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## **Network Ecologies: Geophilosophy between Conflict and Cartographies of Abundance**

### **Abstract:**

In the context of network-ecological thought, information ethics is perhaps best understood as a transversal reflexive practice, aimed at identifying the stakes attending the creation, consumption, and disposal of information technologies. To situate itself as well as potential interlocutors, such a thought requires correspondingly complex cartographies, a multidimensional mapping of practices and presuppositions, of individual, collective, institutional actors as well as the conditions of possibility of their mutual engagement. Such cartographies do not assume the existence of the „local“ or the „global“ as a given. Instead, they attend to the way human and non-human actors and the discursive and material practices they are involved in contribute to construction and reconstruction of geocultural formations. Reapproached from within such a „network-ecological“ horizon, information ethics becomes geophilosophy, generating new modalities of intervention in the conflictual dynamics associated with the social-economic life of waste.

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#### • Relevant Publications:

- „Kein Anschluss? Green IT ist noch nicht Fair IT.“ c't 5 (2008).
- „Network Ecologies: Documenting Depletion, Exhausting Exposure“. Urban China 33 (2008).
- „Toward a Cosmopolitics of the Commons: When Eco-Politics Meets Info-Politics.“ In Butt, D., Bywater, J., Paul, N. (Eds), Place: Local Knowledge and New Media Practice. Newcastle upon Tyne: Cambridge Scholars Publishing, 2008.
- *incommunicado reader*. Eds. Geert Lovink and Soenke Zehle. Amsterdam: Institute of Network Cultures, 2005.
- „Notes on Cross-Border Environmental Justice Education.“ In Adamson, J., Evans, M. M., Stein, R. (Eds), The Environmental Justice Reader: Politics, Poetics, and Pedagogy. Tucson: University of Arizona Press, 2002.
- „Het Virtuele Water : Over de Hydropolitiek van de IT-boom.“ In AS: media tijdschrift 160 (2001).
- „Eco-Politics at the Site of Virtual Production: Environmental Justice Organizing in Silicon Valley.“ In Angermüller, J., et al. (Eds), Hybrid Spaces: Theory, Culture, Economy. Münster: Lit Verlag, 2000.

## Info-Ethics as Geophilosophy

The idea of nature as an aesthetic and normative exteriority appears to offer a safe position of ethico-epistemological privilege from which to condemn various aspects of information-technological modernization. But it is perhaps only by acknowledging that the contradictory consequences of the spread of electronics cannot be easily mapped onto an antagonism of nature versus technology that the idea of network ecologies becomes comprehensible.

Defined here as a conceptual framework as well as a broad transversal practice that mobilizes multiple understandings of the ecological - cultural, economic, political, social - in its approach to digital media and its wide-ranging effects, network ecologies are an attempt to reframe questions associated with the (toxic) materiality of information technology in non-dichotomous ways.<sup>1</sup>

To speak of network ecologies is to conjoin two terms that appear to refer to different and distinct epistemological and ontological domains. In its most basic sense, „network ecologies“ might simply be (mis)read as a reiteration of a culture/nature dichotomy, of old questions regarding the „two cultures“ assumed to constitute and maintain such a dichotomy, and of the difficulty of bridging the gap that both defines and divides them.<sup>2</sup> Instead, „network ecologies“ is an attempt to bring into play, remix and translate two sets of concepts, one origi-

nating in the world of socio-technological infrastructures of interdependence, their protocols and modes of production, another in the world of biological processes, their complexity and organicity.<sup>3</sup>

Needless to say, these worlds overlap, and are involved in a process of mutual constitution and configuration, but the dominant „distribution of the sensible“ (Jacques Ranciere) maintains their separation. As such, one of the first tasks of a network-ecologically inspired information ethics is to make visible how and why such a distribution of the sensible is maintained, attend to its roots in specific discursive and regulatory regimes, and explore its effects, including the separation of activist agendas and organizing efforts that could challenge this distribution if they were to overcome such a separation and in fact propose (and enact) a different sense of „worlding“. Far from a thorough idealtypical conceptualization, the following sketches identify distant points on a continuum to focus on what is involved in efforts to cut across this separation of worlds.

The world of socio-technological infrastructures of interdependence is still largely dominated by a cyberlibertarian approach that celebrates the promise of dematerialization-through-technology. This includes an affirmation of the potential for democratization, mainly of expression and access, especially through the comparatively low cost of digital reproduction, less often understood in the broader terms of a reconfiguration of cultural, economic, and political relations and other forms of democracy beyond a logic of representation. Similarly, a variety of concepts of freedom are invoked to promote a capacity for self-organization vis-à-vis statist governmentalities as well as corporate self-regulation. The focus on civil and political rather than economic, social, or cultural rights is shared by actors from state, market and (un)civil society. Far beyond its information-technological milieu of origination, such a perspective has been adopted, incorporated and translated into multiple local idioms and political traditions, ranging from anarchic to neoliberal. Often framed by a vision of technological transcendence and the promise of a new type of clean (paradoxically post-industrial) industrialization, this approach has facilitated the reproduction of the Silicon Valley template – the establishment of governmentally-subsidized high-tech clusters – across the globe and

<sup>1</sup> Such a broad understanding of ecology is informed by a number of philosophical perspectives, including the work of Felix Guattari and Isabelle Stengers and their concerns with the modalities of the production of subjectivity, the emphasis on an affirmation of the capacity for self-organization, and the potential of a truly cosmopolitical understanding of politics (beyond subject-object distinctions and a logic of representation).

<sup>2</sup> Many references to ecology reaffirm not only a separation between natural and symbolic environments, but an understanding of the ecological as a sphere ruled by equilibrium rather than conflict and complexity, and correspondingly cast (and constrain) information, knowledge, and media ecologies as so many efforts to promote hygiene (order) in our spheres of communication. This is not what is meant here. There are no two cultures, or more precisely, their existence is a consequence of very specific disciplinary and methodological settlements. These have been stabilized by an intra-institutional division of labor (especially, but not exclusively, in the university) that frequently invokes essential epistemological and ontological differences without being able to substantiate them (which is one reason why network ecologies have no single disciplinary location in the academic research matrix).

<sup>3</sup> As such, the term „network ecologies“ serve as a heuristic device, an analytical tool to explore the constitution and the (material) effects of such a separation.

attached itself successfully to numerous iterations of IT policies aimed at the promotion of employment and wealth through creativity and innovation.

The world of biological processes continues to frame environmentalisms, whose mainstream and conservationist varieties (and their roots in colonial wilderness aesthetics) have by now been thoroughly examined but failed to fundamentally alter their anti-urban bias and corresponding lack of interest in urban populations. Many environmentalists have codified a purified wilderness aesthetic of distinctly Euro-American provenance as the epitome of an ecopolitical sensibility, obscuring the extent to which the very idea of a „wilderness“ has historically been intertwined with colonial *terra nullius* doctrines and the displacement of indigenous peoples. Still a dominant, if no longer uncontested, perspective in international environmentalism, mainstream concepts of sustainability have further compromised the potential reach of ecopolitical approaches by foregrounding market-based responses to environmental crisis. Alliances with labor organizations (green jobs, occupational health and safety) have been the exception not least because for many environmentalism concerns itself with non-human nature alone. Often understood in terms of „post-material“ needs, such environmentalisms have been conceptually and institutionally articulated over and against the traditions and organizations of class-based politics. Because of their essentialist tendencies, such environmentalisms have been similarly reluctant to engage questions of migration.

The aim of network ecologies is not a politics of nature that promises to simply ground an information-technological discourse seemingly limited by its fascination with a new brand of post-industrialism. Nor are network ecologies needed to advance corporate accountability, resource efficiency, zero waste, bans on the export of hazardous wastes, or other approaches already promoted by electronics activists. But ecological crisis is not so much (or not only) the consequence of an objective assessment of ecological degradation that identify 'limits of growth', 'maximum footprints', etc. Crisis occurs because of challenges to hegemonic conceptualizations of nature and their administrative-technocratic institutionalization in specific regimes of accumulation and appropriation. Network ecologies can perhaps map this crisis.

Like most ecopolitical concerns, e-waste is simultaneously a cultural, ecological, economic, ethical, legal, natural-scientific, philosophical and technological issue that evades – perhaps even defies –

disciplinary and methodological territorialization. Approached from within the analytical horizon of network ecologies, „e-waste“ remains a complex, even elusive referent, not easily stabilized either as an object of regulation and governance or as an active agent in the restructuring of economies and environments. Consequently, at least in the context of this issue, the aim is less to specify a definition to be operationalized (this already occurs in existing policy and research efforts) than to think of the shifting meaning of such a term as complementary points of entry for info-ethical inquiry and conceptualization.

In the context of network-ecological thought, information ethics is perhaps best understood as a transversal reflexive practice, aimed at identifying the stakes attending the creation, consumption, and disposal of information technologies. To situate itself as well as potential interlocutors, such a thought requires correspondingly complex cartographies, a multidimensional mapping of practices and presuppositions, of individual, collective, institutional actors as well as the conditions of possibility of their mutual engagement. Such cartographies do not assume the existence of the „local“ or the „global“ as given. Instead, they attend to the way human and non-human actors and the discursive and material practices they are involved in contribute to construction and reconstruction of geocultural formations. In short, reapproached from within such a „network-ecological“ horizon, information ethics becomes geophilosophy, generating new modalities of intervention in the conflictual dynamics associated with the social-economic life of waste.

Migrating in and across both of the worlds of socio-technological infrastructures of interdependence, and the world of biological processes, our information-technological gadgets have become complex combinations that involve hundreds of materials, multiple knowledges and numerous sites of production, use, and disposal. It is because of this complexity that network-ecological reflection might as well take these gadgets as its point of departure and reference. Such reflection is necessarily transversal, cutting across many sectors and fields – of design and development, of research and scientific knowledge production, of activism, governance and regulation. This transversality also makes it more complex – much more complex than the common invocation of the „local“ and the „global“ might have it – and necessarily involves choices: what does and does not end up on such a map, what kind of visibility is such a map meant to create, what kind of activity and what kind of politics is it designed to

enable? It is here that the question of ethics asserts itself, giving information-ethics a key role to play in the cartographic practice that is geophilosophy.

## Sustainable Electronics

The scope and topicality of the current debate around fair, green, and sustainable electronics is itself in need of explanation. Notwithstanding the intensity of current „Green IT“ public relations and re-branding strategies of electronics companies, the sudden visibility of „e-waste“ cannot simply be accounted for by way of reference to a new spirit of corporate responsibility. On the contrary, the current visibility of the topic is itself the consequence of a decade-long effort to make visible the „dark side of the chip“ – mostly a struggle against dominant representations of electronics as a clean industry as well as against the corporate and governmental actors promoting such a view.

The emergent transnational network of organizing around environmental and social justice issues in the global networks of electronics production is arguably one of the most vital area of a „network culture“ that is only gradually engaging broader ecopolitical concerns. In their efforts to initiate and frame this debate, these actors (see below for a list) have already (and successfully) criticized conceptual frameworks that consider environmentalism a post-materialist luxury rather than a matter of survival. In doing so, they have already expanded the ecopolitical idiom to include issues of occupational health and safety or extend the „fair trade“ framework to resource extraction. Electronics activism has defined a comprehensive agenda of environmental and economic justice, drawing on a number of perspectives such as environmental debt, environmental and resource rights, political and social ecology, resource efficiency, and occupational health and safety. Perspectives that reframe 'end-of-life' through experimental strategies of re-use are tapping into multiple traditions of hacktivism, reverse engineering and related peer-to-peer approaches that have been adopted beyond the field of free software development to advance the construction of „free“ or „open“ (non-proprietary) hardware.

In addition to giving rise to concrete initiatives in the areas of fair production, procurement and disposal, electronics activism also encourages a re-appropriation of the notion of sustainability. Since the 1992 UN „Earth Summit“, sustainability has featured prominently in policy initiatives. For some the policy outcomes have been discredited by their

vagueness and widespread subordination to corporate visions of self-regulation. For others, however, the sustainability trope should be more usefully reconceptualized in terms of the outcomes of ecological distribution conflicts. According to ecological economists, neoclassical economics must be challenged not only because of its one-size-fits-all commitments to „trade liberalization“ and export-oriented growth, but because its conceptual idiom is incapable of articulating the conflicts such commitments – and the policies based on them – necessarily provoke and aggravate. The agendas of mainstream and increasingly corporate environmentalisms articulated around the idea of sustainability often render these conflictual dimensions of struggles over nature invisible.

Beyond consensus-oriented paradigms of environmental governance, network ecologies must take seriously this antagonistic dimension. Reapproached from such a conflictual perspective, e-waste finds itself less a passive object of environmental governance than an active element in numerous situations of conflict. Its generation and (still largely illegal) dissemination is inscribed in the matrix of old North-South and new East-West conflicts over resource access and distribution, anxious foreign policy exchanges debating the merits of a securitization of global resource flows (indicating a resignification of e-waste as element in national resource strategies), volatile financial markets thriving on resource futures, and the explosion of foreign (especially Chinese) direct investment in raw materials extraction across the Global South. A simple return to a politics of nature can neither identify the eco-social cost of such developments nor enable corresponding forms of political mobilization. Here, too, information-ethics has a key role to play in the comparative analysis of concepts of (distributive, environmental, social) justice, and in the affirmation of concepts of the political that address antagonism as key feature of eco-politics rather than merely manage it in a politics of consensus.

## Cartographies of Abundance

Of all the suggestions proposed by contributors to this issue, it is perhaps the affirmation of the primacy of abundance over scarcity that is most startling in dealing with what offers itself so obviously as an environmental and social crisis – the generation of massive amounts of discarded electronics and their global disposal. The crisis media strategies that feature images of e-waste disposal sites from across the world stress the urgency of new forms of regula-



tion. And indeed, given the scope of the crisis, such images call for a politics of emergency. Notwithstanding its positive effects (immediate phase-out of toxic substances, higher occupational and health standards, open architectures that facilitate recycling and reuse), such a politics may come at a cost if it reduces the possible impact of such images of social and environmental transformation to a mere invocation of the logic of accountability, itself the core concept of a politics of representation that delegates key tasks of cultural, economic, and social innovation.

If charting cartographies of abundance can be a first step, it can only do so from within a broad (geophilosophical) horizon that does not limit itself to a logic of accountability, as important as such demands have been (especially in the call for extended producer responsibility to advance new green design and take-back strategies). Rather than bringing into being new forms of governance, attending to the question of waste has a much broader potential to disrupt the dominant „distribution of the sensible“. What runs across all contributions is a call to shift from the language of waste to one of potentiality, to open possibilities of interaction far beyond the superficial sense of “Web 2.0” features – possibilities of participating, instead, in the design and construction of our information and communication technologies, and of creating corresponding (cultural, economic, social) conditions of possibility.

Abundance offers itself as an effective term to counter the exclusive emphasis on scarcity, and at least complement narrow senses of „freedom from“ (interference). Abundance is about the „freedom to“ create, share, but also live in an unpolluted environment or access resources essential to biological and cultural survival. The illegal disposal of e-waste is troubling not merely because it is illegal; whether „legality“ makes it any less hazardous remains to be seen, as this involves a variety of struggles over thresholds and standards whose determination is itself the outcome of multiple contestations. Toxic releases in the course of production, consumption, and disposal should disturb us because they endanger local resource commons (air, soil, water), linking places affected by such pollution, but also people resisting it in multiple and inspiring ways in a geography of its own.

Because of such „network ecological“ linkages that cut across borders, to think of abundance is to think not only of the commons, but also of the common – of possible figures and socialities in whose name such cross-border strategies of mutual exchange

and support may be advanced. This, too, is a question raised by the images of crisis, but their possible impact will remain limited if we do not take seriously the exhaustion not only of the power of exposure (compassion fatigue) but of a whole range of idioms of solidarity that have lost their ability to engender a post-statist politics that moves across borders (tricontinentalism). Another key question for information-ethics to address: given the globality of the issues under consideration, what is the idiom of relation capable of articulating a new ethics of encounter and mutual engagement?

To ask for such a shift in emphasis – from scarcity to abundance, from accountability to the common – is to ask where the dominance of scarcity originates, and where our mutual (ecological) involvements (of which cross-border flows of products and pollution constantly remind us) is marginalized in the individualist production of subjectivities: where does this knowledge come from, where is it created and maintained, what are the architectures and infrastructures for such processes of education? A network-ecological thought of abundance links the waste in a disposal site to the waste of a „university in ruins“, of academic knowledge production increasingly compromised by the need to maintain commercial paradigms of accelerating research-to-market, and degree systems that are themselves based on a logic of scarcity. To reflect on waste from such a perspective is to ask where the designation as „waste“ is made – in the design phase, where proprietary approaches lock users into single vendors, in standardization debates where closed formats prevent the sharing of content and material, in educational processes where certificates valorize familiarity with proprietary products but don't reward autonomous learning and alternative knowledges? Clearly, „waste“ generates multiple discursivities and agencies. And to explore the transversal connections and exclusions at work firmly links „waste“ to the realm of the political.

Caution is, as always, called for in approaching the selective incorporation of the grassroots into academic strategies of rebranding and reinstitutionalization, as select linkages to extra-academic milieus are perfectly compatible with the pursuit of otherwise rather narrow strategies of „excellence“ and „innovation“. But it is important to remember that cartographies of waste include new research geographies, where a great deal of the empirical research is actually conducted outside the academy. Struggles over the public release of occupational health and safety studies in electronics manufacturing are a case in point, but so are the (unauthorized) re-

leases of safety and toxics information from suppliers, who are thereby retrieved from the relative anonymity of supply networks and reattached to corporate brands, breaking the fire walls between design and manufacturing established through outsourcing strategies. It is for this reason that this issue foregrounds activist actors and agendas. And when we encounter „e-waste“, it is up to us whether we accept the narratives that constitute these objects as waste, or whether we take the opportunity to think about them „from the end“, exploring „waste“ not solely as a problem of environmental regulation but as a radically different vantage point.

## Organizations

- Asia Monitor Resource Center  
<<http://www.amrc.org.hk>>
- Asian Network for the Rights Of Occupational Accident Victims  
<<http://www.anroav.org>>
- Basel Action Network  
<<http://www.ban.org>>
- Bricolabs Shared Network  
<<http://bricolabs.net>>
- Business & Human Rights Resource Centre  
<<http://www.business-humanrights.org>>
- Dyne <<http://dyne.org>>
- Edu-Factory Collective  
<<http://www.edu-factory.org>>
- European Coalition for Corporate Justice  
<<http://www.corporatejustice.org>>
- European Work Hazards Network  
<<http://www.ewhn.eu>>
- Greenpeace International  
<<http://www.greenpeace.org/electronics>>
- Hazards Magazine  
<<http://www.hazards.org>>
- IMF - International Metalworkers Federation  
<<http://www.imfmetal.org>>
- Make IT Fair <<http://makeitfair.org>>
- Maquiladora Health & Safety Support Network <<http://mhssn.igc.org>>
- Maquila Solidarity Network  
<<http://en.maquilasolidarity.org>>
- Peer-to-Peer Foundation  
<<http://p2pfoundation.net>>
- International Labour Foundation for Sustainable Development  
<<http://www.sustainlabour.org>>
- World Economy, Ecology & Development  
<<http://pcglobal.org>>
- Silicon Valley Toxics Coalition  
<<http://www.svtc.org>>
- Centre for Research on Multinational Corporations <<http://somo.nl>>
- Students and Scholars Against Corporate Misbehaviour <<http://sacom.hk>>
- Taiwan Environmental Action Network  
<<http://www.iepanet.org>>
- Toxics Link <<http://www.toxicslink.org>>

For additional contacts, see the Good Electronics Network <<http://goodelectronics.org>>.