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INFLUENCE MECHANISM BETWEEN LAND SYSTEM REFORM AND VILLAGE PLAN TRANSFORMATION: TAKING VILLAGES ON HANGJIAHU PLAIN AS AN EXAMPLE

Abstract: Taking villages on Hangjiahu Plain as examples, this article explores the influence mechanism between the land system and the morphological evolution of villages from the 1940s to 2010s. The land system imbedded in Chinese villages and towns comprises two dimensions: political and social, the interaction of which imposes a decisive impact on the village's planar morphology. In terms of political land systems, the research object witnesses five periods: Land Tenancy, Land Reform, People's Commune, Land-Contract Responsibility System, and New Rural Construction. Each period has burned a legible mark on the village's spatial structure. On the other hand, pushed by densification of population, the social land system specified by social relations is activated. It defines specific boundary between different households and impacts tangible spatial feature of a village and typo-morphology of rural houses. This research reveals forces of those two dimensions on village plan, political and social. The crash of these two dimensions results in redundancy in land-use. Such redundancy can only be assimilated through intangible, implicit boundaries defined by social relations rather than explicit form-shaping policies.

Keywords: land system, village plan, social relations, land property, boundary.

Research area

This research is focused on a typical rural settlement on Hangjiahu Plain in Jiaxing, which consists of several spontaneously formed villages, named Wanjiawei, Beishuidou, Hujiadou, Xijiadou, Shijie, Guojiabang (Fig.1). This article studies the interactive mechanism between land-property boundaries and village-plan. Household plot (involving house and courtyard), subsistence farmland, contractual farmland, self-kept plot, grove, waters, and transportation space consist of the land of rural settlement. Before Liberation, rice cultivation and sericulture were the main income source of local settlers, while in 1980s, pig husbandry and fruit cultivation prevailed. Having revealed that infected pigs were illegally discarded in river, pig husbandry in this area was officially prohibited, along with dismantle of barns. The erection of pylons in 2006 resettled some inhabitants in east Wanjiawei and south Xijiadou. Large quantities of the land were exchanged for Hu-Hang highway (constructed in 1994, extended in 2005), and Hu-Hang high speed rail (completed in 2010).

Research object

After establishment of PRC, the rural land management undergoes five periods: the Land Reform (1949 – 1955), People's Commune (1956 – 1964), Land-Contract Responsibility System (1981 – 1989), rural planning and construction control (1990 – 1995), protection of arable land and land management (1996-). On the one hand, national policies are tailored to suit local conditions, so called local policies. On the other hand, there is already the land use pattern shaped by the long-history small scale agriculture, and mature social conventions of land property definition. All the above mentioned are collectively called land system.

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In the following four sections, the author will elaborate on the mechanism between the national policies, local policies, social conventions concerned with land property and their impacts on the village plan.

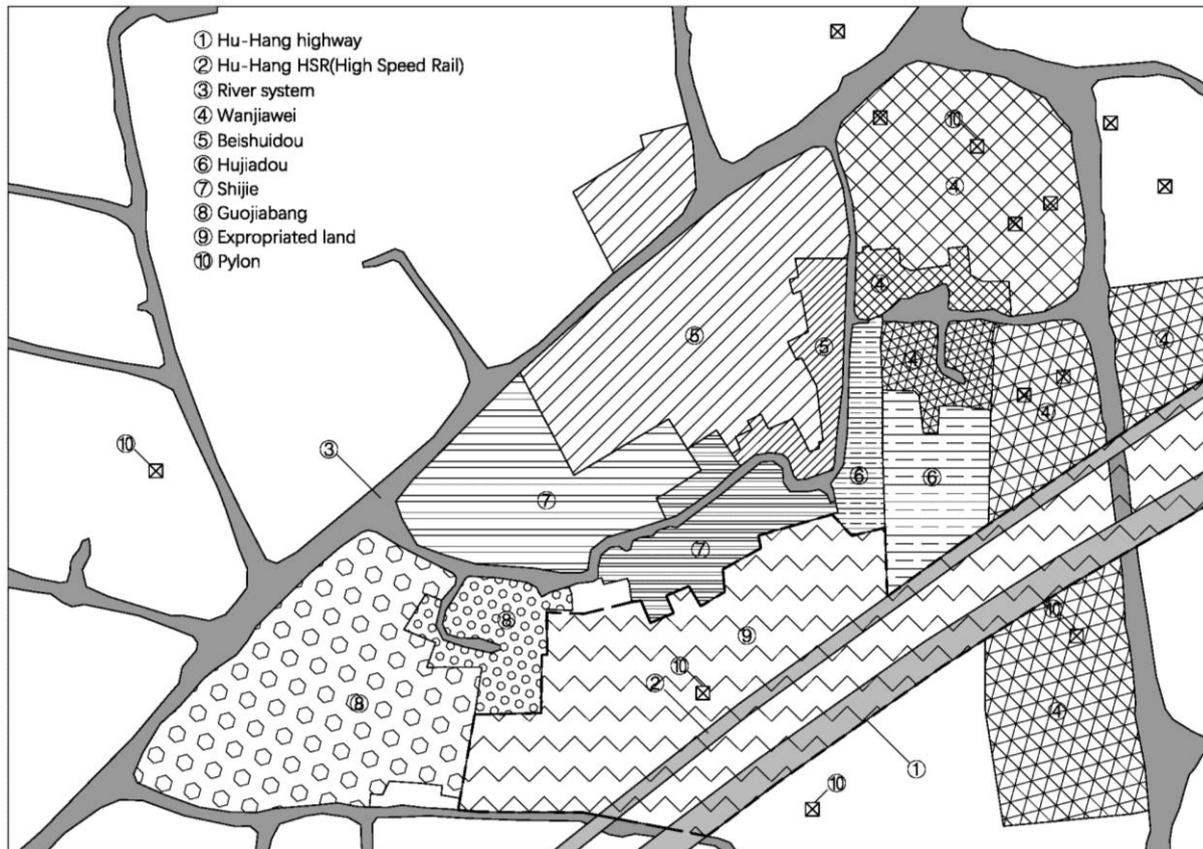


Figure 1. General view of the researched area

Natural environment

Farming activities and natural deposition have shaped the form of Hangjiahu Plain filled with water networks (Geng Ju, et al, 1980). A common feature of the farmland in eastern Jiaying is the low-lying paddy fields surrounded by embankments, so called Weitian system (“圩”Wei: embankment, 田 Tian: farmland) (Fig.2). The villages cultivating these fields are named after “兜” (Dou), “斗” (Dou) (Beishui Dou, Hujia Dou, Xijia Dou), or “圩” (Wei) (Wanjia Wei); “浜” (Bang) (Guojia Bang) is applied to the villages attached to dead-end-type river dug for dredging in low-lying paddy fields (Qian Xiaoqin, 2016). Since Ming and Qing Dynasties, villagers on Hangjiahu Plain have been relying mainly on rice cultivation and sericulture for a living (Yan Zhongmin, 1959). According to *Survey of Zhejiang Villages*, the soil near river is mostly black sandy soft soil containing sufficient fertility, which is suitable for cultivation. In other words, the fields near the river are more convenient for irrigation and mud-filling (Military Commission Committee on Land Reform of East China, 1952). The fields near the river were considered the best at that time. When the fields were re-allotted during the Land Reform in the 1950s, redistribution of farmland was mainly based on the formal rule perpendicular to the river, in order to be fair in soil quality and convenience of farm work (Fig.3). Before the construction of the water supply and drainage system, the river was the only source of water for subsistence and production. Therefore, a “Tatongdi” (Fig.5-a)), similar to a small wharf, was needed for each household to ensure private use of water. The direction of the river flow determined not only the division of farmlands, but also the rural-house-arrangement along the river. Based on cultivation of the wild nature, the natural environment set the basic rule of generating a village plan.

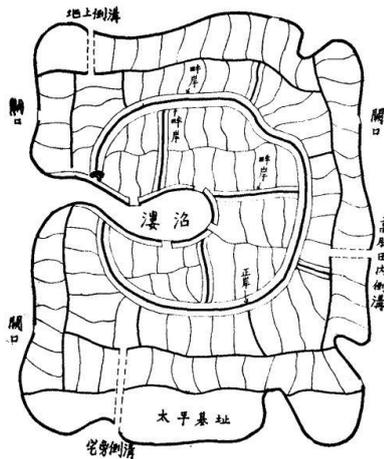


Figure 2. The diagram of Weitian System

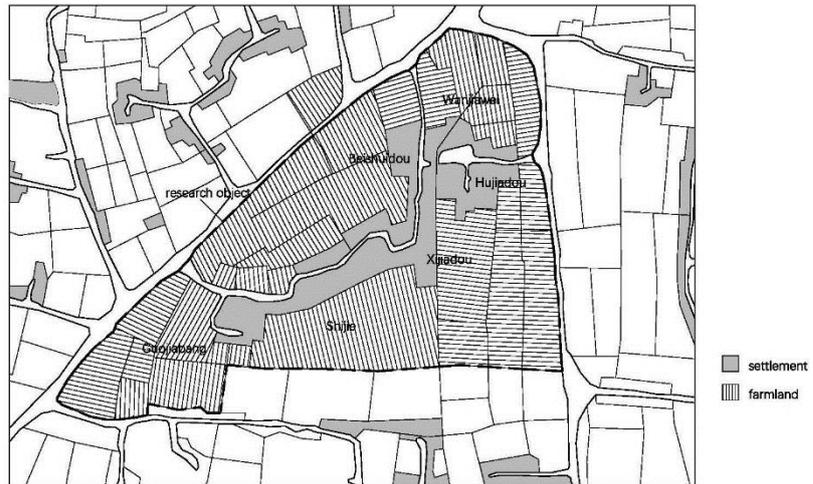


Figure 3. Subdivision of farmlands in the studied area

Land system

1. Land Reform

According to *Survey of Zhejiang Villages* (short as *Survey*), in the periods of land tenancy, our research area was scattered with spontaneously formed villages composed of 5-10 families (4-5 adults per family) (Military Commission Committee on Land Reform of East China, 1952). Considered that the water transportation prevails and transportation of large agricultural equipment is unneeded, those rural families are connected by the paths between households and ridges between farm fields. Those paths, as attachments of houses and courtyards, meander in form, building weak circulative relations between the rural families. The villages mentioned in the Survey takes on a similar feature, namely, complicated tenancy relations. Rich peasants rented out low quality farmlands to poor peasants in urgent need, and in the meantime, rented in cheap high quality fields for more exploitation (Fig.5-b)). Apart from that, tenancy relations were always village-cross, or even between urban and rural area. For example, in Gaozhao Village (research object of Jiaxing in the Survey), farmlands owned by per person was 2.05 acre, while utilized farmlands per person was 3.88 acre. This disparity comes from non-local landlords. Some landlords already lived in the urban area and operated commercial businesses. A small amount of land was possessed by factory workers, staff, peddlers and freelancers (Military Commission Committee on Land Reform of East China, 1952). In Tanghui Village (research object of Jiaxing in the Survey), an occupation called management landlord was mentioned, which can be dated back to Ming dynasty according to *Complement to Farm works* (Zhang Luxiang, Chen Henli, Wang Da, 1983), which was written by a management landlord. Such landlords hired labors, took part in person in farm works, and gained profit through a series of farming related industries, including cultivation, sericulture, fertilizer production, husbandry, tenancy and loan. Being distinguished from enclosed relations in patriarchal-clan dominated villages, all above gives a birth to a range of cross-village, cross-county open tenancy and employment relations. Social relations based on a mixture of feudalism and capitalism is more commercial and free than traditional feudalism consolidated by inherited land ownership. This social context among Jiaxing villages results in a homogeneous, centerless, interlocked plan arrangements conforming to respective locations.

In Tenancy Period, the landlord called JIANG Wenrong, lived in a courtyard house located in the middle of Xijiaidou, Wanjiayu and Hujiaidou, next to the bridge leading to Beishuidou. Before the Land Reform was put into effect in Jiaxing, JIANG fled to Taiwan, leaving his families behind. Thanks to the Land Reform, land properties came back from landlords to farmers fairly and equally, benefiting especially poor peasants and hired labor without registration. JIANG's courtyard house was divided up by his left-behind family members and labors like CHEN Sirong. Supposedly before the Land Reform, all the other non-local labors hired by landlords were already settled around JIANG's households, until today (Fig.5-c). Wanjiawei gets its name from this social and spatial context, since "Wanjia" means many families.

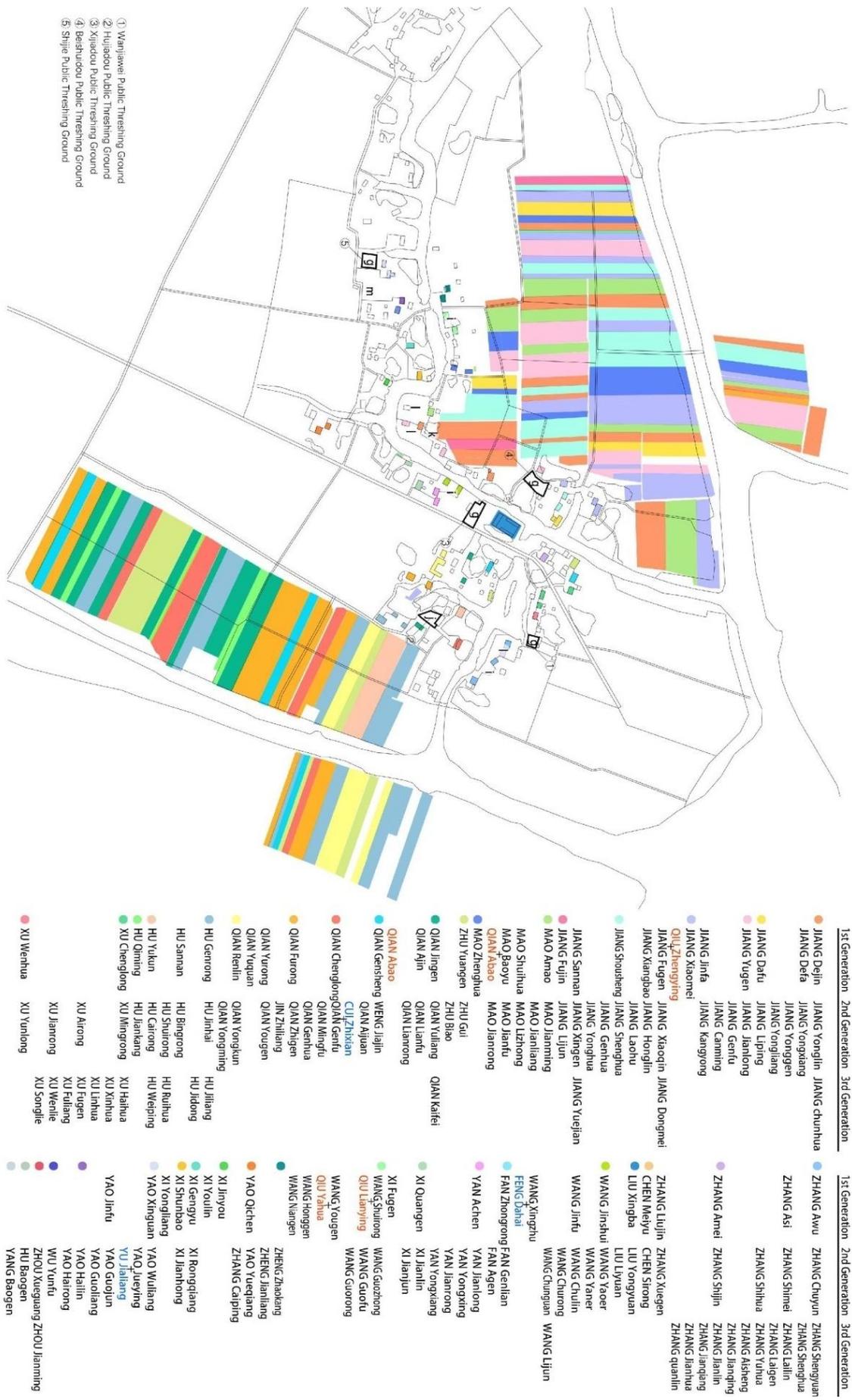


Figure 4. The cadastral map in 1982

- a). ZHOU Xueguang rented MAO Lizhong's homestead as "Ta-Tong plot" since ZHOU's household isn't next directly to the river.
- b). Landlord's courtyard house
- c). MAO Baoyu is farmhand from Shaoxing, who married with daughter of local villager, named Qian abao. Adopted son of farm laborer QIAN Gensheng lives east to the landlord, while his daughter get married with CUI from Qinjian, and settled down north of Wanjiawei.
- d). MAO Jianliang lives where his father lived, while his brother substitute his farmland with QIU, ZHU and JIANG for a new household plot.
- e). QIAN Mingfu's household plot
- f). WANG Guozhong, WANG Guofu and WANG Guorong's household plot
- g). Beishuidou's public threshing ground occupied by QIU; Wanjiawei's by XU; Xijiadou's by WANG; Shijie's by YAO. Bamboo forest close to water is occupied by JIANG, XU and YAN.
- h). JIANG and ZHU's household plot is adjacent to their farmland, which lead to encroachment of farmland.
- i). Jump-mode expansion happened in ZHANG and WANG family. Among these, WANG Xingzhu married into FENG in Xijiadou, together with WANG's brother's jump-mode expansion from Guojiabang to Shijie.
- j). Hujiadou's public threshing ground
- k). The public path west to JIANG's household leading to ZHU is newly built, which required land from JIANG Fujin, cutting his self-kept plot into two pieces.
- l). Some households with south courtyard facing water is gradually turned north entered to make yards more private. (ZHANG, MAO and JIANG)
- m). Original paths leave a brand on land allotment.

2. People' Commune

Original agricultural cooperatives (People's Commune) began to appear in Jiaxing in 1952. In addition to multiplying the cropping replenishment times, promoting electromechanical irrigation and drainage construction, breeding of silkworms and development of husbandry like raising pigs was officially encouraged (Jiaxing, 1997), considered that the actual rural population exceeds the labor needed for corresponding quantity of farmland. Each natural village had a public field for cereal sunning, threshing and a common sheltered space for breeding silkworms, which left the room for the future expansions and constructions.

3. Land-Contract Responsibility System

Legality of the Land-Contract Responsibility System was confirmed in the National Summary of Rural Work Conference in 1982. Paddy field was redistributed by 2 acres per person, while the co-planted mulberry lands cultivated during the Production Team period (intermediate stage of People's Commune) were also re-allotted to each adult according to "guan", a stripe of field with rows of mulberry trees planted on both sides. The labor force turned from agriculture to secondary and tertiary production because of the decline in agriculture. With the responsibility falling onto individual families, collective farm work like breeding silkworms turned out to be impractical. Those scattered pieces of mulberry land were gradually abandoned or turned into bamboo grove, which required certain time and energy. Irregular fields on riversides or between houses were contracted to households as private plots. Those small plots mentioned above were not within the range of government's management and statistical records, whose main focus was on contractual arable farm land, formerly known as paddy fields. The exchange of these unnoticed small plots was very common among farmers. In early 1980s, some even displaced contractual land for building new houses (Fig.5-f).

4. Land Management

Rural land for construction was made up of two parts, collective and individual. In management of collective rural land, there is no actual land utilization control before the revision of Land Administration Law of PRC in 1998. In the 1990s, rural enterprises sprung like

mushrooms on collective properties approved by the local governments, or even without official permission. With the revision of the Land Law in 1998, the approval right of land occupation was reclaimed by the provincial government, which to a large extent relieved the pressure of deficiency of the arable land. In control of constructions on individual households, Land Administration Law legislated in 1986 set the principles as “One-Family, One House”, with detailed regulations of area per capita, penalty caused by surpassing the given standard and tax induced by occupation of arable land. However, such control was designed mainly for the farmland, leaving the household plots with courtyards, scattered land other than contractual farmland a free space to build. Official incentives to self-employed households, rural families in a special kind of production and economic associations exacerbated construction in uncontractual farmlands, which redefined and materialized the land property border between rural households.



Figure.6. Materialization of the land-property boundaries

Exposure of discarding infected pigs into the river pulled down a dozen of such production constructions. Although barns and sheds were dismantled, their footing of walls remained to define the border (Fig.6). Before those constructions for husbandry or other productive activities, the border was implicitly defined by marks like height differences, trees, stones, fences and ditches. Building activities enforced people to explicate the boundary, and finally materialize it with constructions, imposing constraints on further construction activities. On the other hand, the boundary was not as concrete as the wall footing indicates, since the real boundary was located 1-1.5 meter offset from the footprint. This invisible boundary meant a defence against all kinds of activities, involving pedestrian circulation, building activity and rainwater dripping from eaves. From this angle, this intangible border could be maintained by the families from both sides, which depended on social relations and needs, implying that it could not be accurate or invariant. It could be inferred, those seemingly specific enclosure walls could be taken as one of the landmarks defining the border, rather than the border itself.

Demographical growth

Comparing cadastral maps of the 1980s and 2015, densification of settlement caused by growing population is obvious, which gives a rise to a set of plots with width from 12 to 35 meters. An ordinary three-bay house can exactly be built within a 12 meter wide plot (Fig.5-e), while a 35 meter wide plot can be shared by three brothers with individual houses (Fig.5-f). By investigation into the change of the land property during this period, some rules of constructions of houses for new families can be concluded.

(1). New households prefer public field left unused, shelved bamboo forest, and self-kept land for growing vegetables. With the decline of agriculture, especially rice cultivation and sericulture, public threshing ground and mulberry groves are gradually taking place by new households (Fig.5-g).

(2). Encroachment of the land exacerbates when contractual land and household plot are adjacent to each other. In early 1980s, farmer's own arable land can be taken up by his children as new household site, which contribute directly to abuse of limited land resources. Construction is more easily evoked in settlements whose farmland and households are connected (Fig.5-h).

(3). Confines of the land-property boundaries and unpredictability of the demographical increment lead to jump-mode expansion of rural households. In the periods of small-peasant economy, when picking up new locations for houses, children firstly prefer public or unneeded land next to the river, even though the new site bears a distance from his original families. Sometimes they even tend to move to another village nearby, rather than exchange scattered land with his neighbours. Lack of stationary rules renders the society immersed in the small-peasant economy unaccustomed to commercial exchange. The exchange in such society is based more on social relations than on general business rules, which promises no guarantee of the exchange and lifts the cost of displacing land ownership (Fig.5-i).

Transformation of the road network

The influence of changes in the road network on the land division is reflected on two levels: macro level – among the cities, and micro level – between the households.

The research area is located in the geometric center of Jiashan, Pinghu and Jiaying (city). Nowadays, apart from intercity roads between those three, there are also county roads connecting Dayun and Buyun (town) and the village roads meandering between the rural settlements. Under scrutiny, we can figure out that the way the research area is connected with the outside world has been unchanged during these decades. Its location as a dead end determines its delay in commercialization and urbanization (Fig.7).

In 1998, the construction of the four-lane Shanghai-Hangzhou Highway was completed. This highway was widened to eight lanes in 2005. Comprehensive electrification of the rural areas was conducted in 2006. The erection of pylons brought about the early land-requisition in that area. Several houses in east Hujiaodou and south Xijiaodou were moved to make place for the electrical pylons. The construction of Hu-Hang high-speed railway started in 2009. Contractual farmland in south Xijiaodou was reclaimed as the stockyard of railway construction. The farmers gave out their land properties in exchange for money or social insurance. The provincial or national construction of transportat infrastructure, such as high-speed railway, has had a tremendous influence on rural landscapes due to change in land ownership. Once the originally decentralized farmlands are uniformly contracted to the company or the government, traditional rural landscape driven by small-scale family production will be replaced by a monotonous and industrialized image.

In comparison with macro facets, great changes takes place at micro levels, namely within the researched villages. From 1980s on, the originally scattered spontaneously generated villages have gradually been linking themselves with each other, contributing largely to the accessibility and convenience in the rural area (Fig.4, Fig.5.). This convenience can be explained in two dimensions. On the one hand, the original road system is more like an attachment to individual

houses or complex, which form is based on the location of houses and the necessity of interconnections. When the population and households are densified, such inefficient way of circulation arrangements turns out to be infeasible. The villagers' demands on privacy require that one homestead's optimal connection to the public transportation space is with one side or with one short path, rather than two sides or crossed by public circulation. On the other hand, roads are wider and straighter for the sake of reforms in transportation methods, namely, the water circulation produced by motor vehicles. Some of those convenience benefited is fulfilled at the cost of utilization of private plots. A close scrutiny reveals that, in order to cut down the cost of negotiation with peasant, the government prioritizes the use of plots under the same certain villager, rather than placing the public road in-between two separately owned plots (Fig.5-k). To sum up, the motorization and straightening of roads intensified subdivision of land properties, from which inefficiency in uncontractual land utilization can be predicted.

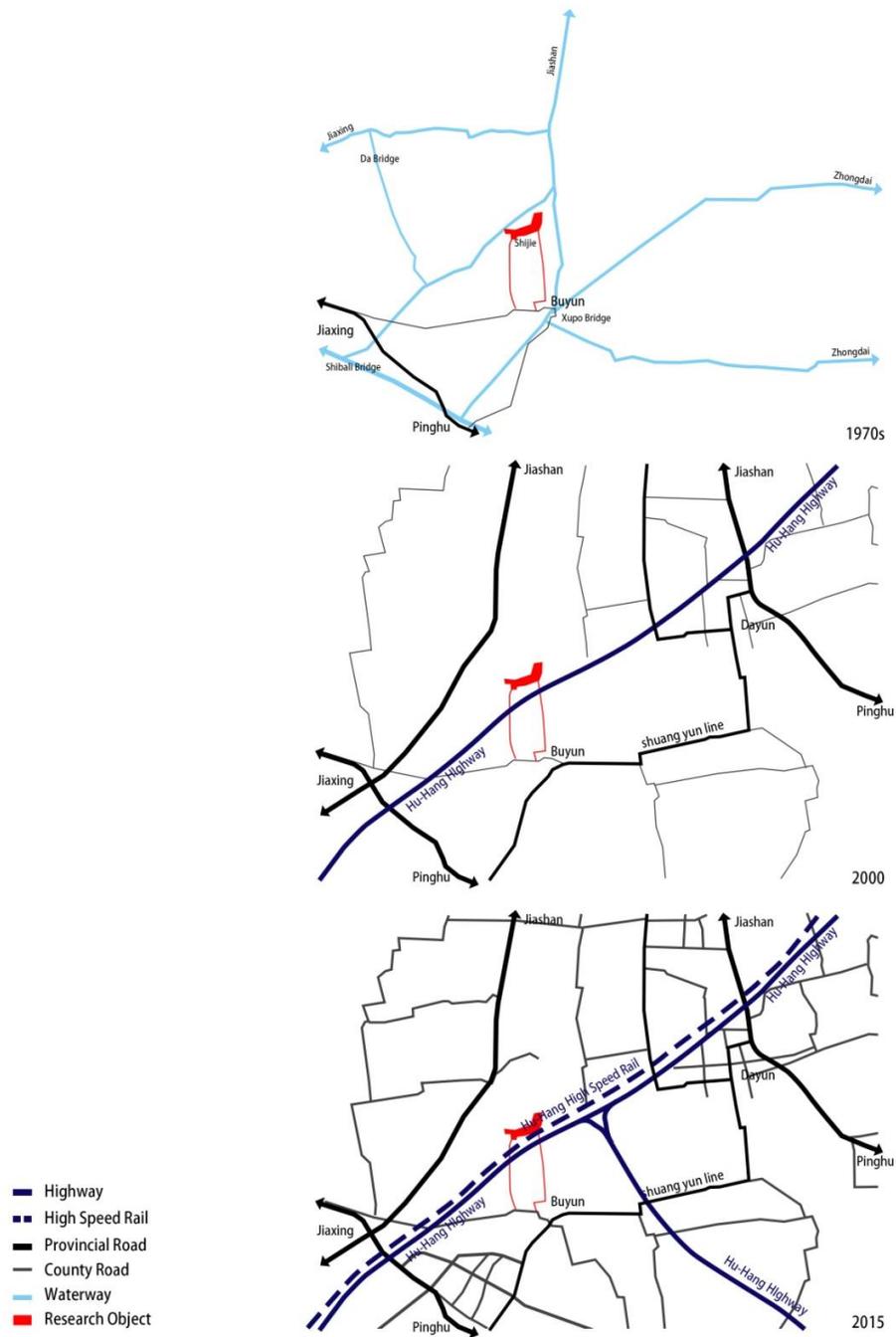


Figure 7. Transformation of road networks

In addition, there are three other types of changes in the rural space related to the road network transformations which are worth mentioning:

Privatization of courtyards. (Fig.5-1)

In recent years, most of households facing south to the water have turned their main entrance from south to north to guarantee their privacy.

b. The original road pattern leaves branding on the division of fields near homestead. (Fig.5-m)

c. The planar texture of Xijiadou is most neatly organized with the efficient plot-width among these natural settlements. The straightness of river course and the original road direction between these two rows of houses can account for this result. (Fig.4).

Conclusion

Transformation of the rural settlement on Hangjiahu Plain can be concluded into five phases (Fig.8):

Phase	Land system	Morphological features
1	Tenancy	Centered by landlords; households of ordinary peasants are scattered; road is attached to the houses;
2	Land Reform	Land equally is redistributed, including the centered landlord's house; division of farmlands perpendicular to river
3	People's Commune	Public threshing ground and silkworm-breeding houses; roads connect other villages
4	Land-Contract Responsibility System	Most new households take place in unused public ground, self-kept fields, bamboo grove; barns and sheds built broadly within homestead
5	Land Management	Constructions are dismantled, leaving the boundaries behind.



Figure 8. Planar morphological change under changes in the land systems

Villages on Hangjiahu Plain undergo similar procedure swinging back and forth between the status of being collectively owned and individually owned, between common needs and individual demands. The crash in-between results in a series of redundant land pieces, which could be integrated and turned arable or inhabitable. This article puts forward a viewpoint that, boundary of rural land property is based on social context, and intangible rather than defined by the enclosure of the walls like in crowded urban area. It triggers reflections on the land policies which gives concrete and explicit boundaries to new rural constructions, lacking in changeability, vagueness and intangibility.

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