

From Voluntary to Mandatory

A Review of the Chinese Debate on Waste Sorting

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Chinese cities began piloting voluntary waste sorting systems (垃圾分类试点) in the 1990s. In 2000, the former Ministry of Construction announced the first eight "pilot cities for *voluntary* domestic garbage separation", including Beijing, Shanghai, Nanjing, Hangzhou, Guilin, Guangzhou, Shenzhen, and Xiamen. Despite many attempts, these eight cities failed to achieve the desired results over the past two decades. At the end of 2016, the General Secretary of the Communist Party of China (CPC), Xi Jinping, called for nationwide waste sorting to be implemented. In July 2019, Shanghai then took the lead in making waste classification *mandatory* across the city, which has sparked heated discussions. Waste separation and classification has also become a very popular research topic as there are a lot of problems and controversies in the nexus of policy and practice. Based on existing research and news coverage, this paper reviews old and new viewpoints and debates surrounding China's approach to urban waste classification with regard to three main aspects: the overall management system, the question of public engagement, and the experience of introducing mandatory implementation in Shanghai.

Waste Sorting Management: Old and New

Li Junfeng and Shi Jingli (2000), Research Fellows of the Energy Research Institute at the Chinese Academy of Macroeconomic Research, have given an overview of China's policy system for urban waste management. In their study, the policy system can be roughly divided into three levels, namely national laws, regulations and documents (such as the *Law of the Republic People's of China on the Prevention and Control Solid Waste Pollution*); administrative regulations issued at ministerial level; and local regulations and rules adopted at local level. Urban waste management relates to a whole system of tasks, involving multiple departments of city governments. It includes the supply and the management of waste collection, transportation and disposal equipment, as well as the enforcement and supervision of waste collection, transportation and disposal. The current urban waste management in China largely depends on

the departments responsible for urban management (城市管理) and municipal appearance & environmental sanitation (市容环境卫生部门), with differences in management systems and institutional functions among cities.

Fan Wenyu, a doctoral student at Zhou Enlai School of Government at Nankai University, and Xue Lijiang (2019), Deputy Dean of School of Public Management at Tianjin University of Commerce, point out some problems with China's solid waste management system. They emphasize that waste sorting policy is fragmented in China. Their investigation revealed that in almost all pilot cities, waste sorting is limited to micro areas: "pilot zone" (usually some selected communities or neighborhoods) within the pilot cities. As a result, the cities have been "piloting" for 20 years, and did so only in certain "pilot zones", without fully rolling-out any city-wide solutions. Hence, it has been impossible to separately collect and transport domestic garbage within any city-wide system. As cleaning and waste transportation services have to run efficiently for the whole city, it has been inevitable that previously separated garbage in some pilot communities was mixed-up, and then transported, with other conventionally collected garbage. Fan and Xue thus emphasize the problem that waste sorting happens isolated from the entire waste management system. There is not yet a full-fledged system for the management of waste sorting that covers placement, collection, transportation, and disposal. In the pilot cities, the installation of equipment and facilities for intermediate collection and transportation and end-of-pipe disposal all lag behind the existing measures for waste sorting at the source. In some cases, waste separation at the community level was enforced before a sound and comprehensive system was in place. Without an appropriate collection and disposal system, the waste that had been previously separated by residents is afterwards intermixed with other waste during collection, transportation and disposal and this has severed the confidence of residents regarding the sense and purpose of sorting domestic garbage. The two systems of "renewable resource recycling" and "domestic garbage collection and disposal" are not well connected.

Song Guojun (2019), a Professor at Renmin University of China, holds similar views. In the absence of independent and effective regulatory authority, it is difficult to develop a cohesive municipal waste management programs in line with national requirements. Domestic waste management requires coordination among multiple government departments as it involves various parts of the government. However, due to the fragmentation of China's government system caused by the division of functions within the government, the inter-departmental cooperation has been difficult to achieve in practice. For instance, landfills and incineration plants are directly planned, constructed, managed and overseen by urban development departments while regulation on the emission from these facilities are the responsibility of particular environmental departments. Regarding domestic waste classification, governmental departments of urban construction, environmental protection and urban management are designated to take the lead in planning, supervision and enforcement, but overlapping management and functions often arise. In addition, Song also points to other deficiencies

regarding the governance of waste sorting, such as poor information disclosure, which makes it difficult for actors from business and society to effectively promote domestic waste sorting or resource recycling; such poor information disclosure also keeps them from acting against imprecise, unsystematic and unsustainable policy measures.

A number of years earlier, Liu Yuxi et al (2012) argued that the lack of source reduction measures is a key restraint on the overall results of waste sorting and management. In China's current approach, separation and disposal of waste (i.e. *after* it is produced) receives far more attention than source reduction. They thus argue that Chinese urban management departments are mixing up the priorities in waste management and disposal expenses. Sometimes, the cart has been put before the horse (“本末倒置” 的现象). In other words, the authors point to the overemphasis of spending ever larger funds on the construction, redevelopment and purchase of waste incineration facilities, waste disposal plants, and sanitation equipment, which are all under the supervision of governmental organs that are in charge of urban environmental sanitation. As a result, a large part of the waste is just removed from the city by being landfilled, incinerated or piled up in the suburbs or even in the countryside.

Fan Wenyu and Xue Liqiang (introduced above) note that the thus far employed policy tools for waste sorting are actually similar across China. Different Pilot cities have launched resembling policies to bring residents to participate in waste sorting. For example, in the new round of pilots starting in 2019, Nanjing and Shanghai encouraged residents to sort out domestic garbage by providing “points” to redeem rewards. On the whole, most municipal governments adopt this kind of positive policy incentives, while negative policy incentives such as penalties, even though introduced in some cities, are not really implemented. In terms of actual effects, in the short term, these economic incentives provide a positive impetus to public engagement in domestic garbage sorting. However, in the long run, such policy tools alone will not bring residents to develop new habits. On this note, Southern Weekend reporter Ma Suping (2019) recently suggested that China currently lacks measures to reduce waste at the source, such as the “extended producer responsibility system” adopted by some developed countries. The lack of such measures significantly hinders the development of the whole field of waste avoidance and separation.

Public Engagement

Public engagement in waste sorting is also an issue of widespread concern. After 20-years of pilots concerning municipal waste sorting, residents are still not seen to be adequately aware of, and involved in, these initiatives, despite policy guidance, publicity and education. In general, various studies have shown that the Chinese public has certain level of understanding of waste classification, but public engagement is still low due to multiple factors at both individual level and institutional level.

Deng Jun et al (2013), Deputy Head of Solid Waste Management at the Beijing Municipal Commission of the City Administration, found through investigation that the accuracy rate is low for both waste sorting and placement among residents in the 600 pilot communities in Beijing. About 60.1% of the residents had preliminary knowledge of waste classification, and 24.4% had no knowledge. The accuracy rates for sorting and placement are as low as 4.5% and 31.2% respectively.

In an empirical study by Chen Shaojun et al (2015), from the Business School of Hehai University in Nanjing of southeastern Jiangsu province, the actual behavior of residents is shown to be divorced from their willingness to participate in urban waste separation. A very high proportion (82.5%) of residents is willing to sort their garbage compared to those who are not (13%). But stronger willingness for waste separation does not lead to actual behavior. Indeed, willingness and behavior are affected by different factors. Specifically, the actual behavior of residents depended on situational factors like convenience, knowledge and attitude, while the empirical numbers showed that abstract willingness is mainly influenced by cognition and attitude, individual characteristics, and incentive measures.

Xu Lin et al (2017), Professor at the School of Public Management of Zhejiang University, concludes that the participation of residents in waste sorting increases with their knowledge of the actual and moral values of waste separation. They also find that higher levels of participation in waste sorting are linked to greater levels of perceived individual control, influence of public opinion, as well as perceived policy effectiveness. In addition, the existence of a non-official recycling market was found to have a significant impact on waste separation by residents. A booming non-official recycling market and resident's active participation in it also mean higher degrees of residents' involvement in official waste sorting. Of course, personal factors such as gender, age and occupation all affect, to a large extent, the degree of residents' participation. The average degree of participation is higher among female residents and among senior residents. In other words, female and elderly residents are the main force of waste sorting in Chinese families. In view of this, environmental public education should pay more attention to the waste classification consciousness and behavior of the youth and male citizens.

To sum up, although the Chinese public has certain knowledge of waste sorting, their theoretical knowledge rarely translates into practical action. Particularly men and younger people still have much room for improvement. Therefore, environmental education should be more targeted. In addition, public engagement is also related to external factors such as the economic return brought by waste classification and the accessibility of waste disposal facilities.

The Case of Shanghai: New Challenges ahead

Mandatory waste sorting was recently adopted by Shanghai as a new policy innovation to address difficulties in waste separation. On July 1, 2019, the *Shanghai Household Waste*

Management Regulation (hereinafter referred to as the Regulation) came into force, marking the general implementation of mandatory waste sorting. The Regulation increases penalties and covers all areas of the city, so it is considered “the most stringent ever”. According to the Regulation, individuals or organizations that fail to sort garbage in accordance with the regulation will be subject to penalties. However, Ma Suping (mentioned above) found that problems still exist in compulsory waste separation, despite very obvious achievements. The implementation of waste sorting in Shanghai rests on the front-end supervision and service provided by massive community volunteers and social organizations. Since waste classification is a large-scale long-term endeavor, such a campaign-style governance approach — without fundamentally changing the awareness and behavior of residents — is unsustainable. In addition, Ma quoted the opinion of Zhu Dajian, Professor of Tongji University in Shanghai, that the administrative costs of waste separation in Shanghai has been very high since the new policy was introduced. The enforcement and supervision of compulsory waste separation requires a large amount of administrative and law enforcement resources. This hinders cities with less financial and other administrative resources from replicating Shanghai's experience and practice. Ma added that Shanghai's waste sorting practice highlights the lack of rear-end disposal capacity in Chinese cities. As of November 2019, the amount of wet trash sorted out in Shanghai doubled to approximately 8,710 tons per day (as a result of more accurate waste separation), but the six wet trash disposal facilities being commissioned and operated in the city only have a capacity of about 5,000 tons per day. As source reduction is unachievable in the short term, the government's decision-making capacity is challenged by the gap between waste separation and disposal capacities.

By reviewing China's current practice of urban waste sorting, many deficiencies in institutional design and public engagement come to the fore while the Central Government and some local governments demonstrate strong political determination regarding implementation. Prominent problems include fragmented policy enforcement, outdated policy tools, insufficient rear-end waste separation and disposal capacities, and more emphasis on disposal than source reduction. Even though the Chinese public has some general knowledge regarding waste classification, the actual levels of public engagement remain low due to both individual factors as well as institutional influences. In the case of Shanghai's recently introduced compulsory waste separation system, it still remains to be seen whether the campaign-style approach to compulsory waste sorting policy can be sustainably transformed into a long-term system. The staying power of these new reforms is currently already severely tested by the arrival of the new Coronavirus and the resulting inertia of society: According to a Bloomberg report (2020), existing recycling centers “are mostly closed, waiting for the return of migrant laborers” and penalties for lack of proper sorting have no longer been regularly implemented.

In the future, it is necessary to include more actors into the relevant governance mechanisms: the market, social organizations and individual citizens besides the government's leading role. First, China should learn from developed countries to establish an extended producer

responsibility system that enables market players to assume their due responsibilities. Second, China should provide effective incentives and monitoring mechanisms that encourage residents to get more actively involved in the daily practice of waste sorting. Finally, China must define clear goals for the elimination of waste before it is created, in order to achieve effective waste governance “from the source.”

Submitted on December 30, 2019

Last edited on April 20, 2020

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