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Understanding self-organization and formal institutions in peri-urban transformations: A case study from Beijing

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journals.sagepub.com/home/epb **Shuhai Zhang**

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Abstract

This article explores the mechanisms of urban self-organization and the role of formal institutions in shaping peri-urban areas. A case study of Gaobeidian, a former rural village that is now part of Beijing, examines the mechanisms of change and the interdependent relations between institutions and bottom-up initiatives that drive peri-urban transformations. The paper presents two main contributions: (1) it identifies the differences between government-controlled planning, shared governance, self-governance and self-organization and how these intertwine in urban transformations; (2) it proposes three distinct roles played by institutions in relation to self-organization: triggering, constraining and enabling. The empirical study of this Chinese case will enrich the current debate on planning for self-organizing cities by revealing the impact of, and the various responses to, self-organization dynamics in a hierarchical institutional environment.

Keywords

Self-organization, formal institutions, peri-urban transformations, Beijing

Introduction

The transformation of spatial patterns and their structure–function relationships is a continuous process within urban regions. An understanding of the various mechanisms behind

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these transformations is essential to urban planning and plan-making, which embodies the 'tour de force' that each planner undertakes in guiding processes of change (Elicin, 2014; Williams et al., 2000). On the one hand, many transformations of cities are initiated by urban planning, such as new motorway construction, the extension of metro services and the establishment of industrial zones. These transformations are intentional and purposefully executed in a linear, top-down manner, with government actors playing a dominant role. On the other hand, cities also go through transformations that are not planned but instead arise spontaneously. Examples are the establishment of informal residential settlements (Durst and Wegmann, 2017), shifting traffic flows (Chowdhury and Schadschneider, 1999) or social segregation (Buitelaar et al., 2017). Such spontaneous and unintended transformative processes are also described as processes of self-organization, a concept embedded in complexity sciences (Allen, 1997; Batty, 2007).

The notion of self-organization has become increasingly prominent in the domain of urban studies and planning (Alfasi, 2018; De Roo, 2016; Portugali, 2000; Zhang et al., 2015). Enlightened by the progress made in natural sciences, understanding self-organization in social systems is becoming more explicit and advanced (Collier, 2003). However, unlike particles in an atomistic world, human agents are reflexive and knowledgeable, have expectations, show anticipative behaviour and are able to respond strategically to self-organizing processes. Consequently, self-organizing processes in social systems frequently come into conflict with purposeful control and regulation, for instance, city or neighbourhood developments (Portugali, 2011).

The research on developing productive relations between self-organizing social systems and planned intervention is therefore a growing field within urban governance and the spatial planning literature (De Bruijn and Gerrits, 2018; De Roo, 2016, 2017). It is believed that with appropriate revisions and a slight change in attitude, planning can become sensitive to, and beneficial for, a world of autonomous change (Nederhand et al., 2016). Three dominant approaches can be distinguished. The first approach emphasizes communication and participation, which aims to support bottom-up initiated developments and their local interactions. Planning in this respect enables a shift from a plurality of individual, uncoordinated activities towards intentional, collective action (Edelenbos et al., 2018; Horelli et al., 2015; Innes and Booher, 2010). This planning approach is oriented towards *self-governance*, in which cooperative collectives shape their environment in accordance with their own preferences without immediate official institutional involvement (Arnouts et al., 2012; Ismael, 2011; Kooiman, 2003). A second approach is in line with the first, but it includes official institutional involvement: it is known as *shared governance*. This involvement does not go much further than facilitating or guiding stakeholders and their activities. In planning debates, it is seen as a co-production of civic actors and civic authorities in community building and neighbourhood development (Moulaert et al., 2005; Newman, 2011). A third approach is to reconsider the use of contemporary planning instruments in support of the often unintended outcomes of emergent pattern formation, which in turn spontaneously coordinate the actions and interactions of actors within the system (Cozzolino et al., 2017; Moroni, 2015; Rauws, 2016). This planning approach is about responding and adapting to *self-organization*.

Self-governance, shared governance and self-organization are not the first issues that come to mind with regard to spatial planning in China, which is characterized by a top-down controlling system (Cai et al., 2016; Zhang et al., 2012). Various regions in China show spatial and demographic transformations, which are considered to be the result of careful planning and of economic and administrative policies (Wei and Zhao, 2009; Zhu and Zheng, 2012). This seemingly controlled behaviour cannot hide the increasing uncertainties

and new dynamics with which urban development in China has been confronted in the past decades (Wei et al., 2015). Thus, it is important to ask questions about the future of urban planning in China in the light of autonomous urban transformations.

This paper aims to explore the mechanisms behind autonomous, unplanned transformations in the urban domain of Beijing, China, and the role of formal institutions in dealing with such urban self-organization. More specifically, the focus is on the response of villagers and other related stakeholders to contextual change, on interdependencies between individual response and collective results (e.g. the functional transformation of the region), and on how these collective spatial and economic changes call for an institutional response. The study demonstrates that even in China, with its highly controlled approach to planning, spontaneous behaviour can accumulate to a stage that calls for institutional response and support, ranging from self-governance to shared governance and beyond.

The paper is structured as follows. In the next section the institutional domain of urban planning will be mapped with reference to government-controlled planning, shared governance, self-governance and self-organization. The third section will introduce the case study area of Gaobeidian and the methodology, and it will analyse the three transformations that took place there, including their diverse triggers, under a hierarchical institutional environment. On the basis of the case study, the fourth section will reflect upon the role of institutions in the process of urban self-organization, after which the paper concludes.

Theorizing the role of institutions in urban transformation

In the past three decades, a widely supported ‘institutional turn’ has taken place in the social sciences. This ‘institutional turn’ is also known as ‘new institutionalism’ (Powell and DiMaggio, 2012). It reflects critically on institutional behaviour and choice making by emphasizing the interdependent relationship between agents, institutions and their institutional environment (North, 2005). Institutions are considered to be the rules of the game in a society, humanly devised constraints and enabling conditions that shape human interactions. Institutions express themselves either through formalized rules and regulations or informal norms (North, 1990). At the same time, institutions cannot be productive without interacting agents consciously seeking agreement (Coen and Richardson, 2009; Jessop, 2004).

Within the planning literature, the interdependent nature of planning institutions and spatial change is broadly acknowledged and inspires various schools of thought (Salet, 2018). With the rise of complexity theories of cities, scholars have given particular attention to how institutions can deal with the intrinsic uncertainties in this interdependent relationship (Balducci et al., 2011), and how they can support the adaptive capacity of urban systems (Rauws and De Roo, 2016), as well as to the dilemmas of institutional design for a dynamic and uncertain future (Savini et al., 2014). Also, the particular interrelationship between urban self-organization and institutions has received increasing attention, as many rethink the nature and function of formal rules (Moroni, 2015), approval procedures for planning projects (Alfasi, 2018) and institutional innovation in response to illegal practices (Silva and Farrall, 2016). However, the evolution of institutions in conjunction with local urban transformations and self-organizing initiatives has not yet been addressed sufficiently in the particular context of dynamic peri-urban regions in China.

Institutions are fundamental for interventions in urban development (Acemoglu et al., 2005). This paper concentrates on formal institutions that apply laws, regulations, statutory plans and legitimate policies at the local, regional and national levels. For the case study that will be presented, these institutions relate specifically to national land use legislation on land

expropriation, land ownership, land market regulation and various area-specific policies such as the green belt policy of the Beijing municipality.

As this study aims to unpack the evolution of institutions in relation to local, partly self-organizing urban transformation, a framework is required that allows us to map types of institutional responses to (autonomous) change and how these institutions generate change in return. Based on previous contributions (Fuchs, 2003; Rauws, 2016), we propose an analytical framework that connects ongoing processes of urban transformation, four modes of governance and possible roles of institutions in complex urban systems (Figure 1).

The middle section of Figure 1 indicates the four elements that are key to understanding transformation in complex urban systems that are open and adaptive (Portugali, 2011): external conditions, individual intention, collective intention (and action) and urban transformation as an outcome. As urban transformations in turn may alter the external conditions, the elements are connected in a circular process.

Taking into account external conditions, the framework incorporates the sensitivity of urban systems and their actors to contextual interference, such as economic trends, technological innovations, societal dynamics and natural events. By distinguishing and connecting individual intention, collective intention and urban transformation, the framework provides a way to grasp the multilevel nature of adaptations within a complex urban system (Bai et al., 2010). Individual intention refers to an individual response to the changes of external conditions. Here individual could be an individual person, household, company, etc. depending on the ‘basic component of the system’ in a specific piece of research. In relation to the Gaobeidian case in this paper, individual intention represents the response of a household to the external changes, geared towards how to make a better living. In contrast, collective intention is a coordinated ambition, informing collective actions. Ultimately, collective actions have the momentum to push forward urban transformations as urban systems exist by definition because of a vast amount of relatively independent

Figure 1. A framework for analysing the relations between mechanisms of peri-urban transformation, planning institutions and types of governance.

actors. Hence, the coordination of individual intention is crucial for the emergence of a transformation, whether intentional and planned or emergent and spontaneous.

Time is an important factor in understanding the nature of coordination and institutional responses. As conceptualized by Cozzolino et al. (2017), the time dimension connects planning rules and individual actions on one side, with emergent orders on the other. Unpacking different mechanisms underlying the coordination of individual intentions allows us to analyse how different modes of governance emerge over time in an attempt to align institutional arrangements and the actions of related stakeholders. The proposed framework links and compares four types of governance driving urban transformations: self-organization, self-governance, shared governance and government-controlled planning (upper section of Figure 1). Self-organization features as autonomous emerging *collective actions* without any form of coordination of the individual intentions. Self-governance is based on a *collective intention* coordinated through the internal communication among actors within the system. Shared governance is also characterized by a collective intention coordinated through communication. However, participating in the agreement and the execution of the collective intention are not only actors within the system, but also government actors as external agents. Finally, there is the traditional government-controlled planning, enforcing a collective intention defined by the government through policies, regulations, plans, etc.

Government-controlled planning is a manifestation of the controlling role of institutions, which is achieved through a direct and central definition of collective intention. However, what roles can institutions play in the case of self-organized urban transformation in which a collective intention is absent? Acknowledging the non-linear interactions of institutions, individual actors' intentions and collective outcomes, the role of institutions is envisioned to be more indirect in guiding transformation. It moves from an instrumental role oriented to obtaining specific (future) spatial configurations, towards confining as well as facilitating social-spatial interaction among agents. Consequently, the intervention into behaviours may include urban codes (Alfasi and Portugali, 2007), framework rules (Moroni, 2010) or progressive standards (Hajer, 2011), since such formal rules do not prescribe a particular outcome but instead influence the possibility space for a range of potential self-organized urban transformations.

We distinguish three ways through which institutions can indirectly influence urban self-organization, as shown in the lower part of Figure 1. First, institutions can trigger change in the external conditions under which actors behave, for instance, by changing economic incentives or by revising immigration criteria. In this way, institutions bring dynamics into the system that stimulate a variety of responses from actors based on their own creative impulses (Holcombe, 2011). As the interaction between these intentions cannot be directly controlled, it remains uncertain what kind of collective outcomes will emerge, if any. Second, institutions have an enabling role in terms of providing resources and incentives that increase the probability of steering spontaneously coordinated actions in particular directions. The individual intention that is encouraged by institutional arrangement is likely to lead to collective actions. For instance, tax rate adjustments lead to collective migrations from region to region. Finally, institutions play a role in constraining by prohibiting specific individual actions, thereby indirectly constraining the possibilities for urban self-organization. For instance, by forbidding the splitting of houses into several small studios, a further touristification of a neighbourhood might be weakened. As such, constraints on individual actions mean that some of the many individual intentions of actors in response to changes have a rather low chance of merging into a collective intention that drives urban transformations. In comparison to the linear understanding, with its emphasis on certainty,

we agree with those who argue that the institutional role in a self-organizing transitional process is governed by both chance and necessity (Fuchs, 2003).

A case: The transformation of Gaobeidian ‘village’ in Beijing

Why is this case relevant?

There are two main reasons why Gaobeidian ‘village’ has been chosen as the site for research. First, it is only 4 kilometres from the Beijing Central Business District (CBD), which makes it a strategically and economically important location (Figure 2). It has therefore experienced tremendous change over the past two decades. Second, this area has seen a variety of efforts to coordinate spatial transformation, which makes the Gaobeidian area a valuable and interesting case for studying the interdependencies between spatial change and institutional design.

The territory of Gaobeidian covers 2.7 square kilometres. Its development displays typical characteristics of a peri-urban area (for an overview of peri-urban areas, see Rauws and De Roo, 2011):

- a dynamic and rapidly transforming interface between the urban and the rural;
- agricultural activities are replaced by residential, retail and recreational activities;
- migration and functional and lifestyle changes contribute to the socio-economic and cultural integration of the rural into the urban;
- multi-interests in spatial development (such as real estate, green belt and job-creating industries) due to its peri-urban location, and consequently its blurred identity.

In the 1990s, Gaobeidian was a typical rural village, engaged in general agricultural activities along with several traditional rural industries, including printing, paper-making and timber-milling. Since the late 1990s, as a result of Beijing’s urban expansion, there has been a great deal of construction in and around the village. As a result, the village underwent three successive transformations with a major impact. In the first transformation period (late 1990s–2002), the village changed from a rural community to a semi-urbanized area, providing temporary accommodation for urban migrants (Deng and Huang, 2004). In the second transformation (2003–2009), the village transformed itself into a well-known centre for the antique furniture industry (Zhi, 2011), with the main

Figure 2. The location of Gaobeidian. CBD: Central Business District. Source: Author mapping.

street boasting several shops specifically servicing the furniture business. The third transformation, which is still underway at present, involves the large-scale renovation of the entire village.

Data collection

The primary data used to analyse the development of Gaobeidian were gathered from interviews, with 23 semi-structured face-to-face interviews conducted with local inhabitants, planning experts and local government officials. The interviewees were asked about the historical, present and possible future developments of Gaobeidian, about the underlying drivers of the developments and for their understanding of the impact of formal institutions related to local land use. The interview results were cross-checked by additional document analyses, including policy reports by local, regional and national authorities. Together they have allowed a reconstruction to be made of the role of institutions in generating and responding to urban transformation.

A preliminary list of items was used to structure the interviews. With this list, stakeholders were asked about how they interpret, understand and respond to the following: relevant planning policies, such as the Beijing green belt policy; the top-down regulatory system in general; uncertainties during plan implementation and innovative solutions; and interactions with other stakeholders in the face of change. In addressing these topics, specific questions were devised, tailored to the background, position and experiences of the interviewee. The interviews lasted from 1 to 3 hours, with an assistant taking notes while the author spoke with each interviewee. A recording device was not used because most interviewees would have felt under surveillance and would have spoken less freely. An interview report for each interviewee was made by the lead author immediately after each interview, to minimize information loss, and these reports can be requested from the lead author.

Varying mechanisms in the transformation of Gaobeidian

The three major transformations of Gaobeidian exhibited different mechanisms. The first transformation was from a typical rural village to a suburban accommodation area hosting migrant workers. In this transformation, external dynamics, including the construction of Beijing's fifth ring road, a municipal power plant (Huaneng power plant) and the green belt policy, caused a loss of approximately 110 acres of agricultural land. The economic relevance of the traditional agricultural production of the village gradually diminished. In the face of these external changes, the villagers started, one by one, developing new economic activities within Gaobeidian. New houses or additional rooms in existing houses were constructed, first anticipating, and later in response to, Gaobeidian's attractiveness to migrant workers. The villagers saw an increase in their income through housing rents, making good use of Gaobeidian's easy access to employment in the centre of Beijing.

Crucial in understanding this transformation is that at the time it began, none of the villagers planned to turn the village into migrant accommodation, or anything relating to a functional transformation, nor did they act according to any form of internal agreement or external request (see Box 1 for illustrative examples).

We have to consider these actions to be autonomous responses to the urban land expansion and consequent loss of agricultural land, the high influx of labourers from rural areas seeking employment in Beijing and the desire of the villagers to increase their income. Gradually, a collective pattern emerged out of these uncoordinated individual intentions – a village living on rental income rather than on farming. This transformation emerged in a spontaneous way

Box 1. Interviewees' intention to respond external change.

We don't have farming land. And the government prohibited village industries. The compensation for the green belt maintenance is too low. Confronted with the above situations, I rented part of my house to earn my living. I don't have a plan to better deal with such a situation. Just live for the moment, day by day.

—From a resident interviewee

I have a job as a security, from which I can support my family. However, I followed my neighbours to rent my house because this brings stable income easily.

—From a resident interviewee

The reason I rented a house here is simple: close to my working place and cheap, way cheaper than urban apartment. I never feel satisfied about the living environment though.

—From a tenant interviewee

Box 2. Interviewees' collective intention on the transformation of Gaobeidian.

I am not rich. But I am very much willing to contribute if the annoying smell of garbage can be solved.

—From a resident interviewee

We have to help ourselves because no other agencies will. Tenants brought into our village with not only money, but also disorder and risks. The good thing is however, most of our fellow villagers want to be part of a solution for a change. Moreover, this village used to be a trade center for furniture. So we succeeded in job provision and environment improvement, and more than expected becoming a well known place for antique furniture.

—From a member of village committee interviewee

as a result of individual actors responding to external changes. It is therefore a typical self-organizing process, driving Gaobeidian from a rural village economically dependent on agriculture to a semi-urbanized area focusing on a service economy.

In the second transformation of Gaobeidian, both internal and external dynamics provided the stimulus for bottom-up initiatives. The increasing number of migrants not only raised the income of local residents, but also created serious health and safety problems. At the same time, regulations related to the green belt policy further reduced local job opportunities in the area, with prohibitions on industries that would be detrimental to the environment. Consequently, improving the quality of life for local people and creating job opportunities became a necessity, this time mutually agreed upon by local residents (see Box 2), which subsequently led to a series of actions based on collective intentions.

First, the residents started collectively to deal with rubbish and waste in order to clean up their surroundings, launching a self-regulation to maintain a clean environment. For example, no one was allowed to dump rubbish during the daytime. Second, they partly renovated their own homes in order to attract a new kind of tenant and better facilitate furniture shops. They made use of the village committee to publish announcements, to share and update information, and they also attempted to obtain support from higher levels of government and through social media. Third, they also organized exhibitions and shows for the sale of antique furniture and to promote investment. Moreover, the residents collected voluntary donations from the community to be used to finance the projects. All together, these collective efforts gradually turned Gaobeidian village into a regional industrial centre for antique furniture from the Ming and Qing dynasties.

Box 3. Interviewees' collective intention on the transformation of Gaobeidian.

With the renovation program implemented, we are able to turn this place (Gaobeidian) into a great industry center of Beijing municipality and even Northern China. It will contribute substantively to both working opportunities and revenue of our district. Moreover, it sets a successful example for rural transformation.

—From a government official interviewee

The renovated house is wonderful to live in. However, I would rather rent it to others and live somewhere with lower rent. Just to get more money to support a better living.

—From a resident interviewee

This second transformation was also driven by bottom-up initiatives. There was no external agent involved in the process at any time. However, the transformation was significantly different from the previous self-organized transformation. The actions of the local villagers were based on a collective intent, coordinated through communication between villagers. For example, several self-regulating work teams were set up to deal with issues such as hygiene standards, house decoration and safety.

After becoming a well-known centre for antique furniture around 2009, Gaobeidian started to attract external attention in relation to its future development. This initiated the third major transformation. In 2009, the Chaoyang district government, to which Gaobeidian belongs administratively, became involved and co-initiated a renovation programme with the village. According to this plan, the large-scale reconstruction of village houses would be implemented to better support the development of local industry and local wellbeing. The renovation programme was directed by a uniform planning approach, which was agreed upon by both the local villagers and the district government. According to the plan, old houses were to be demolished and replaced by new three-storey terraced houses. The ground floor of each property would be designed to serve commercial activities. The villagers were required to do the demolition work themselves and cover the expenses for building the new houses. However, the government would provide support with low-interest loans and free building permits. Moreover, the renovation project would include the provision of public facilities for Gaobeidian, with a municipal water supply, gas pipeline, fire-fighting equipment and other services to improve the existing underdeveloped facilities. The villagers in Gaobeidian showed great interest in and responded actively to this plan. At the end of 2013, 680 residential houses had been renovated, 95% of which are involved in commercial activities.

This transformation manifests characteristics of shared governance. It involved an external governmental agent, which played an important role in stimulating changes. However, the government did not dominate the process, but participated as a valued facilitator. Interactions between the government agency and the villagers led to a collective intent: a comprehensive development package for Gaobeidian (see Box 3). Moreover, this collective intent was, in the end, institutionalized in a formal blueprint planning scheme. The second-order, spontaneous effects of this transformation are still not clear. However, during the fieldwork, it became clear that a few villagers had chosen to rent out their entire house due to the very high commercial value of the properties. This potential self-organizing process could result in a scenario in which Gaobeidian is full of businessmen and consumers but no local residents. This risk needs to be considered by policymakers.

In this section we have analysed the mechanisms behind the three major transformations of Gaobeidian: self-organization, self-governance and shared governance, respectively, all of which incorporate bottom-up elements. The initial transformation started as a process of

self-organization, and it switched into self-governance later on with intentional coordination of the local villagers. Finally, it entered into a process of shared governance. In this third phase, government actors got involved. The increase of coordination with the passage of time can be ascribed to two reasons. On the one hand, the challenges faced by the community changed, and they needed to be solved collectively. And on the other hand, the public authority could step in quickly and efficiently the moment when a clear collective intention became evident.

The three transformations show various ways in which external conditions in combination with individual intentions can lead to urban transformation. The three transformations also manifest fundamental differences in the way collective outcome emerges, namely either via deliberative coordination of individual intention or through spontaneous alignment, as shown in Figure 3. How does the variety of interactions between the bottom-up processes and the top-down, formal institutional processes clarify the difference between these three transformations? In the following section, we will explore the role of formal institutions in the bottom-up transformation of Gaobeidian.

The role of institutions in the transformation of Gaobeidian

The transformation of Gaobeidian combines the characteristics of two typical transformations of peri-urban villages in China. Many villages are gradually being replaced by real estate development projects arising in the context of the expansion of urban built-up areas. Alternatively, some peri-urban villages in China have been transformed into urban villages – transitional neighbourhoods where the village is encircled by the city. In these cases, villagers lose their farmland but still maintain property rights over their own homes (on urban villages, see Liu et al., 2010). Gaobeidian is not a clear example of either of these two developmental routes, but, interestingly, is a combination of both. The transformation of the village started when it became an accommodation area for urban workers, which was followed by the flourishing of the antique furniture industry. With regard to the interdependence of local actors and their behaviours, the role of institutions in these transformations can be understood as triggering, constraining and enabling.

Figure 3. The mechanisms behind the three transformations of Gaobeidian.

The triggering, constraining and enabling role of formal institutions

First, the triggering role is concerned with land acquisition that has been legally secured for the implementation of regional construction projects, allowing for the easy expropriation of local farming and industrial land. According to the current land use legislation in China, which facilitates a top-down command and control system, land can be easily assigned to national or regional projects (Gao et al., 2014). The monopolized land market is designed to ensure that the path is paved for national and regional interests, such that time-consuming agreement-seeking processes with local stakeholders can be avoided. For Gaobeidian, with booming Beijing at close range, it was only a matter of time before local land would be reassigned to developments in support of the growing city.

As a result, most of the farming land and a large part of the village-owned industrial land were acquired for municipal and regional projects. Gaobeidian thus lost the substantial basis of its existence as a farming village. Most villagers had to give up farming and had to rely on compensation, which was rather low and thus inadequate (Ding, 2007; Lai and Tang, 2016). Moreover, there was only limited work and the villagers lacked stable sources of income. Most villagers did not have good education, which hindered them from competing for jobs in the CBD. That is why the new situation forced people in Gaobeidian to act locally and individually when looking for alternative jobs and alternative income.

Therefore, national institutions on land use and urbanization at the municipal level mutually led to changing external conditions, which severely impacted Gaobeidian, triggering local action. While local agents have no alternative other than to respond, each agent responds individually based on his or her own abilities and constraints. We distinguish the triggering role from the enabling role. In a triggering process, institutions bring about changes to the external conditions, initiating responses from actors to adapt, while in an enabling process, institutions create external conditions that facilitate the coordination of actions that lead to emergent outcomes.

Second, while Gaobeidian was severely impacted by the allocation of major, top-down planned projects in its vicinity, the response of the villagers coping with the consequences was constrained by legislation and regulations. In the case of Gaobeidian, the land market was restricted, and the regulations determined, and therefore constrained, changes in the land use.

In China, land is either state owned (such as urban land, national parks and state-owned farms) or collectively owned by a village collective (agricultural land, residential and industrial land in rural areas). Such an institutional setting does not allow land in rural areas to be traded directly with developers through market mechanisms. Instead, ownership must first be transferred to the state through the process of land expropriation, after which the land can be sold to developers by the government (Liu et al., 2014). In addition, legislation grants the state the authority to acquire collectively owned land for public purposes. These institutional constraints reduced the probability of coordinated or spontaneously aligned local actions such as selling residential land to developers.

Aside from major projects supportive of urban growth and development, Beijing municipality also has a policy to sustain particular qualities to ensure that the urban environment remains liveable. Plans from the Beijing municipal government distinguish various urban agglomerations with different key functions. Between these urban agglomerations, croplands, vegetable gardens, trees, orchards and surface water are to be preserved (Jun and Zhou, 2007). This is a green belt policy that constrains land use behaviours that are considered to have negative impacts on the formation of the Beijing green belt. This policy includes strict prohibitions on small-scale industrial development, such as paper-making,

printing and low-level manufacturing, all of which are typical industrial categories in Beijing's peri-urban area. Thus, the Beijing green belt policy further constrained the options for Gaobeidian to create alternative jobs locally.

Third, within the government domain, there are not only constraints on the local community, but also policies that enabled local developments. In the case of Gaobeidian, this enabling role can be found in the municipal 'Development strategy for culture and creative industries'. According to this municipal policy, the municipality encourages the development of a number of cultural and creative industries. This policy includes a lower threshold in fixed investment for start-ups, permission to look for wider sources of investment, flexible regulations on the number of company employees and financial support from a municipal fund with a 50-million-euro annual budget for all of the industries listed municipality wide. With these incentives, this policy generates possibilities for individual agents to act. And if various individual agents act independently in response to these incentives, these incentives become an 'attractor' to which agents relate. New patterns of behaviour will emerge. And as these patterns become visible, it might attract even more agents. It is a process of self-organization, initiated institutionally with transformative change as the result.

The incentives put in place by the municipal authorities were appreciated by some of the villagers, who set up antique furniture shops in Gaobeidian. These initiatives quickly increased with more villagers getting actively involved in the business of antique furniture. The high accessibility, low rent and a range of retail spaces that could accommodate the second-hand antique furniture trade made Gaobeidian an ideal place for this particular cultural and creative industry. In 2006, individual villagers applied for municipal funding and were able to start their antique furniture businesses. Gradually the number of people involved in the antique furniture industry in Gaobeidian increased, as residents either rented out part of their homes for furniture renovation and sales or operated antique furniture shops themselves. The incentives package provided by the municipal government played an enabling role in this transformative process. Thus, the experience of Gaobeidian links in with a wider and perhaps already somewhat classic debate about how to stimulate young entrepreneurs and catalyse civil initiatives within cities (Florida, 2002; Landry, 2008).

Why was 'antique furniture' the outcome of Gaobeidian's socio-economic transformation? The possibilities created institutionally by the 'Development strategy for culture and creative industries' were originally not associated with specific businesses. They were broadly and generically defined, in the sense that the policy did not determine the specific type of industry that should be developed, neither did the policy mention where or how. The Gaobeidian community responded to the policy programme through individual actions, starting a creative industry in which local entrepreneurs saw potential: antique furniture. These individual actions received bottom-up support in the sense that these first actions were well understood by others, who followed them without hesitation. In retrospect, the first few small antique furniture shops were nothing more than the obvious stepping stones towards Gaobeidian's antique furniture industry. The role of the municipal government was not so much to organize but to enable the individual actions that resulted in Gaobeidian's transformation.

Linking bottom-up initiatives and top-down formal institutions

The three transformative processes that took place successively in Gaobeidian were the consequence of interdependencies between individual behaviours and formal institutions. Formal institutions ensured the penetration of changing external conditions into Gaobeidian, in the form of various construction projects nearby, which acquired farming

land, thereby removing a source of income and triggering responses from the local villagers. In responding to this new situation, the villagers were institutionally constrained through land market regulations and the green belt policy. In addition, institutions have an enabling power, supporting villagers in alternative activities and offering support for initiatives that villagers feel good about. Consequently, Gaobeidian first transformed into a neighbourhood for migrant urban workers, and it adapted again at a later stage to become a much appreciated locality for the antique furniture industry.

The enabling role of formal institutions was essential for the formation of collective intention in the second transformation of Gaobeidian. Under such a collective intent, villagers worked collectively to deal with the hygiene and environmental problems in the community, and to find the initial funding for the development of an antique furniture industry, which was beyond the capacity of any individual villager. Aside from the enabling role from within the formal institutional domain to develop a cultural and innovative industry, villagers also made good use of the village committee, which is an elected organization for the self-regulation of the village. As part of this bottom-up initiative, the committee provided space for interactions and the organizational capacity to facilitate activities, such as group discussions, the distribution of information and periodic meetings. The village committee, as a formally acknowledged body, was able to make a difference in the quest to obtain support from higher authorities, the regional media and private funding from outside investors. This interdependency – a kind of ‘good will’, as it were – between informal institutional support and the collective intent among villagers proved to be essential in reaching a higher level of institutional collaboration: shared governance.

With regard to shared governance, the villagers were still taking the leading role with regard to transforming their daily activities, the business they want to develop further and Gaobeidian ‘village’ as a whole. The authorities, from the village committee to the municipal government, were facilitating and stimulating the villagers’ initiatives, rather than controlling them. The collective intent to transform Gaobeidian into a neighbourhood with modern residential housing was institutionally supported by a formal planning scheme. This planning process transformed Gaobeidian further. What once was a village with an organic, radiant structure, has turned into a neighbourhood of high quality, with rows of houses that are equal to each other and arranged according to a grid structure. These new conditional changes are triggering relocation of villagers, an influx of business owners and more institutional regulation of commercial activities. A co-evolutionary path of bottom-up initiatives and planning rules and policies is evident.

Conclusions

This paper explored the various mechanisms behind the transformations that Gaobeidian village at Beijing went through during the last few decades. The Gaobeidian case proves to be an excellent example of institutional adaptation in the various phases of urban transformation. Moreover, the case shows institutional progress, in the sense that at every new phase of transformation, the coordination between actors becomes more and more formalized. This institutional progress follows an evolutionary path that starts with self-organization, and subsequently continues as processes of self-governance, shared governance and government-controlled planning. This trajectory of increasingly formalized coordination is not the result of top-down aspirations of the authorities. Instead it is a process fuelled by various steps taken by local actors.

What started as the unintended aggregated result of individual actions in response to a changing environment evolved into a process of organizational improvement, a continuing

formalization of coordinating actions and increasing cooperation with the authorities. Gaobeidian is in that respect the institutional equivalent of Mount Kilimanjaro and its representation of all the global climate zones at one particular spot. Gaobeidian is the locality that represents the upward movement along the institutional levels of organization, which ranges from independent individual initiatives to controlled initiatives by the government. The variable relevant for differentiating climate zones is 'distance' from the Earth's surface. The variable that differentiates the various institutional levels of organization is the degree of coordination among actors.

Gaobeidian's transformation started with the necessity for individual actors to reconsider their activities, due to increasing pressure from outside: the expansion of Beijing. At this first level of institutional organization, the initiatives of individual actors resulted in aggregated patterns of behaviour: a new socio-economic configuration based on houses for rent for migrants. It proved to be a basis for actors to get organized as collectives. These collectives coordinated their actions internally, among others to counter the negative side effects of Gaobeidian's new local economy. These collectives affirmed themselves with self-established rules of behaviour. This self-governance proved beneficial to the individual as well as to the village community, which gave enough trust to make another step in the deliberate alignment of actors. Consequently, Gaobeidian's institutional organization developed into processes of shared governance, with the collectives progressively seeking cooperation (external coordination) with the authorities to enable them to further improve the living conditions of the village. What fuelled this process of increasingly formalizing coordination is the growing trust among the actors involved.

Gaobeidian's transformative path shows the evolution of institutional design in an environment within which actors are subject to triggers by changing external conditions, and to feedback of, partly self-installed, constraining and enabling institutions. Together, they push actors to proceed at another level of coordinating action. This co-evolution between institutions and the bottom-up initiatives demonstrates what is possible when emergent behaviour occurs. This emergent behaviour is produced by individuals and collectives, mostly in response to, and if feasible in cooperation with, governmental actions, to take their opportunities when possible and to counter undesirable effects when needed. It shows that in moments of dynamic change, citizens can be quite capable of taking responsibility for their actions.

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