

Cultural Studies Review  
volume 22 number 1 March 2016  
<http://epress.lib.uts.edu.au/journals/index.php/csrj/index>  
pp. 168–95  
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## Why Is It so Hard to Engage with Practices of the Informal Sector?

### Experimental Insights from the Indian E-Waste-Collective

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In 2011, a sea change occurred in India. The government, while aiming for sustainable politics, issued a new (apparently exemplary) law: the ‘e-waste (Management and Handling) Rules’.<sup>1</sup> This so-called e-waste law tried to grapple with something that has become a major threat since its spread began about thirty-to-fifty years ago.

Electronic waste is one of the biggest and dirtiest waste streams worldwide. Tens of millions (*crores*, as South Asians term it) of tons of waste travel the world annually.<sup>2</sup> Why is that? Let us dive into some narrative macro-structures. The much-used smartphone, for example, has a worth, even after its disposal. Most likely, however, it has to be shipped globally before being recognised as something precious. For a long time, only the urban poor in the global south appreciated the value of our old appliances, so e-waste recycling hubs have found an economic home

ISSN 1837-8692

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Citation: Cultural Studies Review (CSR) 2016, 22, 4385, <http://dx.doi.org/10.5130/csr.v22i1.4385>

in the global south. There, the so-called informal sector collected, refurbished or even dismantled used electronic parts creatively. They made a living from such waste. It also sufficed for the self-esteem of some, even if recycling was mostly practiced in the backyards of slums.<sup>3</sup> Much of the work, though, especially the process of dismantling, though, was done without proper tools, endangering labourers and the surrounding environment. Recently, Euro-American concepts were embraced to 'help out'—to make the recycling process safer and cleaner by employing modern recycling technologies. These aspects are also asserted as major goals of the Indian law. The waste's value, it can be declared, has been recognised again.

Yet there is critique. It turns out that when one talks about the 'ground realities', because of these concepts, there is no help provided for the poor but an urge to replace them instead. It has been uttered explicitly as well as implicitly that waste was thus captured by 'the' neoliberal regime, and that only one, vicious kind of value has become relevant: that of capital.<sup>4</sup> In this article, however, I argue that it is worth decelerating such critiques. They are too destructive and do not adapt to complex realities on the ground. And this is exactly what the issue of e-waste calls for.<sup>5</sup> A spikey 'thing' called e-waste needs reorganisation of a democratic kind instead of negative claims, which, in the end, lead to resignation. To bring democracy into this process, though, proves to be a difficult project because democracy itself has to adapt.

Nonetheless, the Indian scenario provides a fertile ground to embrace such an endeavour. Local political parties, international scientists, transnational companies and the civil society—that is, national and international NGOs—collectively brought the Indian e-waste law to light over a period of around eight years.<sup>6</sup> Reports, workshops and round-table discussions bear witness to a vibrant public debate. What is most striking is that against a backdrop of intense negotiations the resulting document came as a surprise. Because of the law, informal yet important actors got ejected from the (newly) composed value chain; that is, the 'refurbishers', specialised resellers of repaired items, were ignored in the law. For the local recycling reality, however, these actors are indispensable. Moreover, refurbishers were included as crucial stakeholders in initial drafts of the law. The 'rules' sought

for a sustainable solution—and these actors, everyone agreed, were acting in a sustainable fashion. Yet they were marginalised.

How may one explain and counter this situation without whipping out a reductionist argument? How may one engage with these informal sector practices in a just fashion?

I propose to understand the sequence of events by following Bruno Latour's a-modern, cautious ideal of critique. I strive towards taking part in the economy and its *composition*.<sup>7</sup> This is how democracy comes in anew. I will be looking for ways to articulate (that is, bring together) the 'legitimate' interests of involved actors. I follow a particular path: the law developed alongside the production of a certain knowledge dispositive, which welcomes certain actors and neglects others. I aim to engage in *diplomacy* in order to stop rejecting actors too quickly. Latour's new joint venture, 'An Inquiry into Modes of Existence (AIME)', provides a convenient toolbox to sensitise different actors.<sup>8</sup> Especially in the context of Australian cultural studies, this work has attracted a great deal of attention.<sup>9</sup> Latour's new perspective helps open up new trajectories in waste studies, but my argument goes a step further by stating that this shift in the actor-network-theory (ANT) renders a *postcolonial* reconstruction of democracy feasible. Yes, as Gayatri Spivak famously claimed, subalterns cannot speak<sup>10</sup>—and here Latour agrees: this is why politics should not focus on a narrow, 'modern' understanding of language.

The argument is developed in three stages. To ensure the values implied by the 'dominant' vision of e-waste-recycling are coherent, I introduce the particular thoughts of a concerned Indian bureaucrat and the AIME scheme is introduced. Thus, in the first section of this article I develop a unique perspective on sustainability politics. Then, in the second section, I examine how this dominant vision came into existence in India and, crucially, emphasise how it subsequently marginalised (parts of) the informal sector. In the third section, I reflect on the values of this informal sector and look at how a postcolonial reframing of these actors can begin. I refer to a strange yet liberating essay by Alfred Sohn-Rethel, then, a new 'ideal of the broken down' will be outlined.<sup>11</sup> Against this backdrop I discuss recent developments in the e-waste rules: an update of the law that tries to address the excluded practices again, although in a peculiar fashion.

I waited a while. In the government official's enclosed cubical workstation the air conditioning was as cold as a northern winter. Nonetheless, I accepted the invitation to come in and we quickly got to the heart of his thinking. 'The only thing I *feel* is we have to extend our system to take care of this', he said while making himself comfortable in his modest office chair.<sup>12</sup> 'See, as long as it is intact, it is not causing any harm. A mobile phone'—he pointed towards my device which lay between us, functioning as a voice recorder—'which I am using, and which I am keeping in my pocket ... It is not harming me at all! Even if it is not working it is not harming me. Ok? It is not giving any kind of energy, not radiating any harmful substances.' Here, the government advisors—I was sitting opposite an Indian one—insist on clear boundaries: '*Only* when I'm trying to extract, *only* when people are opening the machines and are trying to extract material *then* there can be adverse impact, there will be adverse impact on humans. If you burn it, fumes will come up.'

For a start: how may sustainability be approached against such a background? We are well aware of dozens of clever definitions, from the Club of Rome via Brundtland to the United Nations Environment Programme, and back again. Such broad definitions lead away from what is actually done in encounters such as the one described above. Here, I suggest rather than taking off from practical experiences, we instead stick to them. What can be sensed here in the advisor's statement is that he appreciates sustainability as a developmental *vision*.

Meanwhile, a straightforward concept emerges: a certain (economic) entity is projected into the future with the aim of decreasing its resource uses. Such a concept is all about facts, and how to get them right. The advisor, again: 'if you have proper facilities for recycling these plastics, then there is no harm to anybody because there is equipment to take care of the gases, to take care of the fumes, to take care of the dusts'. As a result, an invitation towards the economy was uttered: 'So, I *believe*, we have to have environmentally sound recycling facilities for proper management.'

When I got to know the advisor better, however, it was not simply the vision he uttered that fascinated me but the overall notion of electronic waste he was influenced by. Other scholars have also found imaginations to be of major relevance to a waste's worth. 'There is much more to electronics', Jennifer Gabrys concludes in her outstanding study of e-waste, 'than raw materials transformed into neat gadgets

that swiftly become obsolete. Electronics are bound up with elaborate mechanisms of fascination.<sup>13</sup> And this counts for e-waste as well, she argues—an odd form of waste, electrified, as it were. The advisor is but one example of how e-waste is governed by a sort of fantastic, unambiguous *collective imagination*, which inhabits certain evaluative principles. These I would say are relevant for political issues.

But when there seems to be a deficit in such imaginations, as indicated in the critical introduction. Waste scholar Gay Hawkins underlines that the point is not ‘that we need some positive messages as a counterbalance to current waste social imaginaries that will re-enchant nature and inspire us’, going on to say: ‘Rather, [the] point is that the very terms in which the culture-nature relation is framed in much environmentalism limit how new relations might be imagined.’<sup>14</sup> In fact, one has to be careful not to reaffirm a narrow culture–nature relation by a particular notion of imagination itself. The AIME-project suggests that oversimplification is hidden in the very term.

In Latour’s revised ANT the world is not flat anymore. Therewith, a key assumption is left behind.<sup>15</sup> Now, he assumes that there are different ways actor-networks act. For someone not trained in ANT’s eccentric storyline this may sound rather vague. Let us move slowly then. ANT, to begin with, focuses on what actors do. Actors are anyone and anything that make a difference—that is why ANT has provided some alternative terms for actors, such as ‘hybrids’ and ‘actants’.<sup>16</sup> Actor-networks, this methodology then suggests, are what makes up the world: each actor is acting because of other actors; it thus is part of a hybrid program of action. Actor-networks are dynamically changing: Latour likes to talk of collectives (rather than an already established ‘society’). An actor such as (e-)waste, thus, ‘operates its influence through networking with human and non-human others’; besides, then, ‘waste can escape and exceed, not just our categories for it, but also the physical limits and boundaries imposed on it, and is given capacity to act on society in interesting and surprising ways’.<sup>17</sup> The hyphen in actor-network is also important in emphasising a constant tension inside the collective. ‘The world’, Graham Harman recapitulates this early-Latour, ‘is not packed with so-called natural kinds, but only with mutant objects that have *struck a hard bargain with reality* to become and remain as they are’.<sup>18</sup> In line with that view, Zsuzsa Gille uses the term ‘waste regime’ to refer to how the production, representation and politics of waste co-

constitute this very actor and its future.<sup>19</sup> Of particular interest for my article is the politics of waste, which 'comprises questions about the existence and nature of public discourses about waste, policy tools to deal with waste, the people enrolled in dealing with waste, and the goals of political instruments that define and manage the waste/non-waste divide'.<sup>20</sup> Each actor-network, AIME now additionally claims, has its own mode of existence; each, the new-Latour states, inhabits a distinctive way of being, that is, a particular truth-value. In other words, ignoring such values—for instance in social science research—makes it even harder to strike a bargain for certain actors inside the waste collective. And this is what my article is dealing with.

With this update, Latour hopes to circumvent abrupt judgements of a 'modern' kind: when 'through a subtle bypass operation, a seemingly metaphysical question (*of what* is the world made?) is linked to a question or argumentation (*how* can we put an end to the endless squabbling?)'.<sup>21</sup> This *category mistake* occurs when a mode is evaluated by false standards, an act which Latour today likes to describe with the metaphor of a 'double click, of a computer mouse which has taught us to expect all the information we might require ... without taking into account the dizzying series of mediations required by this operation'.<sup>22</sup>

Fiction [FIC], then, is one crucial mode (each mode is marked with an abbreviation in square brackets) which stresses what an imagination is all about. It supports the stabilisation of actor-networks in a significant fashion. Conversely, fiction is not about something less real, as the modern cliché suggests while contemplating, for instance, a work of art's 'mimesis', its 'symbolic representation', its 'illusions', and so on. Latour rather proposes to scan for 'fictitious beings', true in a peculiar yet positive way. Instead of referring to prefixed sections of society where fiction is said to be residing—say, in the bookstore downtown, shelf four, top right: 'Science Fiction'—he claims it may be found in each and every actor-network.

AIME helps us grasp the imagination of the advisor. 'They [the beings of fiction] come to our imagination', Latour states, 'no, they *offer* us an imagination that we would not have had without them.'<sup>23</sup> Fictional beings vacillate between material and form—producing shifts. They carry us away.<sup>24</sup> And this is what has happened to the advisor; he was led to a new form of e-waste recycling, not before known in India—and he emphasises that others ought to be carried away, as well. If we are referring to a vision and its political impact, we ought to frame the situation differently

against the backdrop of this performativity of 'offerings'. In fact, then, a thorough analysis is required. Having a rough idea of where the advisor's imagination stems from is not enough.

'Language, habits, and feelings are part of the apparatus of our cultural economy of waste', Gay Hawkins and Stephen Muecke argue.<sup>25</sup> Value, worth, virtue, quality and merit are all relevant. AIME provides an approach to plunging into this mesh up systematically. 'The Economy', the gloomy entity in which e-waste may be composed (recycling factories, mobile phone value chains, and so on), requires a new methodological point of entry. To be clear, here Latour introduces the search for the *political economy* again, yet with a novel arrangement. To understand the very 'nature' of the political economy it is necessary to follow the empirical practices, which, he argues, consist of a mixture of *three* particular modes of existence. By embracing these, the diplomatic endeavour may be articulated. As suggested by the waste scholarship, it may then be possible to understand the crucial role that beings of fiction play as well as cannot play. The heuristic suggests we therefore have to ask for *crossings* between each of these three modes and the [FIC]-mode. Then, one may see how particular values meet and influence actor-networks.

Latour proposes that the Economy, first, is constructed by the mode of *attachment* [ATT]: this is about the particular binding of actors to a network. Attachment emphasises that passionate interests are at the heart of each economic endeavour. Latour mobilises Gabriel Tarde's *Psychologie Économique*, thus agreeing on a specific research scheme:

Follow innovations from the mesh woven in the brain of individuals ... analyze by which canals they spread; document the conflicts they give rise to when they enter into a struggle with those innovations previously repeated; observe how they end up combining, piling up one on top of the other, adjusting themselves, and you will have the whole economy ...<sup>26</sup>

For the purpose of this article, we may mix [ATT] and [FIC] to adjust this agenda. In the case of the Indian e-waste, then, we may ask why these new recycling technologies attract so much attention. What kind of 'design' convinces because of what reasons? And what is this design struggling with?

A second mode is that of *organisation* [ORG]: the stabilisation and reorganisation of scripts. With this mode AIME emphasises *acts* of organisation. The study of global value chains—in the broad sense of this notion—is therefore of fundamental importance. Which actors stabilise a script is the crucial question to ask.<sup>27</sup> Again, crossing [ORG] and [FIC] helps find particular research questions. The focus, for a start, lies in stories. What kind of narratives, then, hold the dominant recycling vision together and make it seem superior to others?<sup>28</sup> And, what alternative stories occur?

Finally, the economy is driven by *morality* [MOR]: by the question of whether all relevant actors have been included in the newly composed ‘collective’. There is no overall moralism that helps evaluate each and every practice with a neat list of requirements. Morality, instead, emphasises that there is a constant *scruple* about the relationship between means and ends; ‘around arrangements for calculation, debate *begins*, again and again’.<sup>29</sup> Crossing [MOR] with [FIC] highlights the quest for new and unexpected scruples. If there is a critique of the dominant recycling vision and if actors quarrel with the new law’s outline, then which concerns are brought along?

So, in short, what is this AIME-concept striving for? Latour’s trilogy reflects processes of the actual reality, yet it also functions as an ideal, which still needs to be achieved; it blurs the distinction between reality and ideal. Henceforth, we may assume heuristically that several imagination-trajectories—striking designs, superior narrations and particular scruples—were ‘offered’ to the actors involved in the e-waste issue. Based upon that speculation, the narrative of e-waste in India may be unfolded while diving into the heart of the issue’s historical roots.

— THE E-WASTE RULES AND ITS MEANDERINGS

*An initial scruple*

The history of electronic waste in India starts with the endeavour of an NGO called Toxiclink. In 2002, backed by a joint project with American NGOs, the Basel Action Network (BAN) and the Silicon Valley Toxics Coalition (SVTC), Toxiclink ‘brought the issue of e-waste in India to light’. This is how the founder of Toxiclink expressed it in an interview, even though the term ‘preceded them’, as he put it.<sup>30</sup>



To begin, I examine two documents: a joint report of BAN, SVTC and Toxicslink (and further NGOs from China) and a later report solely authored by Toxicslink in India.

In the first joint report, a chapter dealt specifically with electronic waste in India. One needs to focus on what the authors did to ‘appreciate’ the text. They dived into the fields, that is, employees of Toxicslink (probably the main author of this chapter) went around the streets of Delhi scanning the recycling hubs of the poorly equipped ‘informal sector’. This industry was discovered to be ‘extremely pollu[ted]’.<sup>31</sup> Here we may join the investigators’ experience, to witness the birth of (India’s) electronic waste as an ‘object’ that could no longer be denied.

Electronic waste is often illustrated with wild colours. High-resolution graphics of children enthroned on a mountain of discarded electronics suggest that this object offers power. However, there is also something eerie about it. When following descriptions of the informal sector’s utilisation methods—burning circuit boards to ‘harvest’ gold, for instance—one encounters a daunting fact. ‘Investigators from Toxics Link India [*sic*], the 2002 report states, ‘became dizzy within just an hour of breathing the heavy air pollution’.<sup>32</sup> Smell matters. *Feelings* are evoked—which are only partly, if not inadequately, captured by the notion of disgust. Instead, electronic waste’s overwhelming olfactory note—one may think of Patrick Süskind’s autistic murderer in *Perfume*—is lethal. In other words, one seems to be attached to the waste and a certain design [ATT·FIC].

Toxicslink’s own study, published in 2003, was called *Scrapping the Hi-tech Myth*. A myth? The imagination strikes back, from the very beginning. The authors emphasised there was a problem with popular reliance on the electronics industry and, for a long time, Toxicslink argued, the industry’s reputation was depicted euphemistically. Its downside had been overlooked because of its promising nature, for its apparent ability to relieve power to—*finally!*—develop and help modernity get back on track.

Driven primarily by faster technological innovation and consequently a high obsolete rate, [a] catalogue of new wastes poses a direct challenge, for its proper disposal or recycling in the present set up is expensive and technical. The issue has assumed serious global dimensions; e-waste

creates serious worker, community and environmental problems, not only in production but also at the waste end.<sup>33</sup>

This general critique leads the authors to a three-fold argument. Here, scruples are defined more specifically than in the BAN/SVTC-report [MOR·FIC]. The informal sector is analysed with a special focus on particular areas in an e-waste 'hub': in Delhi. And the eerie feeling, described above, is evoked again. Toxicslink also underlines where the electronic waste in India is actually coming from. On the one hand, there is said to be local consumption. 'The problems associated with e-waste in India', they emphasise, 'started surfacing after the first phase of economic liberalisation, after 1990.' What happened? 'That year witnessed a shift in economic policy in turn triggering off an increase in the consumption pattern.'<sup>34</sup> Now, neoliberalism, *the* developmental vision after the Washington consensus of 1989, is indeed a crucial entity for the critique. But the actors themselves unfold it in this text to stabilise arguments with a powerful panoptical narrative [ORG·FIC]; it is not me, then, imposing it on the whole issue. Finally, the scruple focuses on international export of e-waste. Most of the waste that arrives in India, the authors conclude, is coming from the global north. Thus, 'there is a substantial scope in the present legal set up for the import of junk computers'.<sup>35</sup>

Before Toxicslink was established, electronic waste played no part in any local political negotiations whatsoever. It is crucial to note that, subsequently, the NGO's findings were popularised, and word of the Basel Convention's initiatives began to spread in the country. Their scruple was transformed in a manifold fashion: a Swiss research project on electronic waste was started in Delhi; just a few months after that, moreover, a workshop that gathered important 'stakeholders' of the waste's business was organised by the German developmental group GTZ (today, GIZ) in Delhi. As a result of that workshop, in 2005 a national study on the quantitative spread of electronic waste was initiated by the Indian government. Before these three events stretched the network, many of the actors involved had never been brought together. Now, complexities were made visible. And the 'hard bargain of reality' was approached under new circumstances.

*Positioning a lever of sustainability*

An influential change caused by these three events was that 'formalisation' became *the* driving developmental vision. The value chain of electronic waste, one argued, should be redeployed: from a vast informal sector endangering 'humans and nature' alike towards a *well*-ordered formal sector. The latter cleaning up the mess of the former, as it were. Scruples were removed. New coalitions formed. A particular focus on *detoxing*, then, countered the eerie nature of e-waste [ORG·FIC]. And an Indian version of a 'chemical-waste model, in which waste was primarily seen as a useless and even harmful material' was thus aimed for.<sup>36</sup> This 'regime', Zsuzsa Gille argues, leans toward using private companies to take care of the dangers.

As a result, agencies such as GTZ, for instance, had to grapple with the informal sector—although through a particular perspective. Projects were redesigned with 'mission statements' such as the following: 'it has been decided not to support these activities [that is, methods of the informal sector] any further, rather focus on collection, segregation, and dismantling for better integration into the formal sector'.<sup>37</sup> Representatives of formalisation made compelling claims for 'win-win businesses': 'it emerges that there are mutual gains to be obtained from the trading of material from informal to formal operations. At the same time, social welfare is enhanced by this interaction between the two, leading to reduced pollution, better resource management and "green" jobs creation.'<sup>38</sup>

Formalisation is based upon splitting the value chain: clear boundaries are set to mark where an informal sector ends and where a formal sector unity starts. But more agencies were inscribed in this notion. My hypothesis is that a certain programming was thus established, and a *lever of sustainability* was positioned. While the main actors of the e-waste case came together in the years 2004 and 2005, a Euro-American model of waste recycling was embraced and further developed; mobilising 'formalisation' implied emphasising 'professionalisation', 'high-tech machines', and so forth. A strange move, for it tried to solve the consequences of the 'high-tech myth' with the very tools of that myth.

The issue with formalisation is that it is a black box that cuts corners in evaluating actors. Then, however, the question is not merely whether the addressed actors are included in the 'system'; one also has to ask which actors are left out by the very call for formalisation [MOR·FIC].

*Negotiating and finalising a crucial draft*

The programming of the value chain induced a particular legislative update. For a start, in 2006, the Indian Ministry of Environment and Forests (MoEF) deployed a 'National Environment Policy' which claimed to: 'Develop and enforce regulations and guidelines for management of e-waste, as part of the hazardous waste regime.'<sup>39</sup> In Autumn 2008, the already existing 'Hazardous Waste (Management, Handling and Transboundary Movement) Rules' were updated. For the first time, this act categorised 'obsolete electronic gadgets' as hazardous waste. However, this was merely a minor adjustment of the e-waste value chain [ORG]. In fact, it was antithetical to the overall idea of a new legal setup, solely produced for electronic waste.

It was made evident in a highly influential joint study of GTZ and the Indian electronic industry association (MAIT) published in late 2007 that one could not stop with these insignificant corrections.<sup>40</sup> Formalisation, they claimed, *yes indeed!*—but done differently.

Things changed quickly afterwards. A new workshop, again assembling the main stakeholders, was held. It produced a 'road map' where the involved parties concentrated on a 'masterplan'. Let us appreciate some bureaucratic literacy: 'There is an immediate need', the resulting paper claimed, 'for strengthening the legislative frame work and making them more stringent. This could be done by introducing specific rules/law governing the reuse and recycle as well as final disposal of e-waste.'<sup>41</sup>

As a result of yet another meeting, finally, an ambitious group of four stakeholders began to work on a draft for the future e-waste rules. From now on, it was official: a *new* law would be coming. The group who drafted the first outline of the law included GTZ, the IT-industry's association MAIT, Toxiclink and Greenpeace. Work began in early 2008. Three documents regarding an e-waste legislature were produced: an initial draft by this selected circle (2009), a revised version of this draft following public comments (2010) and the law itself (2011). One has to understand these documents to see how the programming of the value chain wielded its influence.

The first draft, published in 2009, began with an ambitious framework based upon a comprehensive integration of nearly all the actors addressed during the

previous workshops, reports and other forums. The example used in this article was also announced. 'Refurbishment', the authors of the draft stated in 2009, 'means any person who is engaged in processing e-waste for recovery of useful materials or reuse.'<sup>42</sup> All the stakeholders perceived as important, such as producers or dismantlers, were held responsible and given certain duties and regulations to fulfil. At this stage, however, refurbishment actors were not provided with such elaborate instructions. The second draft of the e-waste rules published in 2010, revised by the Indian ministry, filled that particular gap by defining certain duties for refurbishers as well.<sup>43</sup>

I began this article by referring to these particular actors. Then, in what followed, I barely talked about them at all. Well—neither did the negotiating actors. This is because refurbishment 'practically' belonged to the collective—without being problematised in reports. So of course refurbishment had to play a crucial role in the new legislation. Indeed, refurbishers should be asked to register—which is what happened in 2010.

However, this consent broke down in the final document of 2011. Refurbishment was eradicated. The law, on the one hand, was built upon an all-inclusive vision. But this (seemingly) general vision, on the other hand, was constantly subverted by a more powerful setup. Sustainability was attributed to a specific, modern model of recycling—in technical terms.

The lever of sustainability applies to particular notions of recycling—where a sharp focus is set on shredding and chemicals. Only when the informal sector is said to help the formal, is it 'included'. Probably because of this programming of the value chain, refurbishment was easily forced out of the system. The rationality of this particular economy, especially its peculiar imagination, made it easy for certain parties inside the network to question the legitimacy of refurbishers. One may easily picture how certain actors may only have to apply a minor force to achieve a 'greater' goal. New and powerful recycling companies may have drawn on this setup during (rather secret) negotiations of the final e-waste law to argue against notions such as refurbishment.<sup>44</sup>

From the previous discussion, it can be seen how recycling in terms of high-tech shredding and rematerialisation has become the dominant approach of this collective. And its influence grows, while the informal sector is pushed away creatively (refurbishment being but one example here). It is indeed hard to engage with what the informal sector is involved in. The following begins with a brief report on a disturbing encounter to emphasise the issue. In a second step, I suggest it is necessary to deal with the situation diplomatically—and, thereafter, democratically.

*Giving the informal sector a chance to 'speak'?*

The meeting with the advisor from the first section of this article took place in the heart of Delhi's bureaucratic machine. In contrast, I met the e-waste managers in the centre of East Delhi's informal recycling hub, instead.

It was a group of three, all male. Two of them were translating the statements of the third. A dynamic mixture of Hindi-English filled the room, itself already stuffed with electrical parts, computers, stacks of paper and dust. 'He is saying that after the law has come, he has totally lost, he can't do', one of the quasi-translators also working 'in the business' claimed.<sup>45</sup> And, after yet another intense Hindi exchange he went on: 'In the middle of the sea, the ship is sinking.' Or, in other words: 'all the people are in tension. Not only he is, I am also.'

An informal worker unionist led me to this crowd, a more than friendly and apparently caring individual. The person who was put in the centre, the one who sent the claims of the sinking ship via translators, I was told, was a newly 'formalised' e-waste recycler. This visibly is no lie, I assured myself. You can easily spot the certificate of his firm, printed out and posted at the wall behind him. (Besides, there is a web resource validating his title.) However, this particular person is a former informal worker who, in fact, still is—and feels—informal. Steps were undertaken to include his activities within the legal systems of the new e-waste law.

The discussions of the group flitted among different topics. Before they told me about the sinking ship (the underbelly of formal recycling's success) it was me who was put at the centre of attention. While listening to what they said, we might understand why the dominant discourse on recycling is not the focus one has to

celebrate—an important step before investigating a final, specific research question. ‘Actually, *you* were not dismantling computer things. *Your* computer waste was thrown away in the sea.’ In short, the informal representatives went on: ‘So India has told *you* that metal has a worth.’

It is significant that this Western discovery, as depicted ironically by the three interviewees, occurred with a crucial alteration. ‘He is saying that government has no plan, the government doesn’t know what is the e-waste.’ ‘So the law is a problem?’, I asked, frankly not appreciating what he actually meant. ‘Law is a problem. And, government was not interested’, he replied, adding a simple yet striking plot: ‘and law-idea comes from *you*’ [ORG-FIC].

The law—which was designed to be a democratic solution, became a subaltern problem. ‘The government doesn’t support us. Police comes to us and asks us “what are you doing here and where is your permission?”’ The gathering achieved a state where all the three individuals spoke simultaneously. ‘The police is very powerful. So people say *kabari* [Hindi for waste] and there is no dignity in *kabari*’, one stated. And, finally, it was also the manager, previous only talking in Hindi, who now began to intervene directly with me, in English: ‘And, there is no pollution in this business. We know that. We all are *kabariwala* [rag pickers]. But what is *kabariwala*? *Kabariwala* is said to be thief ... But we are no thieves!’

This meeting emphasises that the law seems to miss a particular reality. According to Latour, diplomatic politics occurs when one *senses* that there is something missing; when there seems to be no thorough dealing with something that, in fact, asks for it.<sup>46</sup> Here, the AIME project is suitable for democratic slowdown since it moves away from representation, based upon a comprehensive predefined language. In fact, the AIME-repository states:

Language is not made for truth. To suppose as much is already a category mistake. Or, in other words, truth is not carried in language, but we can, via language and the networks it paves, transport ourselves to the places where the truth can be stated convincingly. At base, it is a question of etiquette: who goes towards whom?<sup>47</sup>

Latour’s metaphors reiterate this particular shift: he embraces *musical* analogies to achieve a new line of thought. ‘Composition’ is the most prominent example of this scheme. Announced in the introduction, we may now further investigate the depths

of this notion through this peculiar informal sector meeting. When modes of existence cross, they may vibrate in ‘harmony’, next to each other, indeed. But they may also fight each other’s ‘vibrancy’, especially when one value is examined with a different value’s keys.<sup>48</sup>

What is going on, then, with the practices of the informal sector? Is there a harmony? Well, evidently not. Rather, its networks are degenerating; they are left outside. It is evident that informal sector practices and its knowledge are not valued ‘correctly’. But merely sticking to ‘their’ language may not suffice either. Here, in fact, Latour proposes a hint at violence in the discourse. It would be a category mistake, for instance, to judge the truth of the informal sector’s claims by the standards of the Indian advisor from above (who is driven by the lever of sustainability). However, and this is awkward, the very language uttered during the meeting in East Delhi implies in fact doing this. The informal sector workers, for example, refer to the law and how ‘they themselves’ invented modern recycling notions and thus, our idea of ‘worth’. This situation, I argue, may be studied with Latour’s heuristic—one has to ask for the values the actors hold dear, and their account of this value. Here, he indicates, especially, to study accounts that seem to contradict themselves and, thence, hinder a reassembly of the collective.

*Towards a new ‘ideal of the broken down’*

Composition based upon diplomacy, then, is not embracing a euphemised all-encompassing empire.<sup>49</sup> With this agenda, my argument is in sync with Latour’s fights together with postcolonial (and, I feel confident, decolonial) scholarship. Contrary to the claim of numerous papers—mostly referring to (and, in my point of view, too quickly denouncing) his *Politics of Nature*<sup>50</sup>—there is no colonising attitude in Latour’s metaphysics.<sup>51</sup> Instead, his focus on practices and their inscribed ontological values helps go beyond a model driven merely by hegemonic, monologist political speech.<sup>52</sup> No, we clearly should not ‘finally give these actors a voice’. Instead, this very arrangement has been the major obstacle all along.

As claimed above, ‘via language and the networks it paves’, we ought to ‘transport ourselves to the places where the truth can be stated convincingly’. Besides, we also need to accept when we cannot fully grasp what the truth is precisely about and when our way of arriving at it seems to be flawed.



Indeed, there might be a place to travel to, offering a different yet lucid enrichment of the programming of the e-waste value chain. And this might help understand what ‘the informals’ were referring to. While traversing the informal networks of Delhi, Ravi Sundaram’s seminal study on ‘pirate modernity’ explains the practice as follows:

Cities and towns have seen the expansion of technological forms that have imploded, becoming sites of conflict and public debate. Most city dwellers in India have grown up with the rhythm of technological irregularity, the ingenious search for solutions, or *jugaad* as it is known in Northern India ... Urban populations do not just internalize the fragmentary time of infrastructure (water supply times, electricity breakdowns), they have resorted to a combination of bypass solutions, illegal sourcing from the official infrastructure for some, and private and semi-private infrastructures for most. Machine and technological gadgets are never thrown away, but reused, sold, repaired, and used again.<sup>53</sup>

Electronic waste in *jugaad*-India is not about how to shred something in the best way conceivable. Instead, here it is believed to be an opportunity [ORG·FIC]. Lots of different stories oppose the dominant vision of recycling because of this narrative.<sup>54</sup>

What happens if we recycle this imagination? I argue that it bears an uncanny resemblance to Alfred Sohn-Rethel’s ideal of the broken down. In relation to the 1920s in the city of Naples, Italy, Sohn-Rethel stated that ‘it is only when things are broken-down that a Neapolitan begins to think it works’ [ORG·FIC]. This might sound strange. But he provides plenty of room to visualise a unique imagination of electronic waste. In fact, ‘for him [a Neapolitan], the essence of technology lies in the working of the broken-down ... The intact, instead, which works by itself, as it were, seems weird and suspicious precisely because it works by itself and since, in the end, one never knows how and where it will be going’ [MOR·FIC].<sup>55</sup> This is an imagination from which the whole discussion of sustainability might benefit. No one would be surprised by, say, planned obsolescence, if they were to hold this value dear. Most importantly, they would be doing something against it.

Sohn-Rethel’s essay is a fascinating (of course, narrow) sketch for the case at hand.<sup>56</sup> In Delhi, for instance, there are vast (grey, green or black—take at as you like) markets for refurbished electronic gadgets. Many Delhiites certainly do like to

roam around, for instance, at the infamous Nehru Place in the south of the capital's centre where dozens of refurbishment shops stand in rows. Nonetheless, these practices were not a part of the 'e-waste (Management and Handling) Rules'. Presumably, there will be no space for similar informal sector practices either. It still is not clear, for example, whether any pre-disassembly—before it goes to high-tech recycling machines outside the city—will be allowed in Delhi because of the city's restrictive master plan (here, there is also negotiation going on). It is doubtful, then, whether this legislature will be a success or 'business as usual'.<sup>57</sup>

—ENGAGING 'TRUTHFULLY' WITH THE INFORMAL SECTOR

And there are many reasons to doubt that Delhi will follow a course mapped out by other cities in different eras and far away. It is more likely that the emerging places of the world will follow quite different paths and produce different realities. It is probable, in such places, that the formal will never defeat or even rival the informal.

Rana Dasgupta, *Capital*, 2014<sup>58</sup>

There might have always been a strong interest, in the narrow, reductionist sense of the term, to exclude the powerful refurbishment activities of the 'informal' sector. Indeed, the informal refurbishers take a huge amount of e-waste out of the market; waste that the 'formal' industry is longing for. But the latter could only successfully enforce their interests because of the particular programming of the value chain—based upon a strict definition of sustainable technology. Or, to put it the other way around: here I outlined how an elaborate judiciary regarding electronic waste became existent in India. This process was significantly influenced by a particular Euro-American imagination, which framed electronic waste as a tumour one has to get rid of (that is, one has to shred ruthlessly with the most modern machines available). Referring to neoliberalism's 'power' alone is not sufficient to understand this notion.

While embracing *Swachh Bharat Abhiyaan* (the Clean India Mission) with pomp and circumstance, the newly formed Modi government proposed amendments to several waste legislatures of the country in early 2015. An update of the e-waste law

has been announced as well. For a start, a draft has been published. Astonishingly, our prime example of refurbishment now is a part of the proposed law—defined as ‘repairing of used electrical and electronic equipment ... for extending its working life for its originally intended use and selling the same in the market or returning to owner’.<sup>59</sup>

At first glance, the problem seems solved. Yet, in practice, the update first and foremost refers to modern recycling companies who now also have their own extensive refurbishment units. The informal sector still is not addressed in its terms. As concluded by one critical comment: ‘the rules are silent on this issue’.<sup>60</sup> Other critiques emphasise that the whole concept is flawed. Here, again, criticism from GTZ-based actors stands out—just as in 2007, when a first legal amendment was put forward and attacked afterwards. An influential Delhi figure and the main author of the 2007 report argues, for instance, as follows:

By continuously tinkering with waste management rules, the government is implicitly acknowledging its key role in solving the waste management problem. It seems to be saying that if we have the ‘perfect’ Rules, the waste management problem would be solved ... However, focusing on waste management merely as an environment policy issue is unlikely to have substantial impact on waste management. I believe the administration has missed a big opportunity by not engaging with the issue in a much more holistic manner for example, also addressing employment generation and material recovery potential of waste/resource management. This could be initiated by facilitating a dialogue on appropriate infrastructure and capacities involving the relevant actors and interest-based coalitions who can drive the transition to a resource efficient and clean India.<sup>61</sup>

Interestingly, the significance of the law is thus downplayed. And yet another attempt is made to detox the value chain creatively. However, maybe the crucial problem is that this strategy addresses only one side of the ground realities. Composition, instead, suggests on reflecting over another setup as well.

*Juggad* striving towards a new ‘ideal of the broken down’ is an alternative imagination, which I have tried to sketch roughly while crossing certain AIME-heuristics. It is based upon creative designs [ATT·FIC], assumes a constant rebuilding by standard [ORG·FIC], and has a scruple for *the* perfect solution

[MOR·FIC]. By bringing this setup together with Clean India-visions under a *new* scheme, a democratic project might occur. Having said that, a lot of dubious things were already embraced because of the hasty ‘applications’ of this idea. Sensitising for informal sector values is a very tricky task. Ground realities are very complex in the informal sector—with fierce competition, unavoidable corruption, and opaque hierarchies. Here, the challenges of what Partha Chatterjee (a major figure of the Indian Subaltern Studies Group) expressed as the ‘politics of the governed’ converge.<sup>62</sup> Postcolonial thought also reminds us that this informal sector is not a helpless entity we have to take care of; it works its own way, it has its realities, as Rana Dasgupta depicted fairly well in *Capital*, cited above. This is what should not be ignored; this is why ‘we’—the subjective perception of a white German male is uttered here—have to approach the issue differently (in the sense of moving oneself). Furthermore, one should not confuse *jugaad* with yet another call for free trade—as is done in popular Indian business literature.<sup>63</sup> Reframing the informal sector with regard to ‘system d’ (‘d’ for the French *débrouillard*: ingeniously creative in finding solutions), may be an interesting endeavour for it does not condemn the involved workers (while, in the end, the inscribed morality in this proposal of Robert Neuwirth’s invests too much energy in restoring Adam Smith’s ‘enlightened’ free-market romanticism—‘building a better world, one deal at a time’).<sup>64</sup>

Taken together, the diplomatic endeavour in this article wants to do more than show that the values of informal sector practices such as refurbishment are not appreciated. The goal is to also describe why it is so hard to *engage* with these practices in the first place. Numerous (sometimes exotic) categories are at our disposal, waiting to be applied. But most of them begin their claims with the Euro-American imaginations. In the democratic negotiation, it is difficult to leave one’s own comfort zone, especially when it comes to the eerie types of waste.

And this may be seen in other instances as well. Globally, new economies are sought which embrace sustainable visions against the dangers of e-waste. New smartphone projects such as Project Ara—‘You can upgrade different parts of your phone when you need too’—or the new Fairphone—‘We’re producing a phone to improve the electronics value chain’—for instance, embrace modular modes of production and use for this matter.<sup>65</sup> And repair collectives like iFixit.com—‘If you can’t fix it, you don’t own it’—are getting more popular each day.<sup>66</sup> All these actors

raise awareness for the e-waste issue. Here, it seems rather odd to denounce the informal sector practices (like these actors do in certain stages of their storyline) with a sweeping arm, even before giving an outline of one's own project. These actors sought a disruption. Forging novel links between them might be more appropriate. This is at least what the diplomatic valuation, towards a new start, senses.

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—ACKNOWLEDGEMENTS

I would like to thank interviewees from India, the NGOs Toxicslink and Chintan, GIZ India and All India Kabari Mazdoor Mahasangh (AIKMM), as well as other dedicated people helping me grasp this field. I also benefited a lot from discussions with colleagues of the chair of Social Theory at the University of Kassel, and fruitful conversations I had with Stephen Muecke whom I got to know at the Postcolonial Justice conference of ASNEL/GASt in Berlin.

—NOTES

<sup>1</sup> Ministry of Environment and Forests (MoEF), *E-Waste (Management and Handling) Rules*, Government of India, New Delhi, 2011.

<sup>2</sup> Josh Lepawsky, 'The Changing Geography of Global Trade in Electronic Discards: Time to Rethink the E-waste Problem', *The Geographical Journal*, vol. 181, 2014.

<sup>3</sup> Kaveri Gill, *Of Poverty and Plastic: Scavenging and Scrap Trading Entrepreneurs in India's Urban Informal Economy*, Oxford University Press, New Delhi, 2010, p. 242. Environmental activist Bharati Chaturvedi emphasises the usefulness of these actors to waste politics. Bharati Chaturvedi, 'A Waste of Wealth: How Indian Cities Are Ignoring the Recyclers but Asking for Recycling', *Environmental Justice*, vol. 7, no. 5, 2014, pp. 138–41.

<sup>4</sup> A critique of neoliberal waste values in Delhi is implied in Gill's seminal study when she speaks of 'green' recycling politics in terms of *bourgeois environmentalism*, Gill, p. 219. For a critique of e-waste concepts of development experts in India, see Rajyashree N. Reddy, 'Revitalising Economies of Disassembly Informal Recyclers, Development Experts and E-Waste Reforms in Bangalore', *Economic & Political Weekly*, vol. 48, no. 13, 2013, pp. 62–70.

<sup>5</sup> Jennifer Gabrys, a London-based sociologist, underlines a crucial e-waste-fact that we have to deal with democratically: 'Electronics continually perform in ways we have not fully anticipated', Jennifer Gabrys, *Digital Rubbish: A Natural History of Electronics*, University of Michigan Press, Ann Arbor, 2011, p. 4. Josh Lepawsky, a Canadian geographer also useful for this article's argument, criticises the Euro-American discourse because it 'typically ... promote[s] a single version of recycling (that is product destruction or "shredding") for material recovery', Lepawsky, p. 11.

<sup>6</sup> Ashish Chaturvedi, Rachna Arora and Sharon Ahmed, *Policy Cycle: Evolution of E-waste Management and Handling Rules*, 2010, <[http://www.weeerecycle.in/publications/research\\_papers/Policy\\_Cycle-EWaste\\_final\\_10\\_12\\_06.pdf](http://www.weeerecycle.in/publications/research_papers/Policy_Cycle-EWaste_final_10_12_06.pdf)>.

<sup>7</sup> Bruno Latour, 'Steps Toward the Writing of a Compositionist Manifesto', *New Literary History*, vol. 41, 2010, pp. 471–90. However, I only begin to make certain necessary adjustments—a prerequisite—of this process. There is no room in this article to engage with the whole political circle (a specific mode of existence of Latour's), which consists of further 'steps'.

<sup>8</sup> Bruno Latour, *An Inquiry Into Modes of Existence: An Anthropology of the Moderns*, Harvard University Press, 2013. The diplomatic notion is Latour's key heuristic enabling what is commonly referred to as democracy. A diplomat is someone who is interested in mediating between actors who do not understand each other, who might not even want to do so. This is why she, the diplomat, is not 'neutral'; she is not obeying the obligations of liberal 'consensus' politics—but she is also not embracing antagonistic (or 'agonal') norms while reformulating the political project. Instead, while speaking for an actor, she must be ready to be committed. One way to achieve the overall diplomatic goal in an academic article might be to put the readers into a different actor-network (to trigger a different imagination). The endeavour I am embracing here is, again, closely linked to an adjustment of critique, described beautifully by Foucault (which I stumbled across reading Muecke's 'Motorcycles, Snails, Latour'): 'I can't help but dream about a kind of criticism that would try not to judge but to bring an oeuvre, a book, a sentence, an idea to life ... It would multiply not judgements but signs of existence', Michel Foucault, 'The Masked Philosopher' in J. Faubion (ed.), *Ethics: Subjectivity and Truth: The Essential Works of Michel Foucault 1954–1984*, Volume One, trans. Robert Hurley and others, Penguin, Harmondsworth, Middlesex, 1997 [1980], pp. 321–8.

<sup>9</sup> Catherine Noske, 'Towards an Existential Pluralism: The Philosophy of Etienne Souriau', *Cultural Studies Review*, vol. 21, no. 1, 2015, pp. 34–57.

<sup>10</sup> Gayatri Chakravorty Spivak, 'Can the Subaltern Speak?', in Cary Nelson and Lawrence Grossberg (eds), *Marxism and the Interpretation of Culture*, University of Illinois Press, Chicago, 1988, pp. 271–313.

<sup>11</sup> Alfred Sohn-Rethel, *Das Ideal des Kaputten*, Ulrich Seuter, Frickingen, 2008, pp. 31–2; translation mine.

<sup>12</sup> This article contains extracts of interviews I conducted in 2013. They help deploy AIME's methodology, that is, to study what people do (and contrast it with what they say they do). I will

introduce most of them anonymously since identities are secondary. This first interview took place on 6 February 2013.

<sup>13</sup> Gabrys, pp. vi—vii.

<sup>14</sup> Gay Hawkins, *The Ethics of Waste: How We Relate to Rubbish*, Rowman & Littlefield Publishers, Lanham, 2005, p. 9.

<sup>15</sup> Cf. Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network-Theory*, Oxford University Press, Oxford, 2005.

<sup>16</sup> Edwin Sayes, 'Actor–Network Theory and Methodology: Just What Does It Mean to Say That Nonhumans Have Agency?', *Social Studies of Science*, vol. 44, no. 1, 2014, pp. 134–49.

<sup>17</sup> Sarah A. Moore, 'Garbage Matters: Concepts in New Geographies of Waste', *Progress in Human Geography*, vol. 36, no. 6, 2012, pp. 791–2.

<sup>18</sup> Graham Harman, *Prince of Networks: Bruno Latour and Metaphysics*, Re.press, Anamnesis, Melbourne, 2009, p. 23; emphasis added.

<sup>19</sup> Zsuzsa Gille, 'Actor Networks, Modes of Production, and Waste Regimes: Reassembling the Macro-social', *Environmental Planning A*, vol. 42, no. 5, 2010, pp. 1049–64.

<sup>20</sup> Moore, p. 792.

<sup>21</sup> Latour, *An Inquiry into Modes of Existence*, p. 129.

<sup>22</sup> See Bruno Latour, *We Have Never Been Modern*, Harvard University Press, Cambridge, MA, 1993. The quotation is from the AIME-website, which is difficult to cite in the usual academic fashion since the links are not always stable. This quote may be found in column 2 ('v'), paragraph -2-, when searching for the term 'double click'. One has to be logged in to the English version of the website to do this, AIMEa [An Inquiry into Modes of Existence], 2015, <<http://www.modesofexistence.org>>.

<sup>23</sup> Latour, *An Inquiry into Modes of Existences*, p. 240.

<sup>24</sup> *Ibid.*, p. 251.

<sup>25</sup> Gay Hawkins and Stephen Muecke, 'Introduction: Cultural Economies of Waste', in Gay Hawkins and Stephen Muecke (eds), *Culture and Waste: The Creation and Destruction of Value*, Rowman & Littlefield Publishers, Lanham, 2003, p. xiv.

<sup>26</sup> Bruno Latour and Vincent A. Lepinay, *The Science of Passionate Interests: An Introduction to Gabriel Tarde's Economic Anthropology*, Prickly Paradigm Press, Chicago, 2010, p. 35.

<sup>27</sup> Josh Lepawsky and Charles Mather, 'From Beginnings and Endings to Boundaries and Edges: Rethinking Circulation and Exchange through Electronic Waste', *Area*, vol. 43, no. 3, 2011, pp. 242–9; Somjita Laha, 'Informality in E-Waste Processing: An Analysis of the Indian Experience', *Competition & Change*, vol. 18, no. 4, 2014, pp. 309–26.

<sup>28</sup> The AIME-website also provides useful hints for how to do research on crossings. AIMEb, *fic-org-Crossing*, 2015, <<http://www.modesofexistence.org/crossings/#/en/fic-org>>.

<sup>29</sup> Latour, *An Inquiry into Modes of Existence s*, p. 462.

<sup>30</sup> Interview conducted on 14 February 2013.

- <sup>31</sup> BAN, SVTC et al., *Exporting Harm*, 2002, p. 5, <<http://www.ban.org/E-waste/technotrashfinalcomp.pdf>>.
- <sup>32</sup> Ibid., p. 25.
- <sup>33</sup> Ravi Agarwal, Rakesh Ranjan and Papiya Sarkar, *Scrapping the Hi-Tech Myth: Computer Waste in India*, Toxiclink, New Delhi, 2003, p. 8.
- <sup>34</sup> Ibid., p. 6.
- <sup>35</sup> Ibid., p. 32.
- <sup>36</sup> Gille, p. 1057.
- <sup>37</sup> Rachna Arora, Ulrike Killguss, Ashish Chaturvedi and David Rochat, 'Whither E-waste in India: The Indo-German-Swiss Initiative', in Rakesh Johri (ed.), *E-Waste, Implications, Regulations, and Management in India and Current Global Best Practices*, TERI, New-Delhi, 2008, p. 77.
- <sup>38</sup> L. Raghupathy, C. Krüger, A. Chaturvedi, R. Arora and M. Henzler, *E-Waste Recycling In India: Bridging The Gap Between The Informal And Formal Sector*, 2010, <[http://www.weeerecycle.in/publications/research\\_papers/Article\\_in\\_RI\\_may\\_2010.pdf](http://www.weeerecycle.in/publications/research_papers/Article_in_RI_may_2010.pdf)>.
- <sup>39</sup> MoEF, *National Environment Policy*, Government of India, New Delhi, 2006, p. 39, <<http://envfor.nic.in/sites/default/files/introduction-nep2006e.pdf>>.
- <sup>40</sup> GTZ and MAIT, *e-Waste Assessment in India: Specific Focus on Delhi*, 2007, <[http://www.weeerecycle.in/publications/reports/GTZ\\_MAIT\\_E-waste\\_Assessment\\_Report.pdf](http://www.weeerecycle.in/publications/reports/GTZ_MAIT_E-waste_Assessment_Report.pdf)>.
- <sup>41</sup> MoEF, *Report of the Committee to Evolve Road Map on Management of Wastes in India*, 2010, p. 40, <<http://www.moef.nic.in/sites/default/files/Roadmap-Mgmt-Waste.pdf>>.
- <sup>42</sup> MoEF, *E-Waste Rules 2008*, Draft, p. 3.
- <sup>43</sup> MoEF, *E-Waste (Management and Handling) Rules*, Draft, Government of India, New Delhi, 2010.
- <sup>44</sup> What happened between the second draft of the law and the final document is difficult to ascertain. I spoke with most of the involved parties who, in the end, embraced privacy concerning this matter—or uttered a radical critique of neoliberalism, where such influence was merely assumed.
- <sup>45</sup> This meeting took place on 28 February 2013.
- <sup>46</sup> Latour, *An Inquiry into Modes of Existence*, pp. 337–56.
- <sup>47</sup> This quote may be found online in column 2 ('v'), paragraph -11-, when searching for the term 'Language' on AIMEa.
- <sup>48</sup> This quote may be found online in column 2 ('v'), paragraph -1-, when searching for the term 'Harmonic' on AIMEa.
- <sup>49</sup> Kyle McGee, *Bruno Latour: The Normativity of Networks*, Routledge, London, 2014, p. 121.
- <sup>50</sup> Bruno Latour, *Politics of Nature: How to Bring the Sciences Into Democracy*, Harvard University Press, Cambridge, 2004.
- <sup>51</sup> Matthew C. Watson, 'Cosmopolitics and the Subaltern: Problematizing Latour's Idea of the Commons', *Theory, Culture & Society*, vol. 28, no. 3, 2011, pp. 55–79.



- <sup>52</sup> Deborah Bird Rose, 'Decolonizing the Discourse of Environmental Knowledge in Settler Societies', in Gay Hawkins and Stephen Muecke (eds), *Culture and Waste: The Creation and Destruction of Value*, Rowman & Littlefield Publishers, Lanham, 2003, pp. 53–72.
- <sup>53</sup> Ravi Sundaram, *Pirate Modernity: Delhi's Media Urbanism*, Routledge, London and New York, pp. 2–3.
- <sup>54</sup> Toxicslink put up an interactive website illustrating different e-waste stories of India's capital. Toxicslink, Tactical Technology Collective, *Delhi Digests: A Sketchbook on e-Waste*, 2015, <<http://delhidigests.org/#>>.
- <sup>55</sup> Sohn-Rethel.
- <sup>56</sup> This is even though it also puts forward technological determinism, statements I deliberately left out.
- <sup>57</sup> Ravi Agarwal, 'E-Waste Law: New Paradigm or Business as Usual?', *Economic & Political Weekly*, vol. 47, no. 25, 2012, pp. 14–6.
- <sup>58</sup> Rana Dasgupta, *Capital: The Eruption of Delhi*, Penguin, London, 2014
- <sup>59</sup> Ministry of Environment, Forest and Climate Change (MoEFCC), *E-Waste (Management) Rules, 2015*, 2015, <<http://www.moef.nic.in/sites/default/files/vetted%20ewaste%20rule%202015.pdf>>.
- <sup>60</sup> Sadia Sohail, 'New E-waste Draft Rules Promise a Broader Scope', *Down to Earth*, 2015, <<http://www.downtoearth.org.in/blog/new-e-waste-draft-rules-promise-a-broader-scope-49513>>.
- <sup>61</sup> Ashish Chaturvedi, *Waste(d) Laws in India*, 2015, <<http://steps-centre.org/2015/blog/wasted-laws-in-india>>.
- <sup>62</sup> Partha Chatterjee, *The Politics of the Governed: Reflections on Popular Politics in Most of the World*, Columbia University Press, New York, 2004.
- <sup>63</sup> Thomas Birtchnell, 'Jugaad as Systemic Risk and Disruptive Innovation in India', *Contemporary South Asia*, vol. 19, no. 4, 2011, pp. 357–72.
- <sup>64</sup> Robert Neuwirth, *Stealth of Nations: The Global Rise of the Informal Economy*, Anchor, New York, 2012, p. 258.
- <sup>65</sup> Project Ara, 2015, <<http://www.projectara.com/faq/>>; Fairphone, 2015, <<https://www.fairphone.com/>>.
- <sup>66</sup> iFixit, *Repair Manifesto*, 2015, <<https://www.ifixit.com/Manifesto>>.

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