Digital afterlife: (Eco) civilizational politics of the site and the sight of e-waste in China

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Abstract

This article aims to examine the ongoing changes in 'green politics' in China by focusing on the instance of e-waste recycling and specifically, transformations in one given town, Guiyu. It is argued that the spontaneous stage of development in e-waste recycling in Guiyu has become the object of civilizational politics, which includes the formalization, centralization and spatial and visual evolution of the recycling site. Civilizational politics is conceptualized as an approach to adapting to the existing socio-technical conditions and the introduction of a new infrastructural regime, which is discursively framed as a civilized one: modern, environmentally friendly and socially beneficial. The 'informal' sector in e-waste recycling is the main target of civilizational politics, as it is associated with 'low-tech' and polluting technologies and small-scale enterprises powered by migrant labour. While the target of civilizational politics is upscaling via the creation of large, centralized, 'formal' facilities, the social and environmental sustainability of such a transition should be questioned.

Introduction

In March 2015,[1] a high-speed bullet train (*hexiehao*[2]) – the emblem of Chinese modern mobility and a hi-tech object of national pride – brought me to the small, sleepy station of Chaoyang, where I took an old and rusty public bus. An old bus connected to a high-speed train – there is some uneasy friction in this, but it is nothing new in China. I was heading towards a cluster of villages and towns that had gained worldwide notoriety and the unflattering status of the 'biggest e-waste dumping site in the world'. Guiyuzhen (or Guiyu) was one of these villages.

Guiyu, in Guangdong province, had a total population of 150,000 (2015), nearly half whom were rural migrants from neighbouring poorer provinces. From the 1990s, the town has grown to become a global e-waste recycling hub, with e-waste dismantling (*chaijie*) forming a major local trade and core economy. Recycling was considered the second official industry in Guiyu after agriculture,

[1] The data for the current study was collected in Guiyu in 2015.
[2] Literally, *harmony train*. Some of the dominant narratives, such as *hexie shehui* have been the subject of creative and ironic appropriation (see Nordin & Richaud 2014).

but since 2000 it had employed 75-80 per cent of the local population and in 2014 brought 78 billion renminbi (RMB) in revenue to the village. It also provided high salaries to the employed rural migrant workers (a salary of a worker involved in transporting e-waste from town to its circular economy industrial park was around 4,000 RMB or 400 euros). And while the locals and old timers held the more privileged positions of workshop supervisors and had more time to drink tea with the customers due to their accumulated and embedded social and familial networks, migrants were given the more hazardous and manual jobs (*jiagong, tiaojie*) of disassembling and sorting the electronic rubbish.

I walked through the tall piles of sorted plastic, past white sacks stretching along the streets; children were running and cycling between the piles of plastic as if they had been purposefully erected as part of a giant, monstrous, apocalyptic playground. The sacks were piled up in the courtyards and streets, blocking the entrances to apartment blocks. In the side streets, I scanned through some of the open sacks, several of which were full of plastic discards originating from routers that had at one time been used by a Portuguese telecom company ZON (see Fig.2). These were familiar to me, as we actually had an identical router at home in Lisbon; evidently a few hundred thousands of receivers had become obsolete after the merger of two companies in 2014 and were now being disposed of. But weren't these supposed to be 'banned' in China as imported e-waste according to the regulation of 2014? The router parts were just some of the artefacts I stumbled upon that led me to the question: how is such a scene possible, considering the ban on importing e-waste? A further question that arose later[3] was: considering the ecological civilization agenda and implemented state intervention, what has and has not changed in China?

All in all, Guiyu has been transforming rapidly – it is being transformed as this article is written. But transforming to what kind of a place and at what price? No doubt, the e-waste sector, which until very recently was a 'low-tech' domain of small family-based enterprises often run by rural residents, has fallen within the priority target range of the agenda-makers of 'ecological civilization'. Ecological civilization has been a top-down imaginary and discourse that was given a more solid political status once it had been adopted as a legal and social framework for new environmental regulations (Hansen & Liu 2018). In particular, it stressed the harmonization of economic development interests with environmental protection and green technologies. Indeed, it was proposed as a new vision of the future (Gare 2012) – an alternative standard of social development and human achievement – that China was to fulfil (and stand up for) as a new global environmental leader and a leader in eco and low-carbon innovations, including, among others, technological breakthroughs in resource recycling. The ecological civilization directive was characterized by encouraging

[3] I am grateful to the anonymous referees for suggestions and comments in improving this manuscript.

governance of below-the-radar and bottom-up innovations (Geall & Ely 2015). Indeed, eco-civilization is one of a series of civilizational slogans that have been proposed since Deng Xiaoping, with the only difference being that this time it has international implications (Oswald 2014). Clearly, the ecological civilization framework also has implications for domestic politics as it is setting ambitious goals for many industrial sectors and spheres of everyday life in China which are undergoing bumpy paradoxical 'ban and support' transformations. The eco-civilizational [4] politics in particular circumstances and indeed civilizational practices however, have not garnered scholars' attention.

In this article, I argue that some of the key processes of eco-civilizational politics in e-waste recycling are: centralization, formalization (largely by the automation of manual labour) and enlargement (support of a few large actors rather than a plethora of small enterprises or start-ups). This argument is supported by an analysis of other industrial sectors connected to green transitions in China which have already been affected by civilizational politics: the automotive and e-mobility sector (Tyfield & Zuev 2017; Zuev 2016), and urban transportation (Zuev et al. 2018). E-waste has remained one of the last strongholds of industrial 'informality', as it has largely been rooted in the family and small businesses that came to occupy the 'waste recycling business' niche first and were thus able to compete with the large state-supported e-waste collecting facilities that came much later with legislation promoting a circular economy in 2009 (Ely et al. 2012).

Fig. 1

Fig. 2

Eco-civilizational politics: The need for an anthropological lens

When I arrived in Guiyu in March 2015, it was no longer the severely polluted, hazardous 'waste village' with burning plastic, black rivers and children processing rubbish that had been depicted in the media (Tong et al. 2015) and non-governmental organization reports (Greenpeace 2005). The visible signs of toxic disassembly seemed to have disappeared from 'frontstage' (Goffman 1959) with the construction of a central disassembling facility (CDF). In what can be aptly described as an 'economy of appearances' (Tsing 2005), a clean-up spectacle was seemingly being undertaken, which had the potential to attract investment for a high-tech specialized smelter like those owned by Umicore, a transnational company from a developed country – often seen as a desired future among Chinese policymakers (Schulz 2015). In 2011, there were over 5,000 recycling

[4] David Tyfield is to be credited for insisting that it is *civilizational* rather than *civilizing* politics, as China is taking on the role of a global leader in environmental politics (see Zuev et al. 2018* this reference is missing from your bibliography*).

workshops in town (Recycling Today,2015). In 2015, as part of the clean-up campaign, several dozen of these recycling operations and treatments had been relocated to the CDF, while others had been made inaccessible and invisible (to anyone passing through Guiyu along the main road) and some had been regulated into non-existence.

Meanwhile, a simple stroll through the CDF could offer one a glimpse of the 'backstage': here, one could observe hundreds of sacks used for transporting e-waste components being washed with water, streaming down into the local pond and nearby agricultural areas. The period of removing the 'informal' sector from 'frontstage' lasted several years and the major clean-up campaign by 2018 meant that the CDF was fully operational and any workshops located outside it would be illegal and subject to fines. Clearly, Guiyu represented an undesirable, face-damaging locality for Guangdong province in the context of the dominant national discourse on pollution. It did not conform to the country's high-tech aspirations and breakthroughs in circular economy, and therefore, its appearance had to be transformed or rendered invisible. What one could observe in the village was its ongoing transformation into an exemplary, civilized place of clean production, with any visible signs of the 'pollute first, clean up later' mode of development being promptly removed.

In 2015, the CDF was still under construction and was a part of a larger and expanding circular economy industrial park. Its main objective was to serve as a centralized marketplace with on-site workshops and morning trading sessions. In a transition towards more visible recycling, local residents were incentivized to rent workshop spaces and store discarded circuit boards and other elements of former computers and electronic appliances for further disassembling. It also reminded one of the drive towards centralization and the attempt to divert 'informal' or rather family-based flows under one roof within a large concrete facility and, importantly, under the gaze of surveillance cameras, in order to give a serious, 'controlled' appearance to the place, which could still be easily accessed by an accidental non-Chinese foreigner. The large recycling facility nearby had a much more closed appearance, with a gate and security. The surveillance cameras placed by the official entrance, the greeting 'Welcome to Ecological Guiyu'[5] and the billboards displaying its planned architecture (Fig. 3) suggested that Guiyu, the long-time outcast, was meant to be an ad hoc demonstration project of civilizational politics; it was conceived as a would-be *civilized* site, designed to make hazardous waste recycling look like 'business-as-usual' in the global circuit of the trash economy.

Fig. 3

[5] The word *shengtai* (生态) – ecological, also comprises the expression ecological civilization (生态 文明).

At the start of 2015, some of the informal e-waste recyclers had indeed moved to the CDF, where they rented storage space and had workshops. Most of the facility, however, remained idle and some of the supervisors (most of them locals) sat around in the entrances to their workshops, complaining that they had to rent their workshops, but due to the ban on imports, had 'no goods coming' in to pay off the rent (Fieldwork interviews with e-waste traders in the CDF). However, despite the Stakhanovite construction of the circular economy park at the edge of the town, the 'informal' sector in town itself was very much alive and buzzing with activity, with trucks and tricycles constantly being loaded and unloaded. While the CDF dealt with the more hazardous and polluting practices of disassembling, the town centre still dealt with plastics, the material recalcitrance of which makes them 'emblematic of the economies of abundance and ecological destruction' (Gabrys et al. 2013). Although plastic is most visible in Guiyu (see Fig. 4), one could also, with due diligence, find more clandestine types of digital rubbish, such as lithium-ion batteries which could be mined for valuable metals such as cobalt.

Fig. 4

Still, most of the previously (pre-CDF) disassembling work that had been visible on the street became hidden behind the high gates of private houses, storage rooms, fences and family garages, with only some of them being temporarily visible and accessible to an outsider. As long as one did not have a photojournalist agenda, it was possible to ask around for a specific type of waste that was being recycled in Guiyu and access would be provided. Apparently, e-waste was not an overly sensitive issue for the residents – as long as it was not photographed, but viewed as an everyday part of their working life. After a few minutes and several questions, my interest in battery recycling was satisfied and I was whizzed off on a scooter to a large storage unit in town. I was told by my acquaintance that the storage space was owned by his relative who was 'the only one in town who recycled batteries'. The unit was enormous, but empty. I asked if they recycled batteries at all and what they recycled them for.

> **Interviewee**: Good batteries, authentic ones, laptop batteries will give a good price, and it is better if the batteries are of the same type, it is easier to process … one ton can bring about 100 kg of cobalt.
>
> **DZ**: And how much can you process?
>
> **Interviewee**: If I don't have enough space, there will be a friend or another relative who will have space. Amount is not the problem, the quality of waste – that is important. (Informant, in his home-based storage unit outside the CDF, March 2015).

The e-waste was not indiscriminate wholesale trade, but highly specialized, with expert knowledge specific to the type of waste to be recycled. As the quotations above and below show, both space and specific knowledge could be provided through networks. Besides simple sorting machines, there was no automation, but there was nothing short of 'small scale', implying the argument that official e-waste discourse and formal sector tends to blame the 'informal' sector for 'unfair competition' just being more flexible (Schulz, 2015). The following quote also suggests that the recyclers, despite being narrowly specialized as 'recycling artisans', were flexible, not only in terms of their repair and reuse capacities, but also in terms of their willingness to adopt new recycling practices.

> We specialize on motherboards, but if somebody offers something else, we can check if we can handle it; if we understand how to deal with it, we do it – if not, we don't take it. So there is really no limitation. (Informant, overseeing the workshop in CDF, March 2015).

In 2015, e-waste recycling was still largely a familial business. Extended families were involved in the trade and the scale of business relied on the social network which, in turn, enabled access to infrastructure such as storage or specific knowledge of disassembly. Although the storage units were immense, the owners still spoke about insufficient space and insufficient amounts of goods to occupy the space. Indeed, this could have been due to the ongoing formalization process, whereby priority was being given to the large state-supported entities for receiving the waste. The flow of e-waste thus reverted from the informal to the formal waste recyclers and the informal storage units stayed empty.

Yet, while some of the largest flows of e-waste were generated nationally (Wang et al. 2013), some smuggling still took place, with e-waste being transported specifically via the ports of Tianjin and (even more easily) via Hong Kong due to legal loopholes – some of the interviewees mentioned that they often travelled to meet customers themselves in Tianjin and Hong Kong, combining this with leisure travel (Fieldwork interviews 2015). As my discovery of the Portuguese routers suggests, the official ban on smuggling waste inside the country was easily dodged. And if this was the case with low-priced plastics from Portugal, then there were clearly paths open for much more precious high-end smartphones and computers. Continuing clandestine flows of e-waste and the recent ban on plastics in China (*The Economist* 2018) emphasize the point made by Lepawsky and McNabb (2010) about ever-shifting geographies of e-waste and the international division of labour that is to large extent defined by the constant reconfiguration of the e-waste regime in China.

Evidently, the import bans – even if aimed at improving the situation domestically – were hard to enforce, due to the difficulty of controlling the clandestine operations, the involvement of criminal organizations as facilitators (Geeraerts et al. 2015), the high profit of e-waste imports and the high dependency of local livelihoods on the industry. The goal to centralize the

informal entrepreneurial activity of 'guerrilla' e-waste recyclers and turn them into a 'regular army' of recyclers (Li et al. 2011) meant wiping out the resistance or bringing them under control and under one roof, spatially and visually – literally under one surveillance circuit. Apparently, the visibility of operations via surveillance was one of the modern techniques used to control the civilizational project. Surveillance cameras installed along the perimeter of the CDF were not functioning in 2015; however, the surveillance was more instrumental for the control of workers by supervisors in the workshops, who could check if the workers were being diligent enough.

The slogans on the fence of the construction site and on the road to the CDF exhibited warnings and promises to the population that 'environmental protection will be enforced with an iron hand', 'illegal transportation of e-waste over three tons would be strictly punished' and 'reporting on the illegal processing violators encouraged and awarded'. Obviously, (eco)civilizational politics here was not only realized via economic stimuli, but also through promoting the right behaviour and directing this towards a higher quality, *huanbao* (eco-friendly) conduct via mutual surveillance. But one might wonder why the recycling of e-waste over three tons should be a punishable offence, yet the transportation of under three tons should remain permissible: to allow small enterprises to still have a share, but not to impede the collection and scaling up of the large recycling companies. As the state-supported entities are seen as more desirable and modern high-tech actors. Importantly and implicitly the slogans suggested a transformation of *suzhi* or human quality, very much related to ecological civilization (Oswald 2014) and its popular rendering as *huanbao* (Zuev 2018), which was highly relevant to Guiyu residents who were undergoing domestication to the new imperatives of ecological civilization.

(Un)surprisingly, in the CDF – the conceived locus for the 'civilized' formalization of recycling – the actual practices of disassembling were not that different from those outside the industrial park. The heaps of e-waste outside the CDF 'workshop' were sorted manually (see Fig. 5), often using rice sieves, and processors were cut out with electric saws, with only facemasks used for protection and cheap ventilators fanning away the toxic dust. And while it was easy to observe and regulate the informal practices in Guiyu, the sustainability of institutionalized e-waste recycling practices behind the closed doors of securitized facilities will remain a big question and subject to access in the future.

Fig. 5. Formalization of e-waste treatment outpaces actual practices of disassembling.

In 2015, the alleged plans for a circular economy park as a civilizing project were perceived by local residents as an excuse for the local government to earn money from land sales with no further enforcement of environmental protection

(Kirby & Lora-Wainwright 2015). However, initially, the land occupied by the park was a piece of agricultural property occupied by greenhouses and thus the construction of the CDF could be simply justified by the local government as a means of seeking higher profit from rents rather than promoting rural reconstruction and higher vegetable yields. Centralization, however, played in the hand of civilizational politics, was ultimately aimed at spatial control or the 'herding' and domestication of the workers and their supervisors. Re-spatialization of the informal workshops and the creation of a physical infrastructure in a controlled environment thus became one of the key practices constituting civilizational politics. Controlling the visibility of work has become a parallel process, as the practices of disassembling become subject to surveillance by locally placed supervisors and CCTV cameras, effectively reducing the invisibility of the largely home-based informal sector.

In 2015 Guiyu represented a transitive site, consisting of work stations with multiple regimes of visibility and formality, some of which are open street workshops, others are centralized workshops with video surveillance, while many more storage and trade bargains are made behind the closed garage gates, known only to those involved.[6] The 'civilized' and modern construction site of e-waste recycling co-exists with a booming informal and rather autonomous economic space and infrastructure, despite the attempts of the authorities to place the local economy under control and impose a more civilized vision of modern and planned recycling as a part of a circular economy (see Fig.3) in accordance with the central rhetoric on ecological civilization.

Clean futures: From dirty waste village to an exemplary civilized circular economy park.

The regulation of e-waste recycling in Guiyu is one of the crucial windows through which one can examine civilizational politics in China in action. It manifests the transforming power relations between the authorities, individual entrepreneurs and workers as these interrelate with the shifting meanings of waste and 'waste regimes' (Gilles 2007) – a concept utilized by Schulz to explore how e-waste *is portrayed* in China (Schulz 2005). It is also directly related to the imperatives of ecological civilization, a rhetoric that is gaining policy substance and which aims at strengthening the systems for controlling the usage of natural resources and resource usage compensation (CCP 2013). Despite the 'imposed formalization' (Kirby & Lora-Wainwright 2015) accompanying processes of regulation, centralization and the enforcement of import bans are key to the civilizational material politics of e-waste. However, the enforced ban on imports in China has caused a rerouting of e-waste flows to less-controlled areas in Asia. New e-waste recycling hubs have emerged – such as Thailand (Stanway 2018) –

[6] As of 2015.

which, rather than contributing to a solution for the e-waste recycling problem, have contributed to the clandestine and secretive activity of 'offshoring' (Urry 2014) among other more flexible and less technologically advanced waste regimes. The civilizing of the actual practices of disassembling and recycling and the vision of e-waste as an object still need to undergo deep changes in China. As observed in relation to the CDF, the centralization imperative has been far outpacing any progress made in actual disassembling practices, which are largely manual and hazardous for the workers (see Fig. 5).

What one can observe in Guiyu is the form of an indigenous techno-nationalist economy of appearances, or rather a *'*green economy of face', with the state favouring large-scale and global capital – in this case, represented by 'formal' recycling companies, which are not necessarily innovative or green, but which strive to have the appearance of Western high-technology companies. The exclusivity logic of selecting subjects and innovations that qualify for state support has been explored in Tyfield et al. (2014) and the e-waste recycling sector is another instance of how economic sustainability is favoured over its social – and to large extent environmental – aspects. Small enterprises, although they operate in parallel markets to the formal recyclers (Inverardi-Ferri 2017), have been penalized for their very ability to extract more value from discarded appliances and their adherence to the principle of traditional frugality that has made the recycling process more high-grained, thus resulting in greater 'circularity'. Meanwhile, large-scale formal recyclers – who still lack complex equipment and recycle via multiple techniques that neither qualify as green nor circular (Schulz 2015) – are able to gain state support, while demonizing the 'informal' sector and demanding it being civilized.

The e-waste recycling sector and its ongoing transformation is far from complete, even though Guiyu has been largely cleaned up and turned into an exemplary case of positive transformation – no doubt, adding extra social credit to the actors in provincial civilizational politics. Nevertheless, big questions remain: to what extent will the large state-supported projects of recycling be sustainable? Is there any place at all for the smaller enterprises that have engaged in e-waste trade to be reorganized in a more socially sustainable way instead of being simply wiped out? And finally, how is waste being constructed as an object of civilizational politics and what is the feedback loop between the citizens and the government in the reconfiguration of the waste regime in China? Ultimately, the everyday politics of e-waste in China (not simply recycling, formalization or waste management policies) still presents a completely uncharted terrain: what are the everyday social practices of discarding and reusing electronics and how are these practices related to the processes of hidden resistance and empowerment?

The ongoing reconfiguration of the e-waste regime is key to understanding the Chinese neo-techno nationalism agenda (Shim & Shin 2016), with waste

acquiring high political valence in the Chinese eco-civilizational project. This, in turn, warrants special attention, as the domains to be civilized (via centralization, enlargement and formalization) constantly emerge. The intervention of the state in the 'informal' or grey sector of e-waste recycling and its gradual adaptation, regulation and civilization with a toolkit of an 'iron hand', soft discursive persuasion and infrastructural improvements, demonstrates the will of state authorities to experiment in diverse fields of green innovation and transition management. The role of the state in supporting environmental niches in transportation and e-waste recycling is yet another sign that China is not only seeking to play an active role as a civilizing agent in domestic environmental politics, but is ready to export its acquired experience in 'harmonizing' commercial and environmental interests as well as to expose its experience and power in "civilizing" the informal sector.

Please correct Footnote 5:

5. The word *shengtai* (生态) – ecological, also comprises the expression ecological civilization (生态 文明).

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