



Newton Harrison and Helen Mayer Harrison  
Initial sketch, **Greenhouse Britain: Where the loss of land due to  
ocean rise is first expressed**, 2006

# The Politics of Sustainability: Art and Ecology

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In their recent multimedia installation, *Greenhouse Britain, 2007–09*, Newton Harrison and Helen Mayer Harrison chart the future impact of global warming on the UK. Using video animation, a large-scale topographical map of Britain, photographic documentation, analytical texts and sound elements, their pedagogically oriented presentation portrays a dark future of rising waters, storm surges and shrinking coastlines.

Supplementing this ominous forecast, their project also supplies creative proposals for the construction of water barriers and the development of environmentally friendly housing for the scores of people who will inevitably be displaced as the waters overtake low-lying areas such as the Norfolk Broads and the Thames Estuary, owing to the gradual melting of the Greenland and Antarctic ice sheets over the course of the next century and beyond.

Yet while the Harrisons' art has admirably addressed global warming since the early 1970s, when they began their longstanding collaboration and when climate change was much less discussed, today's context of widespread public information campaigns – from Al Gore's 2006 educational film *An Inconvenient Truth* to popular science books like Tim Flannery's *The Weather Makers*, 2005, and Elizabeth Kolbert's *Field Notes on a Catastrophe*, 2006 – have shifted the discourse on the environment. This has revealed new questions about what role art might play now that consciousness-raising is being accomplished by the mass media and culture industry, even if still plagued by governmental inaction.<sup>1</sup> As is now widely known – particularly since the scientific consensus established by the IPCC (Intergovernmental Panel on Climate Change), most recently in 2007, which has rendered those who deny climate-change increasingly scarce (but, with continued industry funding to wage their misinformation campaigns, by no means extinct) – we live in a changing world of anthropogenic global

warming. The IPCC predicts a coming world, half uninhabitable, of rising seas and temperatures, drought and water scarcity, and massive species extinction, which will undoubtedly provoke geopolitical challenges regarding resource distribution, environmental justice between developed countries and the global South, and vast climate migration.<sup>2</sup> This future defines new imperatives for an ethics of living, a politics of governing, and in turn provokes new challenges for contemporary artistic practice and art exhibitions – particularly for those, such as the Barbican's exhibition, *Radical Nature – Art and Architecture for a Changing Planet 1969–2009*, intent on participating in the ethico-political reinvention of life in the face of climate change.

## Exhibiting Sustainability?

Given this state of urgency, there has been, not surprisingly, a slew of recent exhibitions and research projects worldwide attuned to art and ecology. The most prominent include: *Ecovention: Current Art to Transform Ecologies*, an exhibition at the Cincinnati Contemporary Arts Center, 2002, which surveyed practices since the 1960s that endeavour to ameliorate the effects of environmental degradation; *Beyond Green: Toward a Sustainable Art*, mounted at Chicago's Smart Museum of Art in 2006, investigating design-related approaches to environmental sustainability; *Land, Art: A Cultural Ecology Handbook*, a 2006 compilation of texts by ecologists, cultural theorists, activists and art writers that considers notions of land, cultural production and the ecological emergencies of the 20th century; *Still Life: Art, Ecology, and the Politics of Change*, the eighth Sharjah Biennial, 2007, addressing social, political and cultural relations to nature and the environment, including a symposium that examined ecological practice and everyday life; and lastly, *Weather Report: Art and Climate Change* at the Boulder Museum of Contemporary Art, 2007,

which highlighted educational initiatives around desertification, floods, changing watersheds, renewable energy and carbon profiling, and partnered artists with scientists to create dialogues around climate change.<sup>3</sup>

The growing momentum of such projects would appear salutary for their contribution to the focusing of public attention on the environment and the threats posed by climate change. However, that achievement should not distract or prevent us from forming a critical assessment of the aims and accomplishments of recent projects, as well as evaluating the 'promises, perils and perplexities' – to borrow the subtitle of yet another recent exhibition, *Greenwashing* – that characterise these recent engagements with art and ecology. One signal peril, indeed, is the tendency to accept the flattening of representation's complexity and to surrender intellectual criticality in the face of the real urgency of climate change. The danger here is the public's passive deferral of responsibility to scientific expertise and governmental authority, which makes us vulnerable both to solutions forged by exclusive social and political interests and to the forces of commercial exploitation that would use green rhetoric for the purposes of economic profit. And yet, if artists and cultural practitioners refuse to surrender their discerning consideration of scientific dictates, then what do they do, as Bruno Latour asks, when their methodological commitment to resisting the self-evidence of 'truth' prevents them from accepting the truth of impending ecological crisis, which potentially allies them with climate-change sceptics?<sup>4</sup> Facing this dilemma, one must be aware of the fact that whatever we know about the environment – knowledge that will determine our future actions and chances of survival – we owe to the diverse practices and institutions that represent it. As such, we can perhaps only affirm the need for a critical realism that both refuses to relinquish the validity of scientific paradigms and remains dedicated to a guardedly analytical approach to ecological discourse as a system of representations forged at the intersection of power and knowledge.

To this end, it is necessary when considering the historical formation of environmental art to scrutinise the diverse meanings of 'ecology' and denaturalise the rhetoric of 'sustainability', recognising these buzzwords

as deeply political, contentious and ideological. This essay aims to accomplish that aim in its examination of select historical moments of art's entwinement with ecology, which, it is hoped, will also provide a useful historical framework with which to consider the Barbican's show, *Radical Nature*. When confronting the claims of sustainability, one needs to ask what sustainability means, whose interests it promotes, and whose are left out? Consider, for instance, the classic articulation of 'sustainable development', as defined by Norwegian Prime Minister Gro Brundtland in the UN-convened World Commission on Environment and Development's 1987 report, *Our Common Future*, as: 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'.<sup>5</sup> While the UN's dedication to sustainability may appear as a decisive world-historical development, its formulation of sustainability is vague at best – for what are these 'needs' exactly? Whose needs count and whose do not? Whereas the definition places its agenda under an inclusive commonality, implying a shared responsibility for safeguarding humanity's ecological inheritance, the definition of sustainability in fact situates the environment as valuable largely from the perspective of economic needs; indeed, the report goes on to explain that while 'sustainable development does imply limits ... technology and social organisation can be both managed and improved to make way for a new era of economic growth', one that will make 'development sustainable'.<sup>6</sup> This priority has in fact guided Western governmental mobilisations of sustainability ever since.<sup>7</sup>

Conversely, others approach sustainability only to question its very terminological legitimacy. As cultural geographer Erik Swyngedouw argues, 'There is no such thing as an unsustainable city in general, but rather there are a series of urban and environmental processes that negatively affect some social groups while benefiting others'.<sup>8</sup> The problem with 'sustainable development' is that it tends to present 'a classless vision of ecological justice made in the USA', as postcolonialist theorist Gayatri Spivak puts it, which appears, falsely, as incontestable – who can oppose sustainability, after all?<sup>9</sup> This green agenda typically prioritises the needs of developed nations over all others, even while

the cleaning up of European and North American environments has come at the cost of transferring their polluting industries and environmental responsibility to the global South, which, as is widely acknowledged, faces the largest negative future impacts of global warming. It is crucial in this regard to critically challenge environmental proposals that would justify the worsening of social inequality, promote authoritarian governmental directions and further concentrate the power of decision-making in the hands of multi-national corporations. If we choose to accept the use of the term 'sustainability', how, we must ask in relation to current artistic practice, can ecological sustainability meet the demands of environmental justice? For, 'a just urban socio-environmental perspective', Swyngedouw continues, 'always needs to consider the question of who gains and who pays and to ask serious questions about the multiple power relations ... In other words, environmental transformations are not independent from class, gender, ethnicity or other power struggles.'<sup>10</sup> In this regard, there is a growing need to address the global geopolitics of environmentalism, with greater focus on initiatives based in places like Sub-Saharan Africa and South East Asia – such as the Nigerian photographic collective Depth of Field's exposure of the degraded ecologies of Lagos's mega-slum, the Indian research group Sarai's study of 'emerging urbanism' in Delhi, and recent exhibitions outside of the North American and European context, including *48 Degrees Celsius: Public.Art.Ecology* in Delhi, 2008, which investigated the ramifications of climate change on the city.<sup>11</sup>

Finally, one must also confront the troubling observation that exhibitions dedicated to sustainability are fundamentally contradictory; for even as they seek to address climate change and work towards creative solutions – although certainly not all projects are equally politically or pedagogically inclined – they contribute to the very problem of global warming by virtue of their own carbon footprint, the results of transporting artworks, maintaining the exhibition space's climate control and printing catalogues. One might conclude that eco-art exhibitions are simply unviable from an environmental perspective. Yet if this response is both inadequate and unrealistic – as much as it would be to insist on immediately discontinuing

all unsustainable technologies, rather than working gradually towards a state of sustainability – we need at the very least to consider just what justifies the continuation of unsustainable art exhibitions committed to the subject of sustainability.

### **Fragile Ecologies**

Among the first art projects that investigated the nature of the environment during the 60s and 70s in the American context were Hans Haacke's *Grass Grows*, 1969; Newton Harrison's *The Slow Birth and Death of a Lily Cell*, 1968; and Alan Sonfist's *Time Landscape of New York City*, proposed in 1965 and realised in 1978.<sup>12</sup>

These engagements were soon followed by the first group shows, including *Earth Art* at Cornell University's gallery in 1969, comprising land art by Haacke, Robert Smithson, Dennis Oppenheim and Robert Morris. Surveying these early years, the Queens Museum of Art's *Fragile Ecologies* exhibition in 1992, curated by Barbara Matilsky, examined the historical formation of 'environmental art', the development of which, for Matilsky, was due to the 'political and social climate during the 60s', when 'an increasing number of people [in the States] began to question traditional values and governmental policies regarding Vietnam, racial segregation, women's status and the environment'. Spurred on by the publication of signal environmentalist texts like Rachel Carson's *Silent Spring*, 1962, and Paul Ehrlich's *The Population Bomb*, 1968, and propelled by events such as the inauguration of Earth Day in 1970, artists 'turned to nature and began interpreting its life-generating forces to create radically new kinds of art'<sup>13</sup>

Most of *Fragile Ecologies'* inclusions, as well as the projects referenced in its catalogue, develop a model of what we could term 'restorationist eco-aesthetics', referring to art that attempts to repair damaged habitats or to revive degraded ecosystems. Sonfist's *Time Landscape of New York City*; the Harrisons' *Portable Orchard*, 1972; Haacke's *Rhinewater Purification Plant*, 1972; Agnes Denes' *Wheatfield – A Confrontation*, 1982; Joseph Beuys's *7000 Oaks*, 1982; and Mel Chin's *Revival Field*, 1990, each of these pieces variously attempted to rescue natural environments from polluted conditions. As such they fulfilled

Matilsky's definition of ecology as 'the science of planetary housekeeping' (deriving from the Greek *oikos*, meaning house or habitat) that would sustain 'the inter-relationship of all forms of life in their diverse environments'.<sup>14</sup> Exemplary is Sonfist's stated goal: 'to elevate disappearing native landscapes to the status of historical monuments and, by extension, to sensitise people so that they could view nature as an important part of their cultural heritage'.<sup>15</sup>



Alan Sonfist, **Time Landscape of New York City**, 1965–present

Despite its apparent ecological ethics, posed against industrial capitalism's despoliation of the environment, there are nonetheless several problems with Matilsky's approach, not least of which is the spiritualist lens through which 'nature' is apprehended, which supplants conceptual rigour. At the root of the problem is *Fragile Ecologies'* tendency to separate nature from culture. Relegated to a non-cultural zone of organic purity, and reminiscent of the mythopoeic realm attributed to the biological environment in James Lovelock's 'Gaia' hypothesis – nonetheless another crucial marker in the development of ecological discourse – nature ends up objectified as an ontology divorced from social, political and technological processes.<sup>16</sup> Undermining the seemingly laudable environmentalist intentions of the exhibition is a dangerous depoliticisation, which reproduces the very objectification of nature that has got us into trouble in the first place. 'Sundered apart', Neil Smith observes, 'nature and society die in reciprocal conceptual torpor', for 'the positing of an external nature rationalises and justifies the unprecedented exploitation of nature ... [which is] the "massive racket" that capitalism, historically and geographically, represents'.<sup>17</sup> Matilsky's definition of nature committed just such a division, even if from a perspective critical of capitalism's treatment of the environment.

One could add to Matilsky's contextual genealogy of environmental art the fact that the period between 1972 and 1992 – roughly the historical framework covered in *Fragile Ecologies* – marked the emergence of international non-governmental organisations (NGOs), and inter-governmental protocols, agreements, and cooperative accords for dealing with environmental concerns,

framed by the 1972 Stockholm UN Conference on the Human Environment and the 1992 Earth Summit in Rio (United Nations Conference on Environment and Development).<sup>18</sup> The latter event, moreover, gave rise to the growing criticism that UN initiatives failed to address both postcolonial concerns and the inequality between post-industrial nations and the global South. Yet, about this wider context and the political calls for global justice that would challenge a depoliticising Western-centric environmentalism, *Fragile Ecologies* has nothing to say, favouring instead an articulation of its New Age eco-aesthetics that is oblivious to the larger geopolitical stakes: 'environmental artists', Matilsky noted, 'visualise the forces, processes and phenomena of nature: organic growth, light, water, crystals and other elements', creating works that 'respect nature and establish a reverent relationship between the viewer and the earth'.<sup>19</sup>

It is not that the artistic projects represented in *Fragile Ecologies* commit the same abuse of 'nature' as capitalist industry – although neither are they entirely divorced from that framework, as when they rely on industrial technology to create their projects – but rather that the exhibition's conceptualisation of nature perpetuates the problematic structure of objectification relied on by capitalist industry. It is this very system that makes it possible for the exhibition, for instance, to celebrate practices that advance band-aid approaches to devastated landscapes, without

connecting the repairing of a pond, the preserving of a historical landscape or the growing of a wheat field to technological, social and economic ecologies that equally construct the environment. In this regard, the minor referencing of Robert Smithson's conceptual environmental art in Matilsky's essay is telling, particularly where she notes that Smithson rejected artistic approaches to post-industrial terrains that would merely 'cosmetically camouflage the abuse' committed by corporations.<sup>20</sup> Unfortunately, however, she misses the opportunity to complicate her discussion of the exhibition's inclusions by taking seriously this scepticism. Nor does she consider the implications of Smithson's formulation of his 'Dialectic of Site and Non-site' – by which he theorised the inextricable relationship between the geographical location of a work of art (Site) and its sculptural, photographic or text-based representations (Non-site) – which would have excluded the very possibility of monumentalising nature as an autonomous sphere of existence.<sup>21</sup>

### Systems Ecology

While *Fragile Ecologies* tended to reduce the complexity of ecology in favour of an idealist conception of nature, by the mid-1970s other engagements had in fact already expanded the notion of ecology to encompass social and technological systems as well as organic ones. These form an alternative – and more conceptually ambitious – discourse, informed by the development of cybernetics (the interdisciplinary study of regulatory systems, related to systems theory), which emerged in the second half of the 20th century.<sup>22</sup> Developed in the work of diverse figures such as British anthropologist and social scientist Gregory Bateson, artist-theorist Jack Burnham, Hungarian-born artist and writer György Kepes and visionary architect Richard Buckminster Fuller, 'systems ecology' provides a useful conceptual framework for comprehending the work of artists such as Dan Graham, Robert Barry, Hans Haacke and Les Levine, who were practising in the 60s and early 70s.<sup>23</sup> As Burnham wrote presciently in 'Systems Esthetics', 'Increasingly "products" – either in art or life – become irrelevant and a different set of needs arise: these revolve around such concerns as maintaining the biological liveability of

the earth, producing more accurate models of social interaction, understanding the growing symbiosis in man-machine relationships, establishing priorities for the usage and conservation of natural resources, and defining alternative patterns of education, productivity, and leisure.'<sup>24</sup> The accuracy of Burnham's predictions has been borne out by the subsequent development of artistic practice up until today.

In contrast with Matilsky's objectification of nature, Bateson, the author of the 1972 book *Steps to an Ecology of Mind*, considered ecology as simultaneously natural, social and technological, wherein ecological 'health' was understood to be dependent on civilisation and the environment maintaining a sustained and long-term 'flexibility ... to create an ongoing complex system.'<sup>25</sup> Defining flexibility as an 'uncommitted potentiality for change', Bateson viewed it as a precious resource, for ecological 'imbalance' carried unpredictable and potentially catastrophic effects.<sup>26</sup> 'Always, in any living (i.e., ecological) system, ever increasing imbalance will generate its own limiting factors as side effects of the increasing imbalance', Bateson warned in 1972. 'In the present instance, we begin to know some of Nature's ways of correcting the imbalance – smog, pollution, DDT poisoning, industrial wastes, famine, atomic fallout and war. But the imbalance has gone so far that we cannot trust Nature not to over-correct.'<sup>27</sup> There certainly appear weak points in Bateson's view – including both the absence of any consideration of greenhouse gases that were already contributing to a climatic 'imbalance' and the problematic implication that there was once a human civilisation that lived in a state of 'balance' with the environment to which modern society could return. That said, such a theorisation of systems ecology was nevertheless capable of opening up a range of artistic practices dedicated to the complex interlinking of biological, technological, social and political ecologies that construct an 'environment' that can no longer be considered simply as 'natural', and where any 'output', according to the operations of cybernetic feedback, was simultaneously understood to affect the working of the system.

Consider, for instance, Haacke's modelling of a bio-technological system in *Rhinewater Purification Plant*, 1972. Invited to produce a two-month project for

42 Millionen cbm ungeklärten Abwasser sind 1971 von der Stadt Krefeld in den Rhein eingeleitet worden.

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Unterhalb der Einleitungsstelle ist das Rheinflusswasser polyanthrop - übermäßig verunreinigt.

Für 20 Millionen cbm industriellen und 9 Millionen cbm häuslichen Abwasser würden Komalgebühren erheben.

Die Gebühren betragen pro cbm - ,21 DM  
 ab 20.000 cbm - ,17 DM  
 ab 500.000 cbm - ,12 DM  
 pro qm Regenabflussfläche - ,21 DM

Wie stark und mit welchen Schadstoffen das Abwasser verunreinigt ist, hat auf die Höhe der Komalgebühren keinen Einfluss.

So werden in den Komalgebühren nicht berücksichtigt:

- die unterschiedliche Höhe zukünftiger Flückkosten,
- die relative Größe der verursachten Umweltschäden,
- die relative Belastung des öffentlichen Haushalte für die Sanierung.



14.620 t abseparable Stoffe und 7.500 t gelöste Stoffe sind 1971 von der Stadt Krefeld in den Rhein eingeleitet worden.

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Anteil am Krefelder Abwasser haben, ungefähr:

215.000 Einwohner	9.000.000 cbm
IGB Scheerer & Co.	2.900.000 cbm
Elisava GmbH	2.000.000 cbm
Vereinigte Seidenwebereien	1.800.000 cbm
Holtz & Willemsen GmbH	1.500.000 cbm
Deutsche Metallwerke AG	1.400.000 cbm
Färberei-Gen. Flores & Co.	1.000.000 cbm
Guano-Werke AG	500.000 cbm
Stadt. Badeanstalten	500.000 cbm
Chem. Fabrik Stockhausen & Cie.	400.000 cbm
Krefelder Milchhof GmbH	400.000 cbm
Voss-Hiermann & C. L. Wenger ED.	350.000 cbm
Stadt. Krankenanstalten	300.000 cbm
Stadt. Tierpark	300.000 cbm
Kaufhof AG. Krefeld	250.000 cbm
Theracemie GmbH	250.000 cbm
Molenaar, Lawaczek & Co.	210.000 cbm
Brauerei Rhenania	200.000 cbm
Brauerei Tivoli GmbH	200.000 cbm
UNIFRANK Lebensmittelwerke GmbH	200.000 cbm
Stadt. Schlachthof	100.000 cbm

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Die Farbenfabriken Bayer AG. leitete 164.250.000 cbm unmittelbar in den Rhein ein.

Hans Haacke, **Krefeld Sewage Triptych**, 1972

the Museum Haus Lange in Krefeld, West Germany, the artist set up a chemical treatment, charcoal and sand filtration plant to process polluted water from the Rhine river. The purified water collected in a large acrylic basin containing goldfish, which demonstrated the successful restoration of a life-supporting, albeit artificial, habitat. Yet this project would not be limited to the local, cosmetic fix of restorationist aesthetics. In his related *Krefeld Sewage Triptych*, 1972, shown on the same occasion, Haacke recorded the level of untreated sewage that the city of Krefeld spewed into the Rhine annually (42 million cubic metres), included the volume and types of industrial and household sewage, and provided the names of major contributors. As Haacke observes in his description of the piece, because the Museum Haus Lange is a municipal institution, whose director is a civil servant, his project generated media reports via regional newspapers that exposed the city's role in the creation of the river's pollution. The resulting political effects of the technological operation performed in the art gallery could thus be considered as part of what Haacke termed a 'real-time social system', which not only intervened in a degraded ecosystem but also identified the causes of its situation and worked towards drawing public attention to the broader political culture of abuse.<sup>28</sup>

Nevertheless, Haacke's demonstration of 'ecological health', to use Bateson's terminology, might be criticised for its failure to involve the audience more directly within its feedback loop; rather, it relegated viewers as mere observers of a system that excluded their immediate active participation (perhaps the pedagogical authority of Haacke's mode of address corresponded to the project's technoscientific instrumentalism, a criticism with which cybernetics has also had to contend).<sup>29</sup> It was left to other artists, such as Dan Graham, to initiate video-based social experiments that developed the social possibilities of cybernetics systems, particularly as it was conceptualised in the magazine *Radical Software*.

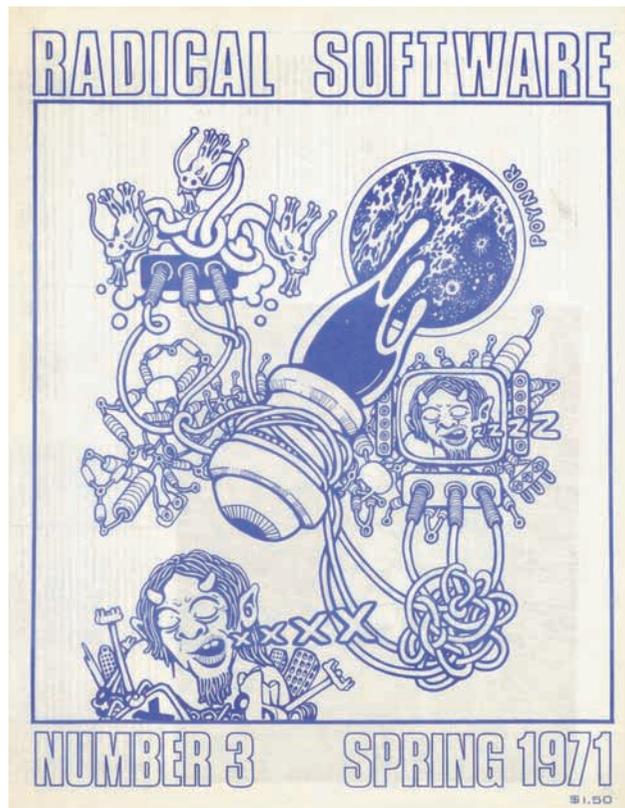
Running between 1970–74, and published by the Raindance Corporation, a counter-cultural media think-tank, the magazine served as a platform for the articulation of the notion of 'media ecology', defined by theorist Arlo Raymond as 'the study of a medium of communication and its affect upon other media/society'.<sup>30</sup> Exploiting the low-cost possibilities of video technology, artists and activist groups attempted to construct and mobilise feedback systems from community cable television (such as Ant Farm, Videofreex and TVTV) to closed-circuit video installation experiments (as in the work of Peter Campus, Dan Graham,

Joan Jonas and Bruce Nauman), which would contest the one-way broadcasting control of media by corporations and create community-organised systems of self-representation in their place.<sup>31</sup>

In projects such as Graham's *TV Camera/Monitor Performance*, 1970, for which he rolled around on a stage holding a video camera pointed at a monitor located behind the audience; or his *Two Consciousness Projection(s)*, 1972, a closed-circuit video system mediating the spontaneous communication between two participants and an audience, Graham created what he termed 'learning machines', in which participants would be able both to observe themselves and to alter their social system with new forms of behaviour that would be immediately perceptible on television monitors.<sup>32</sup> Yet whereas Graham may have developed the implications of 'media ecology' as a system that interlinks technology, communication, sociability and affect, there was a conspicuous bracketing of biological systems, as developed in

Haacke's environmental art.<sup>33</sup> Indeed, as Raymond stated in 'Media Ecology', 'In a world of biological, chemical and physical pollution, it seems to me that we are overlooking the semantic pollution in our environments, as we attempt to restore our ecological balance'; however it was precisely the balance between these multiple ecologies that was lost in Graham's focus on socio-technological systems.<sup>34</sup>

Forming yet another model of cultural ecology, György Kepes, founder of the Center for Advanced Visual Studies at MIT, edited the book *Arts of the Environment* in 1972. In his introductory essay, 'Art and the Ecological Conscience', Kepes stated that 'Environmental homeostasis on a global scale is now necessary to survival. Creative imagination, artistic sensibility, can [serve] as one of our basic collective, self-regulating devices that can help us register and reject what is toxic in our lives'.<sup>35</sup> In this text, we also find contributions by the interdisciplinary group Pulsa, which straddled the division between socio-technological and bio-political systems. Self-described as researchers in programmed environments, Pulsa created projects in the late 60s and early 70s that interlinked various media and biological systems, as in their *Automation House* installation, 1971, comprised of sound and video installations, and their Harmony Ranch experiment in communal living, agricultural self-sufficiency and collaborative art and musical projects, developed in Oxford, Connecticut.<sup>36</sup> In their essay 'The City as an Artwork', which they contributed to Kepes' volume, Pulsa argued that, because conventional urban design 'is based on an aesthetic of concealment and a concern for picturesque facades ... resembling a pre-technological society', the result is malfunction and 'a basic human alienation from the systems which make life in a given environment possible'.<sup>37</sup> (The same criticism could be waged in relation to *Fragile Ecologies*.) Pulsa proposed to repair this systemic malfunction by 'creatively expanding the interactive awareness of local populations through media that incorporate principles of feedback: environments, programmed events, cable television, tapes, films'.<sup>38</sup> Similarly, at Harmony Ranch, the group enacted experiments in self-organised, collective organic farming that would reveal 'information about long-term growth rhythms' and 'regenerative changes'.<sup>39</sup>



Cover of **Radical Software**, 3, Spring 1971, design by Andy Poyner

In this regard, Pulsa's activities resonated with Kepes's desire to de-materialise and de-reify the environment by revealing it as a series of inter-connecting flows and dynamic energies that would challenge the socio-political, economic and geographical separations between, on the one hand, the world of 'ghettos, criminal wars, urban violence and inner erosion', and on the other, 'bioengineering, genetic engineering ... distant sensors, cyborgs and an ever-increasing communications network'.<sup>40</sup> However, the collective's commitment to 'transcending the functional political aspects of human experience and generating an abstract aesthetic awareness within an environment' could be equally taken to task for its very abstraction. As art historian Yates McKee argues, 'the group's understanding of urban crisis as primarily a question of organisational design and ecological maladjustment, to be ameliorated in part by formal experiments in perception, failed to address the structured patterns of inequality of the city that had otherwise become inescapable for urbanism in the aftermath of the ghetto rebellions and claims to rights of the mid- and late 60s'.<sup>41</sup> That failure notwithstanding, Pulsa did accomplish important work geared towards de-idealising nature and disarticulating the environment to the degree that nature's separation from social, political and technological processes was impossible to maintain, even while its status as an object of reverential focus would continue uninterrupted in the work of other artists to come.

### **Political Ecology**

Because early 'systems ecology' rarely joined with environmental activism – at least in the development of a widely visible artistic formation – the continued objectification of nature has meant that even today one could claim that 'the task of new environmental art would be to unsettle the self-evidence of "environment" itself, addressing it as a contingent assemblage of biological, technological, economic and governmental concerns whose boundaries and agencies are perpetually exposed to conflict', as argues McKee.<sup>42</sup> Views of that assemblage have indeed shifted since 1970, and today, with increased integration between environment and government, political scientists such as Timothy

Luke have argued that the environment has become the 'ultimate domain of being' for the production of knowledge, power and subjectivity.<sup>43</sup> For Luke, this movement owes to multiple catalysts, including the oil crises of the 70s and the consequent growing awareness of the 'limits to growth', the incipient globalisation propelled by the détente between the US and the Soviet Union and the latter's eventual collapse in the early 90s, and the expansion of international regulatory bodies, such as the UN World Commission on Environment and Development.<sup>44</sup>

The result has been the gradual reshaping of government according to the priorities of 'enviro-discipline', referring to 'the authority of eco-knowledge, geo-powered forces to police the fitness of all biological organisms and the health of their natural environments'.<sup>45</sup> One can understand this enviro-discipline in terms of the practice of government, non-governmental and international agencies to determine our understanding of the 'health of our natural environment' so that 'sustainable development' is defined in ways favourable to financial interests, in opposition to comprehending ecology as a field of interlinking systems of biodiversity and technology, social practices and political structures. This conflicted situation gives rise to the following question: how can artistic practices, operating at the juncture of art institutions, activism and non-governmental politics, challenge the emergence of neo-liberal eco-governmentality? How can art oppose the commercialisation of nature, packaged as economic resource, or redirect commercial forces in favour of alternative ways of defining the environment and sustainability with a focus on global justice? How might artists, furthermore, animate an 'environmentalism of the poor' – meaning environmental justice viewed from the perspective of those who have the least access to resources, job protection, socio-political and economic equality and governmental and media representation – to avoid the exclusivity of 'environmentalism born of affluence' in Western capitalist societies?<sup>46</sup> Equally it appears increasingly important to avoid simplistically opposing Southern global justice with Northern apolitical eco-activism – each participating in a problematic



Marjetica Potrč, **Caracas: Dry Toilet (Variation No. 2/4)**, 2004

generalising stereotype – as if the politics of ecological justice does not transcend all geographical divisions.

In fact, some of the most compelling recent practices and exhibitions develop a political ecology that not only disarticulates the self-evidence of the ‘environment’ and questions the automatic assumptions of ‘sustainability’, but also critically considers the unequal division of the benefits and risks of climate change’s effects, as well as evaluates the politics of environmentalist responses to global warming. Consider, for instance, *Beyond Green: Toward a Sustainable Art*, which is amongst the most provocative and sophisticated of recent exhibitions to introduce a critical regard toward ‘sustainability’, a term that has come to replace the earlier concentration during the 70s on ecological homeostasis and balance, and responds to the emergent imperatives regarding global warming.<sup>47</sup> The show included artists who practise recycling and community activism (such as Dan Peterman’s *Experimental Station* and Michael Rakowitz’s *paraSITE*, 1998); those who research sustainable fuels and alternative land use (Nils Norman’s *Ideal City, Research/Play Sector*, 2005,

and *The Geocruiser*, 2001); artists who address resource and infrastructural needs in developing countries and impoverished urban communities (Marjetica Potrč’s *A Hippo Roller for our Rural Times*, 2005, and *Dry Toilet*, 2003); and still others who deploy creative activist practices that investigate the politics of space, for instance, challenging the assumed rights of the US military’s control of Vieques in Puerto Rico and thereby defining a political-ecological practice in the Latin American context (Allora & Calzadilla’s *Landmark*, 2001–04).

In general, the show represented a prevalent trend in art that relates technological systems, economies and political sociability to biological systems, refusing to see nature as a separate entity, whether to be commodified by developers, exploited by industry and agribusiness or spiritually revered by eco-activists.

For its curator Stephanie Smith, ‘sustainability involves meeting the needs of the present without sacrificing the capacity of future generations to meet their own needs’.<sup>48</sup> While this definition mirrors the seminal 1987 formulation of sustainability in *Our Common Future*, Smith importantly goes on to register the discrepancies in the term’s divergent meanings, without which the mythical community signalled by ‘our common future’ risks superseding the conflictual geopolitical stakes of sustainability.<sup>49</sup> Following the insights of eco-designer Tony Fry, she distinguishes between ‘sustainable development’ (the greening of existing methods of production without changing consumer habits or altering expectations of capitalist growth and technological progress) and the ‘development of sustainability’, meaning ‘redirecting development toward a

very different basis for the creation of economy, society, and a relation between human beings, the artificial worlds they create and the biosphere.<sup>50</sup> The distinction is crucial. But against Fry's questionable division of humanity's 'artificial worlds' and the 'biosphere', Smith calls for an explicit formulation of sustainability that grants 'equal attention to social and environmental justice', which turns sustainability into a political ecology.<sup>51</sup> According to Swyngedouw, 'the recognition of this political meaning of nature is essential if sustainability is to be combined with a just and empowering urban development; an urban development that returns the city and the city's environment to its citizens.'<sup>52</sup> In this regard, a just theory of sustainable development might even comprise a model of 'development without growth', which would aim to improve the quality of life of the largest number of people without increasing overall economic production and consumption.<sup>53</sup> Corroborating Swyngedouw's political approach to ecology, Smith observes that 'sustainable design posits that a purely green approach, which considers environmental questions in isolation from other factors' – as was the tendency in *Fragile Ecologies* – 'is incomplete and ineffective'.<sup>54</sup>

In terms of situating current practice, however, *Beyond Green* is less helpful. While it reveals an important strain in contemporary practice, one that presents 'objects, structures, and processes/networks that use aspects of sustainable design to metaphoric, practical, speculative, ironic, and playful ends', the curatorial introduction provides little explanation for this development towards play and irony, nor differentiates, moreover, between the practical and the speculative in recent art.<sup>55</sup> Consider, on the one hand, the project of the Danish collective Superflex, whose work includes the production of 'biogas units' for domestic use (cooking, lighting) in Cambodian and Tanzanian villages, based on the cultivation of methane gas from animal manure; Marjetica Potrč's development of water transportation devices, dry toilets and wind energy technology to provide 'urgent architecture' for 'informal cities'; and the international collective Learning Group's inventive usage of recycling technologies for community-based architecture in Monterrey, Mexico.

Each of these projects advances an artistic lineage that connects with the eco-activism of the 70s and comes close to a model of pragmatic non-govern-

mental activity and humanitarian engagement in attempting to improve the everyday conditions of those living in poverty. (Indeed, Superflex implemented its biogas project in Tanzania, where there is a shortage of fuel supplies owing to deforestation and erosion, in cooperation with the NGO SURUDE, or Foundation for Sustainable Rural Development.) Such models demonstrate the resurgent vitality of collectivist practice and of the artistic interdisciplinary collaboration with political and scientific



Superflex, **Supergas / Tanzania**, 1997

organisations, which productively destabilises and reinvents the place and function of art today.

Yet there is, on the other hand, another recent formation, one expressive of an ironic and subversive artistic neo-conceptualism, which simultaneously refuses to sacrifice art's institutions of autonomy and criticality to the exclusivity of pragmatic and humanitarian problem-solving. Consider, for instance, Henrik Håkansson's *Fallen Forest*, 2006, which tips a lush section of vegetation on its side in the middle of an art gallery equipped with grow lights, in relation to the Harrisons' 1972 *Portable Orchard*. Whereas the

Harrisons were earnestly dedicated to the amelioration of environmental degradation, Håkansson's disorienting gesture spectacularises a post-natural artifice in which an organic environment has been thoroughly immersed within multiple technological, media and cultural ecologies. Similarly, consider Tue Greenfort's *Diffuse Einträge*, for which the artist arranged

for a fertiliser truck, normally filled with liquid manure, to shoot a jet of iron chloride into Lake Aa during Skulptur Projekte Münster, Germany, in 2007, thereby connecting the environmental source of phosphate pollution from farm runoff originating in surrounding Münsterland with the potential chemical treatment that would alleviate the recurrent algae blooms. Yet unlike the hopeful glimmer of, say, Haacke's *Rhinewater Purification Plant*, which glimpsed the potential, if unlikely, success, of its ecological intervention via the demonstration of the clean goldfish basin, Greenfort's criticality resides in his ironic exposure of the ridiculousness of such cosmetic measures to maintain the lake's idyllic appearance.

In these recent projects, irony and playfulness are not simply made in jest, for the purposes of cultural entertainment, but rather indicate a deep scepticism

about the motivations, aims and results of pragmatic environmental art. 'Artists are now inescapably inscribed within urban regeneration strategies', explains Nils Norman, 'and in order to start thinking about this bind critically we need to begin creating more disruptive and experimental methodologies, not just "neo-situationist spectacle"'.<sup>56</sup> In Norman's large-scale billboard *Ideal City, Research/Play Sector*, typical of the artist's agit-prop signage, computer-illustrated design maps out an imaginary playscape and research park composed of a central adventure playground surrounded by several geodesic domes. The *Ideal City*

exemplifies the approach of recent artists towards viewing the environment as formed by a 'multitude of ecologies' – biological, technological, political, social – mobilised by representation invested with the capacity to inspire imaginative alternatives to the reality of everyday neo-liberal urbanism with which it competes.<sup>57</sup> In this sense, Norman's project points to the relevance of Félix



Nils Norman, **The Geocruiser**, 2001

Guattari's theorisation in his book *The Three Ecologies*, 1989, which argues for a 'transversal' approach that joins subjective, social and environmental registers of ecology into an 'ethico-aesthetic' practice, the renewed conceptualisation of which is accomplished in the work of theorists such as Swyngedouw, Luke and Guha.<sup>58</sup> Included in Norman's drawing is a model of a 'Solarised Hydrogen Powered Public Space Research Vehicle'. As the accompanying caption explains: 'the reclaimed film production unit has been converted to hydrogen power creating a zero emissions "clean energy" vehicle, enabling two researchers/artists to study and observe public spaces across America', including 'parks, squares, malls, streets and markets. Onboard sleeping and kitchen areas allow for long road trips and visits. The work area consists of a library, archive and study station with remote internet access.'

Filming and recording instruments are stored onboard as well as a temporary exhibition and film screening setup. An outer solar skin converts light to electricity, powering all onboard electrics. There is also a weather station and viewing/surveillance deck’.

Yet, while Norman’s similarly utopian *The Geocruiser* – a refurbished coach running on bio-diesel, fitted with solar panels and containing a community library and a greenhouse – was in fact fabricated, the artist typically disassociates his practice from such practical realisation: ‘I’m more interested in the ideas and research rather than the vehicle itself’, Norman explains. ‘The vehicle is just a framing device through which to view the content: uses of public space and the history of US utopian experiments in agriculture, economies and communal living’.<sup>59</sup> Importantly, insofar as Norman’s work defines simultaneously a critically realist and creatively utopian practice, it registers the ultimate limitations of any primarily pragmatic approach, whether of restorationist ecology or sustainable aesthetics, and this, finally, is where

the employment of irony and playfulness become politically important for many of today’s practitioners: for its conceptual, anti-pragmatist emphasis reveals an awareness of the ultimate impossibility of a local sustainable practice within a globally unsustainable system of ecologies.<sup>60</sup>

Extrapolating from this last point, even while exhibitions dedicated to sustainability, such as *Beyond Green*, may themselves be unsustainable from the perspective of global warming, exhibitions focusing on art and ecology nonetheless remain urgent at this time. To contribute to the ongoing public engagement with the politics of sustainability, to advance creative proposals for alternative forms of life based on environmental justice in a global framework, and to do so until such art exhibitions can somehow meet the requirements of a just sustainability – these are the imperatives for a contemporary environmental art. For its part, *Radical Nature* promises to provide a provocative context in which we can consider further these challenging questions concerning art and ecology.

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| <p>1 Tim Flannery, <i>The Weather Makers: How Man Is Changing the Climate and What It Means for Life on Earth</i>, Atlantic Monthly Press (New York, 2006); Elizabeth Kolbert, <i>Field Notes from a Catastrophe: Man, Nature, and Climate Change</i>, Bloomsbury (New York, 2006)</p> <p>2 On the IPCC and for an account of the recent science and politics of climate change, see Robert Henson, <i>The Rough Guide to Climate Change</i>, Rough Guides (London, 2008)</p> <p>3 Of course, this list is incomplete. Also of note are the following: <i>Ecotopia: The Second ICP Triennial of Photography and Video</i>, at the International Center of Photography in New York, 2006; <i>Greenwashing: Environment,</i></p> | <p><i>Perils, Promises, and Perplexities</i>, Fondazione Sandretto Re Rebaudengo, Turin, 2008; <i>After Nature</i>, New Museum, New York, 2008</p> <p>4 Bruno Latour, ‘Why has Critique Run out of Steam? From Matters of Fact to Matters of Concern’, <i>Critical Inquiry</i>, Winter 2004, pp. 225–48</p> <p>5 Gro Brundtland, <i>Our Common Future: World Commission on Environment and Development</i>, Oxford University Press (Oxford, 1987), p. 43. Compare the more bio-centred definition of the Regional Ecosystem Office in the US: ‘In an ecological context, sustainability can be defined as the ability of an ecosystem to maintain ecological processes, functions, biodiversity and productivity into the future’, REO Information Center</p> | <p>Definitions. Northwest Forest Plan (NWFP) definition of sustainability (<a href="http://www.reo.gov/general/definitions_r-s.htm">http://www.reo.gov/general/definitions_r-s.htm</a>)</p> <p>6 Gro Brundtland, <i>Our Common Future</i>, p. 8. For further critical discussion of the Stockholm conference, see <i>Green Planet Blues: Environmental Politics from Stockholm to Johannesburg</i>, eds. Ken Conca and Geoffrey D. Dabelko, Westview Press (Oxford, 2004)</p> <p>7 For a discussion and critique of the economic imperatives of green government, see Timothy Luke, ‘Environmentality as Green Governmentality’, in <i>Discourses of the Environment</i>, ed. Éric Darier, Blackwell (Oxford, 1999)</p> <p>8 Erik Swyngedouw, ‘Circulations and Metabolisms: (Hybrid) Natures</p> |
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- and (Cyborg) Cities', *Science as Culture*, 15/2, June 2006, p. 115
- 9 Gayatri Spivak, 'Megacity', *Grey Room*, 01, Fall 2000, p. 14; cited in Emily Apter, 'The Aesthetics of Critical Habitats', *October*, 99, Winter 2002, p. 21
- 10 Erik Swynghedouw, op. cit., p. 115
- 11 Of course, this handful of references is only a sampling. For further consideration of environmental art and global justice, see Yates McKee, 'Art and the Ends of Environmentalism: From Biosphere to the Right to Survival', in *Nongovernmental Politics*, ed. Michel Feher, with Gaëlle Krikorian and Yates McKee, Zone Books (New York, 2007)
- 12 See the very helpful 'Short History of Eco-Art Exhibitions', in Sue Spaid, *Ecovention: Current Art to Transform Ecologies*, Contemporary Arts Center, et al., Corte Madera (California, 2002), pp. 134–36
- 13 Barbara Matilsky, 'Environmental Art: New Approaches to Nature', *Fragile Ecologies*, Queens Museum of Art (New York, 1992), p. 36
- 14 Ibid., pp. 3–4
- 15 Cited in Barbara Matilsky, op. cit., p. 40
- 16 James Lovelock, *Gaia: A New Look at Life on Earth*, Oxford University Press (Oxford, 1979)
- 17 Neil Smith, 'Forward', in *The Nature of Cities: Urban Political Ecology and the Politics of Urban Metabolism*, ed. Nik Heynen, et al., Routledge (London, 2006), pp. xiii–xiv
- 18 On this history, see also *Green Planet Blues*, op. cit.
- 19 Barbara Matilsky, op. cit., p. 38
- 20 Ibid., p. 44. Also mentioned is Robert Morris's attack on eco-art fixes of industrial degradation, which he addressed at the Seattle Art Museum in 1979 on the occasion of the exhibition *Earthworks: Land Reclamation as Sculpture*: 'sites scarred by mining or poisoned by chemicals now seem less like the entropic liabilities of ravenous and short-sighted industry and more like long-awaited aesthetic possibilities', p. 47
- 21 As Robert Smithson explains in a 1972 essay, 'The range of convergence between Site and Non-site consists of a course of hazards, a double path made up of signs, photographs and maps that belong to both sides of the dialectic at once', in 'The Spiral Jetty', in *Robert Smithson: The Collected Writings*, ed. Jack Flam, University of California Press (Berkeley, 1996), note 1, p. 153
- 22 See Norbert Wiener, *Cybernetics or Control and Communication in the Animal and the Machine*, The Technology Press (Cambridge, 1948); and more recently, Steve Joshua Heims, *Constructing a Social Science for America: The Cybernetics Group, 1946–53*, MIT Press (Cambridge, 1991)
- 23 Many of these artists are mentioned in Jack Burnham, 'Systems Esthetics', *Artforum*, September 1968. Recently, there has been a resurgence of interest in this period of art, ecology, systems aesthetics and cybernetics in the work of David Joselit, William Kaizen, Yates McKee and Luke Skrebowski.
- 24 Jack Burnham, 'Systems Esthetics', in Jack Burnham, *Great Western Salt Works – Essay on the Meaning of Post-Formalist Art*, George Braziller (New York, 1974), p. 15
- 25 Gregory Bateson, 'Ecology and Flexibility in Urban Civilization', 1970, in *Steps to an Ecology of Mind: Collected Essays in Anthropology, Psychiatry, Evolution and Epistemology*, University of Chicago Press (Chicago, 2000), p. 502
- 26 Ibid., p. 505
- 27 Gregory Bateson, 'Awake!' *Radical Software* 1, 5, 1972, p. 33
- 28 See *Hans Haacke, Unfinished Business*, ed. Brian Wallis, New Museum of Contemporary Art (New York, 1986), p. 106
- 29 Haacke did, however, address social ecology in other projects, specifically his polls, even if these also proposed a limited and rudimentary inclusion of the audience-participant. On the relation between Haacke's early ecological works and his later systems-aesthetic, see Luke Skrebowski, 'All Systems Go: Recovering Hans Haacke's Systems Art', *Grey Room*, 30, Winter 2008, pp. 54–83
- 30 Arlo Raymond, 'Media Ecology', *Radical Software*, 1/3, 1971, p. 19; cited in William Kaizen in 'Steps to an Ecology of Communication: *Radical Software*, Dan Graham, and the Legacy of Gregory Bateson', *Art Journal*, Fall 2008, p. 87
- 31 See David Joselit, *Feedback: Television Against Democracy*, MIT Press (Cambridge, 2007)
- 32 Cited in William Kaizen, op. cit., p. 100
- 33 As William Kaizen observes in *ibid.*, p. 87
- 34 Arlo Raymond, op. cit., p. 19
- 35 György Kepes, 'Art and the Ecological Conscience', in *Arts of the Environment*, ed. György Kepes, George Braziller (New York, 1972), p. 72
- 36 See Yates McKee, 'The Public Sensoriums of Pulsa: Cybernetic Abstraction and the Biopolitics of Urban Survival', *Art Journal*, Fall 2008. McKee deserves credit for retrieving Pulsa's activities from historical oblivion.
- 37 Pulsa, 'The City as an Artwork', in *Arts of the Environment*, op. cit., p. 212. In the same volume (pp. 222–232), Robert Smithson published 'The Spiral Jetty'.
- 38 Pulsa, op. cit., p. 217
- 39 Ibid.

- 40 György Kepes, 'Art and the Ecological Conscience', in *Arts of the Environment*, op. cit., p. 9
- 41 Pulsa, 'The City as an Artwork', in *Arts of the Environment*, op. cit., p. 221; Yates McKee, 'The Public Sensoriums of Pulsa', op. cit., p. 65
- 42 Yats McKee, 'Art and the Ends of Environmentalism', op. cit., p. 557
- 43 Timothy Luke, 'Environmentalism as Green Governmentality', op. cit., While Luke focuses on the Clinton/Gore administration in the US during the 1990s and its conjoining of environmental initiatives with strategic economic goals, his reading of 'environmental governmentality' may yet gain a new relevancy, despite being interrupted during the intervening Bush years and its regression towards resource colonialism in the name of national security. On American 'primitive accumulation' in the context of the recent war in Iraq, see Retort, Iain Boal, T. J. Clark and Joseph Matthews, *Afflicted Powers: Capital and Spectacle in a New Age of War*, Verso (London, 2005)
- 44 The best-selling book *The Limits to Growth* argued that accelerating industrialisation, mounting population growth, growing malnutrition and the depletion of natural resources defined a natural limit to global growth. See *The Limits to Growth: A Report for the Club of Rome's Project on the Predicament of Mankind*, eds. Donella H. Meadows et al., Pan (London, 1974); also see *Green Planet Blues*, op. cit., pp. 17–22
- 45 Timothy Luke, op. cit., p. 146
- 46 Madhav Gadgil and Ramachandra Guha, 'Ideologies of Environmentalism', in *Ecology and Equity: The Use and Abuse of Nature in Contemporary India*, Routledge (London, 1995). McKee discusses Guha's 'ecology of affluence' in 'Art and the Ends of Environmentalism', op. cit., p. 548
- 47 Also see: *Ecovention*, Cincinnati Contemporary Arts Center, 2002; *Land, Art, RSA*, London, 2006; *After Nature*, New Museum, New York, 2008; and *Green Museum*, online site.
- 48 Stephanie Smith, 'Beyond Green', in *Beyond Green: Toward a Sustainable Art*, Smart Museum of Art and Independent Curators International (Chicago and New York, 2005), p. 14
- 49 As Murray Bookchin observes elsewhere, the danger with such social constructions is that a 'mythic "Humanity" is created – irrespective of whether we are talking about oppressed ethnic minorities, women, Third World people, or people in the First World – in which everyone is brought into complicity with powerful corporate elites in producing environmental dislocations.' See Murray Bookchin, *Remaking Society: Pathways to a Green Future*, South End Press (Boston, 1990); cited in *Green Planet Blues*, op. cit., p. 9
- 50 Stephanie Smith, 'Beyond Green', op. cit., p. 14. On the 'biosphere' see McKee, 'The Ends of Environmentalism', op. cit., p. 547, and notes 18–20. See also Tony Fry, *Design Futuring: Sustainability, Ethics, and New Practice*, Berg (Oxford, 2008)
- 51 For Neil Smith, 'political ecology provides a powerful means of cracking the abstractions of this discussion about the metabolism or production of nature. Rooted in social and political theory it is also grounded in ecology and has an international scope. When complemented by an environmental justice politics, which is less internationally focused and less theoretical but more politically activist in inspiration, political ecology becomes a potent weapon for comprehending produced natures', Niel Smith, 'Foreword', op. cit., pp. xiii–xiv.
- 52 Erik Swyngedouw, op. cit., p. 118
- 53 For such a proposal, see Herman E. Daly and John B. Cobb Jr., *For the Common Good: Redirecting the Economy Toward Community, the Environment, and a Sustainable Future*, Beacon Press (Boston, 1989)
- 54 Stephanie Smith, 'Beyond Green', p. 14
- 55 Ibid., p. 13
- 56 Nils Norman, interviewed in *Beyond Green*, op. cit., p. 91. Consider as well Joshua Decter's reading of Håkansson's practice: 'By proposing a new mode of inter-species socialisation that is fundamentally constructed, fictive and imperfect, Håkansson defers from offering pragmatic solutions, or the next paradigm model. Instead, his practice asks to be understood as an allegory that illuminates the complex circumstances of species estrangement in general'. Joshua Decter, 'The Return of Dr. Doolittle: Henrik Håkansson's Inter-species Communications', *Siksi*, XII, 2, 1997, p. 73; cited in *Ecovention*, op. cit., p. 80
- 57 Norman, quoted in *Beyond Green*, op. cit., p. 91
- 58 Félix Guattari, *The Three Ecologies* (orig. publ. 1989), trans. Ian Pindar and Paul Sutton, The Athlone Press (London, 2000)
- 59 Norman, interviewed in *Beyond Green*, op. cit., p. 91
- 60 For more discussion of Norman's practice, see T. J. Demos, 'The Cruel Dialectic: On the Work of Nils Norman', *Grey Room*, 13, Fall 2003, pp. 33–50