251)

The "consensual" nature of ecological modernization discourse that Hajer refers to here is the hegemonic consensus of power. Ecological modernization discourse thus derives its peculiar status from the fact that it "speaks the proper language," that is, the language of the vested interests, placing its faith in the "dominant institutions." Or, as he states elsewhere, it "uses the language of business" (Hajer, 1995, p. 31). This hegemony is furthered by financial means. European Union funding of social-scientific research on the environment, it has been shown, is directed mainly at work that promises to further the ecological modernization perspective (Giorgi & Redclift, 2000).

All of this means the taming and modernizing of environmental sociology itself, which has now to a significant extent taken on the exemptionalism that it once rejected. As Australian

political scientist Peter Christoff (1996) noted, most prominent forms of ecological modernization theory can be seen as

contributing to, or constituting, a unilinear path to ecological modernity. Consequently they seem to be offering a revival of mainstream development theory . . . positing EM as the next necessary or even triumphant stage of an evolutionary process of industrial transformation—a stage dependent upon the hegemony of Western science technology, and consumer culture. (p. 487)

Today the deep penetration of the ecological modernization concept (as well as the notion of ecological modernization theory more specifically) into environmental social science and academic thought generally is readily discerned. A topic search on *Web of Science* conducted in June 2012 revealed 232 results for “ecological modernization,” as compared to 60 for “new ecological paradigm,” 42 for “treadmill of production,” 31 for “ecological modernization theory,” and 31 for “metabolic rift.” A search of *Sociological Abstracts* on the same date (no full text, all fields, all years) brought up 201, 71, 43, 42, and 36 results, respectively, for “ecological modernization,” “treadmill of production,” “new ecological paradigm,” “ecological modernization theory,” and “metabolic rift.” Finally, a search of articles in a major research university’s digital card catalog in June 2012, using “ecological modernization” as a search term, generated 834 results, as compared to 300 for “new ecological paradigm,” 148 for “ecological modernization theory,” 131 for “treadmill of production,” and 93 for “metabolic rift.” In each case “ecological modernization” was revealed to be the predominant term, although “ecological modernization theory” also ranked significantly.⁹

Of even greater symbolic significance in highlighting the considerable stature that the ecological modernization perspective has acquired within environmental sociology, is the fact that in 2010, the Environment, Technology, and Society Section of the American Sociological Association granted its highest honor, the Fred Buttel Distinguished Contribution Award, to Arthur Mol, the leading representative of ecological modernization theory. The award was given to Mol in recognition of his extensive work promoting the ecological modernization perspective, despite its strong human-exemptionalist claims with respect to the environment.

The significance accorded to the ecological modernization perspective in environmental sociology was underscored by the inclusion of three chapters directly addressing ecological modernization (out of a total of 26 chapters altogether) in the 2010 edition of *The International Handbook of Environmental Sociology* (Redclift and Woodgate 2010), with two of those chapters written by Mol (the other critical of the ecological modernization perspective). This compares to only one chapter focusing on ecological modernization in the 1997 edition. Judging by the index to the 2010 edition, “ecological modernization” was the most frequently referred to concept (outside of “environmental sociology” itself) in the volume (by page counts), occurring many times as frequently as “new ecological paradigm” or “ecological footprint”; whereas such key concepts as “treadmill of production,” “metabolic rift,” and “environmental justice” rated zero entries in the index. Similarly, Mol’s (and likewise Spaargaren’s) work, judging by page counts in the index, was accorded much more attention in the 2010 edition of *The International Handbook of Environmental Sociology* than that of almost all other contemporary thinkers, with three of the discipline’s founders (Buttel, Catton, and Dunlap) constituting the only exceptions. (Schnaiberg’s work in comparison barely drew mention outside of a posthumous chapter authored by Buttel.)

The discursive influence of the ecological modernization concept within today’s academic environmental discourse is therefore impossible to ignore. Nevertheless, this should not be interpreted as a measure of its actual status within academic research, where it remains highly

questionable. Rather, the central role played by ecological modernization theory in contemporary discussions can be attributed to the fact that the modernization perspective stands for the governing “vocabulary of motive” (Mills, 1940, p. 910; see also Burke, 1945) in the larger society as mediated by the power elite.

With this as background, it should hardly surprise us that there is very little difference between the language and emphases of today’s ecological modernization theorists, and the earlier stances adopted by post-Second War modernization theorists such as Bell, Lipset, and Nisbet, when entering the limits of growth debate. The direct response of Bell, Lipset, and Nisbet to the question of ecological constraints was to argue—in line with the Human Exemptionalist Paradigm—that dominant institutions could continue to promote the modernization process, by technological and market means, with no need for major changes in social relations, or movement away from a commitment to economic growth. Hence, today’s ecological modernization proponents see Bell and other early modernization theorists as progenitors of their views.

There is, in fact, a considerable similarity between the ideas of today’s new exemptionalists and the early formative views of Ostwald within physical science at the outset of the 20th century, promising freedom from all environmental constraints. This was a view that Weber, as we have seen, subjected to critical refutation on ecological grounds. Huber (2009, p. 48) writes of “the necessity of ecological re-adaptation in industrial society, which *in fact* can be achieved only through technological innovation.” Hajer (1996, p. 249) integrates this with the ends of industrial capitalism, claiming “ecological modernisation is oriented precisely toward those forces that Schumpeter identified as producing the ‘fundamental impulse that sets and keeps the capitalist engine in motion.’” Ecological crisis, for Hajer, constitutes no real barrier since

ecological modernization . . . starts from the conviction that the ecological crisis can be overcome by technical and procedural innovation. What is more, it makes the “ecological deficiency” of industrial society into the driving force for a new round of industrial innovation. As before society has to modernize itself out of the crisis. (p. 249)

This assumes the existence of a “hyper-rational strategy” of technical development, promising unlimited economic development at limited (even zero) ecological cost (Cohen, 1997, p. 105).

This argument is not lost on U.S. ecological modernization proponents, Dana Fisher and William Freudenburg (2001, p. 702), who state: “One of the key characteristics” of ecological modernization theory is that it sees

continued industrial development as offering the best option for escaping from the ecological crises of the developed world. Unlike critics who see technological development as being generally problematic—pointing to a potential need to stop capitalism and/or the process of industrialization to deal with ecological crises. (p. 702)

Ecological modernization theorists “argue that environmental problems can best be solved through *further* advancement of technology and industrialization.” They insist that solutions to the ecological problem “necessarily lie in more—rather than less—modernization and ‘superindustrialization’” through the development of a “sustainable capitalism” (Buttel, 2000B, p. 61 see also Cohen, 2000; Spaargaren & Mol, 1992).

A core meta-theoretical claim of ecological modernization theory is that environmental rationality represents its own separate, disembedded cultural logic, which displays “growing autonomy” from other sociological logics or processes (including the economy), and can thus be grafted onto or melded with the present system without altering any fundamental sociological features of the system (Spaargaren, 1997, pp. 20-22; also Buttel, 2009, p. 128; Mol, 2010a, p. 67,

2002, p. 109). Thus, Mol (1996) described what he called “the ideology of ecological modernization” as the view that “an environmentally sound society” can be created without reference to

a variety of other social criteria and goals, such as the scale of production, the capitalist mode of production, workers’ influence, equal allocation of economic goods, gender criterion, and so on. Including the latter set of criteria might result in a more radical programme (in the sense of moving away from the present social order), but not necessarily a more ecologically radical programme. (pp. 309-310)

In other words, the question of ecological modernization can be decoupled from the social question, in general.

Ecological modernization theory in this sense is closely related to political modernization theory, namely, the notion that arose in the Cold War West “that a meliorist, rationalizing, benevolent, technocratic state was capable of solving all social and especially economic ills” (Gilman, 2003b, p. 56). As Buttel, Spaargaren, and Mol (2006, p. 358) avow, “ecological modernization can be interpreted as, at root, a theory of political modernization.” Fisher and Freudenburg (2004, p. 160) go so far as to point to a conflict between the “environmental sociology and environmental state literatures” with ecological modernization belonging to the latter and not the former. Yet political modernization, historically has itself been less a theory than a putative claim as to certain enduring functional relationships within a teleologically conceived process of increasing modernity, identified with a Western-capitalist value structure in a Cold War-derived context (Gilman, 2003b).

Still, the emphasis of ecological modernization theory in this respect seems to be shifting somewhat in recent years from *public regulation* by government to *private authority* in the *governance* of ecological flows (Berger, Flynn, Hines, & Jones, 2001). As noted by Mol (2010c, p. 67), “since the 1990s private market authority is gaining ground vis-à-vis public authority.” Private authority here belongs to a putative world of corporate self-governance. Hence, the privatization of formerly public authority is seen as entirely consistent with ecological reform or regulation, since corporations, along with transnational authorities, such as the WTO, are said to be increasingly disposed toward private self-governance and self-regulation of environmental flows through voluntary measures in line with ecological rationality. Thus, in relation to biofuels, Mol (2010c, p. 74) points to what he describes as the “moderate” promotion of “actively sustainable production” and increased “environmental governance” emanating from corporations such as Shell, BP, and Petrobras, Archer Daniels Midland, and Cargill. At the same time, its role in regulating biofuels “could,” Mol (2010c, p. 71) contends, help “legitimise the existence of [the] WTO.” Corporations and corporate-dominated international organizations are not seen here as the problem (as in the treadmill of production perspective) but as the solution.

The main pretensions of ecological modernization to constituting a new theoretical framework—and not simply a discursive add-on to the post-Second World War modernization perspective—have to do with attempts to merge it with analyses of reflexive modernity, associated with the work of Ulrich Beck, Anthony Giddens, and Scott Lash (1994). The concept of “reflexive modernity” arose out of Beck’s (1992, 1999) original “risk society” conception, with the former constituting the positive counterpart of the latter. Here, the idea is that of a new phase of reflexive modernity, in which society reacts automatically (reflex-like) to its basic modernization tendency and improves it in response to growing externalities. This is the second phase, of “modernizing modernity,” as opposed to the initial phase of modernization, which had simply to do with modernizing traditional society (Beck, 1992; Mol, 1995). Some have characterized the reflex-like response, stipulated by reflexive modernity (and ecological modernization) theory, as a “new automatism,” in which industrialization is both self-generating and self-improving (Joas, 1990).¹⁰

There has been a considerable convergence of perspectives in this area, with reflexive modernization thinkers such as Beck, Giddens, and Lash, taking on aspects of the ecological modernization perspective, whereas ecological modernization theorists, such as Mol and Spaargaren, have embraced the notion of reflexive modernity.¹¹ The idea here is that modernization is not a simple, unilinear logic but one that can bend somewhat, picking up new elements, internalizing its own externalities. In the end, though, this amounts merely to the notion that capitalism can learn how to develop technological and market fixes to environmental problems, without altering the nature of social relations. Only the machines and markets will change.

The broad implications of reflexive eco-modernization theory along these lines are presented by Beck (2010, p. 73), who strongly evokes, with respect to our most dire environmental problem, what he calls “the global consensus on climate protection that is now within reach [and which] is also creating new markets.” He goes on to declare in no uncertain terms: “Under a regime of ‘green capitalism’ composed of transnationally structured ecological enforced markets, ecology no longer represents a hindrance to the economy. Rather, the opposite holds: ecology and climate protection could soon represent a direct route to profits.” Likewise, Giddens (1998, p. 19) argues that environmental protection is increasingly “a source of economic growth rather than its opposite.” British ecological modernization theorist, Albert Weale (1992, pp. 75-78, 88), in referring to “the structure of ecological modernization as an ideology,” points out that its emphasis on an “environmentally sound [market] economy” is geared to “a more pro-industry version of policy.” Indeed, “ecological modernization is mercantilism with a green twist.” For Mol (1995, pp. 41-42) its pro-capitalist stance is a defining characteristic of the ecological modernization paradigm: “Ecological modernization theorists believe . . . that the environment can be protected within the logic and rationality of capitalism. . . . ‘Green’ capitalism . . . is seen as possible, and in some respects even desirable.” For Mol and Jänicke (2009, p. 24) ecological modernization theory is concerned with “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 this view, environmental degradation, including climate change, is in the process of being solved by a dynamic, reflexive capitalism, which also benefits from the spur that this gives to profits, investment, and growth. It is assumed that a technologically reflexive capitalist modernity will be able to expand, seemingly indefinitely, without detrimentally affecting the climate and that human society (particularly capitalist industrialization) is in effect exempt from the physical limitations of the earth system. For Mol (1995, p. 41) ecological modernization “in economic terms” means “the incorporation of nature as the third force of production [after labor and capital] in the capitalist economic process.” The capitalist economy thus can exempt itself from (or surmount) nature’s limits by the full internalization of nature within its all-determining logic. Indeed, Hajer (1996, p. 252) goes so far as refer to “ecological modernization as the perception of nature as a new and essential subsystem” of industrial society. (Many of course would object that nature is neither “new” nor a “subsystem”!) Central to this new exemptionalist frame, then, is the explicit rejection of all nonanthropocentric or “ecocentric” perspectives.

Empirical and Theoretical Failings of the New Exemptionalism

The evidence that Mol and other ecological modernization proponents commonly point to in support of their contention that the “environmental side effects of global capitalism” are being “tamed” (Mol, 2001, pp. 206-207) usually consists of the mere formal existence of institutional processes—such as clean water initiatives, the Kyoto Process (the United Nations Framework Convention on Climate Change), and the “greening of NAFTA” (Mol, 2001, pp. 107, 125)—without any evaluation of the actual effectiveness of these initiatives in meeting environmental

goals. In fact, ecological modernization theorists rarely address concrete macro trends associated with the planetary rift, world-system dynamics, and environmental injustice. Although the new exemptionists sometimes provide specific, localized examples of eco-modernization (e.g., improvements in a particular plant or the passage of a new law) their research strategies generally avoid larger data sets, the assessment of general trends, the complexity of natural-social relations, and world-system dynamics. They thus are unable to provide concrete validation for their claims with respect to society/the planet as a whole.¹² Even the breakthroughs in ecological footprint analysis that have been so effective in illuminating the social impacts on the environment on a global level are held at arm's length, with Buttel et al. (2006, p. 359) explicitly opposing ecological modernization theory to what they derisively call "'footprint' social sciences."

So meager are the empirical bases of the ecological modernization perspective that numerous environmental-sociological studies geared to the empirical assessment of the ecological modernization doctrine have had to supply the missing concrete indicators—simply to test this hypothesis. Hence, environmental sociologists have commonly used the alleged Ecological Kuznets Curve of environmental economics as a surrogate empirical approach standing in for the ecological modernization perspective, allowing its hypotheses to be evaluated (see York et al., 2010, pp. 85-88).¹³ One such recent empirical study by critical scholars testing the ecological modernization hypothesis (Jorgenson & Clark 2012) demonstrates that there has been a slight relative decoupling of per capita GDP growth and carbon emissions in the wealthy developed economies for the 1985-2006 period. This slight relative effect, however, cannot be considered meaningful dematerialization since the overall carbon (and more comprehensively ecological) footprint of these countries continues to rise substantially, and has already far outstripped the carbon-absorption capacities of the atmosphere. That is, the carbon footprints of developed countries are already well beyond what the planet can sustain and continue to rise. Moreover, recent scientific evidence has suggested that the worldwide slowdown in economic growth associated with the 2007-2009 crisis had a much smaller effect than expected on the growth trend of carbon emissions worldwide, because of the increasing global fossil-fuel intensity of production. In 2010, despite a sluggish global economy, carbon emissions reached a record high. "Thus," as reported in *Nature Climate Change*, "after, only one year, the GFC [global financial crisis] has had little impact on the strong growth trend of global CO₂ emissions that characterized most of the 2000s." The growing fossil-fuel intensity of the world economy that this points to can be seen as evidence of ecological *demodernization* at the level of the globalized capitalist system (Peters et al., 2012).

Such visible trends, so dramatically opposed to the expectations of ecological modernization theorists, have clearly deterred them from rooting their analysis in empirical data. In fact, a strong aversion to scientific data and empirical evidence (especially in the aggregate) within this perspective has been raised to the level of a methodological principle. Thus, in recent years, ecological modernization theorists have employed an anti-realist, postmodernist-style criticism of scientific knowledge and practice, displaying a strong skepticism toward empirical results and quantitative analysis (e.g., Wynne, 2010).¹⁴ For Mol and Spaargaren (2005, pp. 94-95), it is important to recognize "the limitations of empirical studies in closing larger theoretical debates." Mol (2002, 97) simply sets aside scientific evidence supporting notions of ecological constraints and crises, observing: "The large variety in data sets, criteria, variables, time intervals and the like rule out the possibility of any 'objective' final answer or conclusion." Elsewhere, Mol and Spaargaren (2004, p. 261) went so far as to pronounce "the irrelevance of 'more' or 'less.'" The fact that U.S.-based criticisms of ecological modernization theory have thus far been heavily empirical is often treated by ecological modernization proponents as a weakness rather than a strength (see Buttel, 2006, p. 176).

To be sure, ecological modernization theorists in the last few years have seized on the idea of the governance of environmental flows (including material flows) as the key to the development of an ostensibly more empirically based modernization perspective. Yet in the entire 377-page book edited by Spaargaren, Mol, and Buttel (2006) on *Governing Environmental Flows*, one searches in vain for a single material assessment of transnational or even national ecological flows. What one finds instead are a number of abstract case studies of “governance principles” related to a hodgepodge of biodiversity, rivers, eco-labeling strategies, transnational buildings, and transportation management. Pioneering developments in material flow analysis, which show the increasing ecological “weight of nations” (e.g., Fischer-Kowalski, 1997; World Resources Institute, 2000) are simply ignored, whereas a nebulous treatment of networks, flows, and fluids is provided instead.

The abstract character of the flow analysis of ecological modernization theory is no doubt traceable in part to its source of inspiration in the works of Manuel Castels and John Urry. As Spaargaren et al. (2006, pp. 365-366) acknowledge, “intrinsic to Castell’s position is that he finds relatively little about the material world and environment that is of interest or importance.” While Urry fails to distinguish “environmental-type flows/fluids” from “social types of flows/fluids,” thus treating all flows and fluids as “essentially homogeneous.” The result of such reified conceptual foundations is a highly abstract discourse—Whitehead’s (1925) fallacy of misplaced concreteness. All flows/fluids, whether cultural or biophysical, take the same universal, homogeneous (“night in which all cows . . . are black”) form.¹⁵ Implicitly acknowledging the fatal weaknesses of this whole approach, Spaargaren et al. (2006) state,

A . . . challenge concerning global environmental flows is that its practitioners should take some care to ensure that the concepts of flows and fluids do not lapse into a highly abstract, nonempirical, metaphorical, and ultimately dematerialized view of the environment. (p. 365)

More recently, Mol (2007, p. 302) has extended the flows approach to the concrete issue of biofuels. But again this falls prey to a kind of studied obscurity, as in his opaque statement: “Global fluids [such as biofuels] are spatial patterns structured neither by boundaries nor by more or less stable relations, but by large flexibility, liquidity, gel-like movements and permeable boundaries.”

In line with its general aversion to empirical analysis and realist science, ecological modernization analysis almost invariably closes its eyes to evidence on today’s accelerating planetary rifts. The scientific consensus on climate change, the product of intensive research—reinforced by numerous political-economic studies by environmental social scientists—powerfully challenges the complacency and ambivalence of most ecological modernization theory (see Dunlap and Marshall, 2007; York and Dunlap, 2012, pp. 505-507; York et. al., 2010, pp. 80-86). Yet the new exemptionalists have been able to elude such research results by declaring “off limits” such basic scientific categories as ecosystem and evolution, failing even to take into account human-induced environmental change (see York et. al., 2010, p. 87). Indeed, Spaargaren and Mol (1992, p. 326) have insisted, in classic exemptionalist terms, on “a further emancipation” of environmental sociology from “bioecological schemes and models” and from the “socioecological kernel of the subdiscipline” as it now stands. In this view, the development of environmental sociology requires a radical severance from ecological concepts and all “eco-centrist” notions (Mol and Spaargaren, 2009, p. 35).

Ironically, despite its strong aversion to empirical analysis and its corresponding theoretical pretensions, the new exemptionalism is as weak theoretically as it is empirically. It has few propositions, other than a vague claim as to reflexivity, to add to traditional modernization

theory, while generally avoiding any explicit treatment of the latter (not wishing to stress its Parsonian foundations). Buttel (2000b, pp. 58, 64; see also Carolan, 2004, pp. 255-256), himself a strong proponent of the ecological modernization perspective, wrote that ecological modernization analysis “lacks an identifiable set of postulates” or “research hypotheses,” and thus is “indistinct as a social theory.” So great was this failing that he insisted ecological modernization was essentially an “environmental science and environmental policy concept which has subsequently been buttressed with a number of citations to sociotheoretical literatures some of which are mutually quite contradictory.” Likewise Ørnulf Seippel (2000, pp. 297-299) concluded in his survey of ecological modernization as a theory: “The discourse on ecological modernization provides inadequate analyses of the characteristics of the social systems” addressed. Furthermore, “attempts to construct a theory in the stricter sense of the term—assumptions, hypotheses, and social mechanisms are not important in the ecological modernization discourse.” As Mol (2010a, p. 74) admitted, ecological modernization “remains far from a systematic, coherent theory.” Two leading U.S. ecological modernization theorists have recently gone so far as to propose that ecological modernization be promoted as a new “modernizing theology”—no doubt seeing genuine realist-scientific analysis (as opposed to theology) as an obstacle to its continuing advance (Shellenberger & Nordhaus, 2011).

Like political modernization theory before it, and to a far greater extent, ecological modernization analysis has developed without any explicit conception of power relations. Not only is class analysis rare in this perspective, given its “modernizing” assumptions, so is the consideration of all other dimensions of power/inequality. Thus, Mol (2006, p. 14) acknowledges, there is a “near absence of environmental justice studies,” concerned with racial and socioeconomic inequality, within environmental sociology in Europe—the principal geographical locus of ecological modernization research. He attributes this to what he calls “the apparent stronger patterns of racial and socioeconomic segregation in the United States, compared with most West-European countries.” Nevertheless, the neglect of these issues in the ecological modernization perspective can be seen as deeply embedded in its basic model, since the risk society analysis on which it so heavily relies systematically downplays traditional notions of class and hierarchy, arguing that a defining characteristic of risk society is that everyone is essentially in the same boat. As Beck (1995, p. 3; see also Spaargaren & Mol, 1992) puts it: “there is no ecological proletariat.”¹⁶

Hence, skirting direct consideration of power or dominance, ecological modernization theory substitutes, as we have seen, issues of “authority” (Mol, 2010c). Such environmental authority is viewed as taking the form of: (a) a growing “state-society synergy,” that is, a kind of public-private authority partnership (Buttel, 2000a, p. 33); (b) the actual merging of state authority and private authority; or (c) the subordination of public to private authority (Mol, 2010c). The emphasis on authority (increasingly private authority) as opposed to power or hegemony is thus a product of ecological modernization’s focus on elite policy-driven processes rather than social struggle. The result, however, is the systematic marginalization of key sociological variables related to environmental justice: class, gender, race, international exploitation, and even democratic movements and struggles.

The theoretical weaknesses of ecological modernization theory are further evident in the failure to engage directly with the classical traditions of sociological thought, as represented by Marx, Weber, and Durkheim. As Mol (2006, p. 12) points out, U.S. environmental sociologists demonstrate “a stronger reliance” on “classical sociological theories” than do their European counterparts (notably ecological modernization theorists) who rarely “take the classics as a basic entry point.” Although it is sometimes broadly suggested (Beck, 1999, pp. 10, 33, 82, 133; Buttel, 2006b, pp. 63-64, 2009, p. 133; Cohen, 2000, p. 100; Mol, 1995, p. 31; Spaargaren, 2000, p. 54; Spaargaren, Mol & Sonnenfeld, 2009, p. 504) that Weber (or Weberianism) lends credence to notions of modernization and rationalization, and even to a kind of reflexive modernity, there is

no actual consideration of Weber's environmental ideas within the ecological modernization literature.

For Weber, as we have seen, all such reflexivity on the part of capitalism was in doubt, as were metaphysical notions of progress. Indeed, he can be viewed as a classical forerunner of environmental-regime analysis within sociology, since he argued that the rational-inorganic process of capitalist modernization was erected on the temporary foundations of a specific fossil-fuel regime—pointing to fateful socioeconomic/ecological contradictions in the future. This is most dramatically evident in his famous statement in *The Protestant Ethic and the Spirit of Capitalism* referring to the time when “the last ton of fossil fuel has burnt to ashes” (Weber, 1905/2009, p. 157). Nothing is more removed from Weber than the new exemptionalism of today's ecological modernization theory based on an abstract notion of environmental rationality divorced from the larger material-environmental conditions and social processes of capitalist production (Foster & Holleman, 2012).

In a resounding theoretical critique, eco-feminist theorist Ariel Salleh (2010) has perhaps best captured the earth alienation and exploitation embodied in the reified language of contemporary ecological modernization theory, declaring:

In the push for “resource efficiency,” ecological modernisers externalize production costs on to the living bodies of others, then on to green nature or habitat down the line. Thus in the eurocentric vision of a “third industrial revolution,” Germany as “the responsible energy-efficient technician” is really living on credit, buoyed up by an increasing ecological debt for nature in the global South, a social debt to exploited factory workers, and an invisible embodied debt to women as reproductive labour worldwide. (p. 125)

For such critical ecological theorists, the globalization of externalities militates against a narrow conception of environmental rationality divorced from other social concerns.

Ecological Modernization, Capitalism, and the Planetary Crisis

The role exercised by ecological modernization tendencies at some level within capitalist society has never been in doubt. Thus, Marx (1981, pp. 195-198) described in detail how capitalist enterprises endeavored to reduce and recycle “the refuse of production” insofar as this conformed to profit-making goals. Environmental sociologists obviously need to take such concrete processes of ecological modernization into account in their research. However, this does not constitute an argument for ecological modernization *theory* as such, with its teleological commitment to progress, its acquiescence to the status quo, and its lack of attention to the larger sociological, economic, and ecological context.

Despite (or rather due to) their concern with cost reduction, capitalist firms are characterized by the production of externalities, that is, unpaid costs of private enterprise that are *systematically* imposed on society and nature. In recognition of this, ecological economist K. William Kapp (1971, p. 231) once called capitalism the “economy of unpaid costs.” Although state regulation sometimes serves to ameliorate this externalizing tendency of the system, capital strenuously resists restrictions on its “creative destruction” with respect to the environment—where this is seen as threatening the accumulation of capital itself. This raises insurmountable barriers to ecological reform within the system (see Magdoff and Foster, 2011, pp. 88-93).

Ecological modernization theory stresses narrowly defined environmental improvement on a national level, principally in the rich countries of the Triad (the United States, Europe, and Japan), while generally ignoring the ways in which such improvements are shown by ecological footprint analysis to be dependent on greater resource extraction from the global South, and on

the movement of polluting industries and toxic wastes abroad to poorer countries. It thus falls prey to what environmental sociologists call the Netherlands Fallacy (York and Rosa, 2003), p. 279.¹⁷

This is not to say that the new exemptionists have altogether neglected developments in the global South. Mol (2010b) has written of nascent environmental policy reforms in China—which, however, are still overshadowed by accelerating ecological destruction.¹⁸ Sonnenfeld (2009, pp. 372-90) has pointed to the environmental rationalization of production plants (waste reduction and recycling) in Southeast Asian countries such as Thailand and Indonesia. However, rather than dematerializing economies, what Sonnenfeld (2009) discovered in his research was a general “supermaterializing [tendency] in the South,” that is, a vast increase in the throughput of energy and resources.

Related to its general failure to develop an ecological analysis of the world-system, ecological modernization theory assiduously avoids any serious engagement with high-impact planetary ecological crises such as climate change, biodiversity loss, ocean acidification, and loss of global freshwater resources. Despite its pretensions to being the dominant social-scientific discourse on the environment, it has thus been extremely selective in the objects of its analysis. According to Mol (1996, p. 317; see also Mol, 2001), “ecological modernization has ‘normal’ environmental problems such as water pollution, chemical waste and acidification as its main frame for reference.” Hence, the main global environmental crises have generally been outside its purview.

Consideration of such abnormal, “high-consequence risks” and supranational environmental problems, Mol (1996, p. 317) declared more than a decade and a half ago, calls for a whole new phase of ecological modernization analysis capable of addressing global issues. Yet this has not been forthcoming. Mol’s (2001, p. 47) book *Globalization and Environmental Reform*, strongly proclaimed that the “all-pessimistic or even apocalyptic interpretation of a capitalist-industrial society unable to reform itself along lines of sustainability . . . has melted into air.” Yet no concrete basis for this statement was provided. Indeed, one would be hard pressed to find a single sentence in the book consisting of a fact-based assessment of climate change: its causes, its trajectory, its significance, or the means needed to address it, much less actual achievements in reducing carbon emissions. Although the words “climate change,” “global warming,” and “greenhouse effect” appear it is usually as part of lists of environmental problems or with reference to international initiatives, such as the UN Framework Convention on Climate Change, with no concrete information or analysis—much less consideration of ultimate results.

Hence, the new exemptionism avoids all systematic theorization of ecological crisis, particularly on a global scale.¹⁹ Indeed, Mol (2002, p. 98) tells us that it is “neo-Marxist inspired studies” that concentrate on the crisis-oriented “apocalyptic horizon” associated with “‘high consequence risks’ of climate change, biodiversity, ozone layer depletion and the like.” Ecological modernization theory, in contrast, focuses on “‘conventional’ [non-crisis] environmental problems such as water pollution, solid waste, local and regional air pollution, and noise. It is not centrally concerned with ‘eco-alarmist prospects’” (Mol & Spaargaren, 1993, pp. 431, 455).²⁰ Not only that, “environmental sociologists,” we are told, “should be cautious about” linking environmental problems to “apocalyptic, juggernaut social theories”; especially those that center on the direct relation of capitalist accumulation to such high-consequence risks as global warming. Mol and Spaargaren (1993, p. 455) defend this stance largely on the grounds of “political reasons,” that is, political expediency, since the vested interests are not open to challenges to the status quo. The power elite thus becomes the final arbiter of environmental thought.

This explicit refusal to incorporate “high-consequence risks” and ecological crisis analysis into the theoretical framework of the new exemptionism is accompanied by a denial to a considerable extent of the reality of capitalism itself—though at other times, as we have seen, capitalism is presented by the same ecological modernization theorists as the main vehicle of

ecological modernization.²¹ Within ecological modernization theory, Spaargaren and Mol (1992, p. 336) explain, “The capitalist character of modern society is hardly questioned, as capitalist relations of production and a capitalist mode of production are seen as not relevant to overcoming the ecological problem.” Capitalism, Mol (2001, p. 1) tells us at one point, is simply a “catchword” like globalization. Although explicitly embracing capitalist institutions when it suits them, ecological modernization theorists systematically exclude any developed conception of the capitalist world system from their analysis. Capitalism, it is suggested, is simply another name for modernity, requiring no analysis beyond that. Moreover, “modernity,” as Mol (1995, p. 54) puts it, “is still basically a Western project.” What this means is the Rest need to become more like the West. Ecological imperialism and unequal ecological exchange are avoided as nonissues. Ecological modernization theorists belong to the world of Parsons, Bell, Lipset, Nisbet, and Rostow, not that of Marx, Weber, Luxemburg, Sweezy, and Wallerstein.

When ecological modernization theorists turn on rare occasion to planetary issues such as climate change it is usually within the discursive frames of either skepticism or political expediency, meant to counter scientific realism, political-economic critique, and historical analysis. The skepticism frame is evident in Hajer’s (1995, pp. 278-279) contention that climate change is “circumscribed by uncertainty”; his insistence that the George H. W. Bush administration, in marshaling counterexperts to oppose consensual scientific calls for climate change action, may have been right; and his postmodernist-based criticisms of the problematic nature of the scientific consensus represented by the Intergovernmental Panel on Climate Change (see also Taylor & Buttell, 1992). Such arguments were put forward, moreover, at a time that some environmental sociologists (e.g., Foster, 1994) were already pointing to the centrality of climate change and the ecological and social firestorm it represented.

Recourse to the political expediency frame can be seen in the blanket assertion on supposedly pragmatic grounds that clean and efficient technology reinforced by market magic will release society from the ecological limits of growth—a claim that is frequently defended on political opportunistic rather than scientific grounds. Thus, well-known Australian ecological modernization theorist Michael Howes (2009), argues, that its adamantly noncritical stance with respect to capital

gives EM [Ecological Modernization] “a foot in the door” in terms of being able to revitalize climate policy because it is in accord with . . . bipartisan sentiments. . . . In essence strong EM strategically supports the existing institutions of power and modest initial reforms. . . . Strong EM advocates technological innovation that decouples economic growth and industrial development from environmental damage—a cleaner industrial revolution. (p. 8)

Howes does not seek to address, even at the level of argument, whether such decoupling is truly feasible. This is because the intent of ecological modernization theory, as he makes clear, is to promote “bipartisan” establishment claims, excluding all other alternatives. The accuracy of the theoretical claims advanced by ecological modernization theory is not the issue; rather it is simply a question of its gate-keeping role and its conformity to the “the existing institutions of power.”

To be sure, not all discussions of climate change within ecological modernization theory have sought to skirt the real material issues by purely discursive means. Fisher and Freudenburg (2004), for example, provided a singular attempt at empirical analysis within the ecological modernization perspective, suggesting that the connection between economic growth and carbon dioxide emissions in the highly industrialized countries was not as robust as numerous previous studies indicated. However, their work was shown to contain numerous methodological flaws invalidating their research (York & Rosa, 2005).

We are thus faced with the paradox that despite the wide acceptance of ecological modernization theory as a legitimate perspective within environmental sociology nearly all serious analyses of climate change and the planetary rift in general within environmental sociology have generated diametrically opposite results to those associated with ecological modernization, and have been carried out by theorists outside of the ecological modernization school: critical human ecologists (in which I would include the classical Weberian approach), Marxists/neo-Marxists (including treadmill of production theorists), world-systems theorists, ecofeminists, and environmental-justice advocates. All of these traditions reject any notion of human ecology as “disembedded” from the global ecology, the world-capitalist system, and from the historical processes of domination and exploitation. Hence, they are able to approach ecological problems with realism more characteristic of classical sociological theory.

The research results of these various critical contributions are as impressive as they are disturbing, pointing to the rapid worsening of global environmental crises and environmental inequalities associated with the advance of capitalist accumulation. To mention just a few highlights, this includes such work as Dunlap and Catton's (1979, 1983) contributions to the “new human ecology” (Buttel, 1987); the continuing insights of treadmill theorists (Gould et al., 2008; Schnaiberg, 1980; Schnaiberg & Gould, 1994); the STIRPAT model of Rosa, York, and Dietz (2004; York, Rosa, & Dietz, 2004); O'Connor's (1994) second contradiction theory; the research of various metabolic rift theorists (Clark & York, 2005; Clausen & Clark, 2005; Dickens, 2004; Foster, 1999; Foster et al., 2010; Gunderson, 2012; Mancus, 2007; Moore, 2000); the environmental results of world-system theory (Frey, 1998; Jorgenson & Clark 2009, 2012; Kentor & Grimes, 2006); investigations into environmental racism (Bullard, 2000; Mohai, Pellow, & Roberts, 2009; Pellow, 2007); and the radical challenges of Salleh (2009) and other ecofeminist critics. Although the greatest inroads thus far have been made by means of political-economic critique, of noted importance today is the added attention that environmental sociologists have given recently to the interface of social science with natural and physical science, particularly the incorporation of findings from evolutionary theory and the development of a coevolutionary perspective (e.g., Norgaard, 1994; York & Clark, 2011).

York and Mancus (2009) have sought to synthesize the broad approach, represented by all of these critical contributions, under the rubric of “critical human ecology.” This stands for a strong critical-realist analysis of environmental crises, at all levels, bridging the political-economic and human ecology traditions. This coming together of critical perspectives, including neo-Marxists and human ecologists, in the face of the rise of the new exemptionalism, has been sharply interrogated by ecological modernization theorists. Thus, Buttel (2006, pp. 176-178; see also Mol, 2010a, pp. 70-71) objected to the “strong coalitional character” of more recent environmental sociology, which has united—as he described it—“neo-human ecologists” like York and Rosa, and neo-Marxists, like Schnaiberg and Foster, in a generalized opposition to ecological modernization theory.

Yet the contributions of critical human ecologists are motivated less by their aversion to the new exemptionalism than by their concerns regarding the planetary rift itself. Such research points to the enormous social-structural problems of capitalist society when addressing the environmental problem, and the need for radical changes in social relations. None of these thinkers sets aside the hope that considerable progress toward ecological reform can conceivably occur at some level in capitalist societies—if pushed to their radical limits by mass movements. For example, Magdoff and Foster (2011, pp. 123-24); see also Foster et al., 2010, pp. 423-42) provide a whole host of structural reforms that could conceivably be advanced within the present society, aimed at slowing down, if not surmounting, our most dire environmental problems. Given the severity of these problems, it is obvious that change must be attempted immediately. At the same time Magdoff and Foster, in line with critical

environmental sociology in general, argue that the *long-term* prospects demand truly revolutionary change, especially a rupture with the accumulation/growth imperative of capitalism. This was always the implication of Catton and Dunlap's New Ecological Paradigm.

The sharp division between ecological modernization theory and critical environmental sociology can thus be seen most clearly in the former's rejection of the New Ecological Paradigm. Specifically, we can judge ecological modernization theory according to the five facets that Dunlap (2008) and his colleagues developed to measure popular support for the New Ecological Paradigm: (a) the limits to growth, (b) non-anthropocentrism, (c) fragility of nature's balance, (d) untenability of exemptionalism, and (e) ecological crisis. Ecological modernization theory, as the foregoing analysis has demonstrated, is systematically defined by its weak adherence to or complete rejection of all five of these facets, and in particular, by its new exemptionalism.

Not surprisingly, then, Spaargaren and Mol (1992, pp. 325-326) flatly reject Catton and Dunlap's distinction between the Human Exemptionalist Paradigm and the New Ecological Paradigm, going so far as to fault none other than Fred Buttel for his "ambiguous position" in relation to ecological modernization theory, in that he held fast to the notion of the "HEP-NEP distinction" as "the kernel of environmental sociology." We are told that the Catton-Dunlap critique of the Human Exemptionalist Paradigm and its promotion of a New Ecological Paradigm is a form of "coquetting with ecology," constituting an unacceptable "hybrid of sociology and ecology." For today's new exemptionalists it is necessary to move away "from the ecologically inspired strand of environmental sociology" (Spaargaren & Mol, 1992, pp. 325-326).²² This, however, challenges the socioecological foundations of environmental sociology as a discipline.

The considerable tolerance (even assumed respect) accorded to ecological modernization theory within today's environmental sociology—in the context of a growing global ecological crisis—can be viewed as an indirect acknowledgement of the structure of power itself, which ecological modernization stands for within the field. Yet this willingness to give way to corporate views at the expense of science and critical thought constitutes a crisis for environmental sociology. Behind the new exemptionalism lurks the larger shadow of denialism—in the broad terms raised by radical critics such as Norgaard (2011) and Klein (2011). What is in fact being denied in today's new exemptionalism is the reality of a planetary environmental crisis so large and so ingrained in the present-day political economy that a revolutionary reconstitution of society is required.

At a time when environmental social scientists in general are increasingly engaged in a direct attack on the worship of economic growth, becoming more and more critical of capitalism's destruction of the natural environment—as witnessed by recent radical breakthroughs in the work of thinkers such as Speth (2008), Schor (2010), and Mander (2012)—it is time for environmental sociologists to rededicate themselves to forging a New Ecological Paradigm: as critical human ecologists concerned with the creation of a just and sustainable society. But before we can move forward in this regard, it is first necessary to get our own house in order. Our goal as critical environmental sociologists must be to create a *sustainable sociology*, dedicated, as Marx (1863-1865/1981, p. 911) put it, to the needs of "succeeding generations."²³ Here, the greatest enemy is a human exemptionalism that refuses to recognize that we must forge a sociology and political economy for a "full world" (Daly, 2005). On this vital issue science forbids all compromise.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Notes

1. This is not to deny that if we want to prevent some very serious environmental catastrophes, such as sea level rise, the time available in which to act is much less still—only a decade or two, according to Hansen (2009).
2. Environmental sociology in its early years struggled over the extent to which classical sociology was prone to such human exemptionalism. For example, Buttel (2000a) argued both that “one must indeed recognize the radically sociological (and thus ‘exemptionalist’) standpoint of Marx, Weber, Durkheim, Simmel, and other nineteenth and early twentieth century classical thinkers” and that “the ‘exemptionalism’ of the classical tradition can be exaggerated.” Nowadays the view within environmental sociology has shifted more in favor of the classics, and to the view that the most important currents of classical sociology were nonexemptionalist (see Dickens, 2004; Foster, 1999; Foster & Holleman, 2012; Rosa & Richter, 2008).
3. Ecological modernization thinkers themselves (notably Fred Buttel) have pointed to the weaknesses of environmental modernization discourse *as a theory*; so much so that Buttel (2000b) insisted on using “the expression ecological-modernizationist ‘thought’ or ‘perspective,’ rather than theory” (p. 58) to highlight the fact that it was “not yet a clearly-codified theory.” In utilizing the expression “ecological modernization theory” here, there is no intention, as will become clear, of thereby conferring on it full theoretical status. Rather the issue is one of questioning its putative theoretical claims. Hence, the expression is employed only in that qualified sense.
4. The criticisms of ecological modernization theory in this article should not be seen as offering whole-hearted support for the treadmill of production theory, its dialectical opposite, since that theory too suffers from weak theoretical foundations insofar as it is divorced from the wider Marxian tradition from which it initially arose (see Foster et al., 2010). In many respects, Anderson’s (1976) *Sociology of Survival*, rooted more directly in Marxian theory, represented a broader foundation for a radical environmental sociology in the United States in the 1970s than did Schnaiberg’s (1980) *The Environment*.
5. As Gilman (2003a, 2003b) argues in a detailed historical accounting, ecological modernization theory was consciously constructed in the United States as a project in Cold War ideology, designed to defend the Western system. The center of this was Harvard-based sociology, organized around the work of Parsons.
6. There is no doubt that post–Second World War modernization perspective (particularly Parsons) drew on Weber’s notion of rationalization. Yet as Habermas (1989) makes clear, Weber’s concept of rationalization was too complex and Janus-faced to be identified with what came to be known as “modernization theory.”
7. Bahro (1994) was strongly critical of ecological modernization theory viewing it as the new dominant version of what he called “exterminism.”
8. Hajer in this passage is referring to “ecological modernization as institutional learning,” one of the three different, but overlapping frames of ecological modernization that he designates, and none of which he opposes. His explanations can therefore be seen as part of his composite account of ecological modernization theory.
9. The author would like to thank Hannah Holleman for her help in relation to these web searches.
10. As Spaargaren and Mol (1992, p. 338) point out, ecological modernization theory as it arose in the work of Huber had a “technologically deterministic character.” Arguably, this remains crucial to the argument, though later ecological modernization thinkers have tried to bring in political and cultural factors as mediating what they still depict as largely autonomous technological change.

11. Although Beck has tended to see reflexive modernity as a counterpart of risk society, Mol and Spaargaren (1993) reject the latter concept in the process of appropriating the former, arguing that the “risk society” notion represents the pessimistic and apocalyptic side of Beck’s thought, whereas reflexive modernity is the constructive modernist element.
12. Mol (2006) himself attributes the relative weakness of empirical analysis and classical theory in European environmental sociology (including ecological modernization theory, which has had its strongest basis in Europe) mainly to different styles of environmental-sociological research in Europe and the United States, with the former emphasizing new, fashionable theories, and the latter emphasizing classical theory and empirical analysis.
13. Mol (2001) shows an awareness of the Environmental Kuznets Curve but does not integrate this within the ecological modernization perspective.
14. It is characteristic of ecological modernization theory that although it demonstrates skepticism toward the results of the scientific consensus, presenting this as a reflecting hegemonic aspect, as depicted in postmodernist critiques of science, it does not extend such critical skepticism to business/government, which it frequently accepts at its word.
15. In *The Phenomenology of Spirit*, Hegel (1807/1977, p. 9) referred to “the night in which, as the saying goes, all cows are black” to refer to the “vacuity” the formalistic notion of “abstract universality,” that removes the life of the subject.
16. This view differs from some radical environmental sociologists, outside of ecological modernization theory (see Foster, Clark, and York, 2010, pp. 398, 440), who write explicitly of an “environmental proletariat” and address issues of environmental justice.
17. The Netherlands fallacy (originating with Ehrlich & Holdren, 1971) highlights the fact that although in national terms the Netherlands appears to be a model of ecological sustainability, nevertheless as a small, wealthy, industrialized economy at the center of the world economy (home to some of the world’s largest multinational corporations), it has an enormous ecological footprint on the world at large, reflected in its import of natural resources from abroad and its export abroad of the resulting ecological wastes. Hence, purely national data which exclude transnational interactions is a fallacious basis for measuring global environmental impact.
18. The development of environmental reform initiatives in China does not necessarily point to a corresponding rise of Western modernization theory. China is in fact seeing a rapid growth of ecological Marxism as an intellectual tradition, influenced initially by Western theories but increasingly showing signs of its own internal development (see Wang, 2012).
19. A case in point is Fisher’s (2002) attempt to use a “Habermasian Framework” on crisis in order to strengthen ecological modernization theory. In an argument that addresses a panoply of concepts of crisis (economic, legitimation, motivational), and which tries to reduce the “environmental problem” to sociocultural rationality, Fisher finds no place in her analysis for the concept of ecological crisis itself. Ironically, Fisher (2002, p. 56) quotes Habermas (1973/1975, p. 41) as saying that “the ecological balance designates an absolute limit to growth,” but fails to recognize that this means that advanced capitalism is faced with a serious, indeed catastrophic, barrier to accumulation resulting from ecological limits. In fact, the “one absolute limitation on growth”—Habermas explains on the page following the one Fisher cites—is global warming, making Habermas in 1973 perhaps the first major social theorist to integrate climate change into his analysis (Habermas, 1973/1975; see also Habermas, 1989).
20. Mol and Spaargaren’s (1993) contention that “neo-Marxist” analyses focus almost exclusively on “apocalyptic” issues is, however, demonstrably false in the case of treadmill of production theorists, who ecological modernization theorists take as their main neo-Marxist opponents (see Gould, Schnai-berg, & Weinberg, 1996).
21. Mol and his coauthors (van Koppen, Mol, & van Tatenhove, 2010) recently addressed the question of potential “extreme climate change” in Europe, but do so in terms of a risk-society management

framework that largely avoids classical sociological issues such as capitalism and class. Instead, the possibility of extreme climate change in particular areas such as northern Europe is seen as a question of modernizing sustainable management. To do so, they use the vague notion of “institutional flocking,” a metaphor drawn from the flocking of birds. Social theory is thus abandoned in favor of high-flying managerial discourse. The idea that extreme climate change might require the reconstitution of capitalist society is notable in its absence.

22. Spaargaren and Mol introduced these criticisms of the incorporation of ecological concepts and understandings into environmental sociology 20 years ago, but their continued adherence to them is not in doubt, and is highlighted by their reprinting of this same article in their 2009 collection (Mol, Sonnenfeld, & Spaargaren, 2009). It should be noted that the one place where Spaargaren and Mol (1992) praise treadmill theory most is in its clear separation from ecological science and human ecology. This is not an inherent failing of the neo-Marxian perspective itself, but rather the way the argument developed in the work of Schnaiberg and his colleagues.
23. It was the creation of a sustainable sociology that was at the heart of Anderson's (1976) *Sociology of Survival*.

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