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**Abstract**

Communities across China are now being demanded by municipalities to sort their own waste. This chapter develops an understanding for this recent wave of community reimagination by tracing the changing relationship between the state, society and urban waste. It sees the reimagination as a part of the state's effort to redraw the boundary of its grand developmental vision 'ecological civilization', incorporating recycling into the vision and yet at the same time eliminating the urban informality that waste-sorting, trade and processing have long been embedded in. The chapter points out that the boundary-redrawing has been driven primarily by middle-class urban residents' opposition against the vision's promotion of waste-to-energy incineration. In addition, it puts forth the observation that the elimination of informal recycling networks has made ordinary residents in cities more alienated from the waste that they produce at home.

**Keywords**: Communities; compulsory waste-sorting; ecological civilization; anti-incineration activism; informal recycling network.

## Introduction

This chapter interrogates China's evolving urban environmental governance by looking at sustainability-focused projects taking place at the lowest level of urban governance institution in cities, which is the 'community' (*she qu*).[1] It focuses on the so-called 'compulsory waste-sorting' programs that have recently started to flourish after the central government declared, in the summer of 2019, that China had now entered the "era of forced trash sorting." These are all municipality programs, being carried out with the stated aim to ensure that all household waste would be sorted—according to state-imposed four classifications of recyclables, hazardous waste, wet trash (food waste), and dry trash (other household waste)—before it leaves the gate of residential compounds. These programs signify a profound re-imagination of the 'community' by the state. While the state had previously seen 'community' as a tool to disseminate policy information and to safeguard social stability, it now gives it a new role to play: as local guardians of environmental sustainability. This chapter examines how this community reimagination came to being, and how it is shaping the social life of trash in China.

Just like many other grand modernist developmental visions, 'ecological civilization' (*shengtai wenming*) has faced contestations and gone through modifications. The chapter argues that these community-based 'compulsory waste-sorting' programs are a part of the state's effort to redefine the boundary of 'ecological civilization', trying to incorporate recycling into the vision and yet, at the same time, eliminating the urban informality that recycling practices have become embedded within throughout the past 30 years of economic reform. The first version of 'ecological civilization'—developed by the former Hu Jintao administration in 2007—promoted waste-to-energy (WtE) incineration as the single solution for the handling of the urban waste. The idea was fiercely criticized and opposed by middle class residents in cities (particularly those who were living in proximity to the designated incineration sites) and environmental NGOs, who were concerned about the potential harms to public health from dioxin emission. In the years that followed, they built the solid case that waste incineration would not be safe unless it is predicated upon a comprehensive system of waste-sorting. Awkwardly enough, in this nation-wide controversy over incineration that last for almost a decade, few discussions, if any, touched upon the country's thriving and globally competitive informal network of recycling which was recovering a tremendous amount of waste of both domestic and foreign origins. In response to the anti-incineration movement, the second version of 'ecological civilization'—developed by the current Xi Jinping Administration—entails the vision of a technology mediated recycling industry that is going to be nurtured and controlled by the state through infrastructure investments. This new vision has been followed by, first, a series of brutal attacks on the country's informal recycling network: ban on foreign trash import, crackdown of village recycling enterprises, and forced closure of recycling marketplaces; and second, the rolling out of the compulsory waste sorting programs that would ensure the new industry's access to China's trash.

[1] As Bray (2006) and Ren (2013) have both pointed out, the term 'community' has a very specific, government-defined meaning in China. It was introduced by the state in the mid-1990s amidst the SOE reforms as the basic unit of urban social, political, and administrative organization. It was meant to replace the 'street offices' and 'resident committees' that were the two lowest levels of urban governance under socialism. According to the latest official data published in 2021, there are currently 113,089 communities in China (National Bureau of Statistics of China: https://data.stats.gov.cn/).

**The Government Now Wants Your Trash**

Since Shanghai announced to implement city-wide compulsory waste-sorting in the summer of 2019, 237 out of a total of 297 Chinese municipalities have followed suit, demanding communities to sort its own trash.[2] For the majority of ordinary urban residents, what had come next was a series of subtle changes that, in retrospect, could be described as uneventful. There was, first, the construction of waste-sorting stations on one's neighborhood compound (Figure 1). These are usually 1-story simple structures which house a collection of large-size waste bins painted with different colors, with each color designating a waste classification. One can also find information boards on the wall of these structures which teach people which material belongs to what classification. These community waste-sorting stations often have restricted hours of access: the ones that are in my neighborhood compound in Suzhou would open only twice a day, during 7-9am in the morning and 6-8pm in the evening. The second change is the disappearance of original waste collection bins that one could normally find around a building's entrances. Residents, therefore, now need to go to the newly constructed waste-sorting stations, during the designated hours, to dispose their trash. The third change is that now, during designated opening hours, there will be waste-sorting personnel8 arrive at the waste-sorting stations. These people would sort the disposed trash the second time, making sure that each item ends up in the correct bin. I used the term 'subtle' to describe these changes because they have not altered residents' relationship with their trash in any significant way. Those who did not have the habit to sort their trash at home could just keep their way of dealing with the trash as it was. For many, since there will be volunteers coming to waste-sorting stations to help sort the trash, there is really no point to start sorting trash at home.

The Chinese state's seemly growing interest in waste-sorting is peculiar if we consider the series of cruel attacks that it waged in the past decade against the country's informal networks of recycling. Since the start of the economic reform, the government's enthusiastic pursuit of globalization and urban modernity have given rise to globally competitive informal networks of recycling that stretch from urban centers to remote countryside (Goldstein, 2021; Hu and Zhang, 2016; Tong and Tao, 2015; Wang *et. al.*, 2021). At the center of these network are waste-processing villages—mostly located in hard-to-reach rural areas—which transform rescued waste materials from both domestic and foreign origins into industrial inputs. The two most well-known examples were Wenan County in Hebei Province, which processed plastic materials of all kinds sent there from Beijing, the United States, and western European countries (Figure 2); and Guiyu County in Guangdong, once known as the world's capital of electronic waste. Beneath these premium centers of waste processing are the recycling marketplaces, often located in cities' fringe areas (Figure 3). In these marketplaces, waste traders—the majority of them are rural migrants—purchased materials from the city in bulk, sorted them, and then sold the materials to waste-processing villages such as Wenan. Lastly, there are the recyclers and scavengers, who collect trash from residential neighborhoods and commercial establishments in cities and sell the materials to the recycling marketplaces. In the past decade, governments in China had been witnessed to carry out efforts to eliminate these informal recycling networks. In the summer of 2011, the Wenan County Government, in the name of environmental protection, carried out a county-wide

[2] "237 municipalities have started compulsory waste-sorting, but how effective is it?", Xinhua, January 2, 2020 (http://www.xinhuanet.com/politics/2020-01/02/c_1125416094.htm).

crackdown on the waste processing businesses. In 2016, the municipal government of Beijing closed and demolished the country's largest recycling marketplace: the Dongxiaokou Recycling Marketplace. In 2018 the central government banned all imports of 'foreign trash', leading to months of chaos in global waste trade. In fact, municipalities' compulsory waste-sorting programs could be better understood as the Chinese state's last strike on the informal recycling networks. With the location of garbage disposal in neighborhoods now being centralized to the 'community waste-sorting stations', which are guarded by community volunteers, those at the bottom of the informal network—recyclers and scavengers—no longer have the access to trash. Those recycling villages in the countryside had previously lost its access of foreign trash because of the 2018 ban on waste imports, and now they could not get materials from cities even in their own country. Few of them could have possibly anticipated that, in a time when 'ecology' and 'sustainability' are at the center of governments' developmental visions, making a living through recycling would become so unbearably difficult.

[Insert Figure 1 around here]

[Insert Figure 2 around here]

[Insert Figure 3 around here]

**Waste-to-Energy Incineration, Middle-class Zero-waste Community Experiments, and the Birth of Ecological Civilization 2.0**

One of the landmark events in the short history of global environmental governance was China's declaration in 2007 that it would now tilter its economic and social developmental strategies toward the ultimate goal of realizing 'ecological civilization'. For the first time, as many commentators have praised, a major world economy made itself committed to making green technology the engine of its future growth. While the vision of ecological civilization is often described as something forward-looking, holistic, and grandeur, in reality—if we examine it from the view point of municipal waste management—it had been a tension-provoking developmental vision that the Chinese leadership had to constantly modify in order to manage the tension. The ecological civilization that we are seeing today—the one that shows much hostility toward the informal recycling networks as shown in the previous section—is in fact the product of a modification. The modification was carried out, as I will demonstrate in this section, in order to respond to demands by the middle-class urban residents, who had relentlessly scrutinized the vision's proposal to handle urban waste through waste-to-energy (WtE) incineration.

The original version of ecological civilization promoted WtE incineration as the method for waste management. Shortly after the introduction of ecological civilization, the central government published its first National Climate Change Program (NCCP) in which it described WtE incineration as a 'measure of green-house gas (GHG) mitigation' and vowed to promote the technology's the 'development, dissemination and localization' in China.[3] Soon after, the nation's Municipal Solid Waste (MSW) Treatment Five-Year Plans started to set regional and national

[3] See in particular pages 30 and 46-47. The NCCP is accessible online (at http://en.ndrc.gov.cn/newsrelease/200706/P020070604561191006823.pdf).

incineration targets, which propelled local governments to adopt the technology.[4] In 2009, government took one step further, classifying incineration as a source of 'renewable energy' in law, and thus entitling incinerator operators to tax rebates and subsidies for every metric ton of waste burned and every unit of electricity generated.[5] The central government's promotion of WtE incineration has led to a wave of incinerator construction across the country, with 154 such facilities being built between 2007 and 2016 (in comparison, China commissioned only 66 incinerators between 1998 and 2007).[6] The country's daily incineration capacity (measured by metric tons/per day) had as a result nearly quintupled between 2007 and 2015, from 44,682 to 219,080.[7]

When developing the grand vision of ecological civilization, Chinese officials probably did not anticipate that the promotion of WtE incineration would eventually lock themselves up in a decade-long difficult battle with the middle-class urban residents, whose close scrutiny of the technology had challenged the very basic assumption that environmental sustainability is at the center of ecological civilization. The rapidly expanding waste incineration capacity since the mid-2000s has provoked protests and opposition campaigns across the country, mostly by local communities in fringe areas outside cities where such projects were sited. Several dozen 'mass incidents' involving mostly middle-class homeowners in communities opposed to the construction of incinerators have been recorded in a number of Chinese cities in the late 2000s.[8] Typically, the local communities' primary concern has been over the public health impact of incineration—particularly the high risk of dioxin emissions. Although officials and industry representatives repeatedly assured the public that incinerator emissions can be controlled within 'safe' levels, often the perception of health risks has been enough to mobilize public demonstrations against incinerator projects. Many residents interviewed within Beijing simply did not believe that local governments could be trusted to operate incinerators. An anti- incineration campaigner from Beijing's Liulitun neighborhood, for example, asked 'If the incinerator will be safe, why didn't they propose to build it in the city center?'

[4] The National MSW Treatment Five-Year Plans are outlines of objectives and goals for building the country's MSW treatment infrastructure. They are developed by China's State Council and released every five years.

[5] Renewable Energy Law of the People's Republic of China. Available online (at http://english.www.gov.cn/archive/laws_regulations/2014/08/23/content_281474983043598.htm).

[6] Information from National Data is available at http://data.stats.gov.cn/ (accessed June 29 2022). China commissioned its first incinerator in 1988, in Shenzhen.

[7] Many have pointed to the lucrative revenue that local governments typically receive through such projects as being a motivating factor. In "The chain of profits behind China's incineration" (2010), the Hong Kong-based news magazine *Asia Weekly* explained that since incineration equipment is imported and its installation needs to be sanctioned by local government, there are substantial profits for local Chinese officials to gain, often personally, from these incinerator projects. Yu (2012) also pointed out that, with an average of 8 to 12 years to earn back the cost of building an incinerator, along with local build/operate/transfer (BOT) or build/own/operate (BOO) licensing that is normally granted for 25 to 30 years, local governments can expect 13 to 22 years of comfortable profits.

[8] According to *Asia Weekly* (2010), in 2009 alone 9 anti-incineration protests occurred in 7 different cities.

Since the mid-2000s, the government has had three major rounds of battle with the middle-class residents in cities over incineration; each round is characterized by a distinctive type of allegation that the government had responded in a unique way.[9] During the first round of battles—which took place in the late 2000s—residents framed their grievances and mobilized communities around siting issues. Their oppositions against incineration were primarily based on mistakes made or some forms of misconduct found in the site selection processes which the local government was responsible for. Their overwhelming objective at the time was to prevent an incinerator from being built locally, and these campaigns seldom raised or engaged in wider debates over urban environmental governance such as the reform of a city's MSW management system. The governments responded to such NIMBY-styled oppositions by articulating the crises brought by the fast accumulation of urban waste. Municipal officials reasoned that, first, the city's landfill sites were either full or close to capacity; and second, incineration is more attractive than landfilling because it requires fewer land resources, which have become increasingly scarce due to rapid urbanization. The underlying tone of these reasonings was that when the society as a whole is facing a war against garbage, residents should see the bigger picture and should not be selfish.

The second round of battle was characterized by policy-advocacy styled anti-incineration campaigns, which demanded a re-imagination of the MSW management system. At the center of the battle were three anti-incineration campaigns organized by well-educated and affluent communities: Liulitun in Beijing's Haidian District, Aobei in Beijing's Changping District, and Panyu in Guangzhou. Residents there organized study groups and shared their learning with each other, and they developed a policy-centered critique, which said that municipal governments in China have mistakenly seen incineration simply as a 'method' of waste management. Drawing in examples from Japan and western European countries, they argued that more advanced countries understand incineration as the 'final step' in a comprehensive and integrated waste management process predicted upon waste reduction and waste-sorting. Without waste-sorting—separating food waste (wet trash) and hazardous waste from others—they concluded, dioxin emission would be inevitable. In order to prove that municipal recycling can be achieved in China, the three campaigns had respectively further carried out their own community-based waste-sorting experimental projects. In 2009, residents from Beijing's Liulitun started to collaborate with Friends of Nature (China's largest environmental NGO) on a project called "Zero-waste Neighborhood". The project involved regular monthly 3R (reduce, recycle and reuse) educational campaigns during which residents could win gift rewards for bringing in recyclable items. In the southern city of Guangzhou, residents in Panyu carried out a more confrontational project called "Green Family." The project asked participating households to donate 'incineration unsafe' waste items such as used batteries and fluorescent light tubes, and the organizers from time to time would dump the collected items in front of the Guangzhou City Hall as a way of public demonstration. The most well-known experiment of all three, however, was the 'Green House' project implemented by residents in Beijing's Aobei area. The project was initiated and financed by a wealthy, charismatic former lawyer named Huang Xiaoshan. The project involves the construction of a one-floor recycling workstation building which was equipped with a dehydration machine (for processing food waste) and a large waste-sorting table, among many other features (Figure 4).

[9] The analysis here of the battle between the Chinese state and middle-class urban residents was informed and benefitted in part by the works of Johnson (2013), Lang and Xu (2013), and Wong (2016), which provided rich and detailed documentations.

Huang Xiaoshan claimed that the workstation could help communities to streamline the recycling process, and that this model can be replicated to all communities across China. The Green arguably has become the prototype of the 'waste-sorting stations' that we are seeing in communities nowadays.

[Insert Figure 4 around here]

By moving beyond siting issues and focusing instead on policy-advocacy, urban residents had now proven that they were not selfish. The governments, in turn, responded to the policy-advocacy styled oppositions by carrying out their own community waste-sorting experimental programs. In 2010, Beijing started to implement a such program called "Neighborhood Waste-sorting Pilot Project" on 600 selected 'pilot neighborhoods.' The pilot neighborhoods were provided with two different colors of waste bins to help separate recyclables from unrecyclable materials. The government also demanded communities to send volunteers to the pilot neighborhoods to teach and assist waste-sorting. Shanghai and Guangzhou copied Beijing's model and started their own programs in 2011. Shanghai's pilot program began with 1,080 neighborhoods, and Guangzhou's program started with 28 neighborhoods. Waste-sorting was now formally an agenda in municipalities' environmental governance.

In the third round of battles, the focus was on the governments' pilot programs and the debates were around the culture of governance. With municipalities now showing a willingness to incorporate waste-sorting into the municipal waste management system, urban residents started to move onto the more difficult questions of: Has the government really become serious about waste reduction and sorting? Or is the pilot program just a superficial, face-saving political gesture? These are the questions that one would ask when reading through Friends of Nature's "Repot on Waste-sorting Pilot Neighborhoods in Beijing", which was published annually between 2011 and 2016. Drawing on observations made by the organization's volunteers on Beijing's pilot neighborhoods, these reports often criticized that the government had not put enough efforts to integrate waste-sorting into the municipal waste management system. An observation that had been repeatedly highlighted in the annual report was that the trucks that came to pick up the garbage often did not have separate spaces for recyclables and unrecyclable materials. What the residents often found, then, was that the recyclables that they spent so much time on rescuing would in the end being mixed together again with the unrecyclable materials. Such peculiar situations made many to wonder: Does Beijing has the capacity to process the recyclables? Another environmental organization that has also raised questions about the culture of governance was the Shanghai-based Aifen Environmental Protection Center. The organization carried out an experiment in Shanghai called "Community Waste-sorting Project", which highlighted a waste-sorting station equipped with a hand-wash stand. When elaborating the idea, the organization says that "When it comes to community waste-sorting, more things need to be done other than just providing residents with waste bins. We need to carefully think about ways to help cultivate the habit of waste-sorting among residents. A good starting point would be to actively make waste-sorting a more comfortable experience."

Urban residents and environmental NGOs did not wait for long to see responses from the state, and this time the response came directly from the highest level of the government. In the September of 2015, the State Council released a policy document titled "Integrated Reform Plan

for Promoting Ecological Civilization." This document listed 'compulsory waste-sorting' as one of the steps to be taken for the 'improvement of the resource recycling system.' Recycling was now enshrined in the vision of ecological civilization. The years that followed witnessed what historian Joshua Goldstein (2021) described as the most significant transformation of the country's solid waste management system since the founding of the PR China. On the one hand, there was the 'merge' of the municipal solid waste management (managed by the local sanitary bureaucracy) and recycling (overseen by the Commerce Ministry since 1949). This would, ideally, benefit the development of both incineration and the circular economy. On the other hand, vast infrastructure investment is now in place for municipal recycling. The 13th Five-Year Plan (2016-2020) put 252 billion RMB into solid waste infrastructure, 70 billions of which went to public-private partnerships with corporate investors to provide residential and commercial waste-sorting and collection, and waste treatment and processing facilities. Alongside this draconic upgrade of the solid waste management system was top Chinese leaders' promotion of waste-sorting. In policy documents and speeches, Xi Jinping started to stress the importance of waste-sorting. In an animated rap video called *Six Things Xi Jinping Cares About*, which was produced by the state media Xinhua, waste-sorting was described as one among the most important matters that Xi Jinping have kept in his heart (the other five being clean energy, food safety, elderly care, affordable housing, and urban-rural integration).[10] Waste-sorting is now national-level economic and social development goal.

It is not difficult to understand why the governments have now become increasingly hostile toward the informal networks of recycling. To realize the dream of municipally-planned waste recycling, the state needs to take control over the waste materials, which were in the hands of waste processors, traders, recyclers and scavengers. The ban of 'foreign trash', the crackdown of processing enterprises in remote villages, the demolition of recycling marketplaces, and the implementation of compulsory waste-sorting in communities were all steps toward the state's full control of the trash. With China's trash now under the control of the state, governments can finally ask urban residents to go along with their incineration proposals.[11]

**Ruptured Sustainability**

On July 11, 2011, the day when Huang Xiaoshan's "Green House" officially opened, I was one among the lucky few who were invited over for a guided tour of the experiment; others in the group of visitors included reporters from China Youth Daily and New Beijing News as well as directors and volunteers from environmental organizations based in Beijing including Friends of Nature, Green Beagles, and Beijing Global Village. The project was built on a piece of empty lot in a high-end, California-themed gated neighborhood called "Napa Valley", which was in Beijing's suburban district of Changping (where Huang Xiaoshan was living). On our bus ride to the neighborhood, reporters were tossing around names of the celebrities who were also living in the neighborhood and joking that we should ask for an autograph if we bump into one. In that summer, I was in Beijing doing field research for my doctoral dissertation, and most of my time

[10] The video is accessible here: http://www.xinhuanet.com//video/2017-03/08/c_129504253.htm

[11] The number of incinerators in China was more than doubled in the recent years, from 220 in 2015 to 463 in 2020. During this period, China's incineration capacity expanded 159%, from 219,080 metric tons per day to 567,804 (data retrieved from http://data.stats.gov.cn/, on July 4, 2022).

had been spent on talking to traders in Dongxiaokou Recycling Marketplace, which had a rather messy and disordered environment. And so when the bus passed through the neighborhood gate of Napa Valley and rows of luxurious mansion- and villa-type single-family houses started to appear from the bus's window, I was struck by a *déjà vu* that I was back in California (where I was doing my PhD at the time). Probably because I could not get rid of this feeling of a sharp contrast between the messy recycling marketplaces and the high-end residential development, during the tour I asked the guide (who was a volunteer from an E-NGO that had been assisting Huang Xiaoshan in the planning and operation of the Green House) a question which, in retrospect, sounded a bit intimidating: what exactly is the difference between the things that you guys are proposing here and the waste-sorting that migrant waste traders and recyclers have been doing for the city all along in the past decades? The guide answered me: "Those migrants are doing waste-sorting for the money. They don't care about environmental sustainability."

Let me put aside here the obvious irony attached to the answer (which is that those who own luxurious homes and lifestyles in Beijing were thinking that rural migrants should care less about money) and use the answer instead as a point of reference to further reflect upon the evolving social life of trash in China. More specifically, I would like to consider the question of: *To what extent China's recent draconic reform of its waste management system—which compulsory waste-sorting is a part of—has made environmental sustainability more of a concern for people when they deal with their trash?* Here I would like to use the term 'ruptured sustainability' to conceptualize what I have been seeing since the start of the compulsory waste-sorting in 2019: What have been gone with the informal networks of recycling was the situated knowledge accumulated by waste processors, traders, recyclers and scavengers that, when being put together, was conducive to environmental sustainability. Because recyclers and scavengers are now no longer a part of the city, ordinary urban residents have lost sights on the value of the waste materials that they produce at home. For them, a trash has now become just a trash. At their comfortable homes, it no longer matters to make distinction between papers, plastics, batteries, glasses; they are all just trash.

Waste processors, traders in recycling marketplaces, and recyclers and scavengers, as a matter of fact, do value money over environmental sustainability. Meanwhile, they also possessed the know-hows and knowledges that were critical for the movement of waste materials from consumers to manufacturers and factories who were in need of the materials. Without them, a tremendous amount of waste produced by cities would have overwhelmed landfills. Enterprises in remote waste-processing villages were the center of global waste trade because they knew what materials Chinese manufacturers and factories were in need and how to transform waste into industrial inputs. (Figure 5) During a trip to Wenan (by then northern China's largest waste-processing center) in the summer of 2011, I was in awe by the fact that villagers there could easily distinguish different grades of plastics simply through touching the material to feel its texture. Villagers there were also knowledgeable about the different regulatory regimes that shape the world of plastics. They knew, for example, that an empty detergent container from the US would need to be treated differently from a one that is from, say, France because the US and EU impose different regulations on the manufacturing of plastic containers. Waste traders in recycling marketplaces, on the other hand, were experts of China's rural geography. Those whom I met in Dongxiaokou Recycling Marketplaces knew which villages in Hebei could process what kind of waste. They knew that they should buy less plastics in April and May because during the two

months villagers in Wenan would be quite busy on the farms. The traders were also knowledgeable about developments in global waste trade. One enduring memory that I have about Dongxiaokou was a meeting with a trader specialized in the recycling of fire-proof foamboards rescued from building demolition sites. When I entered his humble workshop in Dongxiaokou, I noticed that his internet browser was on an English website that was giving commodity index prices. He explained to me that such information could help him to determine how much to buy and to sell and at what prices. Lastly, ordinary residents in cities could often get a rough sense about what was happening in the world of waste trades through interactions with recyclers who often roamed around cities in tricycles visiting neighborhood after neighborhood. Recyclers purchased trash from residents and commercial establishment in cities and sold the materials to traders in marketplaces. The business had made many of them observant to the rhythm of the city and urban development. They knew, for example, that the best bargains for used furniture and home appliances can be found in those neighborhoods targeted by the government for relocation, because residents there would be moving soon. They also would often be the ones who know what kind of paper were being sought for at good prices. Through their situated knowledge about the city and its trash, ordinary urban residents were able to see the changing value of the trash that they produce at home.

The urban middle-class' anti-incineration campaigns that had influenced today's waste management system reform had in fact turned a blind eye on the values that the informal recycling networks had brought to the Chinese cities. In their 2009 research report "Life and Death Decision of the Environment of Chinese Cities" (2009), residents of Aobei wrote:

> [*China*] *does not have policy and laws on waste-sorting and collection, and has not invested enough in waste sorting, collection, and processing. Waste-sorting has not been achieved* […] *The waste treatment methods and institutions that Beijing have today are incapable of rescuing recyclables from garbage. Given this situation, expanding incineration capacity would only put a tremendous amount of resources to waste.* (pp. 46-47)

In stating that waste-sorting was something that had yet been achieved in China, the report denied the existence of informal recycling networks. The denial was rather strange because at the time it was not difficult to spot recyclers on the street of big cities such as Beijing and Shanghai. Perhaps, those middle-class urban residents who were organizing the anti-incineration campaigns had never wanted migrant recyclers and traders to be in their zero-waste, zero-incineration utopia.

The way in which that many Chinese municipalities responding to the central state's order for compulsory waste-sorting—that is to demand communities to centralize waste collection at community waste-sorting stations—has deprived recyclers' access to urban waste. In the past two years, there were many media reports from Beijing and Shanghai on the topic of compulsory waste-sorting, which suggested that the Chinese urban society has grown out of its previous reliance on the informal sector for dealing with its own waste. People's Daily, for example, reported on how community residents in Shanghai had enthusiastically helped communities to upgrade their waste-sorting systems, by efforts such as donating hand-wash stand and soap or organizing educational campaigns to teach residents how to deal with hard-to-classify materials

such as a diaper (should a used diaper belong to wet trash, dry trash, or hazardous trash?).[12] Along a similar line, Xinhua reported on how Haidian District in Beijing has improved waste-sorting by equipping AI on neighborhoods' waste-sorting stations.[13] I nevertheless feel quite hesitated to go along with this line of storytelling. In the area where I live, the Guoxiang community of Suzhou's Wuzhong District, which I would say is a more mundane, ordinary urban place in China, the disappearance of recyclers has seemed to make residents less motivated to sort their waste at home (Figure 6). Seeing that their trash would eventually be sorted again by waste-sorting personnel at the community waste-sorting stations, few of my neighbors would bother the work at home.

[Insert Figure 5 around here]

[Insert Figure 6 around here]

## Conclusion

Many those who have compared "ecological modernization" with "ecological civilization" commented that the latter is a socio-technical imaginary that is critical of the former's tendency to separate cultural and moral virtues from technical and economic goals (e.g., Hansen *et. al*.; Pow, 2018). Through a close examination of China's evolving municipal waste management, however, this chapter finds that the gap between the two seems to be diminishing. In its efforts to defend waste-to-energy incineration technology from the close scrutiny of the middle-class urban residents, the Chinese state chose to sacrifice the informal recycling networks, eliminating it all out from the vision. The so-called 'compulsory waste-sorting' program that has been imposed upon communities is not just an environmental sustainability project, but also a political project that aims to deprive migrant recyclers' access to household waste in cities. This raises the question of: How 'civilized' ecological civilization really is if the vision denies socially marginalized groups' economic citizenship and rights to the city? Perhaps, it is now time to move beyond technological triumphalism and start to think more seriously about how green technology such as incineration can really serve social purposes, particularly in terms of achieving social equality and justice.

Chinese middle-class urban residents' activism against incineration is a strong testimony that challenge the popular view that there is no point to talk about the 'society' when it comes to developing an understanding for contemporary China (e.g., Huang, 2008). Through pursuing citizen-science-based anti-incineration campaigns, residents in Beijing, Guangzhou and Shanghai had successfully made municipally-planned recycling a national agenda. The chapter, nevertheless, calls for more compassion toward the migrant population in cities when it comes to imagining the future of social activism in China. Perhaps, more appreciation toward informal waste workers' situated knowledge toward waste would have made ordinary residents put more concern on environmental sustainability when they deal with their waste at home.

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