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DISCUSSION
PAPER

ZA

2016

Reflections on Ecomodernism

INTRODUCTION SUMMARY

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The essay was written in response to the release of the Ecomodernism Manifesto (EM) by the Breakthrough Institute, based in the United States of America, in 2015. The essay not only provides a useful interlude into a young movement, but a summation of a set of core ideas that best describe the EM and the attempt to create a thought movement around it.

In many respects the EM may seem to be a new idea, but it is a recasting of an old debate that started a decade ago when the concepts of ecological modernization first made their entry in the developed economies.

While ecological modernization speaks directly to the links between ecology and economy, the EM seeks to focus on an important ecological event: the arrival of the Anthropocene age and the rise of technology.

This essay is simultaneously an appraisal and an appreciation of the EM movement in the way it takes on orthodoxy and re-opens the debate about contemporary environmentalism. It is also a critique about the EM's assumptions on the politics of the EM, its views on technology and the relation of EM to the modernization project and the economy.

The essay reflects on the Anthropocene and the fact that our age of modernity is rich in science and technology. If the Anthropocene is here to stay, along with the rise of technology, then how best do we understand these trends, their implications into the long future, the future of humanity and the environment? The essay is an attempt to move away from knee-jerk reactions and rather aims to be a contemplation, with nuance, of how to instil a progressive response to the ideas that ecomodernism puts forward and our age of technology.

The environmental movement is divided about the Anthropocene. On one hand it understands this as calamitous supposing that nothing can be done other than to wait for the sixth extinction while on the other, even critics of the Anthropocene seem to think something can be done about it. The environmental movement disagrees on the scale of the damage and the irreversibility of the Anthropocene.

While studies show a negative image of the Anthropocene, the EM suggests that things can be slowed down, peaked and even reversed with better knowledge and advancements in science and technology. The EM starts a debate that is necessary. It is one thing to say the Anthropocene is the end of humanity and life as we know it, it is another to consider – with great realism - what a progressive Anthropocene could be and should look like. The author agrees with the EM; the idyllic state of nature can never be attained. Human intervention in nature has been significant – what matters now is how we move forward.

It is the author's view that the EM, while seeking to shake the tree of orthodoxy, has also staged and entrapped itself in the paradigm of environmentalism and environment speak. It can only escape this by engaging head-on with the central question: how do we collectively walk in the direction of critical and progressive modernization that lays the foundation for a new type of economy in which the issues of environment are considered to be intrinsic rather than extrinsic.

This essay is not an attempt by the author nor the organization he represents to endorse the EM. But to ignore the EM would be to dismiss an important intellectual development in the history of the environmental movement. Like all ideas, those of the EM should be treated with respect even if they challenge our most cherished of values and beliefs. This essay is a contribution to the debate. We hope you will find it stimulating and engaging and encourage you to contribute your own views to advance a progressive environmental and economic debate.

BACKGROUND

Ecomodernism is an environmental philosophy which purports that humans can protect nature through the use of technology to decouple human impacts from the natural world.

In 2015, 18 “ecomodernists”, including scholars from the Breakthrough Institute, produced an Ecomodernist Manifesto (EM) to inspire a new type of environmental movement.

They defined their philosophy as such:

“...we affirm one long-standing environmental ideal, that humanity must shrink its impacts on the environment to make room for nature, while we reject another, that human societies must harmonise with nature to avoid economic and ecological collapse.”

In today’s environmental movement, real debate is being trivialised by the anti-intellectual current that has taken hold, not only in the US, but seemingly the world over. The EM and BTI’s work is a response to this trend. What comes across as evidence and science is either shaped by special interest, bias, fixed agendas, or even at times open hostility based on assumptions feelings that one view has to be more right than the other. We need to claim back the space from anti-intellectual currents for what the philosopher John Dewey called “the search for the Great Community”, where sound debate, discovery of ideas and robust intellectualism is nurtured in a safe space and the higher altar of robust democratic traditions. Here, Dewey talked of exorcising ourselves from habits of group-think and defending genuine attempts to discover new truths about the world or the self.¹ In the era of Google and Twitter we seem to be fast eroding rather than enriching the tradition and society that Dewey aspired to.² Dewey was alluding to the kind of citizenship that we need to nurture to allow for meaningful ways to make sense of life and enhance progress in an enlightened way.

¹ See Dewey, J (1954) *The Public and its problems*, USA: Swallow/Ohio University Press.

² I mention Dewey here because it has relevance to the idea of the EM. Dewey came up against traditional norms and philosophical ethics that he felt was ill-equipped to deal with challenges during periods of great transformation. In a sense, Dewey wanted to create a society in which democratic and lively exchange allowed for diverse reflection to emerge so that society is not stuck in singular or predetermined views of the world.

1. ECOMODERNISM AND ORTHODOX ENVIRONMENTALISM

There are different traditions within the environmental movement and I see Ecomodernism, and its various versions, as part of the ongoing debates that ought to sharpen the work of environmentalism and even go beyond the limitations that environmentalism imposes upon itself.

What do I mean by this?

I suggest that we no longer think about environmental issues as something on the margin of society and the economy, but rather we should view them as an intrinsic part of economic thinking. It is an area that requires more work but raises fundamental questions about how to enter the sphere of mainstream thought – from the margins or from within the thought system itself. In the impression of some, ecomodernism is not about a zero-sum game that sees a conflict between environment and economic growth, but rather a tool to harmonize industrial development³ with ecology⁴. We need to move beyond this schema of ecomodernisation. I confess that I do not know exactly what this new schema should be, but offer some insights which may or may not be useful.

The EM itself may be tagged with the ‘harmonization’ idea, but then it would be no different to some of the ecological modernism works and ideas that have come before the manifesto itself was written. I think it is different. How different it is is something I sketch out here and even suggest where it could further advance to differentiate from other tendencies that have come before. This is not straightforward as the EM will always be subject to the rules of the unruly mind and what is an attempt at a substantive exercise can be belittled by the flurry of caricatures, which it is already encountering, that will be thrown at it. Nonetheless, there are those who want to persist with the prevailing slur that the EM is pro-growth because it is pro-technology. These same critics appear to assume that anti-growth and anti-technology positions themselves offer us a happy ending. For this, these proponents of anti-modernism, can themselves not foretell future outcomes. EM is nuanced on its own version of ecological modernism but because it does not quite reach a level of philosophical clarity with regard to the relationship between technology and economic growth it becomes somewhat vulnerable to attack from the anti-growth proponents, of which ecologism is one of these new tenets. Ecocentrism and ecologism⁵ theoretically posit the idea of a decentreed human perspective in which humans are in nature not out of nature⁶.

³ Industrial development is, in itself, in the throes of a new revolution with increased automation and growth in the development of artificial intelligence.

⁴ Andersen, MK and Massa, I (2000) Ecological Modernization – Origins, Dilemmas and Future Directions, *Journal of Environmental Policy and Planning*, 2:337-345.

⁵ It refers to a group of environmentalists who view the non-human world as also worthy of appreciation and moral consideration. Their interests should be reflected in human society and systems.

⁶ The authors suggest the term comes from the German *ökologische Modernisierung* used by two political scientists Huber and Janicke that describe a positivist approach to environmental policy and planning.

While you cannot discern the historical roots for the EM by simply reading the manifesto, it has a resemblance to ecological modernism and so the criticisms against ecological modernism are relevant and useful to understanding as was evident following the launch of the manifesto in 2015.

Ecological modernism, which precedes the EM by several years, draws on science to understand the dangers and threats of industrial activity but juxtaposes these risks in thinking through how the use of technology and innovation can mitigate these risks.

Philosophically, ecological modernism vests trust in the power of science and technology to shape the world for the better.

Ecological modernism further derives its rigour from ecological economics or environmental economics. In a sense, the economistic strategy here is to incorporate environmental risk as something that can be solved through the market mechanism by simply ensuring that the environmental cost is priced and embedded in economic relations and exchange.

For others, ecological modernism is about the reconceptualization of environmental problems in relation to the economy. For the ecological modernist, while the system (capitalism in this case) creates the problem, more modernism also solves it. In this way it seeks to veer from committing to a radical alteration of the economy and does not challenge the underlying premises of modernism and the technophilic features of such a society. Critical scholars of ecological modernism suggest that it legitimates the existing system and 'green-washes' it with the creation of green products and practices as a cushion against systemic crises that prevail because the system itself is wrong and unjust. In a sense, an ideological compromise exists between the market and environmentalists and this serves to marginalise the radical versions of environmentalism. Just as an aside, the EM is not pro-market, if anything it neither rejects the market mechanism nor does it see no role for state intervention. In some respects it is pro-statist, but its position on the use of market mechanisms to solve environmental challenges is not entirely clear from the reading of the EM.

In further opening this discussion, ecological modernists are seen as co-opted insiders or assimilationists that increase the longevity and legitimacy of an already corrupt system of economics and politics. Technological solutions are aimed at fixing the production system and process but do little with the question of consumption or the systemic problems inherent in capitalist modes of production.⁷ What radical ecocentrism wants is not so much a technocratically determined society but rather an alter-ego. One can only assume that radical decentralism and collective ownership of the means of production⁷ is the way they envisage we will get ourselves out of this hole and dystopia.

⁷ Barry, J (2005) Ecological Modernisation, in *Debating the Earth: The Environmental Politics*

There could also be another way of interpreting the stance of ecological modernism and what may seem as a cautious and reformist approach may also be a tactical way to embed itself within the existing system through a process of incrementalism rather than radical change.

Perhaps, putting it in another way, ecological modernisation, inadvertently, is a form of coping strategy that tries to seek a mediation between demands for more economic growth as well as growing demands for environmental protection. More importantly, critics see it as a form of 'ecological welfarism' in which environmental costs are socialised by society because of market failure taking on a systemic form of crisis management without dealing with the underlying causes. This system is therefore reliant on the regulation and subsidisation of technological innovation as a way to remedy the problem.⁸ Finally, "...the underlying political economy of ecological modernisation is neoclassical environmental economics. One of the main reasons for its political success and attractiveness as a state strategy to respond to environmental concerns, is that ecological modernisation 'economises the environment' rather than the much more radical implications of 'ecologising the economy'. In their view ecological modernisation does not deal with the underlying causes of the crisis – it is the form ownership and organizational relations that are characteristic of the capitalist economy. What does this mean for nature itself?

All the strands of environmentalism from ecological modernism, ecologism, ecocentrism, and Ecomodernism have to grapple with the fundamental philosophical and political question of where humans stand in relation to nature and nature in relation to humans. Nature cannot insert itself in the human world by itself because that task of what is to be done with, for or at nature is ultimately the product of human consciousness and action. Both EM and other forms of environmentalism and thinking have to confront the awkward political state – that all ideas of nature are useful "fictions" out of which much politics is made. Latour offers some insights.

Bruno Latour in his book the *Politics of Nature* describes it as the 'menacing choice between the reality of the external world and the prison of the social world'.⁹ Latour suggests in the end, as he draws us into the paradox of political ecology, that we never really incorporate nature because nature itself is the object of human politics. Nature always stand on its own, but also always as a concept in the mind of human observer. In a paradoxical way, all this talk of nature, while it makes us feel we are part of nature, Latour suggests that this is an illusion – we are actually separate and have separated ourselves from nature. It is a controversial and interesting insight as Latour comes to the realisation, ontologically speaking, that political ecology is about ourselves rather than nature itself; he notes "...once knowledge has been acquired, there will always be two blocs: nature as it is, and the variable representations we make of it". In a sense, there is no singular nature, but multiple versions of nature. And, this is how one understands Latour's call for us to abandon the notion of nature but rather embrace the notion of representations of nature.¹⁰

⁸ Ibid; p.308.

⁹ Latour, B (2004) *Politics of Nature: How to Bring the Sciences into Democracy*, translated by Catherine Porter, Harvard University Press: Cambridge Massachusetts, p.17.

¹⁰ Ibid; p.41.

In a way Latour's insight invites us to embrace Dewey's approach and worldview because at issue is not the facts but cultivating new ways of speaking to each other, about a common interest: nature, and seeking a common pathway. When we make argumentation on behalf of nature we are merely defending our concepts and ways of thinking about nature through which real nature is being mediated. This is why the debates about the superiority of particular views about nature and the rights asserted by these views is not the same as the rights of nature itself because nature has to exist as a singular entity but not as a multiplicity of representations.

Interestingly, in the way Latour has sketched the debate Latour reaffirms anthropocentrism.¹¹ As he writes: "There has never been any other politics than the politics of nature, and there has never been any other nature than the nature of politics".¹² Representations of nature are social representations not nature itself – we are trapped in a sort of 'two-house' politics as Latour is in want to characterising the relation between politics and nature or the politics of nature. We speak and deceive ourselves in believing there is a singular human-nature understanding and we are not outside of it. We, in the end, agitate on behalf of nature as ventriloquist, yet as part of nature and out of nature.

He writes further: "The more the social construction of nature is calmly asserted, the more what is really happening in nature – the nature that is being abandoned to science and scientists – is left aside".¹³ For Latour, the 'two-houses' are the inconvenient heritage of the western canon and he searches in anthropology to find how other cultures treated the relation between humans and non-humans; he finds only one house in other cultures and societies.¹⁴ In a sense, Latour himself is intrigued by this leap from nature and humans viewed as a singular entity into the dichotomous relation it is today. But I cannot but wonder if this too is not a caricature of Latour himself given that through the whole of human existence the conditions of the mind are prone to the trap of its own solipsistic tricks.

Irrespectively, the 'two-house' notion is used by Latour to convey the philosophical tension of how one grapples with a separation that through ages has been rarefied by language, concepts and modes of practice. He accuses the whole spectrum of political discourse on ecology – from left to right – of falling into this trap. What we are doing, in essence, as variant constituencies holding different views about the environment is engaging in the politics of shared constituency beliefs about nature rather than engaging with nature itself. It is for this reason Latour preaches the paradoxical – let us instead have a 'politics without nature'.¹⁵ Latour wants to reclassify the relation of humans to nature or nature to humans. He wants to break the dichotomies. Whether he has succeeded will be a source of numerous discourses and papers.¹⁶

¹¹ Ibid; p.28-29.

¹² Ibid; p.28.

¹³ Ibid; p.33.

¹⁴ Ibid; p.45.

¹⁵ Ibid; p.48.

¹⁶ Restivo, S (2010) Bruno Latour: The Once and Future Philosopher, entry in the *New Blackwell Companion to Major Social Theorists*, edited by George Ritzer and Jeffrey Stepinsky (Boston: Blackwell).

As Restivo summarises the essence of what Latour is trying to convey to us: “The point of his argument is that we should reach our views on reality, the external world, and nature not by way of the travels and tales of scientists moving between the worlds of truth and the social world but rather through representative “due process”. In place of an assembly of things and an assembly of humans, Latour proposes a new constitutional politics in which there are no special envoys and no barriers to go over and come back from”.¹⁷ In a way, as Latour points out, we position nature as something immortal and sacred only to further the ends of a type of politics of nature that draws lines in thinking, conversation and practices that straddles the forbidden and permitted just like religion does. And it is this zone of the philosophical territory of nature theology that Latour sort of cautions ecomodernism to avoid and so as not to slip into that mode of discourse in which it becomes itself the problem rather than the solution.¹⁸

If we look closer to Latour’s work we will find, I would suggest, perhaps a new pathway for ecomodernism – which I will come to later as well – which the EM movement may or may not have seen for itself. But I will take a leaf from Latour and suggest that the very discourse of ecology still centres on a separation that does not exist nor should exist but if we rather shift, as Latour suggests, ‘from a concern for nature to a concern for a certain way of handling associations of human and non-humans’ that would be an alternative to modernization.¹⁹ Latour attacks false premises, false divisions, false bipolarities that confuse rather than properly fuse the relations of humans to non-humans, which in Latour’s instance is a sociological phenomena – it is a practice of subjectivity under the pretext of objectivity. He writes: “Political ecology claims to talk about nature, but it actually talks about endless imbroglios which always involve some level of human participation”.²⁰ I am here imputing my own version of meaning that Latour gives to this bifurcation: the issue of nature is in the end the issue of human relations. Is there a recipe here in Latour’s deconstruction that still needs to be picked up on by Ecomodernism?

¹⁷ Ibid, p.11.

¹⁸ Latour, B (June 2015) Fifty Shades of Green, presentation to the panel on modernism at the Breakthrough Dialog, Sausalito also at <http://www.bruno-latour.fr/node/153>.

¹⁹ I was struck by this quote as it comes from a footnote of a chapter of a book Latour contributed to long before he published the Politics of Nature. See, Latour, B (1998) To modernize or to ecologize? That’s the question, in N Castree and B Willems-Braun (editor) Remaking Reality: nature at the Millenium (London and Routledge), pp221-242.

²⁰ Bruno Latour (1998) To modernize or to ecologize? That ’s the question, CSI, Ecole des Mines de Paris, in N. Castree and B. Willems-Braun (Editors) Remaking Reality: Nature at the Millenium(© Routledge, London and New York

I would suggest that Latour is closer to the ideals of Ecomodernism than many would want to give credit to or may not have fully grasped as of yet. The EM has to make the leap it has not made yet despite the fact that the world over the wall is in clear sight of what it could be. In other words, do the problems of the environment and economy lie less with fixing each and rather in crafting a new vision for modernity that releases us from speaking about each as if they were separate worlds? By this they mean a systems transformation rather than a change within the existing system.

Some have made the suggestion that we should not talk of economic growth but rather economic security, which may differentiate EM by the simple shift in language and orientation of concepts if it so wants to be different from other forms of modernism. Shifts in language also help to reframe issues and in this way still assert the primacy of the economy while establishing a new set of matrix for what the economy should deliver on.²¹

As Glasson notes “..by positively engaging with EM, Greens may be able to steer the ecopolitical conversation away from a false binary of growth/antigrowth towards security and well-being.”²² The details of how this will work is a separate process but the hook that Glasson provides for getting us out of a false dichotomy is a useful idea with which to engage. Glasson calls these ‘rearticulatory’ moves or measures. It is not only the instrumentalism of technology that must be turned on its head, but also that of the economy. In turn, a re-orientation of economic ends also re-orientates the nature of technology and the innovation pathways that can be elicited due to a shift in the economic end-goal. The EM of course engages the economy, but there are still many unanswered questions as it requires the EM to grapple with whether the entry point is environmentalism only, or as environmentalism overlapping with like-minded economists, or creating an altogether new arena of discourse that requires the hybridisation of economics and environmentalism? Certainly it is not in the tradition of classical environmental economics and its conflation with the market as the only solution to socio-ecological and economic concerns that fill our everyday lives. Something more must be in the offering.

²¹ Glasson, B (undated) What are the limits to reform environmentalism? Rearticulating ecological modernisation towards ecologism, University of Melbourne, also at <http://wpsa-research.pdx.edu/papers/docs/Rearticulating%20ecological%20modernisation.pdf>.

²² Ibid; p.7

What bedevils me here is that the EM is a riposte to the traditional catastrophic environmental views, but it may also be in danger of creating an imagined world that is both utopian and not entirely possible. While imagined worlds are useful fictions and heuristics, they hardly tell us how outcomes can be negotiated in reality. For instance, despite the BTI's pro-nuclear position (and clearly the BTI uses the nuclear debate in a tongue and cheek way), the reality is that nuclear generation is on a decline and the reaction by the public, following the Fukushima Daiichi accident is both reasonable, prudent and will limit the extent to which nuclear power will provide a universal energy solution in the future. Besides that, issues of construction delays and costs continue to plague global nuclear plant development.²³ Nuclear is an interesting example of a technology that is a low carbon solution yet its ability to establish as a leading energy technology is limited by the reaction and relations that human society has to the presence of this technology in their midst. Perhaps, in reading some of the BTI's technological works, there can be an unhinged enthusiasm for technology that belies an appreciation and punctuation of the effects of techno-resistance to the further evolution and scaling of such technology. This is where political-economy analysis in the work of BTI and EM is a further complementary body of work that needs to be engaged by the EM movement. If we take the example of nuclear, the resistance to nuclear is not always environmental. Large infrastructure projects can lend themselves to poor governance and collusive behaviour between state and corporations because handsome rents are to be gained. What may be seen as a resistance to nuclear by environmentalists very soon finds a convergence with other interests concerned about corruption. I suspect this will also be true for other technological promises. Again, illustrating that Ecomodernism's take on technology, and I will say more on this later in the essay, needs to be more measured and nuanced. It cannot fall into its own trap of imagining that all environmentalists are Luddites.

But let me not digress too much and come back to another important matter as it relates to the vision of the EM and its construct of an imagined future.

Much of economics is focused on the 'C', capital and 'L', labour, and I hope in the future new formulations of economic theory and thinking is inclusive of the 'E', the environment along the lines of the creative Marxist thinker Karl Polanyi sought to encourage in his seminal work the Great Transformation. I say this because the inclusion of 'E' should not be an act of philanthropy, but rather an intrinsic element of whatever formulations economics uses to understand the world of exchange. The current economic models and theorems are out-dated in so far as they capture the relation of C, L and E. Perhaps it is not just an exchange that we must capture here, but the very purpose of economics itself.

²³ See Schneider, M. et al. 2014. The World Nuclear Industry Status Report 2014. [Online] Available at: <http://www.worldnuclearreport.org/IMG/pdf/201408msc-worldnuclearreport2014-hr-v4.pdf>.

In other words, the challenge is to dissolve the tri-chotomy even though operationally we see the existence of the three as separate entities within the cycle of production. The inclusion of 'E' at least binds us to a conceptual trajectory that forces the unification of L, C and E as part of the same process of economic allocation where E has a primal relation with C and L rather than a secondary one. Economics has a cognitive split and the new Anthropocene should give some recognition of the need to express human action and exchange as humanity-in-nature rather than out of nature. There is a more potent importance of the relation between the four dimensions in the economy as each one acts upon the other to drive innovation and adaptation. This is a transformative tension and the relation is not always precisely captured in different economic metrics because often they involve a lag time before they register in the statistics or simply they cannot be monetised.²⁴

In the future, I would even consider including in economic calculus and equations the symbol 'T' to describe technology as something separate from 'C' capital because as technology becomes more intelligent, its role in production and exchange will have to be accounted for separately – in a strange way it becomes synthetically half-labour and half-capital with its own permutations in the production system. This is more so when we enter the techno-biological age in which inanimate technology and living biology increasingly merge, which is already happening in the field of medicine, even though those who decry this trend fail to recognise the profound effect it is having on the quality of life of people with disabilities and debilitating diseases. The second reason is that intelligent technology will have a significant influence on the nature of labour, training and education in the future. Economists are increasingly looking at automation, robotics and artificial intelligence (AI) and their implications of how we think of the economies in the future.²⁵

Let me return to the question of Ecomodernism and the rest of the environmental movement.

Ecomodernism, as an idea, champions something that is not palatable to the orthodox environmentalism moral construct - both the red and green of this spectrum - because it invites us to embrace a technological society and the Anthropocene age²⁶ as a given reality where humans are firmly at the centre rather than nature. Ecomodernism celebrates this rather than denying our centrality. Others, of ultra-left persuasion, have coined the Anthropocene age as the era of Capitalocene, where the problem is not one of technological determinism, but an 'era shaped by relations privileging the endless accumulation of capital'.^{27 28} Technology here does not serve society, but capital. It is an instrument to deepen capital accumulation with the view to reinvent and reify the seeking of rents.

²⁴ Interestingly, the Chinese talk of an Ecological Civilization as part of their new global narrative. See Wang, Z (2014) The Ecological Civilization Debate in China, *Monthly Review*, <http://monthlyreview.org>.

²⁵ See Brynjolfsson, E and McAfee, A (2014) *The Second Machine Age: Work, Progress, and Prosperity in the time of brilliant technologies*, W.W Norton and Company: USA.

²⁶ Originally a term coined by Paul Crutzen to describe the irreversible changes humans were making to the earth's system. Our powers are so magnified that we have the ability to change the very forces of nature itself.

²⁷ Moore, J.W. (March 2014) *The Capitalocene: Part 1: On the Nature and Origins of Our Ecological Crisis*, Fernand Braudel Center and Department of Sociology, Binghamton University, p.5, also at http://www.jasonwmoore.com/uploads/The_Capitalocene__Part_I__June_2014.pdf.

²⁸ Moore's own thesis is based on the critique that the modern industrial model is based on a Cartesian premise – humans are separate from nature, and so nature is a special construct of the human mind.

These assertions point to the economic system and its failure. Once again raising the spectre of how the EM needs to engage the economic question. Ecomodernism does not explicitly commit itself in the direction of a new triage between economy-ecology-and society which, in turn, are defined by the peculiar power-relations between capital, technology and labour with nature a recipient of the consequence of how these relations unfold in the Anthropocene world. It is important that if the EM positions itself as non-dystopian in its outlook, it owes itself the task of responding to a challenge, by not limiting itself to only engaging the environmental debate, but also the larger canvass of economy-ecology-society.

For orthodox environmentalism, markets and technology have gone too far and the Anthropocene age will produce a dystopian world rather in the image of Cormac McCarthy's book *The Road* and in which the Anthropocene age hurtles us into the sixth extinction. Even from the side of left greens or the red greens, as we tend to call them here, you also find a dramatic diagnosis and the penchant for a dystopian sense of the world as is reflected in the works of the French philosopher Felix Guattari. Guattari sees in capitalism the harbinger of the coming 'ecocide' in his book *The Three Ecologies*. Guattari writes in the opening paragraph:

*"The Earth is undergoing a period of intense techno-scientific transformations. If no remedy is found, the ecological disequilibrium this has generated will ultimately threaten the continuation of life on the planet's surface."*²⁹

Guattari and his co-author, Gilles Deleuze, represent a genre of postmodernist thinking, like that of Michel Foucault, questioning whether reason has been emancipatory or rather the cause of many unfreedoms. But as one critic noted, both modernist and post-modernist tend to suffer the same problem – they hold deterministic views of technology and tend to assume technology is either a universal panacea or the primal source of dystopia. Often where evidence is garnered, the effects of technology can seem totalizing for both proponents and opponents. For the former, it is seen as the solution to everything, while for the latter it is seen as the root of all problems. There is no middle ground.³⁰

Both the green and red spectrums of environmentalism represent a collage of common narratives where a dystopic view of the world is dominant, full of warnings of doom and eminent destruction. While the underlying dystopic view is common, the causes and reasons vary between different proponents of the dystopic worldview, from such things such as the loss of natural spiritualism and connection with nature, the collapse of communitarian society, to the capitalist commodification of life privileging money over everything else and fears of modern technology – a form of new Ludditism.³¹ Each one of these should be considered a valid world view in its own right.

²⁹ Guattari, F (2000) *The Three Ecologies*, translated Ian Pindar and Paul Sutton, The Athlone Press,.

³⁰ Misa, TJ (2003) *The Compelling Tangle of Modernity and Technology*, et al, eds *Modernity and Technology*, MIT Press, USA.

³¹ Early Ludditism, as E.P.Thompson's historical analysis, *The Making of the English Working Class*, shows was not an attack on technology but the displacement of labour that came about because of technology and the new industrialism.

Ecomodernism is a railing against the idea of environmental puritanism and groupthink. Nature is already a product of human interference and this is why we have given this new geological epoch the name Anthropocene. The shift is irreversible. What remains is how we move forward and this is the departure point for Ecomodernism. Nervous apprehension and sometimes vitriolic reactions to Ecomodernism perhaps stem from the fact that Ecomodernism wants to celebrate modernity as the becoming of the full potential of humans and having no moral qualm with the idea that in the Anthropocene age we are at the centre of nature. But how will the EM's own politics against the mainstream ideas - what is now orthodoxy - determine its success and failures in the future? At least putting the Anthropocene idea as holding the potential for good, and perhaps already is - as the EM suggests - opens the canvass for a new discussion and this can only be a good thing. I would suggest that even the embrace of the Anthropocene age will be subject to different versions of the idea. It behoves the EM movement to put forward a distinctive idea of the new Anthropocene that is the scaffold for a new form of enlightenment and ultimately does away with the separation of environmentalism from mainstream politics and economic thinking. It has to invent a new environmental philosophy that is paradoxically neither about a particular type of environmentalism but a proposition for a different kind of living society and world.



2. ECOMODERNISM, TECHNOLOGY AND DECOUPLING

“Everywhere we remain unfree and chained to technology, whether we passionately affirm or deny it. But we are delivered over to it in the worst possible way when we regard it as something neutral; for this conception of it, to which today we particularly like to do homage, makes us utterly blind to the essence of technology”. (Martin Heidegger, The Question Concerning Technology)³²

In essence, the EM is an eco-thesis on the idea of technology. It is a reversioning of old debates about the relation of technology to nature and humans. Its views, framed in eco-thesis, shared some of the underlying premises and views of technology that exist in the works of past and present thinkers. The EM does not refer to them, but draws on these threads of thought in an indirect way, some of which I will cover and allude to here without attempting to be in any way scholarly about them and how they reflect on debates that the EM itself is confronting and will confront in the future.

What is clear, and most astute, is that we cannot have a singular view of technology because the relation of technology in the world is an uneven relation in terms of access, applications and the flow of benefits. This is why the ideas of technology cannot exist without an appreciation of the political-economy under which technology operates.

Pervasive in the language and thinking of Ecomodernism is its technological optimism and directing us to dispose of our fears of the technological society and to embrace it. Technology and knowledge allows us to intensify the productive side of human activity by ensuring more of nature with less. Here is the EM's take on the matter:

“Intensifying many human activities – particularly farming, energy extraction, forestry, and settlement – so that they use less land and interfere less with the natural world is the key to decoupling human development from environmental impacts. These socio-economic and technological processes are central to economic modernization and environmental protection. Together they allow people to mitigate climate change, to spare nature and to alleviate global poverty”. (EM)

³² Heidegger, M (1977) The Question Concerning Technology, also at http://simondon.ocular-witness.com/wp-content/uploads/2008/05/question_concerning_technology.pdf.

Let's not disregard the EM's acknowledgement that while human development has progressed there has been damage to the environment and there are still long-term environmental challenges, like climate change, ocean acidification and others that could undermine and imperil human civilization. However, this has produced a paradox where human civilization is still able to flourish, due to technological progress, despite the fact that many ecosystems have been left 'deeply damaged'. This damage, in turn, has made it less reliant on nature for all its needs. This may be treated as an absurd comment at first glance, but on deeper investigation you can see that it holds some truth. Long-term trends of decoupling of human well-being from environmental impacts hold promise, as the EM asserts. On decoupling, the EM suggests two ways of understanding it: 1) in relative terms, decoupling occurs when environmental impacts slow down against overall economic growth and 2) aggregate impacts peak and decline, over time, as economies grow. Decoupling is a product of both demographic and technological trends. On the issue of population, all evidence suggests that population numbers will peak and stabilise. To a large extent this will be the result of urbanization³³ and certainly a result of modern science. They note:

"Decoupling human well-being from the destruction of nature requires the conscious acceleration of emergent decoupling processes. In some cases, the objective is the development of technological substitutes".

Or further

"Nature unused is nature spared"

Or

"What decoupling offers is the possibility that humanity's material dependence upon nature might be less destructive". (EM)

This is more firmly encapsulated in the Manifesto's belief that environmental impacts can be peaked and technology is a factor that is often not taken sufficiently into account when we look at peak impacts and decoupling. This is one of the more useful insights that comes out of the EM and certainly not a strong thread in ecological modernisation theory and work although strands of this thought may be found in the ecological modernisation thesis. Some of the work of the BTI is increasingly seeking to demonstrate, through evidence, the relation between technology, decoupling and peaking of environmental impacts. Personally, it has opened my eyes on the relationship between these factors as I was blind to them before. I am not certain that all the evidence in favour of the EM position on this way of conceiving technology is settled. Certainly, opponents to EM have pointed to contrary evidence.³⁴

³³ The EM uses cities as an example of intensification and the environmental footprint as cities occupy one to three percent of the Earth's surface and are home to close to four billion people. In the past human civilization, on a per person basis, need far more environmental resources for lower quality of life and development standards.

³⁴ See Monbiot G (2015) at <http://www.theguardian.com/environment/georgemonbiot/2015/sep/24/meet-the-ecomodernists-ignorant-of-history-and-paradoxically-old-fashioned>.

In making these opening remarks on EM and technology let me now draw on some useful insights from others.

Techno-optimism is not limited to the writers of the manifesto. In James Lovelock's recent book *A Rough Ride to the Future* he writes:

*"Because we are alive, in a rudimentary way, the system has, through us, become sentient....We are now travelling along a path that could lead us to become the citizens of a live, intelligent planet, which might, in turn, become a citizen of the galaxy. With such a future ahead of us, how could we possibly be gloomy, or believe, as today's puritans keep telling us, that we are guilty of some great harm? We have to stop making mistakes, or better – because mistakes are inevitable – learn from them and keep our eyes on the path ahead."*³⁵

Lovelock's premise is that humans have been able to develop scientific knowledge and technology that enable knowledge to be harvested in vast quantities and assimilated through both brains and technology that was not possible in the past. And, certainly, rudimentary forms of the Anthropocene age started when there was a cognitive revolution, at some point of human evolution, this ability to think in ways that totally differentiates humans from other animals. One of the characteristics of which is the ability for myth-making that makes it possible to organize society on a much larger scale - across ethnic, racial or tribal groups - than a few bands of people living together as a small tribe.³⁶ But such traits may not tell us we are the only intelligent creatures on earth except that we are dominant because of the scale at which we can organize society and technology to our advantage.³⁷ Greater propensity to harvest intelligence about the world should make us progress more in the direction of greater empathy for other creatures, but the relation between more knowledge of the world, good judgement and acts of wisdom can often be tenuous.

We have to also recognise that increased knowledge lends itself to increased propensity to improve existing technology or invent new ones. Lovelock's thesis has resonance with an old idea held by the French thinker Pierre Teilhard de Chardin who envisaged that humans will evolve their minds and capability that will allow them to aggregate and unify all knowledge; that all of life will reach a point of sentient thought, a Noosphere, and spiral towards a 'divine' Omega Point.³⁸ This idea of hypersentience due to science technology is a theme that is somewhat central in Lovelock's new book; although with a less liberal use of the imagination than de Chardin chose to do when he first lodged his thesis.

³⁵ Lovelock, J (2015) *A Rough Ride to the future*, Penguin Books, United Kingdom, p.16.

³⁶ See Harari, NY (2015) *Sapiens: A Brief History of Humankind*, Harper Collins:USA.

³⁷ See Flannery T (October 8, 2015) *The Amazing Inner Lives of Animals*, New York Review of Books, also at <http://www.nybooks.com/articles/archives/2015/oct/08/amazing-inner-lives-animals/>.

³⁸ These ideas are contained in his book *The Phenomena of Man*.

Then there is Lewis Mumford of yonder years, a forgotten intellectual and a thinker of great insight.

Mumford seems to suggest that primitive forms of technology and tool-making were not expressions limited to mechanical utility – for the sake of securing food or controlling nature – he thinks it was far more profound: a cultural project of expressing human potentiality in different forms or modes that evolved with time in greater complexity³⁹ and depth.⁴⁰ He writes, and I find this fascinating, that: “To consider man as primarily a tool-making animal, then, is to skip over the main chapters of human prehistory in which a decisive development actually took place. Opposed to this tool-dominated stereotype, the present view holds that man is pre-eminently a mind-using, symbol-making, and self-mastering animal; and the primary locus of all his activities lies in his own organism. Until man had made something of himself, he could make little of the world around him”.⁴¹ In a way, Mumford is re-establishing the primacy of mind, culture, aesthetics and moral universe as being the superior interests rather than the mechanical and amplifying powers of tools/technology as it has evolved over time. As he notes further: “At its point of origin, then, technics was related to the whole nature of man. Primitive technics was life-centered, nor narrowly work-centered, still less production centered or power centered”.⁴²

A rediscovered Mumford,⁴³ in some respects, offers Ecomodernism an outlet from a potential narrow technological determinism, or at least the threat of being perceived that way, and the ability to imagine a new inclusive society in which technology furthers a more sublime manifestation of the human quest and endeavour for progress.⁴⁴ It is not coupled, to play on the pun, solely to an economic metric of offsetting industrial development’s footprint, but is a way of improving progressive culture and relations.. To quote Mumford again and bring to the fore his main message:

*“But autonomy, self-direction, and self-fulfilment are the proper ends of organisms; and further technical development must aim at re-establishing this vital harmony at every stage of human growth by giving play to every part of the human personality, not merely to those functions that serve the scientific and technical requirements of the Megamachine”.*⁴⁵

And furthermore, he notes:

“..we must then go on to question the basic soundness of the current scientific and educational ideology, which is now pressing to shift the locus of human activity from the organic environment, the social group, and the human personality to the Megamachine, considered the ultimate expression of human intelligence – divorced from the limitations and qualifications of organic existence”.

³⁹ Mumford gives the example of language as being a far more complex invention than simple tools as it required physical and mental potentiality. Language allowed for continuity of memory and knowledge and without it there would be no evolution of technology nor civilization.

⁴⁰ Mumford, L (1966) *Technics and the Nature of Man*, in *Philosophy and Technology: Readings in the philosophical problems of technology*, edited by Mitcham, C and Mackey, R, Simon and Schuster, The Free Press: New York.

⁴¹ Ibid; p.80.

⁴² Ibid; p.81.

⁴³ Mumford in later writings, it seems, tended to be more critical of technology and saw its main objectives as been pursued solely for the sake of power over nature and society. These afterthoughts, if you want, are contained in *The Myth of the Machine*, *The Pentagon of Power* in contrast to his earlier writings on the subject in *Technics and Civilization*. His concern was that the mechanization of nature and the automation of humanity as part of a totalizing processes in what he saw as properties of a ‘megamachine’. And, the ‘megamachine’ produces a ‘power complex’ in which technology is a means to power and becomes an addictive force that is neither tamed by morals nor control through reflection. Mumford’s main concern following the Manhattan Project was the increasing militarization of science and technology.

⁴⁴ In contrast Mumford argues that in the premodern era a new texture of the relation between technology, nature and humans evolves. Technical possession becomes a means for domination and extraction of wealth. Largely, facilitated by a megamachine – a complex apparatus of technology and human organization with degrees of complexity. He writes: “The expansion of power, through ruthless human coercion, took precedence over nurture and enhancement of life”.

⁴⁵ Ibid; p.85.

Mumford's main concern was that technological determinism destroys the organic society; technology should not disrupt the idea of an organicist society, this ability to correct imbalance and irregularity in society when they do occur as the system must be able to act as one whole. Here, Dewey and Mumford would concur as Mumford's organicist society is to Dewey, the Great Community.

Theoretically, this is what Mumford⁴⁶ had in mind when he theorised about an ideal society with the introduction of his concept of an organicistic⁴⁷ society⁴⁸. One should not read in Mumford a pessimism as some, especially his later writings, convey, but rather he saw also in technology the opportunity to create a workable, organic and environmentally friendly forms of production. Technology was both pariah and saviour in Mumford's eyes. Technology is only a saviour if you brought it under social control.⁴⁹ Mumford was against an impersonal set of technologies and forms of organized intelligence concerned with domination rather than enhancing the full potential for human self-realization.⁵⁰ These views are extended to nature. For Mumford, the relation of technology to nature is to restore both humanity and nature in a cycle or human-nature system that is reconciled rather than driven by the instinct of a parasitic relation. Leo Marx describes Mumford's major intellectual concern hinging on the relation between the organic and mechanical. As Marx points out, these concepts were metaphors Mumford mulled over as a way of embodying organic society evolving, with time, a certain relation to technology – in the wider sense of the word (both soft and hard aspects thereof). Further, Mumford was also intuitive, he could grasp that in the future, the biological and the synthetic would merge and this convergence would lead to a techno-biological relation that co-evolves. The implications of which, even today, we do not fully comprehend. Technology as its own entity is abstract, dry and devoid of spirit, only organismic society gives it feeling, meaning and place in the world.⁵¹ ⁵² This philosophical concern, of the convergence of technology and biology, is also explored in the book of Jurgen Harbermas, titled: *The Future of Human Nature*.⁵³

A segment of Mumford's ideas are also echoed in the work of Martin Heidegger, the German Philosopher, as he touches on the issue of instrumentality of technology. Heidegger is, perhaps, one of the first serious philosophers of technology⁵⁴ and modernity. Heidegger invites us to an open discussion about the nature of technology in his essay: *The Question Concerning Technology*. In Heidegger's view, technology is viewed as a means to an end; we think of ourselves in relation to it in a detached way as it functions as a tool. We are instrumentalist in our thinking. Heidegger does not want us to stop there, he wants us to see the role of human action as being embedded in the construct of the instrumentalist idea of technology and, in turn, technology turning us into an instrument of its power.

⁴⁶ Another big influence on Mumford was Thorstein Veblen who was critical of the predatory behaviour of the elite and saw the use of technology and production as serving pecuniary needs rather than representing real needs. The other influence was Patrick Geddes a British biologist, regional planner and social philosopher.¹⁷ Ibid; p.28-29.

⁴⁷ This idea was later taken up by anarchist such as Murray Bookchin who aspired to create ideal societies in which the communitarian ethos flourished. Bookchin for instance believed in self-created, autonomous and participatory forms of political participation in small towns and cities – they emphasised local forms of association rather than large impersonal cities that they viewed ended up being undemocratic. They preferred social intimacy to alienation. The sprawling city represented in their eyes a form of "Parasitopolis". Interestingly, the Democratic Presidential candidate, Bernie Sanders also hails from Vermont and is no doubt with Bookchin's views..

⁴⁸ Casillo, R (Jan-Mar 1992) Lewis Mumford and the Organicist Concept in Social Thought, *Journal of the History of Ideas*, Vol.53, No.1, pp91-116; also at <http://www.jstor.org/stable/2709912>.

⁴⁹ Ibid; p.112.

⁵⁰ Ibid; p.114.

⁵¹ Mumford's age of machine did not start with the industrial revolution but with the Egyptians and the building of the pyramids. This was the age of the megamachine a period in which a form of organization had evolved in which power, forced labour and technology combined. In his book *Technics and Civilization*, one of his earliest works, Mumford is optimistic and confident of the technological age. After the bombing of Hiroshima Mumford in his *The Myth of the Machine* is sceptical and less optimistic about the machine age.

⁵² Marx, L (undated) Lewis Mumford: Prophet of Organicism, Working Paper Number 2, Programme in Science, Technology and Society, Massachusetts Institute of Technology, http://web.mit.edu/sts/pubs/pdfs/MIT_STS_WorkingPaper_2_Marx.pdf

⁵³ See, Harbermas J (2003) *The Future of Nature*, Blackwell Publishing, USA.

⁵⁴ Godzinski, R (2005) (En) Framing Heidegger's Philosophy of Technology, *Essays In Philosophy: A Biannual Journal*, Vol 6, No.1 also at <http://commons.pacificu.edu/eip>.

Heidegger argues that the instrumentality of technology conceals truly what it is, that it is a creation of context, but also by defining it as instrumental we assume we have total control and power over it. That is, technology does not enframe us simultaneously.⁵⁵ This perhaps the most interesting, difficult and profound shift in the way Heidegger introduces the idea of technology in modernity. In a sense, we create a function for technology and in turn technology also shapes our thinking about ourselves and the world. Heidegger phrases this as a process of *Gesell*, Enframing of human action and thought.⁵⁶

The essence of technology is not the function we see⁵⁷ it performs, but understanding the reasons behind its essence or existence. Heidegger's work on technology is dispersed in various texts, but his underlying thesis is about how we can establish an open and free relationship with technology. He wants us to shift from a determined cause in which will is directed to master technology and in which our relationship with technology is purely a technological relation devoid of any essence. There is a certain nub in this comment as it reveals itself through the way we produce and take technology forward: it produces within humans a higher regard for themselves because being able to exploit nature's 'standing reserve' (using Heidegger's words), as it gives in to our will, we stand alone, we are confronted not with nature anymore, but ourselves. This implicit distancing comes about because of the evolution of technology. In an odd way, even though Heidegger does not say as much, we can evolve different pathways for our trajectory – a responsible relation with technology and nature or an irresponsible one. To further elaborate this point; technology is not neutral, we can also not cede control to technology - we determine it and it does not determine us.

Enframing has two dimensions; the hidden essence of technology that comes from human action and the thing that technology does to human action - the process of Enframing by technology itself. Enframing challenges us to not accept technology as always moving in a specific inevitable direction or that its motor in life is such that it is self-determining. Reading in-between the lines, Heidegger is suggesting to us that while we are *Enframed*, we can also reframe the path of technology. He writes: "...when we consider the essence of technology, then we experience Enframing as destining of revealing. In this way, we are already sojourning within the open space of destining, a destining that in no way confines us to a stultified compulsion to push blindly with technology or what comes to the same thing, to rebel helplessly against it and curse it as the work of the devil."⁵⁹ As a further elaboration of this point of the dual idea of Enframing, Heidegger notes: "What is dangerous is not technology. There is demonry of technology, but rather there is the mystery of its essence", and more, "The threat to man does not come in the first instance from the potentially lethal machines and apparatus of technology. The actual threat has already affected man in his essence. The rule of Enframing threatens man with the possibility that it could be denied to him to enter into a more original revealing and hence to experience the call of a more primal truth".⁶⁰

⁵⁶ Heidegger, in this essay refers constantly to the idea that nature reveals itself as a 'standing reserve' or the way we instrumentalize technology we treat nature as a standing reserve and nothing more. In a sense, it is passive in relation to how we appropriate nature for our own advancement. The quote in the opening part of this section may convey the idea that Heidegger is pessimistic about technology. In careful reading though he is trying to point to us our limited way of understanding technology and does not want to pass judgement that identifies technology as good or evil. It needs to be understood in its context. Every technology has an epoch governing its purpose in the world. The standing reserve is already a relationship with nature that we cannot change but we need to understand as our very being positions us to draw on the standing reserve to meet our needs and survival.

⁵⁷ Ibid.

⁵⁸ Enframing is a central concept that runs through Heidegger's thesis on technology. It is not an easy concept to grasp but Heidegger through recurrent rephrasing attempts to give meaning to it. To quote him, he writes: "The essence of modern technology lies in Enframing, Enframing belongs within the destining of revealing." For further explanation see Knowles, A. 2015. Heidegger's Mask: Silence, Politics and the Banality of Evil in the Black Notebooks. *Gatherings Annual* 1:99

⁵⁹ Ibid, p. 13.

⁶⁰ Ibid; p.14.

In a different essay, Heidegger picks up on this theme and tries to put forward a reassuring side to what could be interpreted as a hopelessly pessimistic overview of technology. He writes: “Man is indeed needed and used for the restorative surmounting of the essence of technology.⁶¹ But man is used here in his essence that corresponds to the surmounting. In keeping with this, man’s essence must first open itself to the essence of technology.” It is possible that in future the subjugating technics^{62 63} used to make technology the dominating force of nature and humans, as Mumford puts it, with new technologies we may well free ourselves up from the back-breaking and mundane aspects of factory work, mining, construction and so on with smarter and self-correcting machines in the future. We will derive more freedom for humans and free up more of nature, also for humans. They may well leave us with something different – great leisure for some but also alienation and inequality due to joblessness.^{64 65}

I have gone into some detail on this because the positions on technology the EM takes can lend themselves to multiple mis-interpretations. The EM’s work could benefit from the insights of early thinkers on these issues. It does need to articulate a political thesis on technology that gives the EM’s own techno-optimistic views far richer texture and nuance than the bland take it portrays in the EM and much of the BTI’s writings. If I were to consider a big weakness, it would be the lack of real theory of technology to inform the way the EM thinks about the role of technology, progress and a new environmentalism.

I am certain that part of the reason Ecomodernism presents a challenge to orthodoxy is that our relationship with nature has been transformed from a religious idea of an original sin to a secular version of it. Ecomodernism in its embrace of Anthropocene age and anthropocentrism wants to free us of this guilt.⁶⁶ And the original sin is that the acquisition of knowledge and technologies have given us certain powers, and certainly, not overwhelming powers to tap into the forces of nature and reshape, ‘rewire’, recreate and ‘reengineer’ the world. Coming to terms with this sin has been the difficult part of the evolving Anthropocene age. It is much better to live with the guilt and assuage it through environmental moralism and philanthropy than confront the reality that our desire for self-preservation and curiosity has made us all complicit in the eventuality that we see before us today - that we will continue to be dominant and a technology rich society but it can enhance our fate or simply end it too.

Ecomodernism’s embrace of the Anthropocene age is a confrontation with the relation of guilt, and to turn what is perceived as an original sin as a virtue. Of course for leftist of the environmental movement, the original sin was to have unleashed too liberally the power of capital and markets. At the core of the debate is the question of pristine nature versus the Anthropocene age which is viewed by the critics of the Anthropocene idea as hurtling us into catastrophe.

⁶¹ Heidegger, M (1977) *The Turning*, see (http://ssbothwell.com/documents/ebooksclub.org_The_Question_Concerning_Technology_and_Other_Essays.pdf, p.39.

⁶² Mumford, L (1964) *Authoritarian and Democratic Technics*, Technology and Culture, Vol 5, No.1, pp1-8.

⁶³ Mumford is most referring here to the totalizing effects of technology as it comes under authoritarian practices. It is important to note that Mumford does not believe democratic societies have reduced these practices, they may well have camouflaged their effects and ways in which they manifest in democratic societies. His was both a warning of what is happening and can be further entrenched if we are not vigilant enough. As he notes in his essay, “There are large areas of technology that can be redeemed by the democratic process, once we have overcome the infantile compulsions and automatisms that now threaten to cancel out our real gains”.

⁶⁴ See Summers, L (7 July 2014) *The Economic Challenge of the Future: Jobs*, also at <http://larrysummers.com/2014/07/07/the-economic-challenge-of-the-future-jobs/>

⁶⁵ One of John Maynard Keynes’s early writings also envisages a technologically driven society with less work and more leisure see at <http://www.econ.yale.edu/smith/econ116a/keynes1.pdf>.

⁶⁶ See an article by Erle Ellis, (May 1, 2013) *The Long Anthropocene: Three Millennia of Humans Reshaping the Earth*, <http://thebreakthrough.org/index.php/programs/conservation-and-development/the-lon>.

Anti-modernist tendencies in environmentalism also cannot see the contradictions of their discourse: they pine for a world free of the polluting effects of technology but yet are recipients and beneficiaries of such a technological society and the potential for progress it offers. Others take a more eco-deterministic view of the world – they see the Anthropocene age as disrupting and upsetting the balance of the ecological systems and boundaries. Proponents of the planetary boundary hypothesis are in this camp. The BTI, itself has mounted a critique of the planetary boundary model for the way it portrays an understanding of the complex relations between humans and nature. In the nine areas of planetary boundaries and thresholds they have identified they link human welfare to desirable planetary states and safe zones on a global scale. They do not preach Anthropocene, but propose we refashion life that it is consistent with the most stable period of the earth's geological epoch, the Holocene age. The idea of planetary boundaries is still young but it is making waves amongst environmentalists and scientist alike.⁶⁷

The central concepts that govern the planetary boundary hypothesis is the idea of resilience, planetary tipping points, non-linearity, stability, irreversibility and shift in states that do not make it conducive for the existence of humanity in the future. Core to its science is the idea of complex systems. Complex systems themselves can play devil to one form of logic and reason because complex systems analysis assumes you know enough about the system that you can predict with great deal of certainty its every other state if the original state is exceeded. One of the problems with the planetary boundary hypothesis is that it is precisely in the nature of complexity that it can become unhinged if you do not know enough, which seems impossible in some respects, you cannot be sure of future states either. The entire thesis is reliant on what assumptions you build into the key control variables that determine the environmental state. The interesting thing about this – in my view – is that the claim to complexity is itself reliant on a reductionist approach to the way control variables are chosen, that somewhat operate in a mechanical, non-complex way with each other. The more important challenge from the work of the BTI, which is central to the planetary boundary hypothesis, is the relation between pristine environment and ecosystems to human welfare. Here, the relation is not direct and in fact as the BTI suggests, non-environmental factors that are largely the main drivers of human development. Their critique of the planetary boundary proponents is summarised in the following retort: “It is not the environmental conditions of the Holocene that have enabled human development in the past two hundred years, but the environmental conditions of the the Anthropocene”.⁶⁸ These observations are further bolstered by other mainstream views that we are heading towards the sixth extinction.⁶⁹ The planetary model is also problematic from another point of view, it assumes readings and perceptions of nature are apolitical. Firstly, its own views can be read as engaging in a certain type of politics that has implications for underdeveloped countries – they must slow down growth and their population growth rates, and secondly, it fails to contextualise the planetary boundaries model in the context of the fact that the ends for which the economy exists is material to the ends to which nature is put.

⁶⁷ Nordhaus, T, Shellenberge, M and Blomqvist, L (June 2012) The Planetary Boundaries Hypothesis: A Review of the Evidence, The Breakthrough Institute. .

⁶⁸ Ibid; p. 36.

⁶⁹ See Ehrlich, PR and Ehrlich, AH (August 12, 2015) How Humans Cause Mass Extinction, Project Syndicate, also at <http://www.project-syndicate.org/print/mass-extinction-humans-cause-by-paul-r-ehrlh>.

Contained in this debate on the merits of planetary boundaries model, you find the juxtapositioning of the heated⁷⁰ versus the cool view on industrial developments. How is the public to reconcile a mainstream view versus views that are not mainstream? How can localised impacts be reflective of global trends and impacts? In essence, it raises questions about the true nature of impacts and claims about resilience and non-resilience of nature. At the heart of it is the way in which scientific evidence is gathered and what one can conclude from such evidence? All, of these in turn influence the way we think about managing the planet and what kinds of interventions we propose.

All attempts to delink humans as central to the age of Anthropocene will exist in relation to nature as a form of false pretense. It would seem that how we solve the human-nature dynamic lies not in creating ever more discourses on the idea of nature, but how humans themselves relate to each other.

This is not to suggest that we do not have a consciousness of nature, but the way we treat nature has parallels with the way we deal with poverty - addressing the symptoms and not the cause. In the case of poverty, philanthropism treats the symptoms while maintaining the vestiges of privileged societies. In the case of nature, we want to benefit it, but without addressing the core issues - the way the economy works and how we change nothing until we change the underlying basis of the purpose for which the economy exists. These redistributive problems include sufficient investment in the short and long-term rectification of environmental problems.



⁷⁰ The Ehrlichs in this article dramatize the impacts of human overpopulation. How does one then reconcile this with UN and other reports that in many developed countries the opposite is happening – population fertility rates are on the decline and the world's population is like to peak by 2050. What then would be the impacts of the human footprint on nature? Ehrlichs also decry the growth of cities but cities may well be the most efficient way for us to organize resources and use them less wastefully. Cities themselves are likely to lead to population decline. The relation between human population growth and mass extinction is the major purport of the article based on a scientific paper written by Ceballos, G, Ehrlich, PR, Barnosky, AD, Garcia, A, Pringle RM, and Palmer, TM (2015) Accelerated modern human-induced species losses: Entering the sixth mass extinction, *Sci. Adv.* 1, e1400254.

3. THE FUTURE SOCIETY AND POLITICS

Let me first put out a bit of a warning: Ecomodernism while it wants to play a different game to conventional environmentalists it stands the danger of – directly or indirectly - serving the interests of groups who want to keep environmentalism at the margins. Ecomodernism is striving to be the rational, techno-savvy and pragmatic voice within the camp of the broader environmental movement. And, in political popular discourse ecomodernists will/can easily be labeled the ‘moderates’ amongst the fringe, puritanical and radical groups. Ecomodernist thought can be a convenient wedge and weapon against other environmentalists by those not interested in its ideas but rather Ecomodernism being a useful political instrument to further alienate and marginalise environmental causes and concerns. And whether it wants to build its political project through a marriage between unlike-minded groups and ideologies, even if they agree on the basic precepts of the EM, is something the EM movement needs to think through more carefully. The EM at present is a diverse camp taking a egalitarian view of the ideological and political leanings of its followers.

The label ‘moderates’ may well be an unhelpful and an unintentional consequence of Ecomodernism’s philosophy as it may not be an accurate reflection of Ecomodernist work. In my reading of Ecomodernism, it seeks to demonstrate through evidence that the relation between economy and environment is far more nuanced rather than dramatic as is often portrayed or represented through the ultra-negations, dystopian, and nihilistic predictions of orthodox proponents of environmentalism towards technology, industrial development, modernism and the very idea of progress itself. I suspect that even environmentalists are not sufficiently acknowledging that a new wave of technologies contain implicit sustainability measures as they embed an economic logic that strives to optimise resource use, materials that are less environmentally damaging or recoverable through recycling processes. These are partly driven by better product standards, the convergence of human health and environmental issues and perhaps it has dawned on many exporting countries and original equipment manufacturers that solving an environmental problem not only enhances their products and brand, but is also a source of new investment opportunity.

The critique of convention is important but should Ecomodernism be living only in one intellectual space? It is important that Ecomodernism not face the same intellectual riposte as post-modernism – that you only deconstruct traditional environmentalism, but do not help us all along in thinking of what a reconstructed modernity should look like. The question is: should it be part of the environmental camp solely or broaden the conversation that includes broader interests, inclusive of non-environmentalists, that builds a society on a new techno-economic vision that has nothing to do with conventional environmentalism nor traditional liberal economics. It is a sort of idea that HG Wells toyed around with when he wrote the book *A Modern Utopia*.

HG Wells simply fashioned a thought experiment of what a future idyllic society could look like for the Fabian Society⁷¹, one of the founding movements of the Labour Party in the United Kingdom. Wells starts most of his novels with dystopia but eventually with the aid of scientific knowledge and technology his narratives describe ways in which humans are able to save themselves again. Incidentally, HG Wells saw also with technological progress the possibility of the creation of a ‘World Brain’, a way of knitting together all of the world’s intellectual workers through a common interest.⁷² Well’s ideas have resonance with de Chelhard, Lovelock and others who thought some sort of universal and unified mind is possible – with the unification of knowledge you hold the potential to create a super-sentient organism. Wells thought if you had a way of organizing the fragmented nature of the world’s knowledge you could speed up progress and create a happier society.⁷³ Wells phrased this as the creation of ‘modern encyclopaedism’, a scheme to reorganize, reeducate and disseminate information across the world that eventually leads to the formation of “synthetic super-minds”.⁷⁴ As the Ecomodernists envisage technology as helping us rewire nature, Wells thought the creation of a World Brain would help us rewire the mind and the way we think.⁷⁵

Of course one wants to challenge traditional environmentalism, but Ecomodernism in negating the one is finding itself trapped on the same treadmill without being able to make a ‘double-movement’, to use a Polanyian phrase, i.e. challenge orthodoxy and move also simultaneously into a new metric of a techno-economic society in this simplistic economists vision I propose where ‘E’, is not a distant part of ‘C’ and ‘L’ but a comfortable part of the economic logic. It is, if you want, not only here to describe a symbolic relation, but to build a techno-economic society where we have the means of knowledge and organization to do better with our economies and societies than we did before.

If I were to mount a critique of Ecomodernism, it would emanate from my feeling that it does not quite grapple with developmental challenges sufficiently and the issue of inequality, the ‘desire’ for things beyond basic necessity⁷⁶ that drive the commodification of needs, and how technologies promise can be progress for some and exclusion for others. Here I would suggest that the readings and reflections of left critics are not without merit. And many are not technophobes, but technoskeptics who, just like Mumford, saw both promise and potential peril if we do not create some means of self-reflection in the project of modernity. Just as we decry environmental fundamentalism, caution must also weigh on Ecomodernists not turning themselves, through intent or accident, into technological fundamentalists. Technoskepticism is also fuelled by mistrust of giant corporations. Distrust can magnify the perception of risk or diminish it. This is very evident in the life sciences when it comes to genetically modified organisms.

⁷¹ Wells himself was interested in socialism and the idea of a utopian society that can be created using the powers of science.

⁷² Rayward, W.B. (1999) HG Wells’s Idea of a World Brain: A Critical Reassessment, *Journal of American Society for Information Science* 50 (7): 557-573, p.558.

⁷³ *Ibid*; p. 560.

⁷⁴ *Ibid*; p. 565.

⁷⁵ Wells, also pawned other interesting ideas such as that of a World State run by a select group of people called a Sumarai order on behalf of everybody else. This would not be palatable to today’s way of thinking. It was a world that would be run by experts who had various types of scientific knowledge and experience.

⁷⁶ There are some interesting insights that can be gained from the work of Thorsten Veblen in his book *The Pursuit of the Leisure Class*.

CONCLUSION

Ecomodernism's deconstruction role is to demonstrate either contradictions or exaggerations in the way scientific evidence is sometimes used to demonstrate cause and effect when society is called upon to support environmental causes or campaigns. Certainly, the way in which we experience scientific and technological change is evolutionary. The transition from primitive tools and narrow forms of knowledge our ancestors used for their own survival are very different from the very organized forms of science and technology that we encounter today. It is argued, by some scholars, that the amplification of science and technology also does something to us and nature. Not all of it is visible or deconstructable although much philosophical, sociological and economic theoretical work goes into seeking to understand the ontology of technology and society. But how can ecomodernism progress its own thinking without being trapped in the same cloistered trappings of environmentalism?

The late Ulrich Beck sought to understand modernity in the context of science and technology-rich – rich society through his concept of 'reflexive modernisation'⁷⁷. In simple terms, Beck argues a new modernization has to happen within the existing one. Some see Beck's reflexive modernism⁷⁸ as the forerunner to ecological modernism.⁷⁹

Perhaps, and without going into too much detail here, there is a complementarity between Beck and Jurgen Habermas's idea that modernity is an unfinished project. Habermas is of the view that rationalizing tendencies in modernity was about objectification of the subject in which technology and science is about control and hegemony whereas he argues that a new modernity should be about evolving a 'subject-subject relationship' which is about understanding, advancing common knowledge and enhancing co-operation. This is the central thesis in his concept of communicative action.⁸⁰ It is worth noting here what Latour says about Beck in an obituary written for ArtForum. Latour writes: "By the term risk, he didn't mean that life was more dangerous than before, but that the production of risks was henceforth a constituent part of modern life and that it was foolhardy to pretend that we were going to take control of them. To the contrary, it was necessary to replace the question of mode of production and the unequal distribution of wealth, with the symmetrical question of the mode of production and the unequal distribution of ills".⁸¹ It is important to note this because the quote also captures a broader issue for us – technology can shift the balance in favour of a better world, but on balance it can also advantage some above others. In this equation, the distribution of inequality around the world also generates the unequal distribution of the ill effects of modern unsequestered environmental impacts in an unequal manner so that the benefits of technology are only captured by a few.

⁷⁷ Beck, U. Bonss, W and Lau, C (2003) *The Theory of Reflexive Modernization: Problematic, Hypotheses and Research Programme*, Theory Culture Society, 20:1. See also Beck, U (1992) *Risk Society: Towards A New Modernity*, Sage Publications:California.

⁷⁸ It is a term best understood if you consider it in the light of Beck's notion of second modernity.

⁷⁹ Buttel, FH (2000) Ecological Modernization as social theory, *Geoforum*, 31: 57-65.

⁸⁰ Brey, P (2003) *Theorizing Technology and Modernity*, Modernity and Technology. Eds Thomas Misa, Phillip Brey and Andrew Feenberg, MIT Press, 33-71.

⁸¹ Latour, B (January, 13, 2015) Obituary on Ulrich Beck, <http://artforum.com/passages/id=49747>.

Reflexivity is a process of rejuvenation that leads to a form of radicalisation in which modernity is transformed for 'a second time, not only the key institutions but also the very principle of society'. Or as they say later in their essay: 'Modernity has not vanished, but it is fast becoming increasingly problematic. While crises, transformation and radical social change have always been part of modernity, the transition to a reflexive second modernity not only changes social structures but revolutionizes the very coordinates, categories and conceptions of change itself'. In his conceptualisation and not too far off from his main thesis, there is constant reference to this transition from a first to a second modernity the task of which is to 'decipher the new rules of the social game even as they are coming into existence'. You need to put Beck in context: he saw modernity as a process of major technological transformation that brought about new risks and required unconventional forms of institutional and social organization to respond to these risks. His main concern is that modernity has a particular concept of nature founded on its exploitation. Nature is simultaneously central to society and marginalized. It appears as the 'outside' of society'. In reading the collaborative essay of Beck and his other works you also finding a warning: that the ambition of the first modernity to solve its crisis through better technology, more economic growth and more science is to reuse the same weapons of modernity but its effects will be less stabilising and the crisis is merely perpetuated with the illusion of progress. Unlike Ecomodernism, Beck does not see continuity from the first to the second modernity but a necessity for discontinuity. In a way, Beck's work resonates with the EM and the general thesis of the BTI – we need to develop new concepts and ways of thinking about modernity, as is the case with Beck, and for EM the evolution from narrow environmentalism to the transition to a new modernity.

For Beck though, the one is not leading to the evolution from the one to the other, but to a rupture; a historical split. Beck is not always clear what this discontinuity entails, nor what a 'post-modernity' looks like, but he suggests that it sets the idea of time and space into a new orientation as reflexive modernity which is produced out of the crisis of modernity produces a form of meta-change that establishes new forms of organization and cultural imagination – the system of reference is changed. My own sense is that with crisis, modernity wants to reproduce the very same structures that are the source of its own life and movement. Beck seems to suggest this is impossible and a new type of modernity is necessary.

This has resonance with some of the debates on-going in economics where opponents of the neoliberal thesis argue that conventional economics is in crisis and its continued reassertion of the primacy of rational behaviour, market equilibrium and financial stability through austerity is delaying the inevitable – the need for the reinvention of economies. But if you were to ask what the new economics is there would be hundreds of different ideas. And like economists seeking to break away from orthodox economics, Beck's only solution is more 'historical perspectivism'. Out of reflection will emerge a new proposition for what the second modernity will look like. My view is that these things do not emerge out of calculation nor central command, but are likely to evolve out of pure accident and experimentation just like modernity did until a defined pattern of structure and relations was settled into as the dominant form of economic, social and cultural organization. They may well also come out of a reconfiguration of global geopolitics. Beck's answer is not to deem one form of rationality as the answer, but in reflexive modernity to give multiple forms of rationality a place in the world. It is not to end where Deleuze and Guattari propose modernity has ended – a form of political singularity and technological totalization that is counter-productive and anti-democratic. As Beck and his co-authors write: '...a loosening up of the foundations of rationality could lead to a multitude of alternative optimization strategies and/or to an expansion in scientific and technical knowledge'.⁸² Unlike post-modernism, reflexive modernity is still able to concede that with a multiplicity of views this does not nor ought it to paralyze you into indecision. Even if you do not know enough you still have to decide.⁸³

Or as somebody will cheekily retort: "you will know it when you see it".

Perhaps, the challenge for Ecomodernism's trajectory is not to see its future in the environmental movement, but rather to build from within it a vision for a new modernism, as it is more likely to leave it behind and simultaneously take on a different tactical nuance which Nordhaus and Shellenberger have already pointed out, in one of their essays, that environmentalists have to talk to others outside of their own domain. A point I myself have made on previous occasions.⁸⁴ But the journey to the engaging of other viewpoints and forging new types of alliances requires the first step – self-examination, as Nordhaus and Schellenberger so poignantly note: "What the environmental movement needs more than anything else right now is to take a collective step back to rethink everything."

⁸² Ibid, op.cit. p.16.

⁸³ Ibid., p.20.

⁸⁴ See <https://www.sacsis.org.za/site/article/1238>.

⁸⁵ Shellenberger, M and Nordhaus, T () The Death of Environmentalism: Global Warming Politics in a Post-Environmental World, Breakthrough Institute, p.7.

We will never be able to turn things around as long as we understand our failures as essentially tactical, and make proposals that are essentially technical”.⁸⁵ As they also prudently point out; working assumptions that are either untested or unchallenged can drive very severe forms of groupthink.⁸⁶ And, in the light of this, the environment is not just a ‘thing’ out there but is the product of our minds. Our concepts of nature and what is happening to it is a complex interaction of the correspondence of theories of nature to real nature and the progressive evolution of science that may well reinforce or contradict our earlier assumptions about nature.

The environment as a thought in the mind is not of organic creation, but the product of social construct. This is why we need to be even more vigilant that we do not wholly fall for our creations that in our claims we naturalise things, the environment, as it were the real thing itself. The mind has a window into the world but since it is not the full picture it cannot be the whole of the world. Groupthink can easily make us believe differently. These challenges should lead to new types of conversations and give environmentalism a new edge that is missing. In my view, this is a conversation that needs to be widened. The long-term legitimacy of environmentalism is dependent not on its religious view of the world but its practical propositions that involve multiple interests – that of the economy, technology, labour, society and the environment. This is why I argue, as I did above, that ecomodernism itself should not be only taking on the environmental challenge, but should also create the platform for a conversation about a new type of economy.

How can one achieve that? It can only do so if it sees ideas not as ideas for their own sake, but also as political tasks. For that it needs to expand the sphere of influence.

I put forward some preliminary ideas:

At a more strategic level, the EM will have to work towards building not only a community of research that is interested in the transition debate, but also a community of influence, as depicted in Fig.1, so that a new economic thesis on the transition debate we want to foster not only has others working on solving the same challenge, but it in itself becomes a sphere of influence. Such a programme is a long-term process in its own right and may well be too ambitious to achieve in one go. The power of ideas has to advance a progressive set of views about the relation between economy and the environment. Ideas do have power, but their power also comes from the network of influence that is grown with time.

⁸⁶ Ibid, p.12.

Community of Experts and Actors within the Sphere of Influence

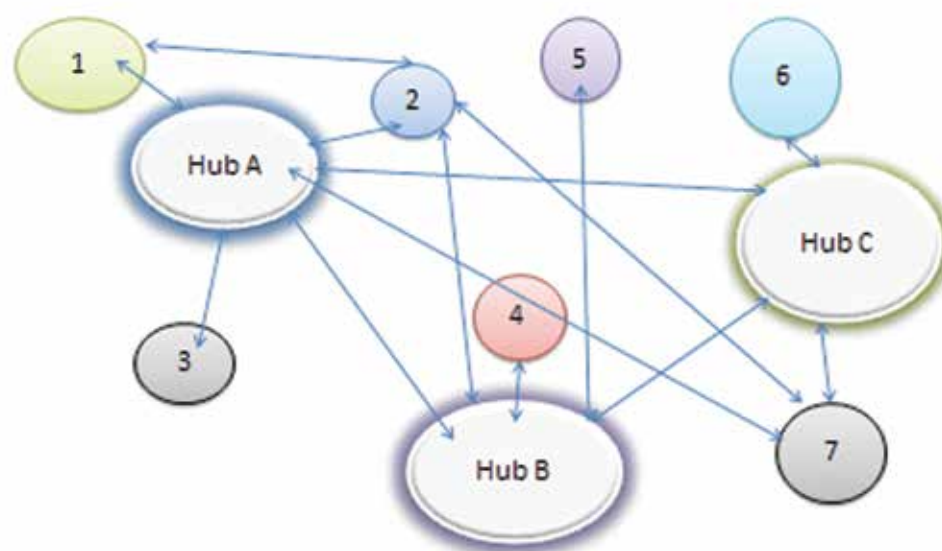


Figure 1

In the model above, Hubs serve as centres where thought-leadership and policy ideas are generated. The inter-linkages of the various Hubs with each other and their stakeholders (the numbered circles from 1-7) creates not only a community of knowledge and expertise but also a sphere of influence because of the network effect it generates.

The impact of this model depends on legitimacy, the quality of the policy research, case studies, pilots and the ability of these institutions to attract the right and diverse audience both individually or collectively. Both within the environmental and non—environmental camps. The strength of this model is that no institution has a full suite of competence and endowments to meet all the policy and research needs of key stakeholders and change agents within the policy society. Implicit in this model and for the success of the EM regional and global impact is to develop a strategy that has a network effect and the creation of alliances that produce a sphere of influence that has enough weight to produce change whether it's gradual or in some cases creates opportunity for radical shifts. The key to good policy and scientific research is also good intelligence and this is one of the strategic benefits of working in a network model. Much of this network model capacity already exists and needs to be enhanced and be part of a pre-determined focus. It should be deliberate rather than something that is created from a default outcome. It is about framing the right set of questions and not, as Thomas Kuhn once suggested, that the existing paradigm perpetuates the same set of questions and evidence to bolster the existing dominant thesis.

More importantly, it allows for a diversity of views from the ground and above to be filtered and that informs our own work and thinking. It is as much a source for robust gathering of knowledge and experience as it is a tool for change. All policy institutions and forms of research have the danger of living in their own bubble. Networks though can foster group think or they can break it depending on who populates the network and the way they foster diversity of thought. But it is clear that the network model is a model the EM cannot avoid as it will never have all the resources, or be the font for all ideas and it is reliant on outside expertise for many of its scientific and policy engagements. It should also, through its network, embrace an occasional shake-up of its core assumptions and ideas.

There is a danger that Ecomodernism can create the impression of technological determinism and trust in its inevitable powers to solve all our problems just like the idea of singularity offers us the hope of unbounded future with the arrival of technological and scientific universalism. I myself, while being an eternal optimist, am also sceptical of popular or populist framings as there can be an essentialism woven into things by suggesting that there is a natural propensity for things to lead from one thing to another. There is no proof in this other than perhaps an historical record from which we impute, possibly, an erroneous causality. But the historical record itself is open to dispute as to whether technological progress is a good or bad thing. The future is always uncertain. What we do know is that our evolution and nature's evolution are intertwined. They are less apart than they were billions of years ago.

All we can be is hopeful and perhaps take the best out of Beck's reflexive modernism and be inspired with the way forward with critical consciousness as a tool for healthy debate. We can endlessly pontificate about the pros and cons of technology. We live in a technological rich society. As technology becomes denationalized, so do risks and environmental progress. By its very nature many environmental issues cannot be the domain of a national preserve or nationalized as we require an international solution for them. Ecomodernism can only flourish if it moves from being a predominant American movement to being an international cosmopolitan movement. It will, in this regard, face the paradox of a denationalisation attempt with a very nationalised assertion of issues and interests. It is a challenge that Beck was fully aware of when he talked about a risk society. Beck understood the global dimensions of a risk society but also was aware that a cosmopolitan agenda has to confront the parochialism of national issues. Global consumerist culture breaks the back of petty nationalism, as Beck argues, because the bad environmental behaviour of brand in one country harms its image elsewhere and in this way local issues quickly become global issues.⁸⁷ EM's success depends on its universalism but it will have to face the paradoxical challenge that universalism also comes with more localism and national embeddedness. This in itself can change the character of the EM once it advances beyond US borders.

Finally, the EM has to commit to a 'double-movement' and build a strong claim and thesis of the relation between technology, environment and the economy. In effect, the new modernism is about this challenge – how to build a new society and economy with the type of advances we have in technology, methods of production and organization of state and markets. Why not rather make this the central feature of the future work of EM than place itself once again entering from the margins trying to turn the wheels of the centre? How does one occupy the centre without winning one world and also losing one's own world and constituency? There are no blueprints for this. These are matters of technical work as much as they are about political tactics. There is greater interest in the world to solve future economic challenges. This presents an interesting opportunity for the EM movement. Ecomodernism's advance will come if a new enlightened tradition brings back the idea of nature as in integral part of the discourse of how we live, and how we live touches the political, economic and the ecological system as one universe – we are not there yet.

⁸⁷ Beck, U (2001) Interview with Ulrich Beck by Don Slater and George Ritzet, *Journal of Consumer Culture*, 1: 261, also at <http://joc.sagepub.com..>