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BENJAMIN STEUER

**Governing China's Informal Waste Collectors under
Xi Jinping: Aligning Interests to Yield Effective Outcomes**

ABSTRACT The present article analyses the changing relationship between the Chinese government on the one hand and informal waste collectors and pre-processors on the other. Over time, the modes of engagement have varied considerably, and since Xi Jinping's tenure as president, the approach of central and local governments has taken a surprising turn: instead of forcefully incorporating informal actors, new collection schemes appear to provide more latitude to informal actors. While the schemes feature formal characteristics, e.g. uniform logos, attire and machinery, daily operations are individually organised by informal actors. Based on a model of institutional evolution, this article argues that the hereby improved effectiveness in the domain of waste collection results from formal institutional solutions that sufficiently address the interests of all involved stakeholders.

KEYWORDS China, circular economy, informal recycling, institutions, Xi Jinping

1. Informal recycling, Xi Jinping and the new role of waste management in China's environmental policy-making

Discussions of China's policy-making often centre on the topic of economic growth and the endeavour of the Chinese Communist Party to safeguard its legitimacy to rule the country (Chen/Naughton 2017; Zhao 2017: 1-3). This governance rationale is frequently addressed by debates on the China model, its central elements and key mechanisms (see Zhao 2017: 3-7). Following Delman and Odgaard (2014), the present article asserts

an ongoing shift within China's model, which renders it less focused on economic growth, but more on the aspect of environmental sustainability and on how to strike a balance between both policy objectives. Indications in favour of such an appraisal can be traced back to the early 1990s, when the Chinese central government first demonstrated a responsiveness to issues of environmental pollution, sustainable development and ecological conservation (Hofem 2010: 9; Yi/Liu 2015:13). Key concepts such as the Scientific Development Perspective (*kexue fazhan guan*), Green GDP (*lüse GDP*), Cleaner Production (*qingjie shengchan*) and Circular Economy (*xunhuan jingji*, CE) have received increasing emphasis in five year plans and legal texts since the early 2000s (Steuer 2017: 416f; Geall/Ely 2018: 1175ff). This, by implication attests to their significance as parts of the official development strategy. At present, there are two significant concepts that appear to substantially reshape the Chinese development model. Firstly, the CE, which has been gradually introduced to China since the early 2000s, suggests closing material and energy flows within the economy so as to use resources in a more sustainable manner. As part of this waste management (WM) and the notions of reduction, reuse and recycling occupy a central position (Steuer 2018). Secondly, the concept of Ecological Civilisation (*shengtai wenming*, EC), which has experienced a revival under the Xi-Li administration¹, is emerging as the new umbrella term for promoting environmental protection, emission reduction and sustainable growth. Moreover, with Xi taking office, the overall legislative framework behind environmental protection, pollution control, energy conservation and resource development has been gradually strengthened (Zhang/Li 2018: 248). As it turns out, this step is part of an ongoing trend under his tenure, where WM in particular has attracted the president's attention. Since December 2016, Xi has personally, so the narrative goes, initiated the launch of a nationwide campaign to improve the sorting and separation of household waste, an initiative which he deems pivotal for realising a modern civilisation (Feng 2017; Song 2019).

The very recent, top-down induced push to manage household waste collides with a system that had emerged from the very opposite direction and practically dominated household waste recovery for four decades. This system refers to the organised from the bottom-up informal recy-

cling sector (IRS), which in its current form emerged in the 1980s. Rural labour migrants entered urban areas in search of work and quickly seized the vast profit opportunities to be made from recycling household waste recyclables and later, e-waste. Among Chinese academics, research on the IRS was initially neglected or rejected, as it was and often enough still is, stigmatised as a contributor to the urban waste problem (Schulz 2015: 45, 2019: 41). Such perspectives were often translated into restrictive policy making, and this trend is by no means unique to China. Globally, public policy approaches towards the IRS often feature dismissive and even repressive elements, despite the sector's contribution to resource recovery and economic welfare (Wilson et al. 2006). Likewise, attempts to privatise WM activities or to force the IRS to integrate, such as in Cairo and Delhi, have entailed adverse and livelihood-threatening implications for this group (Sandhu et al. 2017).

However, recent publications from mainland China in the field of WM indicate a change of mind as research have begun to highlight the capacity, role and possible ways of integrating the IRS into the overall WM system (Fei et al. 2016; Xue et al 2019). However, the most insightful findings, especially in order to explain the reasons behind performance, organisational flexibility and resilience, have been produced by scholars employing multidisciplinary approaches and ethnographic field research. Schulz (2015, 2018, 2019) and Schulz/Lora-Wainwright (2019) highlighted the CE capacity of the IRS in China's e-waste management. Inverardi-Ferri (2017, 2018) underscored how the collection and treatment of waste recyclables shape the livelihood of actors in the informal sector. Research by Li (2002), Tao et al. (2014), Tong/Tao (2016) and Goldstein (2017) effectively mapped the organisational and self-structuring institutional mechanisms that the IRS has adopted over time in response to external threats.

In its entirety, the findings of secondary research demonstrate the IRS' resourcefulness in operating a network of waste recovery and feed-stock provision, which in its own sense can be interpreted as the informal realm of China's CE. While not explicitly permitted, the government has acquiesced to these developments over several decades because of the direct benefits for urban WM and migrant labour employment (Li 2002; Tong/Tao 2016; Schulz 2018; Steuer et al. 2018). However, since the mid- and

late-2000s, the stance of the government has indicated a clear shift towards exerting pressure on the IRS to conform to official benchmarks. As a consequence of the CE and the EC, formalisation efforts increased and centred on IRS activities in final processing, e.g. the hydro- and pyrometallurgical treatment of e-waste as well as plastic smelting and pelletisation (Goldstein 2017; Schulz/Steuer 2017), while it exempted upstream activities such as the collection, pre-processing (separation, sorting, cleaning, balling, material extraction) and transport of waste recyclables. Yet, with the very recent launch of the household waste separation campaign spearheaded by Xi himself, it appears that the state now also strives to formalise these upstream activities. This new development increases the chances of opposition and contest, which in turn raises the probability of an outright struggle between the state and the IRS for dominance over the collection and pre-processing of waste recyclables from households.

Against this backdrop, and Xi Jinping's strong emphasis on environmental governance and his role in the waste separation campaign, the paper addresses the crucial question regarding the future of the IRS in collection and pre-processing: will it be forced to formalise and become subject to administrative coordination or is there sufficient regulatory leeway that allows for a continuation of its market-based operations?

In search of an answer to this question, this article employs a framework that centres on institutions, i.e. the systems of rules which state and non-state actors employ to realise their respective interests. This approach is inspired by field research findings of the author during 2013-2019. Initial research in Beijing, Shenzhen, Guangzhou and Shanghai was focused on assessing the quantitative recovery capacities of the formal and informal domains. However, initial investigations showed that achieving effectiveness in waste recovery can be traced back to the practice of particular rules and routines (Steuer, 2016; Steuer et al. 2017, 2018). Given the IRS' high effectiveness in this field, local and central governments have understandably attempted to incorporate the sector into the formal system. However, as the following paragraphs show, such approaches may fail to yield effective outcomes if formalisation ignores the interests of the IRS and how their informal rule systems operate.

2. An institutional model for capturing comprehending the dynamics between the state and the IRS in urban WM

Analysing the institutional interactivities and dynamics raised by the research question calls for a model that considers a multitude of factors. Firstly, urban China's WM features a particular constellation of actors with respective interests and correspondingly employed practices. Secondly, the operations of each actor group are not conducted in isolation from, but in response to, the opposite side's activities. Thirdly, both sides have over the past decades accumulated experience regarding waste recycling as well as how the opposite side operates. Learning from such information feedbacks induces changes to in the operational practices of each side over time. Fourthly, the evolutionary dynamic that leads to ever new institutional outputs is propelled by (1) the continuous emergence of waste related challenges, (2) the contest between involved actor groups with different interests, and (3) the learning from information feedbacks derived from preceding solution outputs.

In order to process these elements methodologically, the present article applies a framework that centres on institutions, i.e. systems of rules that structure the behaviour and interaction of actors, and which are used for the realisation of interests (Groenewegen et al. 2010: 372). Using institutions for the analysis of China's socio-economic transformation by no means constitutes a novelty in the context of China studies: Barry Naughton (2009) has highlighted how the interaction between formal and informal rule systems generated interest compromises and, subsequently, effective political economic reforms in China. In a similar fashion, Heilmann (2008) demonstrated how institutional experimentation and hereof resulting learning guided the PRC's gradual reform process. The present article, however, intends to go beyond these approaches by offering an evolutionary model of institutional change. Previously applied to the context of the Chinese CE, the model helps explain how the interplay between opposing institutional domains and the emergence of socio-economic challenges determine evolutionary change (Steuer 2018). Given a challenge-specific context, the model identifies repetitive institutional

patterns and in turn enables a limited prediction of a system's future development trajectory.

The basic setup of the framework starts with the functional role of institutions. These systems of rules constitute an analytical proxy, an abstract representation that captures actor-group specific behaviour patterns. Human actors use and implement these patterns, i.e. institutions, to resolve conflicts, overcome challenges and handle problems they encounter in the context of everyday interaction (Groenewegen et al. 2010: 372; Mantzavinos 2001: 7). This perspective determines the scope of analysis: instead of being centred on interactions between actor groups, the model focuses on interactions between institutional domains. These encompass the respective institutional outputs from actors and simultaneously operate as mechanisms that generate new solution outputs. The analysis in this way differentiates between a formal domain, in which codified institutions such as laws, regulations and directives constitute the primary means of problem solution, and an informal domain, where habits, routines and norms are the dominant components. Doing so implies the reductionist assumption that the state and all formalised actors mostly, yet not exclusively, resort to formal rules for solving encountered problems and thus operate within the formal domain. On the other hand, the actors of the IRS are the representative decision-makers of the informal domain, as they use informal rules to achieve their objectives. Whether the solution outputs of both domains are oppositional and conflicting or rather congruent and compatible in their execution, very much depends on the interests that respective actors pursue in the solution-finding process. By implication, both domains are shaped and defined on the basis of the interests that their respective actor groups promote. This aspect will be further discussed at the end of the section.

The interplay between the two institutional domains constitutes part and parcel of the evolutionary dynamic that propels institutional change. In the first instance, institutional evolution results from the incessant cyclical sequence of problem emergence, a responsive creation and implementation of institutional solutions from both domains and the subsequent emergence of a new problem. In the second instance, institutional evolution is also driven by the responsive interaction between the two domains. In other words, the solution finding and implementation process of one domain does not only respond to the problem or challenge per

se. Indeed, it is informed and influenced by the solutions created by the opposing domain, particularly by the interests expressed in the opposing side's institutional output. As both sides create and subsequently put institutional solutions into practice, they in turn trigger the third evolutionary process, which is the emergence of information and learning feedbacks. These instances of feedback essentially convey how effectively an implemented rule solution solves the problem and promotes the specific interest of actors belonging to the rule-issuing domain. As a further consequence, such feedback generates a long-term effect, as it enhances the capacity of domain-specific actors to engage in solving a related problem in the future. In summary, the model captures institutional evolution as unfolding over two incessantly repeating sequences: firstly, the emergence of a challenge or problem, which induces solution-finding and respective implementation by both domains (Figure 1), and secondly the information feedback process, which informs domain related actors about how well the institution has performed in solving the problem and realising respective interests (Figure 2).

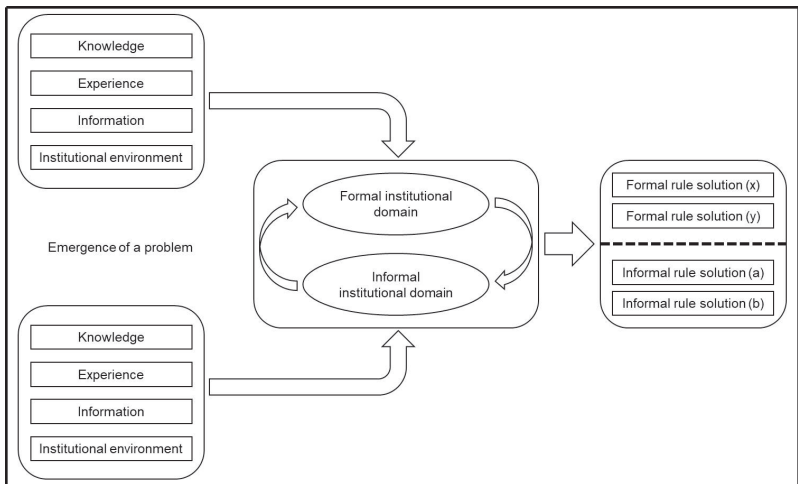


Figure 1: The first sequence – Problem emergence, solution finding and implementation

Source: Steuer 2018

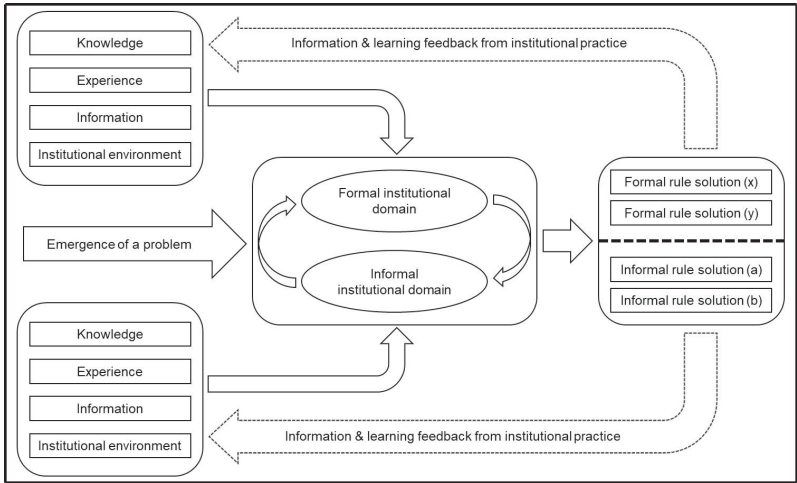


Figure 2: The second sequence – Information feedback from institutional practice
 Source: Steuer 2018

The decision to centre the analysis on institutions instead of actors has specific implications regarding how the reality of power structures is depicted. It involves a shift away from measuring power in conventional terms, e.g. evaluating power structures based on discretionary pecuniary means held by a specific actor group. Rather, the institutional perspective enables the assessment of power relations based on institutional presence and durability, which relate to the emergence, transformation and abolishment of institutional practices. In the context of this model, power relations are to a significant extent also expressed in institutional effectiveness. Comparatively more effective institutions will be imitated by ever more actors up to a point at which they become the dominant practice. On a general level, institutional effectiveness is indicated by (1) the length of time that an institution remains in place unchanged, and (2) *simultaneously*, by the continued use of the very institution by related actors. More specifically, however, institutions need to fulfil two essential premises to become truly effective problem solving mechanisms: Firstly, they need to be technically effective. In the context of this article, we can, for example, consider routines or regulations as technically effective if they ensure the

collection and recovery of discarded materials. Technical effectiveness is essentially a quantitatively measurable quality. The secondly order of effectiveness relates to the degree of interest inclusiveness. This means that an institution practiced and implemented to serve the interests of one group has to the largest possible degree take the interests of the opposing actor group into account. For example, a formal regulation on collection has to consider all involved stakeholders and offer some leeway for the realisation of their respective interests, e.g. faction-specific preferences and the profit calculations of private collectors. Upon fulfilment of these two preconditions an institution is more likely to garner the acceptance of all involved actor groups, which in turn guarantees its practice over a sustained period. Falling short of these premises would instead lead to a challenge of the institution by alternative institutions from the opposite side. In the sense of institutional dynamics, the so initiated process of contest could further lead to broader institutional change and subsequently to changes in the Broader socio-economic power relations.

A crucial determinant in this conceptualisation relates to the definition of the various interests that are held by actors of the two domains. In regard to the applied context, the model conflates existing differences between central and local government actors, which dominate the formal domain, and identifies their interests as primarily environmental-economic: environmental in the sense that the government actors strive to realise the EC; simultaneously, interests in the formal domain feature a strong economic element, as official sustainability efforts are also linked to the CE, which is an essentially economic concept in the PRC (Steuer 2018). The informal domain, on the other hand, is exclusively driven by economic interests, expressed through individual goals of achieving an improved livelihood (Tong/Tao 2016; Steuer et al. 2018). The latent congruences in interests between both sides lay the foundations for interest inclusive and thus effective rule solution outputs.

Bearing the theoretical viability for achieving effective institutions in mind, the following sections focus on answering the research question and therefore trace the degree of IRS formalisation vis-à-vis the retention of its institutional independence. While the former implies subordinating the informal domain under administrative guidance with informal solution-finding limited by formal institutional constraints, the latter refers to the

continuation of informal institutional innovation and practice based on the coordinating forces of the market. In the following paragraphs, the article will first provide a short introduction to how the current constellation between the two domains came into being, and then highlight how the formal-informal dynamic unfolded over the past decades. The subsequent section will juxtapose these developments with the more recent patterns of institutional interaction that have taken place since Xi's tenure began. The conclusion then highlights the novelty of top-down approaches under Xi, how reconciliation between both domains can be achieved, and what the future holds for the formal-informal relationship.

3. The two domains in China's urban waste management: Emergence and cooperation

The origins of the two domains can be traced back to broader historical developments within the socio-economic and political environment in mainland China (see Schulz 2019: 37ff). Most significantly for the analysis in this article, is the shift from a formal dominance in waste recycling to a by and large informally dominated one. This transformation started when the state abandoned its well-developed public waste recovery system in the 1970s due to budget concerns and the focus on economic growth. At about the same time, rural decollectivisation prompted a surge in the number of migrant labourers, who entered the cities in search of employment. Some of these actors became unregistered entrepreneurs in their very own right, as they realised the untapped potential of collecting ubiquitously available household waste recyclables and sold them to manufacturing industry. With the domestic economy on the rise in the 1980s, the demand for feedstock among the export-oriented industry was as yet unsaturated and extremely high, which in turn benefitted these entrepreneurs and helped to form the modern foundations of the IRS. Moreover, the activities of waste collecting and trading actors were promoted by national and local governments during the early reform period. The former issued two significant regulations – one demanding local governments to provide private entrepreneurs (*getihu*) of the IRS with permits

for waste recyclable recovery (MOC et al. 1985), the other permitting the purchase and trade of waste recyclables through the market (SC 1991). Local governments furthermore acquiesced with the IRS, as their operations helped reduce municipal budget expenditures for WM² (Li 2002). These developments clearly exhibit a high degree of institutional effectiveness, as both domains devise institutional solutions that address the very same problem and feature highly compatible interests. The relatively large margin of latitude conceded by the formal to the informal domain corresponds to the moderately liberal *zeitgeist* in Chinese politics at the outset of reforms. Formalisation measures merely aimed to register and legally bolster informal activities, but refrained from impeding the IRS' interests of profit realisation.

As a consequence of this essentially market-oriented phase of the institutional dynamic, two systemic particularities evolved in China's WM structure. Firstly, the unimpeded practice of market-oriented institutions in the informal domain enabled the IRS to emerge as the dominant force in household waste recovery and recycling. This achievement is reflected in the sector's waste recyclable collection and recovery performance, which ranges around 17-38 per cent (Linzner/Salhofer 2014: 903), but in individual cases may reach 90 per cent, as shown by field research in one of Beijing's subdistricts (Steuer et al. 2018: 62). For the specific category of e-waste, a secondary literature survey by the author indicated that informal collection recovers 60-80 per cent of the quantities generated by urban households (Steuer 2016: 292). These achievements are in large part the result of the IRS' specific institutional arrangements: the division of labour, and resulting specialisations such as collector groups, transporters, intermediary buyers and pre-processors (Steuer et al. 2017); spatially adjusted waste trading points and markets (Li 2002; Tong/Tao 2016; Steuer et al. 2017) that operate as local nodes for transregional networks all over China (Goldstein 2017; Schulz/Lora-Wainwright 2019); and methods for preserving material value as well as communication techniques to establish and maintain contact with waste recyclable generators. Essentially, the key to the success of the IRS lies in its decentralised approach to institutional solution finding: internal information exchange and communication, learning by doing, demand-oriented fraction recovery, network manage-

ment, imitation of successful solutions, and the high degree of flexibility constitute institutional elements that can be observed among IRS practitioners all over China (Steuer 2018). While these institutional innovations have emerged in the specific context of urban China, their origins can be traced back to historical developments in rural areas where the IRS actors were socialised. According to Rawski (2008: 11ff), political pressures and the struggle for survival in 1950-1970 cultivated a strong entrepreneurial spirit among individuals and equipped them with an “unusually rich and flexible portfolio of organisational skills...to pursue economic advantage”. Given the IRS’ success in the cities, it appears that the institutional practices in the city by and large constitute a replication of institutional mechanisms that have proved effective in the past. Secondly, the public sector, after having granted substantial leeway to the IRS, side-lined its own recycling operations and focussed on landfilling and incineration from the late 1980s. The latest figures published by the government in 2017 show that the proportion of recycled MSW constituted a mere 3.5 per cent, while landfilling (57 per cent) and incineration (40 per cent) continue to be the dominant treatment practices of the public sector (MOHURD 2017).

As a result of these waste treatment preferences, the WM strategy of the government has led to a highly unsustainable performance. Its results may partially explain the motivation behind official efforts to initiate a turnaround towards enhanced sustainability in WM. Earlier related measures aimed at incorporating sustainable policy concepts such as the CE (since the early 2000s in legal documents) and the Ecological Civilisation (EC) (as a topic of the 12th Five-year plan in 2011) into China’s development model. This gradual shift towards sustainability modified the interest alignment within the formal domain and in turn affected the balance of interests between both domains. By implication, the purely profit-oriented rule solutions of the informal domain became increasingly incompatible with the formal domain’s shift in interests toward strengthening environmental sustainability. As a result, the institutional dynamic between both sides took a turn towards an increasingly oppositional and contesting institutional dynamic in the mid-2000s.

4. Diverging interests and local formal pushback against the IRS in the mid-2000s

After having by and large ceded recyclable waste collection and pre-processing to the informal domain during the 1980s and 1990s, the mid 2000s featured a substantial change in methods within the formal domain. In this regard, the two instances of central and local government have to be distinguished. Firstly, the central government significantly strengthened the institutionalisation of urban WM via the issuing of major laws during the early and mid-2000s (Steuer 2017). Interestingly, none of these legal documents did in any way address or prohibit the activities of the IRS. Rather, when reading between the lines, key national regulations are found to have provided significant leeway for the IRS to pursue its activities. For example, the first revision of the Solid Waste Law in 2004 contributed significantly to clarifying tasks and duties in waste collection. A central feature, newly amended in this version, is the outsourcing of waste collection as a former public responsibility to private entities that hold the necessary permits. While privatisation of WM might have been the primary goal, acquiescence and indirect support of IRS activities were the direct effect of this legal latitude (ibidem: 420). Similar trends are exhibited in other legislative measures of the central government, such as the Circular Economy Promotion Law and the China WEEE Directive. Both texts emphasise the process of collection, yet again without providing any restrictions on IRS practices (Steuer 2018: 325, 329). Rather, in recognition of informal dominance, central legislators added a clause that permits ‘multi-channel’ collection (*duoyuan qudao huishou*), which tempts us to interpret the law as being supportive of, or at least indifferent to, the IRS (Steuer 2016; Schulz/Steuer 2017). Thus, from the analytical perspective of this model, the relevant institutional output of the central government can be understood as effective in both instances: central regulations were conducive for waste recyclable collection and for nurturing the CE, which implied addressing perceived challenges and interests of the formal domain that substantially differed from previous decades. Simultaneously, these

and other measures did not impede informal activities, but via providing loopholes rather helped realise the profit-centred interests of the informal domain. The common denominator, it seems, is the IRS' contribution to the CE and the reduction of unemployment, which is compatible with sustainability and the economy-related interests of the central government.

Local governments, on the other hand, which are tasked with refining central regulations and implementing these, have exhibited considerable variation in their approaches towards the IRS. Their overall institutional output on informal collection and recovery over recent years (Figure 3) offers some telling insights. Firstly, measures calling for a prohibition or formalisation of the sector predominate over those in favour of IRS support or acceptance. Secondly, the overall number of issued regulations is extremely low. This comes as somewhat of a surprise given China's vast population, the visible dominance of the IRS and the strong policy impetus behind the promotion of WM since the early 2000s (Steuer 2017). Thirdly, annual regulatory output appears to have peaked in 2008, after which it declined steadily. The reasons for this development are difficult to pinpoint. On the one hand, they may comprise particular local developments, such as the preparation for the Beijing Olympics, which entailed exceptionally rigid urban planning and safety measures that also affected the IRS (Tong/Tao 2016: 14). On the other hand, the quantitative spikes in issued regulations for 2008 and 2010 may also stem from imitative measures at the local level. These tend to emerge in response to central government provisions, with the aim of fulfilling top-down conveyed, yet only vaguely specified, expectations (Schulz/Steuer 2017; Steuer 2018). In this sense, the intensity of local regulatory responses in 2008 and 2010 can be interpreted as attempts to align local measures with central requests. In 2006, 2007 and 2009, the central government published several strategy guidelines on waste recycling, which also promoted tightening control and oversight over the WM system. While this did not imply a crack-down on the IRS, local governments in some instances seem to have deemed harsh approaches as necessary for complying with the national agenda (Tong/Tao 2016: 14).

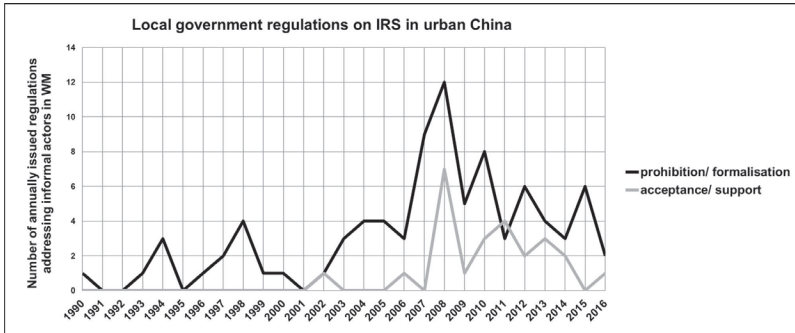


Figure 3: The regulatory approach of local governments towards the IRS
Source: adapted from Steuer et al. 2018

When evaluated in the context of this model, the regulatory approach of the formal domain at the local level appears to have fallen short of achieving effectiveness. This official failure to improve recycling is amply demonstrated by some of the few documented cases of local governments engaging with the IRS. In Beijing, attempts to incorporate 90 per cent of active collectors into a scheme with specifically designated workplaces failed due to insufficient profit incentives and more lucrative income options offered by the informal domain (Zhong 2010: 53f; Tong/Tao 2016: 14). Additionally, closures of informal markets for waste recyclable trade were thwarted, as these vital nodes of the IRS infrastructure simply relocated once regulators expelled them from their original location (Tong/Tao 2016). Again, these institutions appear to have remained in operation due to their contribution in creating value for the IRS. Similar examples were documented for the cities of Guangzhou, Hangzhou and Wen'an. The former two cases illustrate attempts by the government to absorb actors of the IRS into public-private partnerships for waste collection and recovery. While initially deemed successful, particularly in terms of achieving a compromise with conflicting interests, local administrators at one point began to levy comparatively high fees from participating collectors. In the face of losing a substantial proportion of their incomes, actors of the IRS

left the schemes and returned to engaging in unfettered, market-based waste trading (Steuer 2018: 364f). In Wen'an, local authorities attempted to disperse informal waste plastic reprocessing structures by conducting an enforced relocation into the newly constructed local industrial park. Due to high fees, expectations of low profit margins and rigid regulations, informal reprocessors simply left Wen'an and relocated elsewhere (Goldstein 2017).

Notwithstanding the IRS' contribution to waste reduction, recycling, and reducing municipal expenditures on WM (Steuer et al. 2018), the above cases are indicative of the local governments' prohibitive and expulsive approach towards the IRS. These institutional trends have however demonstrated little effectiveness, as measures of expulsion, forced integration and formalisation were in general met with evasion and subsequent relocation by informal collectors. Previous research by the author indicates that such responsive patterns have been institutionalised, i.e. repeatedly applied by the IRS, and practised in various regions in China (Steuer 2016, 2018: 362-370). The root of these shortcomings can be traced back to incompatible interests between local governments and the IRS. The aim to control and monitor, possibly in pre-emptive obedience to central expectations, paired with the intention to levy revenues from informal collectors, gave rise to formal solutions that infringed the core interests of the IRS. By implication, the institutional output of both domains during this period resembled a contest between market and administrative approaches, which developed in favour of the former. It is difficult to trace if and how the formal domain at local and central levels gained instances of learning feedback from this contest. Yet, the developments in the formal domain since the begin of Xi Jinping's tenure in 2012 show that the problem has been considered important enough to induce a change into the institutional dynamic.

5. A new formal approach towards the IRS under Xi Jinping

The alteration in the formal domain that in turn led to a substantial modification of the interplay between both sides is fundamentally linked to Xi Jinping's strong emphasis on environmental protection. This

core theme of Xi's presidency helped to reshape the interest orientation of the entire formal domain, as it picked up on and enhanced previously promoted sustainability concepts in China's policy making. Xi not only used his 'Chinese Dream' and 'Beautiful China' visions as vehicles to reposition the EC as a key concept for realising green growth and a sustainable economy (Schulz 2018: 33). He furthermore appeared to have incorporated WM and recycling as important pillars of the EC, which play an ever-growing role in the narrative. In China's war on pollution from waste the 2013 waste import control measure 'Green Fence' (*lü li*) and the 2018 'National Sword' import ban (*guomen lijian*) constitute two flagship operations tightly associated with Xi's 'Beautiful China' vision (Schulz 2018: 136; Boteler 2018). On the domestic front, Xi hailed CE businesses as an industry on the rise (Zhou 2016), and has on multiple occasions expressed a firm determination to improve waste separation and recycling, particularly those streams generated at the household level (Feng 2017; Song 2019).

With the president's agenda increasingly centred on household waste pre-processing and recycling, significant actors within the formal domain began to underscore this element of interest by means of related institutional outputs. At the central level, the Ministry of Commerce issued an opinion on upgrading the secondary resource recovery industry and therein stated the necessity to make full use of waste pickers (sic!) and informal businesses (MOC et al. 2016: art.6). Secondly, the Ministry of Industry and Information produced a strategic guideline on the secondary resource industry to safeguard the advancement of the EC (MIIT et al. 2016: art. 1). Finally, the State Council followed up on this line, issuing a measure for a household waste sorting scheme, which stipulated that new waste collection and separation models be derived from local pilot schemes (SC 2017). This alignment of interests within the formal domain is particularly notable, as ministerial actors with economic portfolios, in particular, decided to display substantial fervour in advancing Xi's environmental agenda. Possibly even more unusual is the strong response at the local level to the impetus from within the central government. Local governments eagerly aligned with Xi Jinping's newly promulgated interests, and soon after the beginning of his campaigns in 2016/17, legislators from all over China launched a plethora of regulations on household waste separation (*shenghuo laji fenlei*) (see Figure 4).



Figure 4: Number of annually issued regulations on household waste separation
 Source: own elaboration; Peking University law database based on <http://www.pkulaw.cn>

When compared with previous local regulations, these new institutional solutions feature substantial modifications, as they provide leeway for, and to some extent even incorporate, IRS practices. For example, the cities of Fuzhou (SCPCF 2019: art. 36) and Guangzhou (SCPCG 2018: art. 39) have allowed multi-channel collection, which implies the inclusion of informal collectors. Changchun (SCPCC 2019: art. 23/4) and Taiyuan (SCPCT 2019: art. 25/1) have authorised the selling of waste materials to collectors, which is again indicative of IRS practices. Ningbo (SCPCN 2019: art. 30) and Wuxi (SCPCW 2019: art. 44) have suggested the implementation of collection points and doorstep collection systems using standardised prices, which in their nature resemble previous institutional arrangements used by the IRS (Li 2002; Steuer et al. 2018). As can be discerned from these extracts, the new institutional environment of the local formal domain is shaped in such a way that it enables informal interest realisation rather than prohibiting it.

The origin of these significant legal modifications can be traced back to preceding local pilot policy schemes, which in themselves constituted a response to the central government's emphasis on household waste sorting and recovery. In two key documents, which coincided with Xi Jinping's campaigns on the subject matter, the State Council and the Ministry of Commerce underscored the need to conduct policy trials in order to solve

the particular challenge (MOC, 2016; SC 2017). The details of some of these local schemes reveal a striking difference from earlier WM pilots. In essence, previous practices of designating specific targets on informal actor integration or allocating work duties to the IRS (Steuer 2018: 332ff) have been abandoned in the novel pilots. In what seems to be a more relaxed approach, the new schemes are confined to a few structural guidelines: the use of uniform clothing and company logos, the provision of transparency on material prices, offering online platforms that facilitate service arrangements with households, and the documentation of recovered quantities. Moreover, participating IRS actors appear not to be subject to any levies to local state entities, nor are they bound to change their operational routines (DDD 2017). This is particularly important, as it does not infringe on the core interests of the IRS. One of the schemes, visited by the author, is Changchun city's Ant Recycling (*mayi huishou*), which constitutes an officially sanctioned project of the local Resource Recycling Association. The Association, itself established by stakeholders formerly belonging to the IRS, came to an agreement with the municipal government to initiate a pilot scheme for household waste sorting, collection and transport. The basic requirements set forth by the formal domain centred on setting standards for work attire, collection truck size, duty hours, cleanliness, as well as documentation of recovered quantities. However, the aspects of price-setting, initial location choice, and most significantly income, were entirely left to decision-making procedures within the Association. Evidently, this soft approach towards formalisation strikes an effective balance of interests between the formal and the informal domain. Field observations at designated collection sites further confirmed the impression that the local government simply allowed the formerly informal system to upgrade into a relatively more formal context (Figure 5): The head of one collection point stated that the present way of operations in essence adhered to the routines he practised during his time in the IRS. Only now, do people seem to be even more willing to transfer materials to his station, as they feel it conveys the impression of conforming to official norms (Personal communication with Mr Wang, Changchun, Lüyuan district, Zhengyang Street, 8 April 2019).



Figure 5: Formalised waste collection point of Ant Recovery in Changchun
 Source: Steuer 2019

6. Conclusion

Urban WM is one of the institutionally most dynamic and simultaneously least discussed topics in the research on China's environmental policy. However, this shortcoming may be prone to change due to the

particular impetus of Xi Jinping's environmental governance. Not only did the waste import bans in 2013 and 2017/18 rattle international waste trading networks (Schulz 2019), his domestic campaign moreover reshaped the relationship between formal and informal institutional domains in WM and, by extension, environmental governance. For the first time, it seems, various localities have found a *modus vivendi* of integrating the IRS without demanding either side to sacrifice much.

How did both sides arrive at this stage and how stable is this outcome? In this regard, the following aspects are worth pondering. Firstly, the most significant novelty in this new approach, which Xi's campaign had triggered, is that the formal domain issued institutional solutions that refrain from infringing informal interests. While these regulatory outputs avoid excessively highlighting the IRS and its role, the practical implementation via pilot schemes shows that formal institutional solutions have taken the opposing domain into account and provide due leeway for its operation. From the perspective of the analytical model, these institutions can be perceived as effective, since they address the challenge of waste collection and separation while simultaneously considering the interests of the informal domain. Secondly, and this comes as a bit of a surprise, the preceding institutional lock-in on how to engage with the IRS within the formal domain was dissolved by Xi's campaign and his resoluteness regarding household waste separation. As discussed above, these developments not only induced a shift in interests among the central state, and subsequently also local state, actors. Moreover, Xi's authority and the concentration of political power amassed in his person apparently generated the necessary momentum to break the previous deadlock. Interestingly, the choice within the formal domain, possibly informed by information and learning feedback from previous interactions with the IRS, was to put less emphasis on administrative management, but to allow for more market coordination of informal waste collection practices. As demonstrated in the very recent pilot schemes on household waste collection, the respective response from actors within the informal domain is to opt for a middle ground. Previously informal operators, such as in Changchun, maintain their old routines and practices, yet at the same time they provide government with better insight and monitoring, e.g. via documenting recovered quantities. This constellation directly leads to the third

and final aspect, which relates to the future of the current formal-informal relationship. With regards to market coordination, the Xi administration has since its beginnings called for allowing the former to take a “determining role in resource allocation” and to experiment with ‘negative lists’ that permit any economic activity that is not explicitly limited (Chen/Naughton 2017: 31). While this governance approach appears to bear much in favour of the IRS in terms of waste collection and recovery, it should be taken with a grain of salt. Yvan Schulz, for example, argues that China’s modernisation in WM is a highly exclusionary undertaking that leaves little room for actors outside of the formal realm. Taking a deep dive into the intricacies of the official ideology, he shows how the state uses the ritual of institutionalisation (*zhiduhua*), rule conformity (*hegui*), and formalisation (*zhengguihua*) to absorb segments outside of the official system. Once fundamental incorporation and control are realised, the subsequent steps then aim to coordinate these new systemic components in accordance with the needs and objectives of the formal domain (Schulz 2019: 35-39). Indeed, the current pilot schemes request the IRS to register and provide operative data. Doing so in turn enhances the government’s capacity to monitor and, if necessary, enhance control over these semi-formalised activities. As both sides now stand at the crossroads, the dynamic perspective suggests that any new measure from either side will unbalance the current balance of interest realisation and reignite new sequences of institutional evolution.

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- 1 Originally, the term was coined in the Soviet Union in the early 1980s, translated into Chinese in 1986, and scientifically discussed by agricultural economist Ye Qianji, who, amongst others, described it as an accomplishment in harmonising the human and the natural environment (see http://www.zghjgl.com/ch/reader/create_pdf.aspx?file_no=20150827007&year_id=2015&quarter_id=4&falg=1). On

the political stage, the EC firstly appeared in a speech by then president Hu Jintao, citing it as a new strategic element with which to guide China's development (Geall/Ely 2018: 1183)

- 2 Note, for example, the statement by Wang Weiping, a notable scholar on China's CE, who worked at the Beijing Department for Environment and Hygiene in the mid-1980s. In this function he formally permitted the IRS access to landfills in the hope their services would reduce public WM expenditure (see <http://huanbao.bjx.com.cn/news/20190915/1007057.shtml>).

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ABSTRACT Der vorliegende Artikel untersucht die Beziehung zwischen chinesischer Regierung und informellen Abfallsammlern. Im Laufe der Zeit haben sich die jeweiligen Interaktionsformen mehrmals geändert, aber erst unter Xi Jinpings Führung hat sich ein neues Verhältnis bis dato unbekannter Ausprägung herausgebildet: Entgegen der Annahme der Staat würde die Integration des informellen Sektors weiter forcieren, erlauben gegenwärtig praktizierte Modelle der Abfallsammlung informellen Akteuren einen großen operativen Freiraum. Auf Grundlage eines evolutionsökonomischen Modells argumentiert dieser Beitrag, dass institutionelle Lösungen in der Abfallsammlung dann effektiv sind, wenn sie den Interessen aller involvierten Akteure ausreichend Rechnung tragen.

Benjamin Steuer
Division of Environment and Sustainability,
Hong Kong University of Science and Technology
bst@ust.hk