

Article

From Fishing Village to Jimei School Village: Spatial Evolution of Human Ecology

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Abstract: We explored the symbiotic relationship of villages on the Jimei Peninsula from the perspective of new human ecology adopting literature analysis and field investigation, and the four steps of reading, sorting, analysis, and induction for qualitative research. Two stages of Jimei Peninsula's development from natural areas to human ecosystems were analyzed by using the survey data in this research, and the spatial evolution process of Jimei Peninsula's development from a fishing village to a Jimei School Village was analyzed. The key factors in the formation of natural areas were political rather than economic, and the human ecosystem is determined by the spatial pattern embedded in the village and the school. After adaptation, growth, and evolution, Jimei School Village and the environment of the peninsula formed a symbiotic relationship of convergence and complementarity.

Keywords: Symbiosis, embedded, Complementary, Convergence

1. Introduction

Ecology comes from the Greek oikos, meaning household. In 1873, the German biologist E. Haeckel cited it in the study of biology, focusing on the relationship between all living organisms and their environment. In the 1910s, it was applied to the study of the relationship between humans and the environment and began to be called Human ecology [1]. Humanistic ecology led by Park in Chicago School regarded the city as the spatial distribution of ecological community which was derived from biological competition, invasion, dominance, and segregation [3]. In it, different space models were developed to predict the future development of the city or as an ideal type of city planning such as the Concentric-zone theory proposed by Burgess in 1923 [4]. Similar to the concept, in 1932, a geographer Barrows put forward the concept of environmental adjustment from the perspective of ecological analysis based on theoretical basis of the man-land relationship [2]. The understanding of the city requires a special theory, for example, a theory about the social organization proposed by Hawley [5]. Hawley's New Human Ecology emphasizes interdependence based on complementary and convergent symbiosis. Integrating these two approaches allows us to understand the mutual adaptation and balance between people and their environment as well as the growth relationship between time and space dimensions [6].

China's cities have grown rapidly recently but many cities have gradually lost their local identities and cultural heritage due to the demolition of old culture or urban renewal. The application of urban planning theory also has missed the development process of responding to the environment. When ignoring the important key of people and environment, Chinese cities may lose their specialties. The definition of the environment is related to its surroundings [7]. If cities lose their relevance to the environment, the environment will not provide the sustainable development of the cities. Therefore, Hawley proposed that the formation of human ecosystem is the environmental response of the residents to maintain necessary and effective relationships [6]. In view of the unplanned natural area during city development, its spatial evolution can be understood from the biological aspect of human-nature interaction, which reveals the nature of human-environment interaction. Based on this view, we explore the symbiotic relationship between the existing spatial situation and the environment in Jimei School Village taking Jimei School Village in Xiamen City, China as the main research object.

Jimei School Village, located on the southeast coast at the end of the Jimei Peninsula, China, is the general name of all kinds of schools and cultural institutions in Jimei. It was founded in 1913 by Mr. Chen Jia-geng, a famous patriotic overseas Chinese leader. Jimei was a small fishing village with a population of less than 500 in the late 19th century, but by the early 20th century, it had become a place where talents gathered. As recorded in Jimei Annals of Xiamen by 2007, most studies and papers in the social sciences were devoted to the introduction and study of Chen Jiageng and his architectural style. Jiageng-style buildings reflect the fusion of Chinese

and Western architectural cultures showing unique architectural forms and spatial characteristics. Its buildings present southern Fujian-style roofs and Western-style roofs. The distribution of the main buildings is concentrated in the two campuses of Jimei School Village and Xiamen University. Yet, most studies on Jimei School Village focus on the architectural style [8]. As of 2022, there were 86 journal articles and 10 academic dissertations under the topic of "Jia Geng Architecture" on CNKI. Studies focusing on building types lack research on large-scale spatial structure and environmental impact on the spatial configuration of Jimei School Village. Therefore, it is necessary to study the spatial structure of Jimei School Village from the perspective of human ecology to understand the symbiotic relationship between humans and the environment.

2. Materials and Methods

2.1. Research Framework and Design

In the literature review, we found that the development history of Jimei School Village corresponded to the development of theory of human ecology. Hence, the dialogue between space and theory must respond to the background of the academic trend of thought. The history of rapid development of Jimei School Village began in 1913 and continues at present. The natural area and humanistic ecosystem can be used to observe the two stages of Jimei. To better reflect the variety of relationships between natural areas and human ecosystems in human ecology, the development of Jimei School Village can be divided into two stages. At the stage of a small fishing village, fishing on the sea was the main relationship between man and the environment. Using the concept of competition, settlement, dominance, and segregation, we investigated spatial variation in the natural area. The main crucial timelines are corresponding to the rise of the Chen family and their overseas expansion. At the stage of Jimei School Village, the implantation of education space was the main relationship between humans and the environment when Chinese expatriates returned to establish schools. This stage was important for the establishment of the humanistic ecosystem. In this research, literature analysis and field investigation were used with four steps of reading, coding, analysis, and interpretation (Fig. 1). The main documents collected included survey reports, books, journals, and academic articles. The survey time was carried out in May-October, 2022.

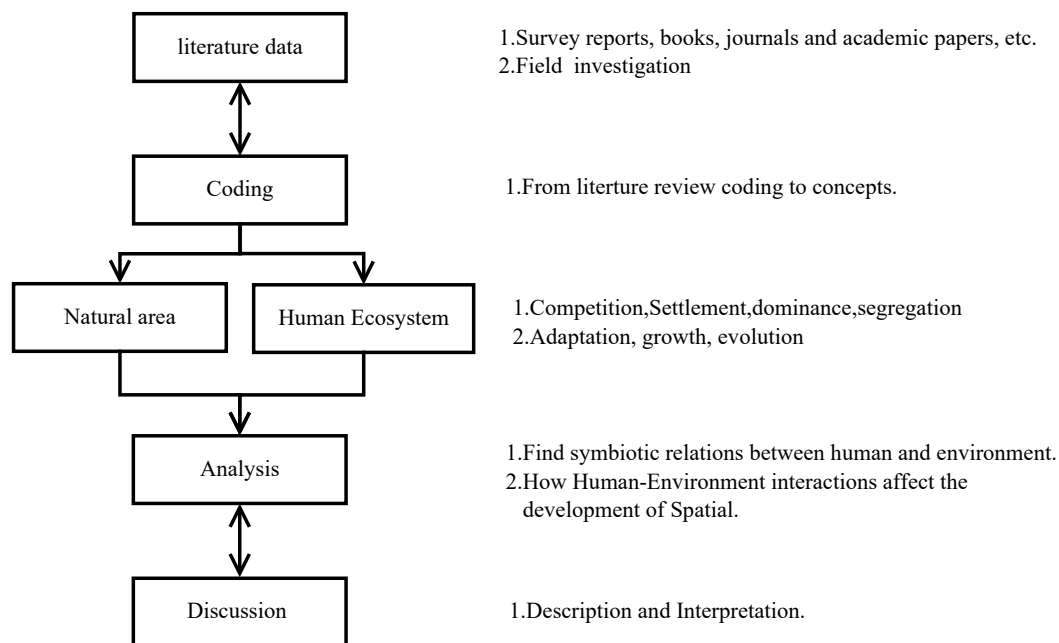


Fig. 1. Research framework.

2.2. Study Area: Geography and historical background of Jimei School Village

Jimei District is located northwest of Xiamen City, Fujian Province, China at 117°57'E-118°04'E, and 242°5'N-244°6'N, covering an area of 275.79m². It was formerly a part of Tong'an County. In 1957, it was established as the suburb of Xiamen with Jimei Guankou District, the predecessor of Jimei District. Jimei District has a variety of landforms such as low mountains, hills, platforms, plains, and coastal beaches. Influenced by the differential activities of fault blocks, the northwestern part of Jimei is high, forming mountain and hilly landforms, and the southeast is relatively subsidence, forming plains or bays after the sea retreat. Because Jimei is located in the transition zone between land and ocean, it has a subtropical oceanic monsoon climate affected by marine climate. Jimei has long summer and there is no winter between autumn and spring. Due to the appropriate water and heat conditions, the agricultural product in this area is abundant. However, due to the limited area of arable land, people have been living depending on mountains and the sea. This formed a half-fishing and half-farming society [9]. The salinity of the seawater in Jimei District is high as high temperatures and windy weather evaporate seawater faster and form vast beaches along the coast, which is conducive to the development of the salt industry and fishery. As Jimei District is close to Southeast Asia, it has always been the main gateway for Minnan immigrants to go abroad. According to the research, people went to sea to make a living in the late Yuan and early Ming Dynasties. After that, people kept going overseas except for the sea ban period [10]. In 1913, Chen Jiageng began to establish a primary school in Jimei, and then teachers' colleges, high schools, fisheries, navigation, commerce, agriculture, and other schools. In October 1923, the war in southern Fujian was tense, and more than a thousand troops were stationed at Jimei Schools for military supplies. Then, Jimei School wrote a petition, proposing that Jimei be designated as a school village with permanent peace. On the 20th, Sun Yat-sen's camp sent a document to the warlords in southern Fujian and acknowledged Jimei Schools as a permanent peace village in China, so it was called "Jimei School Village". Hence, the area was designated for Jimei School Village by Sun Yat-sen, ranging from Tianma Mountain in the north, Sea in the south, Ao Garden in the west, and Cencoulong Palace in the east (Fig. 2).

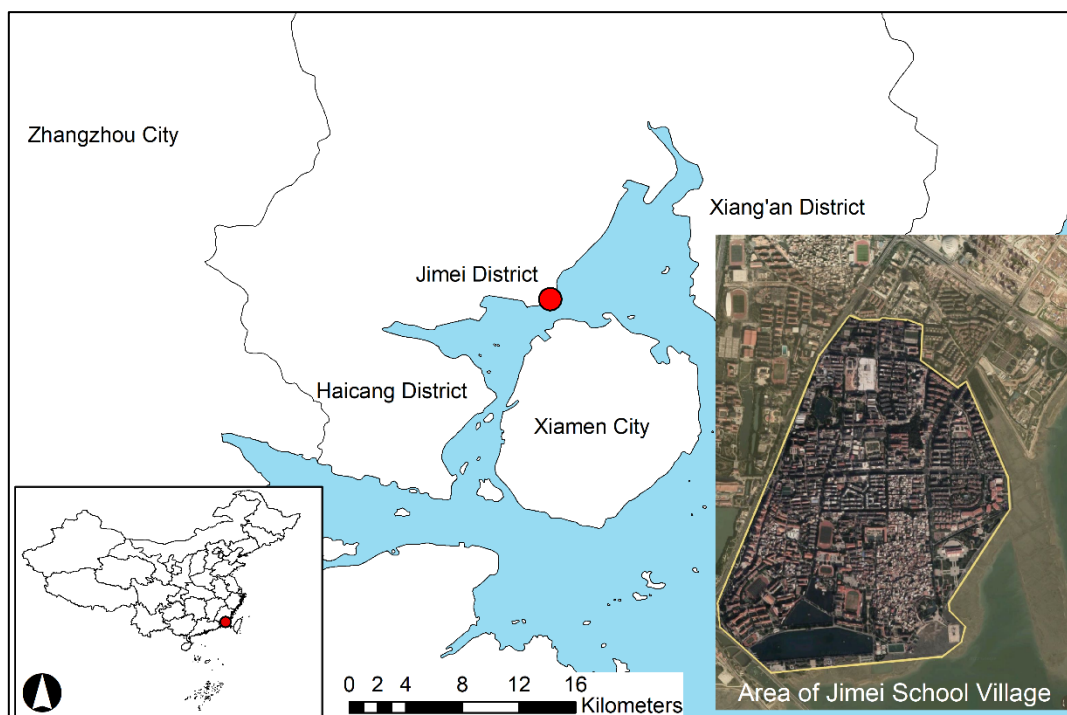


Fig. 2. Study area: Jimei District.

3. Results: Natural Area and Human Ecosystem

3.1. Natural area in small fishing village

3.1.1 Settlements and Competitions: Successful settlement of three clans' colonization and rise and fall of the territory (1127–1913)

During the Tang and Song Dynasties (618–1279 AD), Jimei was a remote place with poor land and a sparse population. Until the end of the Song Dynasty, there were three clans, Sun, Wang, and Chen who successively settled Jimei Peninsula. They came from Xiamen Island, Quanzhou Peninsula, and Inland Henan Province, respectively. These three clans occupied the east, west, and north of the plain of the Jimei Peninsula respectively. Their settlement strategies were different. The Sun family relocated from Xiamen Island

to Jimei, the Wang family took over the Fenglintian family property, and The Chen clan expanded from north to south to the coast after they settled in the northern part of the plain and married the Lin in Xiamen Island (Fig. 3). The Jimei Peninsula was successfully settled by these three clans in the 150 years [10].

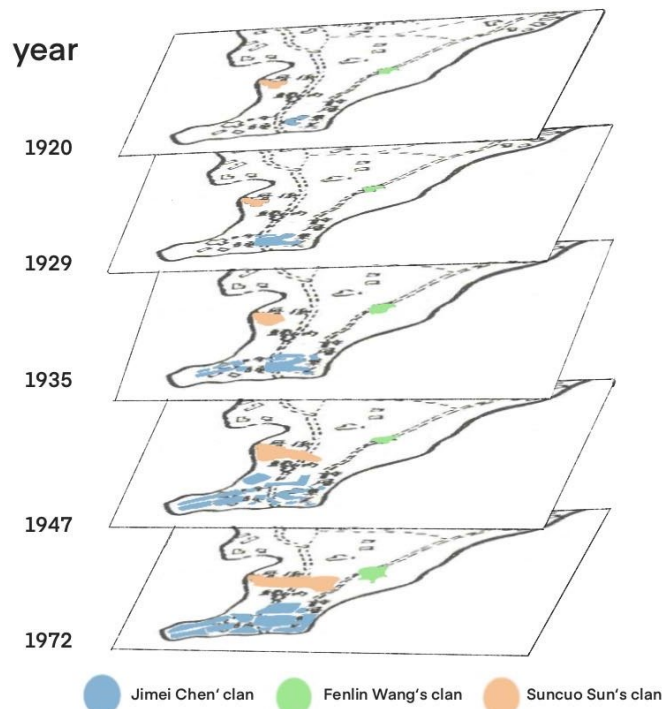


Fig. 3. Spatial distribution map of three clans (1920–1972) [11].

After the successful settlement, the Sun and Wang clans experienced droughts, plagues, and wars in developing the land, resulting in a sharp decline in the population and the shrinking of the territory [10]. On the other hand, the Chen clan moved from the inland to the coast after using the marriage strategy, which provided the population surge and the expansion of its territory. The Chen clan intervened in the ferry crossing between the Jimei Peninsula and Xiamen Island using a port to import food and clothing. Even with natural disasters and wars, their population decreased less than the other two clans, maintaining stability and territory. Regardless of the influence of natural disasters, wars, and plagues, the Chen clan retained a large population and occupied an advantageous land. During the settlement stage of the Jimei Peninsula, the Chen clan maintained its advantages.

The spatial location occupied by the three clans affected their development. The Sun and Wang clans were located near the inland with a wide area and depended on agricultural development, while the Chen clan was located near the sea with a smaller arable land area. Chen's villagers relied more on the fishing and the salt industry for survival and food and clothing. At the same time, the Chen clan was separated by an ocean and had more convenient access to medical and educational resources than other clans. As they were located by the sea where food was scarce during the war, the residents moved south to Taiwan, Singapore, Thailand, and other places to survive. At the end of the Yuan Dynasty, people in Jimei went to Nanyang to make a living, and by the end of the Qing Dynasty, Xia-Nanyang (“Cross the sea to the south”) had become one of the ways to make a living of the Chen clan (Table 1).

In the competition for land, there were two most critical turning points. In 1387, when Jimei was banned from going to the sea, the three clans moved inland, while the Chen clan still lived by the sea and migrated only 1.5km inland [10], which was a substantial expansion of their territory. In 1625, the Chen clan paid more attention to education because Chen Wenrui of the Chen clan passed the imperial examination and entered the bureaucratic system. Since then, in the Qing Dynasty alone, more than 20 people of the Chen clan became Jinshi or Juren (degrees in ancient China). The Jinshi and Juren of the Chen clan had an obvious influence on the development of the clan according to the rules of the tax exemption of the land owned by government officials. Therefore, the food and the population of the Chen clan grew faster than other clans, and the territory of The Chen expanded to the west and north.

Table 1. Three clans' settlement and rise and fall of their territory

Year of settlement	Clan	Native place	A place of settlement	Strategy	Turning points	Results
1127	Sun's clan	Tiantou Village ,Xiamen	Suncuo Village in the east of the Jimei Peninsula	Geographical transfer and reproduction	Population reduced faced drought in 1354. Population of less than 500 after plague in 1897.	Clans are fading, territories are shrinking
1279	Wang's clan	Quanzhou Peninsula	Fenglin in the west of the Jimei Peninsula	Entering the Tian family and taking over Tian's family property	The drought of 1354 reduced the population. In 1659, Fenglin was on the front line of the war, and its population declined sharply. In 1681, after the sea ban moved back to Fenglin only a small population, In the 1934 plague and war, the population was less than 300.	Clans are fading, territories are shrinking
1279	the Chen clan	Gushi County, Henan Province	Dashe in the south of the Jimei Peninsula	Take advantage of marriages and expand geographically from north to south	In 1363, Chen Taiyuan's eldest son moved to the seaport and multiplied more than ten thousand people. In 1387, Haiban, from the sea to the inland within the range In 1625, Chen Wenrui passed the imperial examination and entered the bureaucratic system. The population reached 3000 in 1938.	Clans flourished and territories expanded

3.1.2 Dominance and segregation: Evolution of educational spaces (1913–1927)

The successful settlement of the Chen clan and the advantage in the competition of the three clans, followed by the successful entry of family members into the national bureaucracy in 1625, were the key to the spatial evolution of the Jimei Peninsula. The clan owned more land area than before, the clan controlled the right to use the land, and the tax exemption of land further accelerated the wealth accumulation of the entire clan. In 1913, Chen Jiageng, a successful businessman from the Chen clan in Southeast Asia, returned to China to look for various places in Fujian. He saw children playing naked and uneducated. Although there were old-style private schools in various parts of Jimei, children's education was limited. Chen Jiageng decided to build a primary school in Jimei to teach modern education. He originally intended to build a primary school in Chen's ancestral hall, but the clan did not allow him to use the hall as it was the location of the clan's feng shui. In the end, he spent two thousand silver coins to buy an abandoned fish pond in the west of the village from the clan [12]. All lands for schools were purchased in this way but the clan stipulated that the land must be used for schools not for other purposes. The land was transformed from private space to public space. In the process of founding the school, when there were insufficient funds, it was funded by Chen jiageng 's family. So far, most of the financial support for Jimei School has come from the Chen's clan, so the clan has a certain degree of control over the school.

The Jimei District Property Rights Contradiction Court once recorded that the government planned to use the teaching building of Jimei Primary School as the school building of Jimei High School, which was refused by the Chen clan. The genealogy of the Chen clan recorded that the daughter of the Chen clan sold the land to others after she married, but the clan stopped the resale, and the land was taken back for other purposes [13]. This story confirmed the power of the clan to dominate the land. The Jimei Primary School was established to integrate students from the descendants of the Chen clan in Jimei to study modern education and then recruit students from the outside, but the children of the Chen clan were the majority. The Chen clan has had the domain of the educational resources of the Jimei Peninsula. In addition, since the land was purchased from the clan, the centralization of educational space was formed. The buildings selected by Chen Jiageng were concentrated in the southern end of the Jimei Peninsula including the Jimei Primary School built in 1913 and the hospital built in 1927 (Fig. 4 and Table 2). The space was only for the Chen clan and education. Most people in the area had the same blood relationship, occupation as teachers or students, living habits of fishing villages, and higher culture than other regions. The level of life and wealth was high, which offered the area characteristics on the Jimei Peninsula.

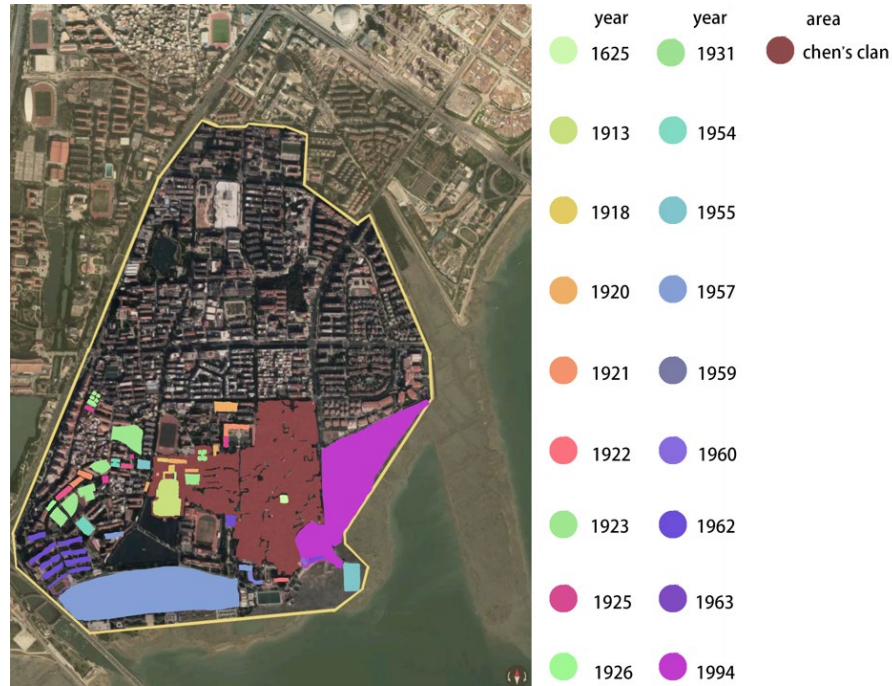


Fig. 4. Establishment of educational spaces (1625–1994).

Table 2. Establishment of educational spaces (1625–1994)

Year	Events	Clan influence	Spatial attribute	Education space	Spatial location
1625	Chen Wenrui Passed the imperial examination and entered the bureaucratic system.	Land owned by officials is exempt from taxation	private	Old private schools	Southern Village in the Jimei Peninsula
1913	Chen Jiageng returned to Jimei to establish a school.	Buying land from the clans	Public	Jimei school	Southern tip fish pond in the Jimei Peninsula
1918	Chen Jiageng Supervise the construction of the Juren Building, Shangyong Building, Ligong Building, and Auditorium	Much of the financial support comes from the clan		To hold Jimei Normal School and Jimei High School, and to set up a fishery and navigation business department, more space is needed for the expansion of the number of people.	Around Jimei Peninsula Fishing Village
1920	Lide Building, Liyan Building, Jixian Building (hospital), Handicraft Classroom, Yueli Building, Bowen Building (Library)			School dormitories, school offices, hospitals	West side of the Jimei Peninsula, north side
1921	Bell Tower, Shangzhong Building, Yongshi Building, Jiwen Building, Mingliang Building			It was originally used as a water tower for teachers, students, and villagers to drink, and then it was covered as a bell.	Jimei Peninsula fishing village west side, south side
1922	Yanping Building			Elementary school building	Southeastern tip of the Jimei Peninsula
1923	Science Museum, Yungong Building			To meet the needs of aquatic product teaching, the enrollment of primary schools will be expanded.	The west and south sides of the Jimei Peninsula

Table 2. *cont.*

1925	Suyong Building, Chengyi Building, Literature Building, Dunshu Building, Yuejun Pavilion	Buy land from a clan Alumni funding mostly comes from the clan		Teachers' dormitory, and female teacher's office building	West of Jimei Peninsula
1926	Yingzhi Building, Sancai Building, Ba Yin Building, Wuben Building, Chongjian Building, Baozhen Building, Yangzheng Building	Buy land from a clan Most of the financial aid comes from overseas Chinese, alumni, and clan		Enrollment expansion, school building needs, new agricultural schools, kindergarten needs	Around Jimei Peninsula Fishing Village
1931	art gallery	Funded by Chen Jiageng, funded by the clan		-	Northwest corner of Jimei Peninsula
1952	Kerang Building	Funded by Chen Jiageng and overseas Chinese, subsidized by the state		-	West of Jimei Peninsula
1954	Funan Auditorium, Library	Overseas Chinese investment, state subsidy		A place to hold lectures, watch movies, and perform	The southernmost point of the Jimei Peninsula
1955	Gymnasium, Ao Garden			-	Southern tip in the west of the Jimei Peninsula,
1957	Dragon Boat Pool Pavilion, Liming Building, Fudong Building			viewing, competition, teaching	Southernmost point of the Jimei Peninsula
1959	Nanxun Building	State-funded			Southernmost point of the Jimei Peninsula
1960	MingShi Pavilion			Patriotic Education Zone	Southernmost point of the Jimei Peninsula
1962	Nanqiao Building 1 to 16, Haitong Building, Returning Hall			Student needs of Huaqiao University	Southern end of the west side of the Jimei Peninsula
1963	Ao Garden Pavilion, Daonan Building			中学, 及 Ao Garden Expansion	The southernmost point of the Jimei Peninsula
1994	Ao Garden Jiageng Park was completed			Ao Garden Expansion	The southernmost point on the east side of Jimei Peninsula

3.2. Humanistic Ecosystem of Jimei Village

3.2.1 Adaption : Interdependence between space and clan (1927–1949)

From the natural area to the formation of a complete humanistic ecosystem, the interdependence between the formation of educational space and the Chen clan played an important role. During this period, the power of humanities was stronger, and the decentralized educational space utilization system became an organization. Xia-Nanyang was one of the ways to make a living for the Chen clan. The establishment of the School of Fisheries and Navigation Science was to meet the needs of the overseas business operation of the clan and cultivate professional talents, which not only benefited the clan but also promoted education. On the other hand, most of the school's human resources were the talents of the clan, and the daily needs of the school were also supplied by the enterprises of the clan. With such support, the teachers and students of the school adapted to the management and service of the Chen clan, and the Chen clan also adapted to the space expansion of the school facilities in the settlement. In 1937, schools in Jimei were destroyed during the Anti-Japanese War and moved to the surrounding countryside. Even after the War of Liberation, the original spatial layout was unchanged, and the operation resumed as soon as possible [14]. This shows that the form of "school in the village, village in the school" presents a stable cultural ecosystem even under the influence of politics. Even with damages and repairs, the clan's education returned to its original state.

3.2.2 Growth: State support (1949–1956)

After the founding of New China in 1949, Chen Jiageng presided over the restoration of Jimei School and expanded the school building on the original basis. In 1956, the government took over the development of the school and received various technical support from the state. The school space was connected to the residential area on the east side, and the scattered educational spaces were connected, forming the spatial pattern of “Jimei School Village” [15]. This educational system, which was originally established for the development of the Chen clan and the needs of the Fujian region, had been incorporated into the modern education system. Jimei School Village has been supported by local humanities and national technologies, enabling the entire humanistic ecosystem to achieve the largest scale and complex development.

3.2.3 Evolution: Acquisition of new information for ability and evolution

In 1994, Jimei navigation institute, Xiamen fisheries university, Fujian sports institute, Jimei College of Finance and Economics, and Jimei Teachers’ College, were merged into Jimei University. From 1913 to 1927, all Jimei private colleges founded by Chen Jiageng and the Chen clan were reformed into a bureaucratic system for the development of China's educational system. The goal of bringing Jimei University into the national system is to develop it into a comprehensive university. For this, the basic disciplines such as literature, science, and law were added to the original marine, aquatic, financial, and normal colleges. Therefore, the original campus space needed to be extended to the west. The construction of a new campus was begun after the establishment of Jimei University to meet the needs of national development. At this time, the influence of the Chen clan weakened. However, due to the overall support of the country, more educational information was available to achieve the goal of the evolution of the human ecosystem. The evolution process of the human ecosystem of Jimei School Village started. At this stage, the evolution from an ocean-themed college to a comprehensive university was the main force to promote space expansion. The space was also occupied by private schools in the Qing Dynasty, schools in the New China period, and universities in the modern education system, gradually transforming from the home-school space to the independent education space. The overall pattern of Jimei Peninsula still maintains the Chen clan’s original educational space and home-school pattern.

4. Discussion

4.1 Natural Area to Human Ecosystems

Park believed that observing the facts of urban life in an ecological framework enables people to transform "concrete facts into systematic and conceptual knowledge" [16]. He believed that symbiosis between humans and nature is inevitable in human society. This level of symbiosis is characterized by a competitive struggle for survival and is organized at a cultural level marked by communication among different organisms in contact. However, the concept of human ecology is often criticized for its emphasis on the determination of competition (especially economic competition) and the ignorance of the value of society and culture [17]. However, in the initial stage of the development of the natural area, the distribution of the three clans in the Jimei Peninsula had no economic competition factor but the political influence on the overall space allocation. For example, from the ban on going to sea, the imperial examination system, immigration policy and trade policy implemented by the government, the impact of central policy is found on local distribution. Moreover, in the post-settlement stage, social organizations and factors had a strong influence on the spatial development of the entire Jimei Peninsula. Jimei Primary School was located in the west of the Dashe settlement, far from the center of the ancestral hall. The primary school was built to form another central point, thus developing other educational spaces for middle schools and universities. If Jimei Primary School had been successfully established in the ancestral hall at the beginning, the spatial configuration developed might have been a family-school pattern rather than a school-village pattern. The establishment of the primary school was separated from the ancestral hall to form another development center, which also had the possibility of expansion. Around the abandoned fish pond that had lost its economic function, there was low-density fishery land, which was conducive to the expansion and development of education space. Jimei Primary School was not dependent on space limits and promoted the integrity of the cultural ecosystem. In the transformation of the natural area to a humanistic ecological area, the imperial examination system and the sea prohibition policy had an impact as the imperial examination system enabled the Chen clan to have greater advantages than other clans and had guiding significance for the development of their clans. This was the change in the position of each clan and their regions with nature’s influence and national policies in this region.

4.2 Evolution of Human Ecosystems

Jimei School was initially established as the original private school had gradually weakened, students could not learn knowledge, and the original education system was not appropriate for modern development. Meanwhile, to increase the connection between the different houses of the Chen clan and let the villager learn the new culture, Chen Jiageng persuaded people to integrate the different families and private schools to establish Jimei Primary School. The Jimei Primary School at that time was consistent with the new school in the late Qing Dynasty [18]. Later, to have further development considering the faculty of Jimei, Jimei Middle School and Jimei Teachers' College were established. However, their role was still to serve the Chen clan. According to the Chen family genealogy, most of the Chen clan from 1913 to 1940 graduated from Jimei Primary School and Jimei High School [19]. Then, for the protection of Fujian's marine resources, fisheries and navigation majors were added to strengthen the advantages of Jimei's geographical location. Commerce and agricultural majors also were added. The Chen clan from all over the country gathered in Jimei, and the development of the Jimei school was further enhanced with the help of overseas people. Before 1994, all the schools in Jimei were independent. After 1994, the government integrated all the junior colleges in Jimei into Jimei University, and then its original system was transformed into the state's bureaucratic system. With changes in the human ecosystem, private schools had weakened and closed. Instead, Jimei Primary School and other schools were merged into Jimei University in 1994. However, the nature of the Chen clan's educational institutions was maintained and contributed to the economic development and cultivation of talents with new education. The history of the Chen clan's educational system shows the transformation of the humanistic ecosystem through adaptation, growth, and evolution.

4.3 Political Influence on Jimei School Village

Politics helped the spatial evolution of the Jimei Peninsula. In particular, compared with the growth stage of the human ecosystem and the evolution of administration, Jimei had the widest range of administrative jurisdiction during 1956–1994 (Fig. 5). Therefore, Jimei School Village played the role of education space with the largest scope of influence in this period, and the government defined the role of Jimei School Village with the highest specification. Therefore, in the growth of the humanistic ecosystem, Jimei School Village has the fastest spatial expansion. In terms of the political influence on the spatial pattern of Jimei School Village, the area of Jimei District's administration is constantly expanding, and the education system affected the development and expansion. All educational institutions founded by Chen Jiageng were merged and upgraded to Jimei University.

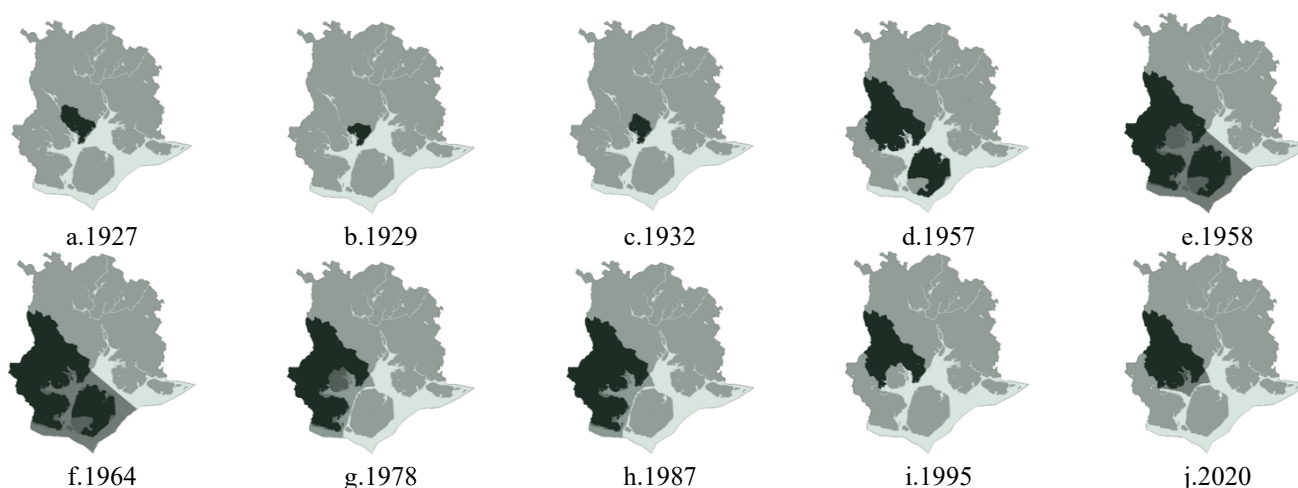


Fig. 5. Map showing the expansion of the administrative area in Jimei Peninsula.

4.4 Symbiosis of Jimei School Village and Environment: Convergence and Complementarity

Generally, fishing villages have better living conditions than rural villages because of more abundant protein sources and the salt industry. Therefore, the three clans settled in the Jimei Peninsula from different regions and their methods indicate spatial convergence. The Chen clan relied on fishery and the salt industry which allowed stable life and could help the development of overseas business. The abandoned fish pond purchased by Chen Jiageng showed the economic dependence on overseas business rather than fishing and farming. Back then, the Chen clan had an increasing population and enough wealth for overseas business. Therefore, the economic focus was changed from survival to growth and evolvement. The embedded configuration of "half school and half village" reflected a stable spatial pattern. The geographical condition of the peninsula led to unbalanced development, which is the key complementarity

in the human ecosystem. The sea provided the learning resources for the aquatic and navigation of the school village, and the school village contributed to the development of industries and taught the concept and knowledge of marine resource protection. The relationship between people and the sea is stable and close. These complementarities maintain the balance of the coastal ecosystem of the peninsula, making Jimei School Village have sustainable development. The balance allowed growth in space for education after the mutual adjustment and balance [6]. The symbiosis between Jimei School Village and the environment of the peninsula showed the inlay between the settlement and school buildings. As the Chan clan owned and provided school buildings and life services for teachers and students of the school, the symbiosis was realized in the Jimei peninsula.

5. Conclusions

Based on the perspective of the human ecosystem, we analyzed the development of the Jimei Peninsula from settlements, competitions, dominance, and segregation of the Sun, Wang, and Chen clans. The factors that constituted the spatial pattern of Jimei School Village were also investigated. The results showed that Jimei began to transform from a small fishing village to a school village in the past hundred years since Chen Jiageng returned to his hometown to establish a school in 1913. Before then, the spatial pattern of the development of the three clans had not changed much. Affected by the environment, people committed to agriculture and fishing. The expansion factors were affected by national policies, expansion to overseas business, and accumulation of wealth of the clans. From 1913 to 1994, the dominance of the Chen clan's economic advantages and restrictions on the location of schools and the planning of public facilities formed a spatial pattern of half school and half village in the southern tip of the Jimei Peninsula. After 1994, the development of the educational space of the school village was determined by the national demand, expanding to the west and north. From the perspective of the development of the human ecosystem of Jimei School Village, the high-quality geographical environment of the Jimei Peninsula enabled the Jimei people to work and care for the local people. The successful local people brought new technical concepts to their hometowns, forming the unique cultural competitiveness of Jimei, and the effective development of the local area affected the planning and arrangement of policies for the region. In the past hundred years of development, Jimei's environment interacted with human beings for efficient competitiveness, thus developing rapidly and forming the modern university town.

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References

1. Lung, K.-H. *Urban Sociology Theory and Applications*. Taipei, Taiwan: San Min Book; 1978. 102–15.
2. Burton, I., Kates, R.W., White, G.F. *THE ENVIRONMENT AS HAZARD*. Taipei, Taiwan: Linking Publishing Company; 2011. xxii–xxiii.
3. Goist PD. *City and "Community": The Urban Theory of Robert Park*. *AQ*. 1971;23,pp.46-59. doi: 10.2307/2711586.
4. Burgess EW. *The Growth of the City: An Introduction to a Research Project*. In: Marzluff J, Shulenberg E, Endlicher W, Alberti M, Bradley G, Ryan C, et al., editors. *Urban Ecology*. Chicago, USA: Springer Science & Business Media; 2008. pp. 71-8.
5. Smith, D.A. The new urban sociology meets the old: Rereading some classical human ecology. *Urban Affairs Quarterly*. **1995**;30, 432–57.
6. Hawley AH. *Human Ecology-A Theoretical Essay*. USA: The University Of Chicago Press; 1986. pp. 10-17.
7. Wagner PL. *The Human Use of the Earth*: Free Press; 1960. pp. 6.
8. Daguang W, Zhenkun L. *Cultural Implications in the Names of Jiageng Buildings in Xiamen and Jimei Universities*. *Journal of Jishou University (Social Sciences Edition)*. 2021;42,pp.28. doi: <http://10.13438/j.cnki.jdxb.2021.03.004>.
9. Zou S, Xie S, Yang Y. *Encyclopedia Geography of China - Xiamen Peninsula*. Guangzhou, China: World Book Publishing Guangdong Co., Ltd.; 2016. pp. 4-5.
10. Sun J. *Xiamen Jimei District Chronicle*. Beijing, China: Zhonghua Bookstore; 2013. pp. 3,10-7,9-32,87-91.
11. Lin C. *Describe Xiamen with pictures*. Xiamen, China: Xiamen Land Resources and Real Estate Administration; 2006. pp. 24.
12. Chen B, Yang G. *Biography of Chen jia geng*. Fujian, China: Fujian People's Publish; 1981. pp. 23.
13. Zhuan M. *A Brief History of Jimei*. Jimei, China: unpublisd; 2000. pp. 45.

14. Gao Y. *The Spatial Development of Jimeimei Village and Its Enlightenment to the Construction of University Town*. Xiamen, China: Huaqiao University; 2014. pp. 18.
15. National Education Council. Notice on Agreeing to Merge Five Colleges and Universities in Jimei Village into Jimei University - jaoji No. 205. In: Council NE, editor. Beijing, China 1994. pp. 1.
16. Park, R.E. The city: Suggestions for the investigation of human behavior in the city environment. *American journal of sociology*. **1915**, *20*, 577–612.
17. Chen K. *Spatial Structure - Theory, Methodology and Planning*. Taipei, Taiwan: Mingwen Book Co., Ltd.; 1991. pp. 100-2.
18. Zengbing W, Gang Y. *The Story of Chen Jiageng's Prosperity*. Fujian, China: Fujian Education Press; 1985. pp. 15-6.
19. Chen, G. *Jimei She Chen's history and history*. Xiamen, China: Xiamen City Surname Origin Research Association Chen's Committee; **2001**. pp. 30–80.

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