

Article

Assessment on the Spatial Distribution Suitability of Ethnic Minority Villages in Fujian Province Based on GeoDetector and AHP Method

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Abstract: Ethnic minority villages are important resources for the economy and social development of ethnic minority areas because they preserve ethnic minorities' culture. With the rapid development of industrialization and urbanization in China, the factors affecting the development of villages have changed. With the help and guidance of the government, the gap between villages has increased. According to the development conditions of ethnic minority villages at the present stage, the suitability of their spatial distribution has been studied, the existing problems in the current development have been explored, and the development laws and future development trends have been found. To make the evaluation results more scientific and objective, Geographical Detector (Geodetector) and Absorbent Hygiene Product (AHP) methods are used to establish the evaluation model. Taking 567 ethnic minority villages in Fujian Province as the research object, 13 factors are selected from the aspects of natural geographical, socio-economy and cultural life to construct the evaluation indicator system of Fujian ethnic minority villages, and the spatial distribution suitability of Fujian ethnic minority villages is quantitatively evaluated. The findings indicated the following: (1) The per capita income of villages has the most important impact on the suitability of spatial distribution of Fujian minority villages. Through comprehensive evaluation, the impact of cultural life indicators on the suitability of the spatial distribution of the village is greater than that of socio-economic indicators and natural geographical indicators. The intensity relationship is 9:7:10. (2) The high suitability value is concentrated in Fujian Province's southeast coastal and central areas, gradually decreasing from east to west. In Fujian Province, 82.84% of the land is suitable for the development of ethnic minority villages, with 89% of ethnic minority villages. The unsuitable areas are mostly in Fujian's north and west. (3) The most suitable cities for the number of ethnic minority villages are Ningde City and Quanzhou City because ethnic minority villages in these two cities are mostly distributed in areas relatively close to the central urban area, with good economic conditions, flat terrain, and easy transportation. The cities of Nanping and Sanming are the least suitable for many ethnic minority villages, which are primarily limited by topographic conditions, have a backward economy, a sparse road network, and have experienced significant population loss. In the context of urbanization, the evaluation results can provide a reference for the precise development and protection of minority villages. Governments at all levels in Fujian Province can adjust and optimize the development strategies of minority villages according to the evaluation results.

Keywords: GeoDetector; AHP method; suitability analysis; ethnic minority villages; Fujian

1. Introduction

Ethnic minority villages refer to villages with a relatively high proportion of ethnic minority population, complete production and living functions, and obvious ethnic culture and settlement characteristics. In terms of architectural form, and customs, ethnic minority

villages are relatively complete and retain the culture of ethnic minorities, reflecting the diversity of Chinese culture [1]. The guiding opinions of the State Ethnic Affairs Commission on further strengthening and regulating the protection and development of ethnic minority characteristic villages and towns in the new period pointed out that “the construction of ethnic minority characteristic villages and towns should be included in the implementation plan of the Rural Revitalization Strategy, and orderly promote the protection and development of ethnic minority characteristic villages and towns [2]. So far, there are 1652 ethnic minority villages in China. The protection, utilization, and development of ethnic minority villages have become a topic of great concern to the government.

Historically, ethnic minorities in some areas chose to live in areas with closed terrain because of avoiding wars or ethnic disputes. The spatial distribution of villages is closely related to the terrain [3]. However, with the rapid development of industrialization and urbanization in China, the conditions on which the development of ethnic minorities was based have changed greatly. The traditional agriculture is no longer the decisive factor for the development of villages, and the terrain is no longer the dominant factor for the development of villages. Natural, economic, cultural, and other factors jointly affect the development of villages. Since the implementation of the pilot project of protection and development of ethnic minority villages in 2007, great achievements have been made in the protection and development of ethnic minority villages in China. In 2009, the State Ethnic Affairs Commission and the Ministry of finance began to implement the protection and development project of ethnic minority villages. The central government invested 270 million yuan in developing ethnic minorities, focusing on protecting and transforming houses, strengthening infrastructure construction, and improving the living environment [4]. According to the situation of villages, the local government should formulate reasonable special plans [5]. As the province with the largest population of Shē nationality in China, Fujian Province tries to solve the practical problems of ethnic minority villages by formulating the protection and development plan of ethnic minority villages, selecting characteristic villages, and establishing an experimental area for ethnic cultural and ecological protection, and achieved phased results. The protection and development of villages is a long-term problem. After years of development, the development gap between villages and ethnic minority villages distributed in different spatial and geographical locations has widened under different development conditions when the government intervention is small or separated from the direct assistance of the government. Because of the superior geographical location, convenient traffic conditions, and rich cultural relics, some villages have rich industrial development, the villagers’ lives have been gradually improved, and the villages can continue to develop healthily. There are also some villages that cannot enjoy the convenience brought by social development. The economic income is low, and the population of the villages flows out. After a large amount of human, financial and material resources are invested, the effect is very small, and the development forms a vicious circle. After being separated from the government’s intervention and assistance, the inconvenient transportation has led to less contact between ethnic minority villages and cities, some villages even have language barriers with cities, and the needs of villagers in villages cannot be met. Villagers give up their old houses and choose to settle in counties and other places [6–8], which to a certain extent aggravates the decline of villages, and the villages have problems such as disappearance of characteristics [9], air waste [10], and unbalanced resource distribution [11].

The main reason is that the villages suitable for agricultural society cannot meet the contemporary development, and the fundamental problems cannot be solved by merely relying on the continuation of village culture and focusing on Agricultural Development [12,13]. At this stage, it is necessary to conduct a new suitability evaluation on the village according to the contemporary situation of the village to reflect the development status of the village at this stage. The suitability evaluation of spatial distribution is to evaluate the geographical spatial distribution of the village according to the main factors affecting the development of the village at the present stage. At the same time, the selection of indicators has shifted

from the terrain indicators to the common influence of natural geographical, socio-economy and cultural life, and the typical representative indicators that affect the development of the village are selected from the numerous evaluation indicators. To classify a large number of ethnic minority villages in Fujian at the present stage according to suitability, scientifically and reasonably show the development status of the ethnic minority villages, excavate the existing problems in the current development, and finally find out their development laws and future development trends. Under the background of urbanization, based on the scientific and objective evaluation results of the suitability of ethnic minority villages, it has become an important direction for the study of ethnic minority villages to formulate reasonable development strategies for ethnic minorities, help governments at all levels to reasonably allocate resources and achieve a targeted goal.

2. Literature Review

As the core issue of minority village research, the suitability evaluation of spatial distribution has become an important basis for the protection and development planning of minority villages. In recent years, various disciplines have carried out a lot of theoretical and empirical research on the suitability of spatial distribution.

2.1. Suitability Evaluation Object

It mainly includes the research on the spatial distribution characteristics and suitability of rural settlements in Shanxi Province [14], the research on the spatial distribution suitability of affordable housing in Xi'an [15], the research on the spatial distribution suitability of elderly care facilities in Xingning District, Nanning [16], a study on the suitability of spatial distribution *Pinus massoniana* in Hubei province [17], study on the suitability of spatial distribution of alcohol outlets in the community [18], study on the suitability of spatial distribution of Eurasian butterflies [19], study on the suitability of the spatial distribution of Pitaya planting in plateau mountainous area [20], study on the suitability of spatial distribution of ecotourism potential areas [21], study on evaluation of construction land [22,23], and a study on the suitability of spatial distribution of sanitary landfill [24]. Therefore, from the perspective of research objects, the research on the suitability evaluation of spatial distribution is mostly concentrated in rural settlements, urban housing, public service facilities, plants, animals, crops, and other fields. For ethnic minority villages in rural settlements, most of the research is on the spatial distribution characteristics, evolution and driving factors.

2.2. Suitability Evaluation Indicator

Indicators covering topographic features, location environment, as well as the indicators of the economy, policies and regulations, climate, geological disasters, and other aspects were selected according to the goal orientation. The main research includes selecting the altitude, slope and river in the topographic features and the distance from the County Center in the location environment to construct the evaluation indicator of rural residential areas in Shanxi Province [14], selecting altitude, slope, soil, land use, land cover, agriculture, precipitation, river and road network, as well as settlement spread to evaluate urban green belts [25], selecting the altitude, slope, river, topographic relief in the topographic features, the distance from the town center, and the distance from the road in the location environment to construct the evaluation indicator of rural residential areas in Karst Mountainous areas [26]. The suitability distribution of poverty alleviation and relocation of Yi villages in Liupanshui based on goal orientation focuses on policies and regulations [27] in the selection of the evaluation indicator. The settlement phenomenon around the coal mine is based on the geotechnical data of the upper side of the evaluation indicator selection [28]. The suitability distribution of bird habitats in Dongting Lake Basin under the scenario of climate change focuses on climate in the selection of evaluation indicators [29]. The suitability distribution of rural residential areas in karst mountainous areas focuses on geological conditions in the selection of the evaluation indicator [30]. Based on

the differences between different conditions and development objectives, the selection of the evaluation indicator is affected by both subjective and objective factors. Therefore, from the perspective of evaluation indicators, scholars choose evaluation indicators according to the regional characteristics and goal orientation of the research object. The subjectivity of indicator selection is strong, and different researchers may obtain different research results for the same region. Natural disaster factors such as landslides, debris flows and floods, which are closely related to the topographic characteristics of mountainous areas and dense river networks in Fujian, are often ignored.

2.3. Suitability Evaluation Method

The suitability of spatial distribution is based on the concept of land suitability, and its methods cover the fields of land use, ecological suitability, and so on. Both are based on the superposition analysis method established by McHarg (1967) by combining the suitability analysis method with theory. With the development and popularization of Geographic Information System (GIS) technology, equal weight analysis has hardly been used. The weighted evaluation model and classification algorithm based on the Analytic Hierarchy Process (AHP) have been established [31,32]—for example, niche model [33,34], maximum entropy model (MaxEnt) [35,36], K-means evaluation model [37,38], fuzzy comprehensive evaluation method [27], multi influencing factor (MIF) analysis method [39,40], and multi-factor superposition (MCE) analysis method [41]. These algorithms are usually used to analyze numerical data, while GeoDetector can analyze both numerical data and qualitative data [42]. Therefore, from the perspective of evaluation methods, AHP has become the most important method in the suitability evaluation of spatial distribution, but this method may lead to deviation in the evaluation results. The weight based on the AHP method only needs to consider the strong relationship between the evaluation indicator and the suitability of spatial distribution, and the relative importance of evaluation factors and does not need to undergo many calculations. This method relies on the experience of participants or experts, academic experience, and objective-oriented qualitative judgment to determine the relationship between them, to obtain the weight value. When there are too many evaluation factors or the relationship between them is not clear, there will be obvious differences in weights. The GeoDetector can analyze the statistical data of each evaluation factor to quantify the influence of each factor, and its quantitative results are used to guide the analytic hierarchy process (AHP) method to generate the weight value of each factor.

Based on the above analysis, this study establishes a suitability evaluation model based on GeoDetector and the AHP method to evaluate the suitability of the spatial distribution of ethnic minority villages in Fujian, which can solve the problem that there are no norms and standards for the selection of indicator factors and the assignment of factor weights, and effectively improve the scientific and objectivity of suitability evaluation. The research results can provide a reference for the precise development and protection of ethnic minority villages. Governments at all levels can adjust and optimize the development strategies of ethnic minority villages in appropriate areas in combination with the suitability evaluation results of ethnic minority villages and increase the resource allocation for the construction of ethnic minority villages in unsuitable areas. The research method can also be popularized and applied in other areas, which has important practical significance for guiding the development of minority villages.

3. Research Materials and Methods

3.1. Study Area

Fujian Province (115°50' E~120°47' E, 23°30' N~28°19' N) is located on the southeast coast of China and covers an area of about 124,000 square km (Figure 1). The population of ethnic minorities in Fujian Province accounts for 2.16% of the total population of the province, and there are 567 ethnic minority villages. The number and distribution characteristics of ethnic minority villages in each city are significantly different (Figure 2). Ethnic minorities living in Fujian include Shē, Huí, and so on. Among them, the Shē nationality

has the largest population in China, with a total of 365,500 people, accounting for 51.58% of the national Shē population and 45.87% of the minority population in the province [43]. The terrain is mainly mountainous and hilly, accounting for more than 80% of the total area. The terrain is high in the northwest and low in the southeast. In the terrain, the area of low mountains accounts for 44.1% of the total area of the province, accounting for the largest proportion; followed by hills accounting for 26.6%, medium and low mountains accounting for 13.3%, and medium mountains accounting for 1.6% [44].

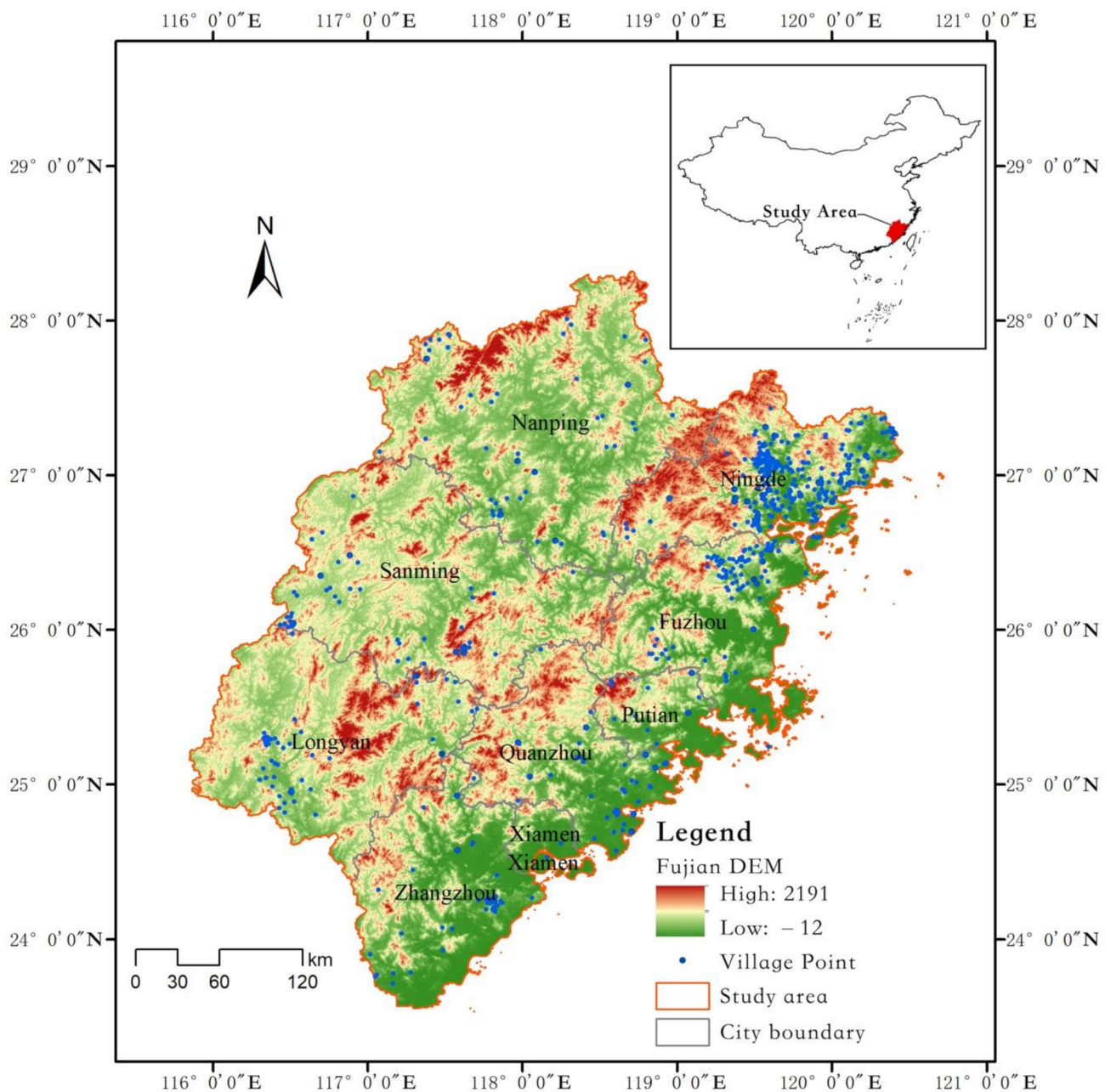


Figure 1. Location and topography of Fujian, China.

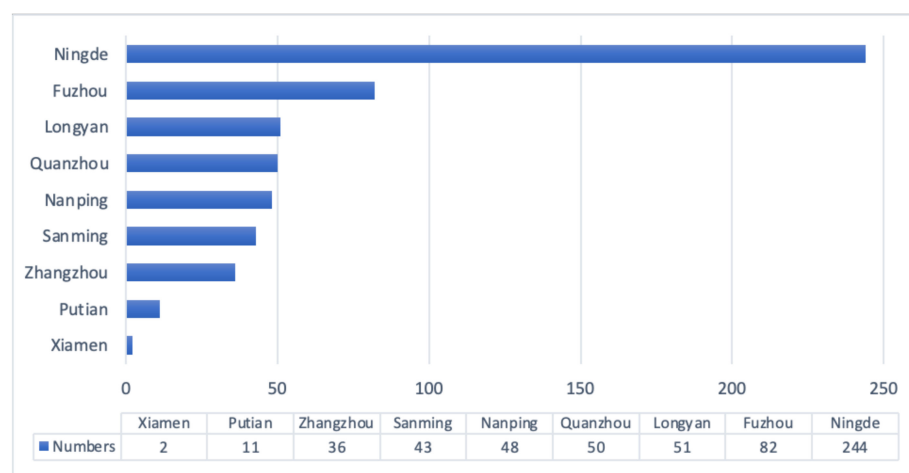
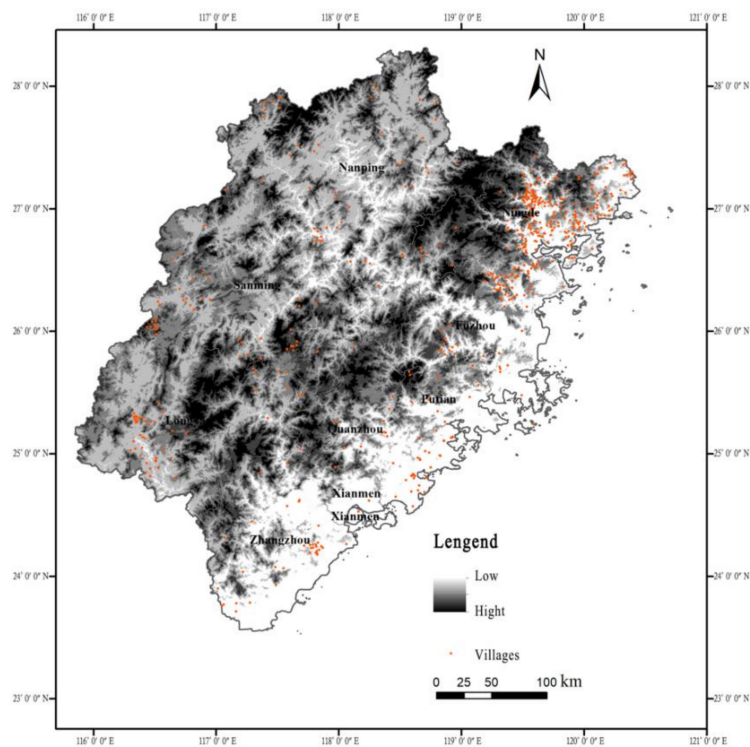


Figure 2. Statistical diagram of the number of ethnic minority villages in cities of Fujian Province.

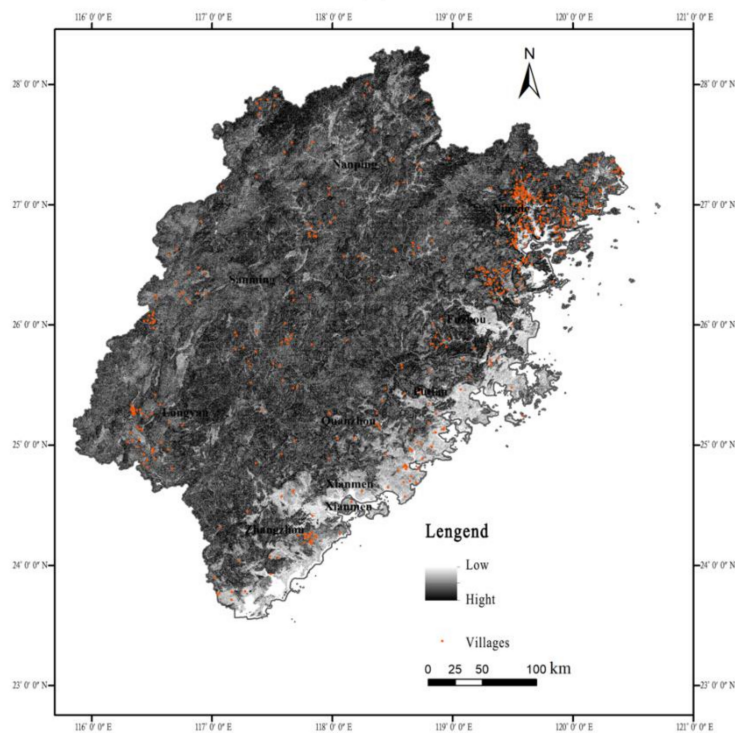
3.2. Data Sources

The spatial distribution suitability of ethnic minority villages is affected by many factors, such as natural climate, geographical environment, society, economy, culture, and so on. Based on the influencing factors of rural residential area distribution suitability proposed by Liu Liwen [14], this study increases the disaster influencing factors often suffered by Fujian under natural conditions, and the cultural factors of ethnic minority villages. It is classified into natural geographical indicators (distance from the river, altitude, slope, landslide sensitivity, flood sensitivity), socio-economic indicators (distance from the County Center, distance from the road, urbanization rate of the county where the village is located, and annual per capita income) and cultural life indicators (population of ethnic minorities, number of intangible cultural heritage, number of material cultural heritage, and per capita arable land).

Through field research, consulting historical documents, consulting the Department of ethnic and religious affairs of Fujian Province, and searching the provincial (municipal) government websites of Fujian Province, we obtained relevant materials from 567 Chinese minority villages. The contents are as follows: The POI (points of interest) data of various ethnic minority villages in the Baidu map in June 2021 are obtained through the software Geosharp, and the types are county administrative center, road, and river data. Obtain natural disaster point data [45] and hydrological station statistical data [46] through a geographic remote sensing ecological network, from the basic geographic information database of Fujian Province and county [47]. The 30 m resolution Digital Elevation Model (DEM) comes from the data center of resources and environmental science, the Chinese Academy of Sciences [48]. The data on the economy, urbanization rate, and population are from the 2020 Statistical Yearbook published by the Fujian Provincial Bureau of statistics [49]. The two factors of altitude and slope are obtained by 30 m DEM analysis. For the factors of river, road and County Center, the Euclidean Metric is used to measure the distance from each village to the nearest element to generate a grid layer. Based on the economy, population, and urbanization rate published in the 2020 Statistical Yearbook published by the Fujian Provincial Bureau of statistics, the grid map of the income, population, and urbanization rate is obtained by density mapping. Based on the historical highest flood level, 20-year flood level, and 10-year flood level data of hydrological stations in Fujian Province, the “seed spread algorithm” [50] is used to calculate the flood sensitivity under different safety levels. Based on the data of landslide occurrence points in Fujian Province, the grid map of landslide sensitivity is obtained by density mapping. All factor layers are unified into a projection coordinate system, and preprocessing such as mask clipping is carried out. The pretreatment results of each factor are shown in Figure 3.

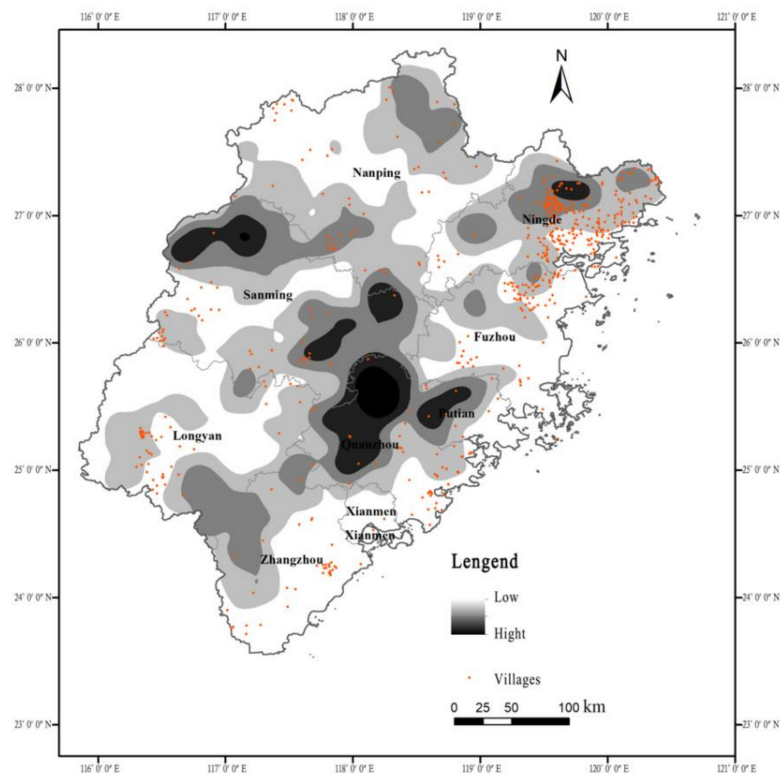


(a)

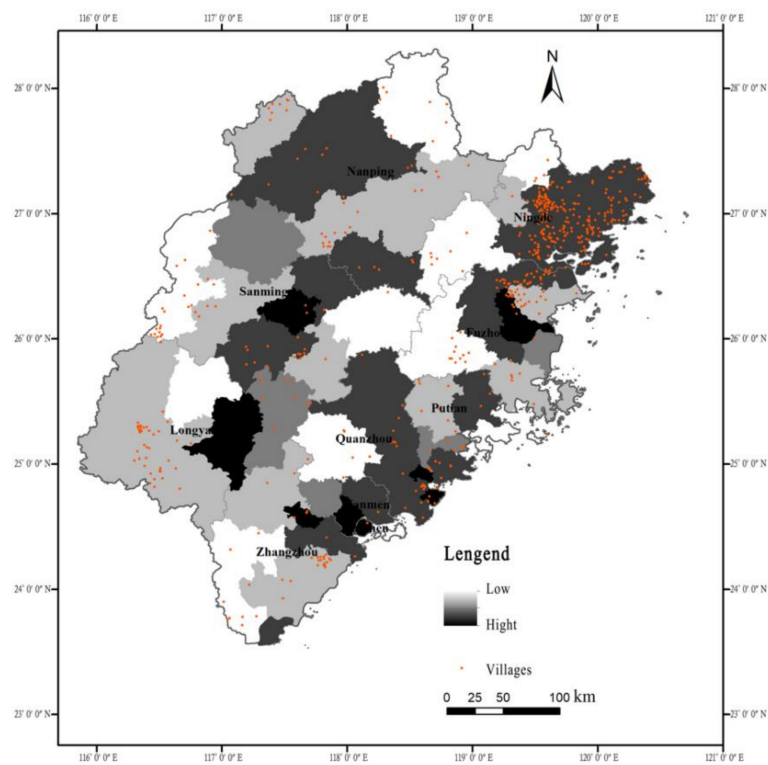


(b)

Figure 3. Cont.

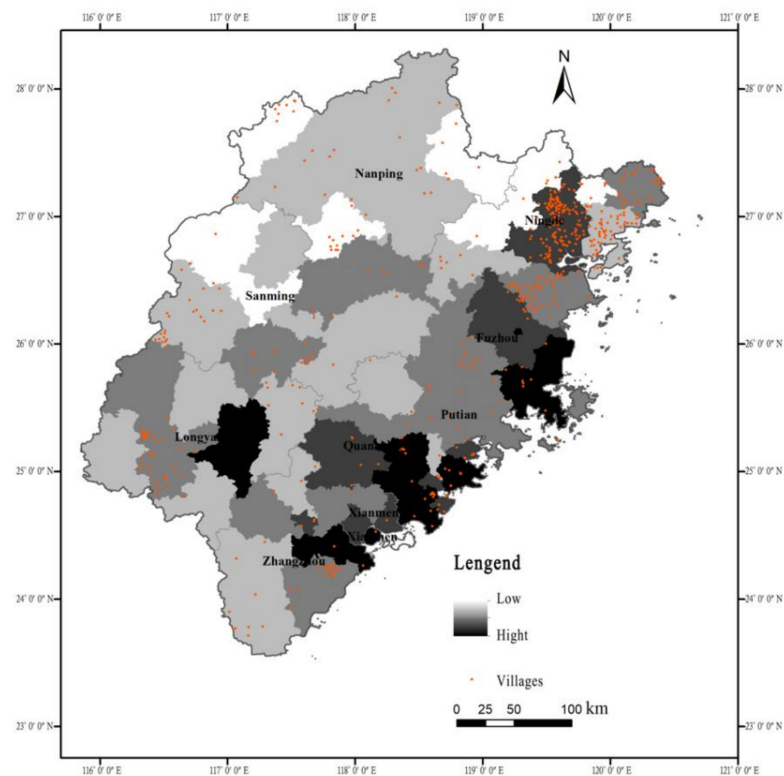


(c)

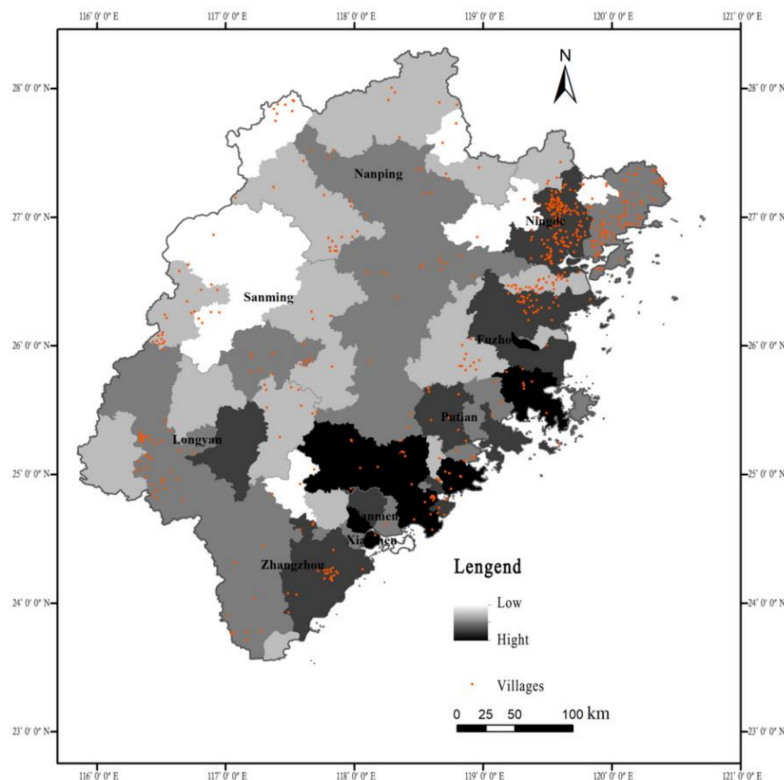


(d)

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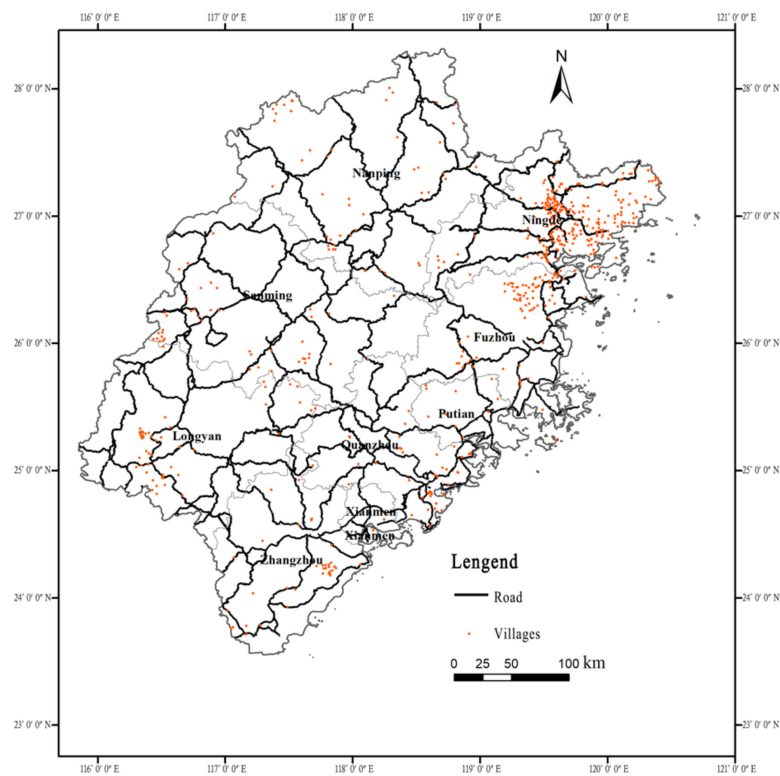


(e)

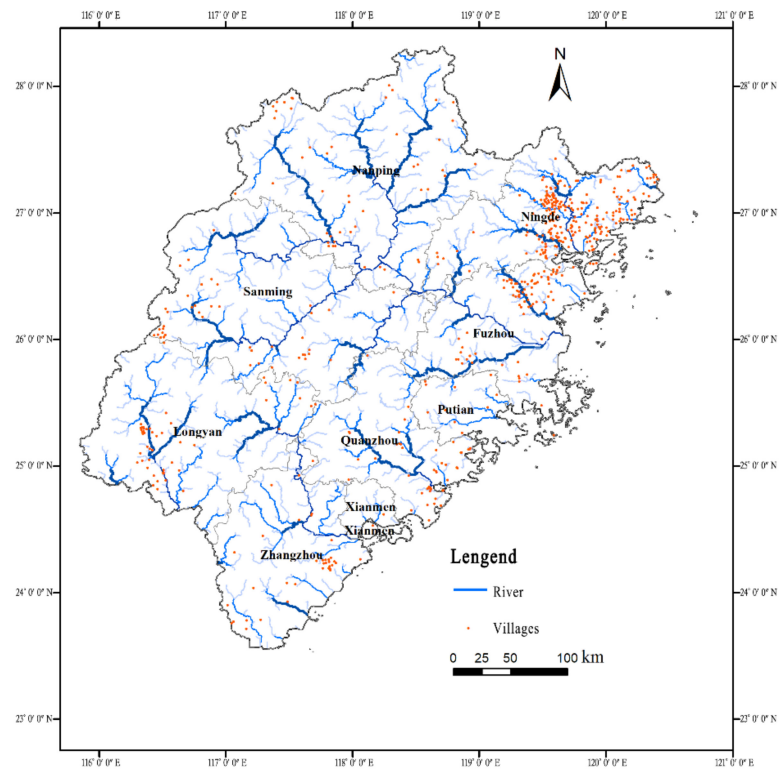


(f)

Figure 3. Cont.

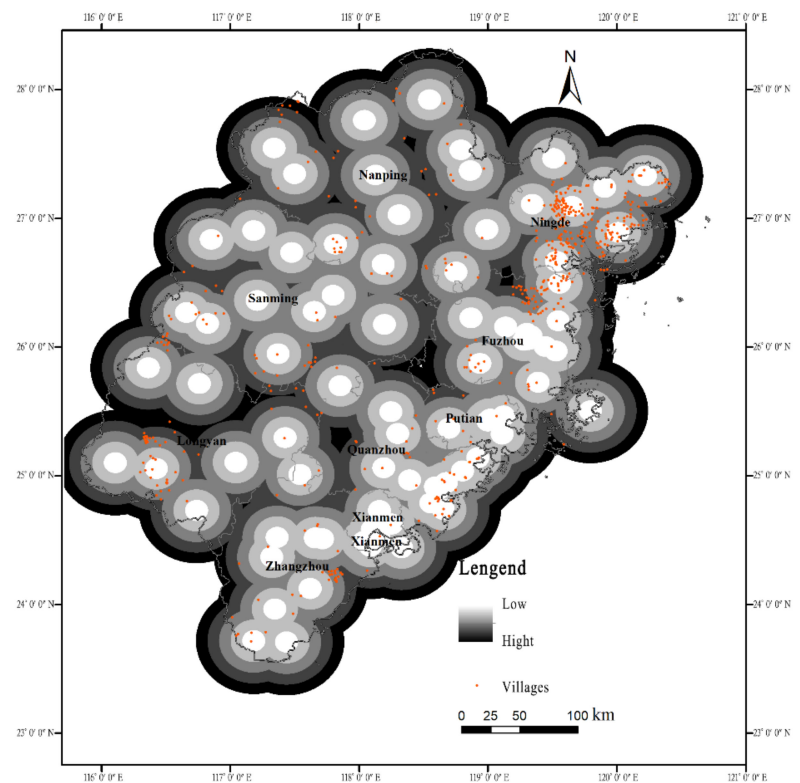


(g)

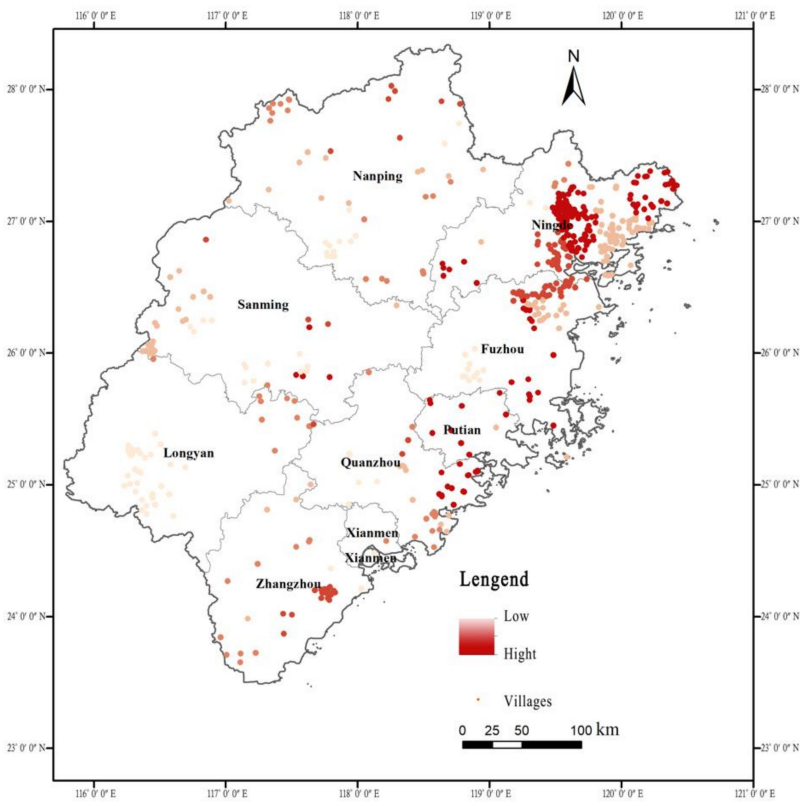


(h)

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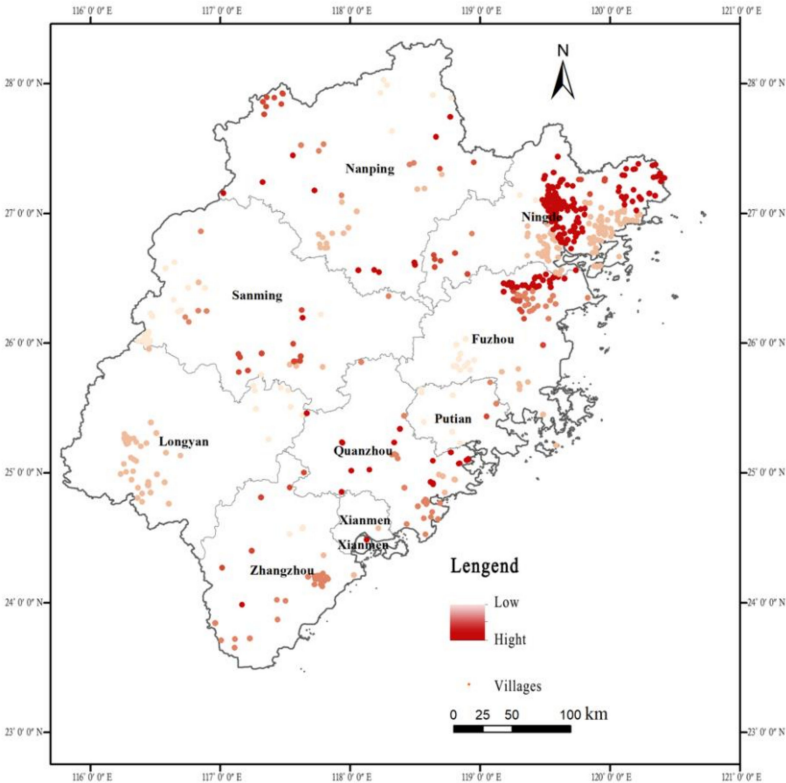


(i)

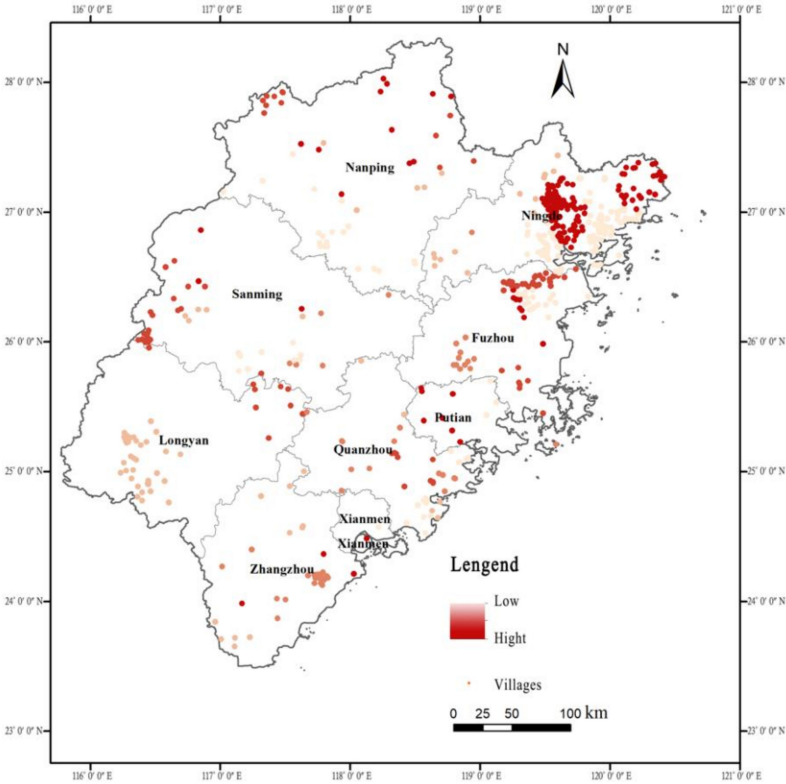


(j)

Figure 3. Cont.



(k)



(l)

Figure 3. Cont.

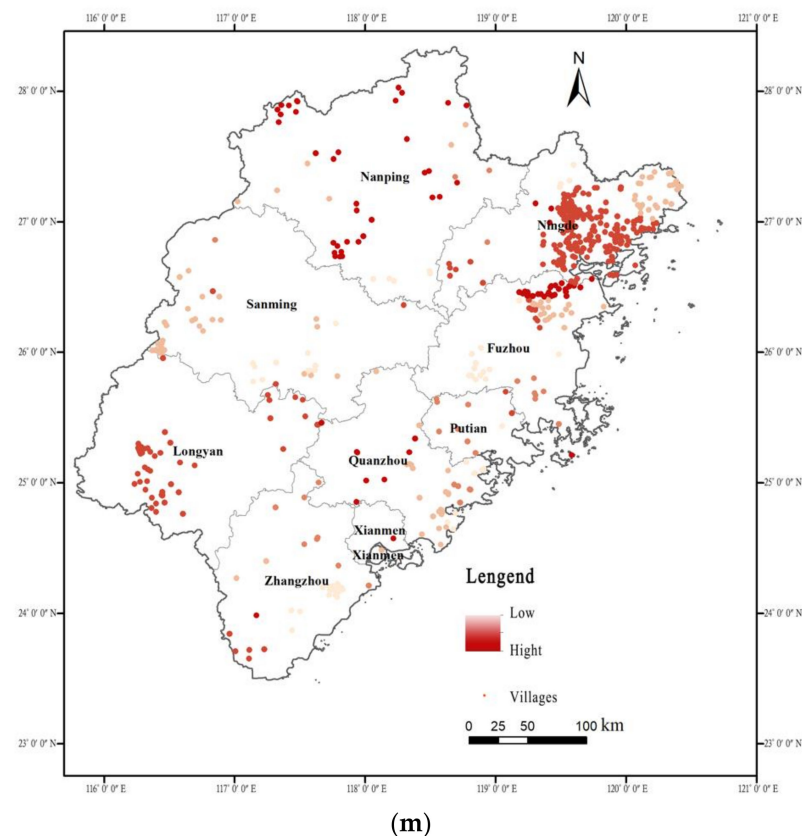


Figure 3. Superposition map of ethnic minority villages and influencing factors in Fujian Province: (a) Superposition of villages and altitude, (b) Superposition of villages and slope, (c) Superposition of villages and landslide areas, (d) Superposition of village and urbanization rate, (e) Superposition of village and economy, (f) Superposition of village and population, (g) Superposition of villages and roads, (h) Superposition of villages and river, (i) Superposition of village and County Center, (j) Population of ethnic minorities in villages, (k) Quantity of village intangible cultural heritage, (l) Quantity of village material cultural heritage, and (m) Per capita cultivated land area of villagers.

Minority villages are dot-like elements on a macro scale. Therefore, in this study, the spatial point coordinates of the geographical location of ethnic minority villages are used to replace the ethnic minority villages with certain regular shapes.

3.3. Research Method

3.3.1. GeoDetector

GeoDetector is one of the powerful tools for scholars to analyze driving forces and factors. It can detect both numerical data and qualitative data [42,51]. The basic principle is as follows: firstly, the main environmental factors affecting the distribution characteristics of ethnic minority villages in Fujian Province are selected, and the relevant data of each factor are comprehensively analyzed and statistically processed through Arcmap 10.8 software (Redlands, California, USA), the software developer is Environmental System Research Institute (ESRI), the grid distribution map of ethnic minority villages superimposed with each factor is generated, and the superposition results are statistically analyzed through GeoDetectors to quantify the impact degree of each environmental factor. The results are used to guide the AHP method to generate the weight value of each factor. The impact degree of each environmental factor is measured by the q value, and its algorithm is as follows:

$$q = 1 - \frac{\sum_{h=1}^L N_h \sigma_h^2}{N \sigma^2} = 1 - \frac{SSW}{SST} \quad (1)$$

where $h = 1, 2, \dots, L$ is the strata of variable Y or detection factor X , (that is, classification or zoning), σ^2 and σ_h^2 is the variance of Y value of the whole region and layer h , respectively; N and N_h is the number of units in the whole area and layer h respectively; SST is the Total Sum of Squares; SSW is the Sum of Squares, and the value range of q is $[0 \sim 1]$. The larger the q value, the stronger the influence of detection factors on the spatial distribution of ethnic minority villages—on the contrary, the weaker the influence.

3.3.2. Suitability Evaluation Model Based on Geodetector and AHP

The suitability evaluation model usually uses the AHP method to calculate the weight of each indicator. In the calculation process, the relationship between the relative importance and intensity of each factor is evaluated based on subjective evaluation, for example, relative importance: $a > b > c$; Strength relationship: A is four times more important than B , and B is two times more important than C . Then, each factor is matrix calculated to obtain the weight value of each factor. However, the AHP method has the following shortcomings: (1) there is the possibility of inaccuracy or error in the subjective evaluation of the relationship between the relative importance and intensity of factors; (2) and the correlation of factors is not considered in the analysis. Therefore, this study establishes a suitability evaluation model based on GeoDetector and the AHP method to evaluate the suitability of villages, which can effectively improve the accuracy of using only the AHP method to establish a suitability evaluation model evaluate the suitability of villages. The basic principles are as follows: firstly, the Arcmap 10.8 software is used to analyze the superposition of the distribution of ethnic minority villages and various environmental factors to determine the limiting attribute value of the factors, and the GeoDetector is used to quantify the influence and interaction of various environmental factors, which is used to determine the relative importance and intensity relationship of each indicator layer in the AHP method. Secondly, the evaluation indicator system of Fujian ethnic minority villages is constructed based on 13 factors in terms of natural geographical environment and socio-economic environment, and the evaluation factors are graded and assigned to generate the village suitability evaluation indicator table. With the help of Arcmap 10.8 software, the grid data of each factor are processed, and the grid distribution map of each factor is weighted and superimposed to obtain the village suitability evaluation results. The evaluation results are divided and graded through the division of threshold values to determine the suitability classification results of ethnic minority villages in Fujian. The general framework of this study is shown in Figure 4. The calculation formula of the evaluation model based on GeoDetector and AHP is:

$$Suit = \sum_{i=1}^n W_i \times P_i \quad (2)$$

where $Suit$ is the comprehensive evaluation value of suitability of ethnic minority villages in an evaluation unit, W_i is the weight value of factor i ; P_i is the i -th single factor score corresponding to the evaluation unit, and n is the total number of factors.

3.4. Evaluation Model Establishment

3.4.1. Factor Classification Statistics

The physical geographical indicators and socio-economic indicators are superimposed with the spatial distribution points of ethnic minority villages, and the single factor is graded. In the socio-economic indicators, the distance from the road is divided into five grades, and the distance from the county seat is divided into five grades. It is found that the closer the distance from the road and the county seat, the more ethnic minority villages are distributed, and the closer the distance is, which provides a positive impact on the development of the village. The per capita annual income of the village is divided into five grades, and the urbanization rate of the county where the village is located is divided into five grades. A high value indicates that the economic benefit of the county where the village is located is good, which provides a positive impact on the development of the village. In the natural geographical indicators, the altitude and slope are divided into five

levels. The high altitude and large slope have a small number of villages, which provides negative impacts on the development of villages. The distance from the river is divided into five levels, and the number of villages 10 km away from the river is the largest, which provides a positive impact on the development of villages. The landslide sensitivity is divided into five grades, and the flood sensitivity is divided into three grades. With the decrease of the sensitivity, the number of villages increases, providing a negative impact on the development of villages. In the cultural life indicators, the number of ethnic minorities, the per capita cultivated land area of the village, the amount of intangible cultural heritage, and the amount of intangible cultural heritage in the village are divided into five grades. The larger the value, the better the development of the village at this stage and the more conducive it is to the cultural inheritance and development of the village, providing a positive impact on the development of the village.

The trend line relationship between village distribution points and factors is expressed in R-squared, which is a value between 0 and 1. When it tends to 1, it shows that the trend line is consistent with the data, proving that the classification of each impact factor is reasonable (Figure 5). At the same time, the superposition results of the spatial distribution points of villages and the grading of various factors are counted, and qualitative data are obtained (Appendix A Table A1).

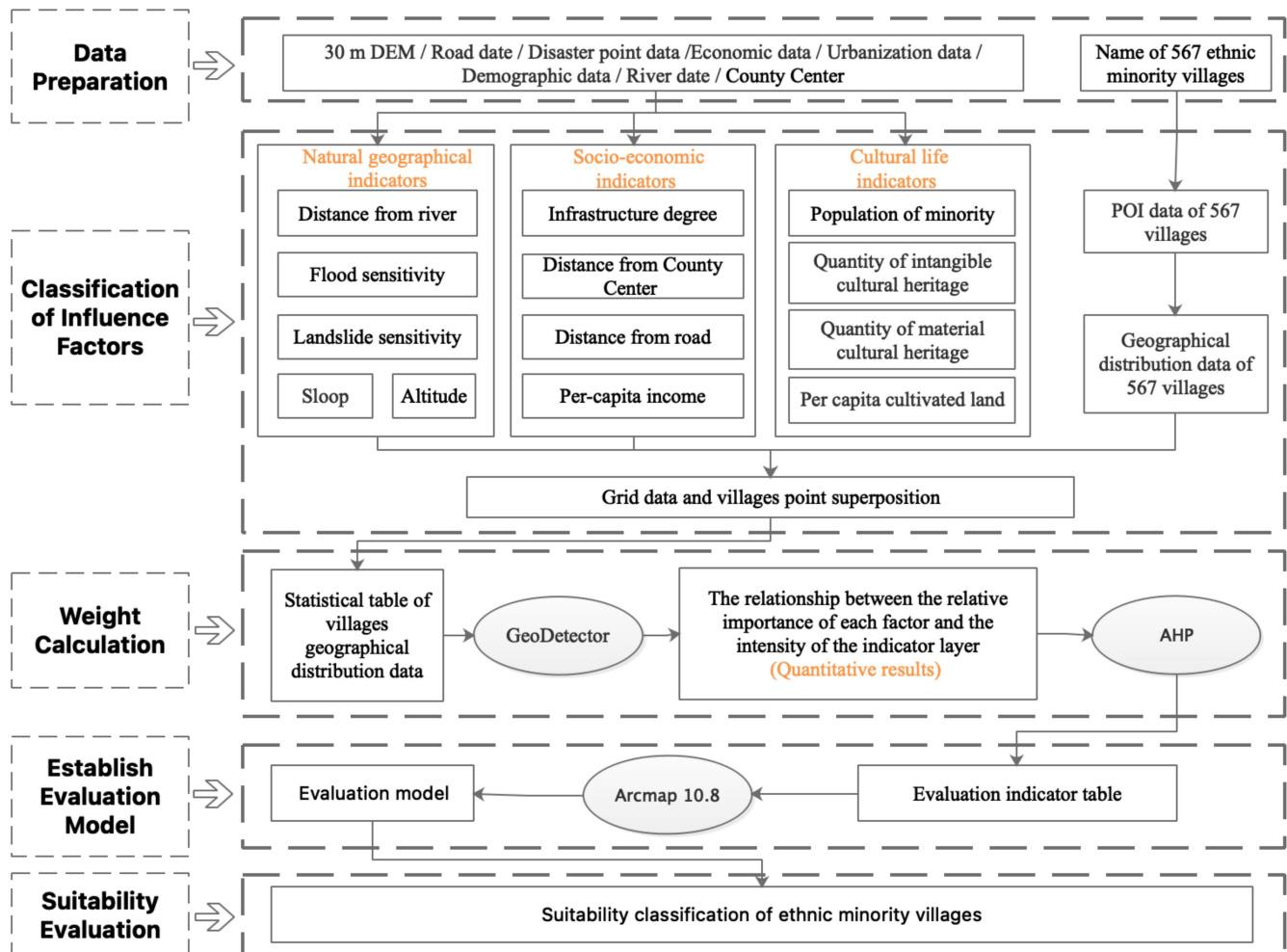


Figure 4. The overall flowchart of the method.

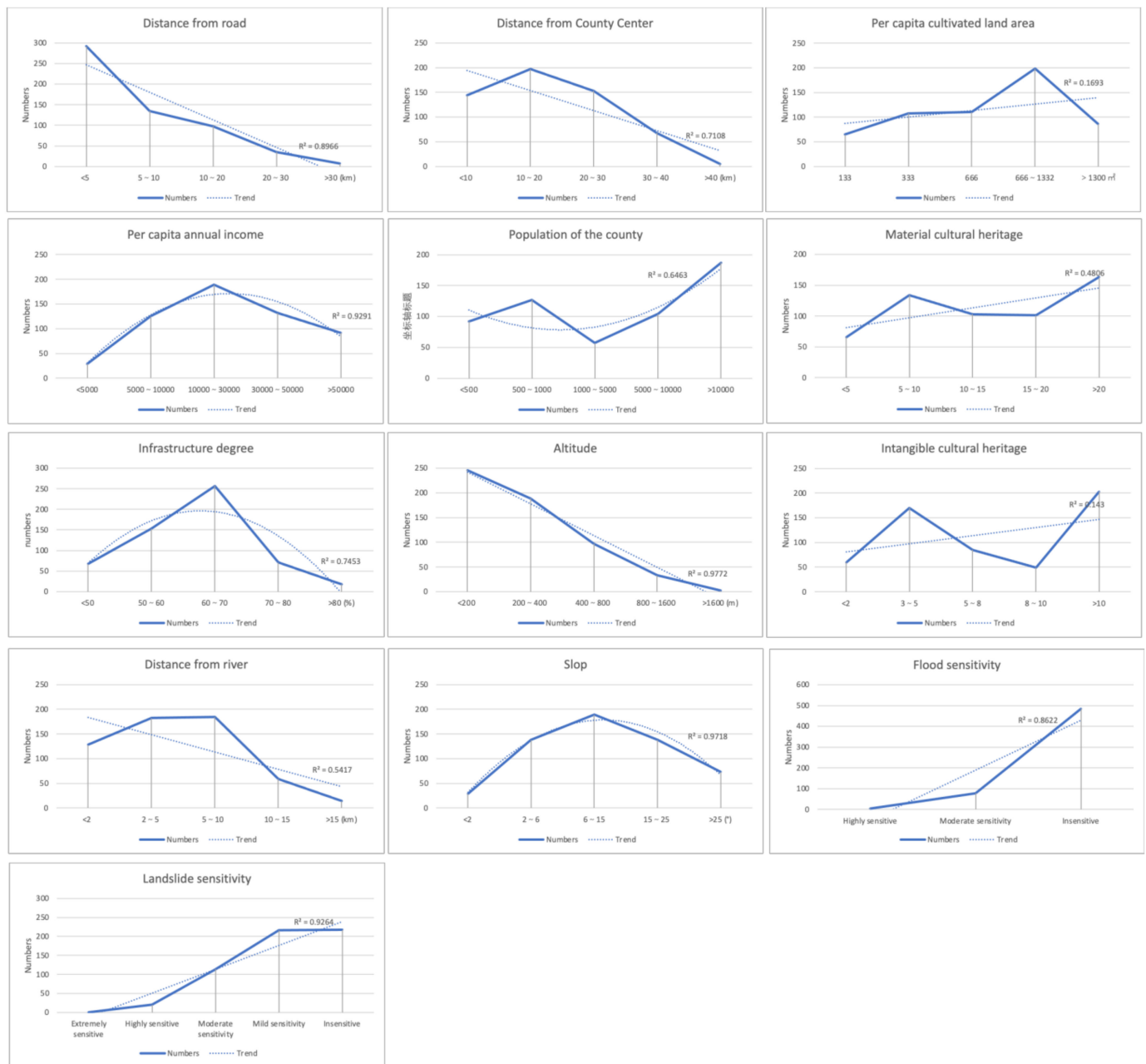


Figure 5. Hierarchical analysis of ethnic minority villages in Fujian Province based on various influencing factors.

3.4.2. Weight of Indicator Layer

The GeoDetector is not affected by numerical data or qualitative data. The factor detection and interactive detection of the GeoDetector are used to analyze the interactive influence of natural geography and socio-economic factors on ethnic minority villages in Fujian Province, that is, the qualitative data in Appendix A are calculated by Theorem 1 to express the influence of factor in a quantitative way; it can intuitively judge the relative importance of each factor through numerical comparison and improve the accuracy of the AHP method in weight calculation.

The nuclear density (Y) of ethnic minority villages is selected as the dependent variable. Select the distance from the road (A), the distance from the County Center (B), Per capita income of villages (C), and the urbanization rate of the county where the village is located (D) in the socio-economic environment, Select slope (E), altitude (F), landslide

sensitivity (G), distance from the river (H) and flood sensitivity (I) in the natural geographical environment, select the number of ethnic minorities in the village in cultural life (J), the amount of intangible cultural heritage (K), the amount of material cultural heritage (L), and the per capita cultivated land area (M) as independent variables to calculate the influence of each factor (that is, q value). It can be seen from the results (Table 1) that there are obvious differences in the influence q values of each influencing factor, and the specific values are $C > D > J > K > L > M > H > F > E > I > G > B > A$. The influence of the per capita income (c) of the village is the highest, and the urbanization rate (d), the number of ethnic minorities (J) and the amount of intangible cultural heritage (k) of the county where the village is located are also large, indicating that the suitability of the spatial distribution of the village is mainly affected by the per capita income of the village, the urbanization rate, the number of ethnic minorities and the amount of intangible cultural heritage. When using the AHP method to calculate the weight, the relative importance of each factor should follow $C > D > J > K > L > M > H > F > E > I > G > B > A$.

Table 1. Analysis of influencing factors of the spatial distribution of ethnic minority villages in Fujian Province.

	A	B	C	D	E	F	G	H	I	J	K	L	M
q value	0.06	0.07	0.51	0.38	0.13	0.15	0.08	0.16	0.11	0.36	0.31	0.25	0.23

The weight of socio-economic, physical geography and cultural life in the middle indicator layer needs to consider the interaction value of each factor. According to the interaction detection and analysis results of the impact factors (Table 2), the average value of the interaction of each factor is taken as the value of the middle indicator layer, that is, the socio-economic indicator value = $(A + B + C + D) = 1.60$, the natural geographical indicator value = $(E + F + G + H + I) = 1.17$, and the cultural life. The indicator value $(J + K + L + M) = 1.70$; in the AHP method, the intensity relationship of the middle indicator layer of social economy, natural geography and cultural life is $1.60:1.17:1.7 = 9:7:10$.

Table 2. Interaction analysis of influencing factors of the spatial distribution of ethnic minority villages in Fujian Province.

Interaction	A	B	C	D	E	F	G	H	I	J	K	L	M
A	0.06	0.13	0.54	0.47	0.12	0.10	0.15	0.12	0.08	0.40	0.42	0.36	0.33
B	0.13	0.07	0.55	0.44	0.14	0.14	0.23	0.13	0.09	0.37	0.39	0.32	0.34
C	0.54	0.55	0.51	0.72	0.54	0.55	0.58	0.52	0.53	0.67	0.63	0.67	0.73
D	0.47	0.44	0.72	0.38	0.41	0.42	0.46	0.42	0.39	0.61	0.59	0.56	0.56
E	0.12	0.14	0.54	0.41	0.03	0.13	0.13	0.09	0.05	0.36	0.33	0.27	0.26
F	0.10	0.14	0.55	0.42	0.13	0.05	0.17	0.11	0.08	0.39	0.37	0.33	0.31
G	0.15	0.23	0.58	0.46	0.13	0.17	0.08	0.13	0.09	0.40	0.38	0.36	0.33
H	0.12	0.13	0.52	0.42	0.09	0.11	0.13	0.01	0.04	0.34	0.33	0.29	0.26
I	0.08	0.09	0.53	0.39	0.05	0.08	0.09	0.04	0.01	0.33	0.33	0.26	0.24
J	0.40	0.37	0.67	0.61	0.36	0.39	0.40	0.34	0.33	0.31	0.57	0.53	0.54
K	0.42	0.39	0.63	0.59	0.33	0.37	0.38	0.33	0.33	0.57	0.31	0.54	0.56
L	0.36	0.32	0.67	0.56	0.27	0.33	0.36	0.29	0.26	0.53	0.54	0.25	0.51
M	0.33	0.34	0.73	0.56	0.26	0.31	0.33	0.26	0.24	0.54	0.56	0.51	0.23

3.4.3. Suitability Evaluation Indicator Table

The study uses an analytic hierarchy process to divide the indicator system into target layers, middle layers, and indicator layers.

Combined with the relative importance of each factor obtained by the above GeoDetector and the strong relationship of the middle layer, the pairwise judgment matrix of the target layer, the middle layer, and the indicator layer is constructed, and calculated to obtain the weight value of the factors of this level to a factor of the previous level (Theorem 2),

which is the middle layer weight value and the indicator layer weight value. Then, refer to the trend line of the impact of each factor on the spatial distribution of villages (Figure 4), assign the value of each factor grade with 0–9 according to the degree of suitability, and generate the evaluation table of the suitability indicator of the spatial distribution of villages (Table 3).

Table 3. Evaluation indicator table of the suitability of spatial distribution of ethnic minority villages in Fujian Province.

Middle Layers	Weight	Indicators	Weight	Standard for Grading	Value
Natural geographical indicators	0.3391	Flood sensitivity	0.0262	Highly sensitive	3
	☐	☐	☐	Moderate sensitivity	6
	☐	☐	☐	Insensitive	9
	☐	Slop (°)	0.0440	<2	9
	☐	☐	☐	2~6	7
	☐	☐	☐	6~15	5
	☐	☐	☐	15~25	3
	☐	☐	☐	>25	1
	☐	Altitude (m)	0.0490	−12~194	9
	☐	☐	☐	194~431	7
	☐	☐	☐	431~665	5
	☐	☐	☐	665~950	3
	☐	☐	☐	950~2191	1
	☐	Distance from river (km)	0.0490	<2	9
	☐	☐	☐	2~5	7
	☐	☐	☐	5~10	5
	☐	☐	☐	10~15	3
	☐	☐	☐	>15	1
	☐	Landslide sensitivity	0.0294	Extremely sensitive	0
	☐	☐	☐	Highly sensitive	2
	☐	☐	☐	Moderate sensitivity	5
	☐	☐	☐	Mild sensitivity	7
	☐	☐	☐	Insensitive	9
Socio-economic indicators	0.3722	Per capita income of villages	0.1524	<5000	1
	☐	☐	☐	5000~10,000	3
	☐	☐	☐	10,000~30,000	5
	☐	☐	☐	30,000~50,000	7
	☐	☐	☐	>50,000	9
	☐	Infrastructure degree (%)	0.0912	<50	1
	☐	☐	☐	50~60	3
	☐	☐	☐	60~70	5
	☐	☐	☐	70~80	7
	☐	☐	☐	>80	9
	☐	Distance from County Center (km)	0.0332	<10	9
	☐	☐	☐	10~20	7
	☐	☐	☐	20~30	5
	☐	☐	☐	30~40	3
	☐	☐	☐	>40	1

Table 3. Cont.

Middle Layers	Weight	Indicators	Weight	Standard for Grading	Value
cultural life	☐	Distance from road (km)	0.0351	<5	9
	☐	☐	☐	5~10	7
	☐	☐	☐	10~20	5
	☐	☐	☐	20~30	3
	☐	☐	☐	>30	1
	0.2887	Minority population	0.1658	<500	1
	☐	☐	☐	500~1000	3
	☐	☐	☐	1000~5000	5
	☐	☐	☐	5000~10,000	7
	☐	☐	☐	>10,000	9
	☐	Intangible cultural heritage	0.1413	<2	1
	☐	☐	☐	3~5	3
	☐	☐	☐	5~8	5
	☐	☐	☐	8~10	7
	☐	☐	☐	>10	9
	☐	Material cultural heritage	0.0829	<5	1
	☐	☐	☐	5~10	3
	☐	☐	☐	10~15	5
	☐	☐	☐	15~20	7
	☐	☐	☐	>20	9
	☐	Per capita cultivated land area (m ²)	0.1004	133	1
	☐	☐	☐	333	3
	☐	☐	☐	666	5
	☐	☐	☐	666~1332	7
	☐	☐	☐	>1300 m ²	9

4. Suitability Evaluation Results

4.1. Suitability Evaluation and Calculation

The grid data of each factor are processed with the help of Arcmap 10.8 software, the grid distribution map of each factor is weighted and superimposed, and the graphic value of each grid unit is calculated by the map algebra method, to form the grid surface map of the village suitability evaluation (Figure 6). It can be seen from the figure that the high value of village suitability is distributed in the southeast coastal and central areas of Fujian Province, gradually decreasing from the high value to the West.

4.2. Determination of Partition Threshold

The comprehensive evaluation result of ethnic minority villages is a continuous grid map, with a value of 2.2846–8.3835. Natural breaks are used to divide the values into grade I, grade II, grade III, and grade IV, of which grade I, grade II, and grade III correspond to the most suitable, generally suitable, and basically suitable, respectively, and grade IV is unsuitable (Table 4).

4.3. Suitability Classification Results

According to the threshold value of suitability classification, the suitability evaluation grid map of villages is reclassified to generate the suitability classification results of ethnic minority villages (Figure 7), and then the grid calculator is used to obtain the suitability classification statistics of ethnic minority villages (Table 5). The results show that the

most suitable area for developing minority villages in Fujian Province accounts for 21.05%, distributed in the southeast coastal area in a belt shape. This area has the characteristics of rapid economic development, flat terrain, convenient transportation, high urbanization, fewer natural disasters, and the villages are close to the county seat. In addition, 24% of the minority villages in Fujian Province are in this area; generally suitable area accounts for 33.59%, which is scattered in the southeast coastal areas, the central and western regions, the northwest, and the southwest. This region is the most suitable area for the economy and has the characteristics of low average altitude, convenient transportation, a large population, and a good ecological environment. In addition, 51% of ethnic minority villages are located in this region. The number of ethnic minority villages in this area is significantly higher than that in the most suitable areas, mainly because the most suitable areas are mostly in the central urban area and nearby areas with high urbanization, and villages are generally a certain distance from the central urban area; Basically suitable area accounts for 28.20%, which is scattered in the north-central region, the Middle East region and the southern region. The average altitude of this region is high, the economic capacity is general, the natural disaster sensitivity is high, the road network is sparse, the degree of urbanization is low, and the number of ethnic minority villages is relatively small, accounting for 14%. The area of unsuitable areas accounts for 17.16%, mainly concentrated in the northern and western regions. This region is mostly surrounded by mountains, with backward economic development, sparse road network, inconvenient transportation, low urbanization, and a small population. The number of villages distributed accounts for the least, only 11%. In general, most areas of Fujian Province are suitable for the development of ethnic minority villages, and the number of ethnic minority villages distributed in suitable areas accounts for nearly 90%.

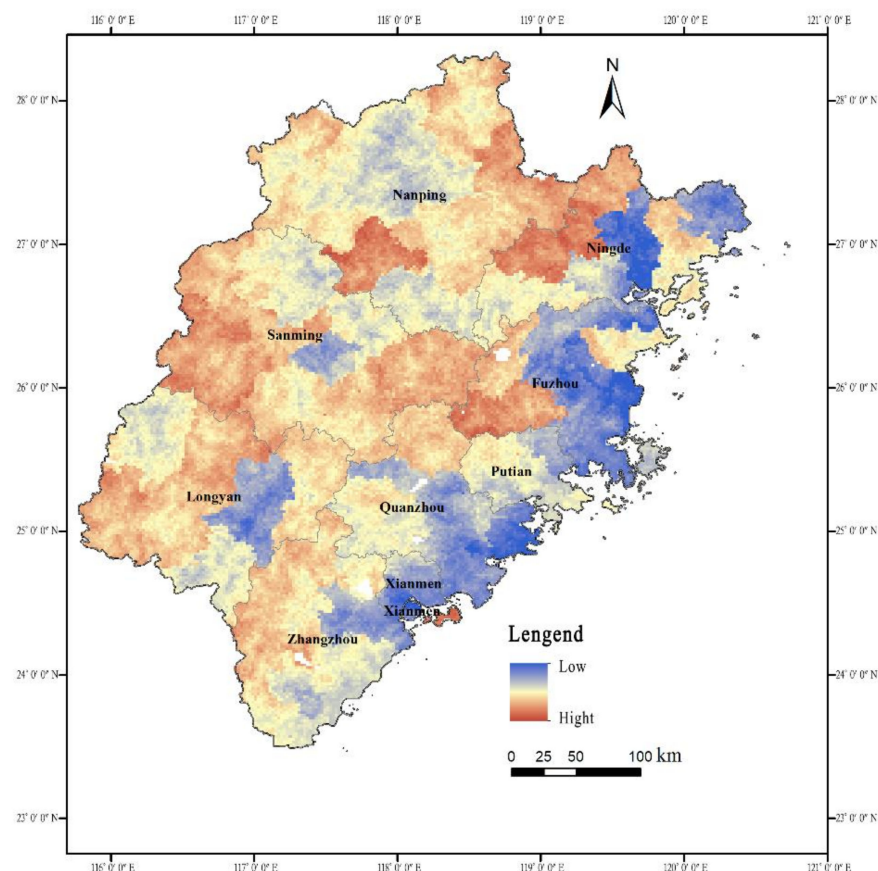
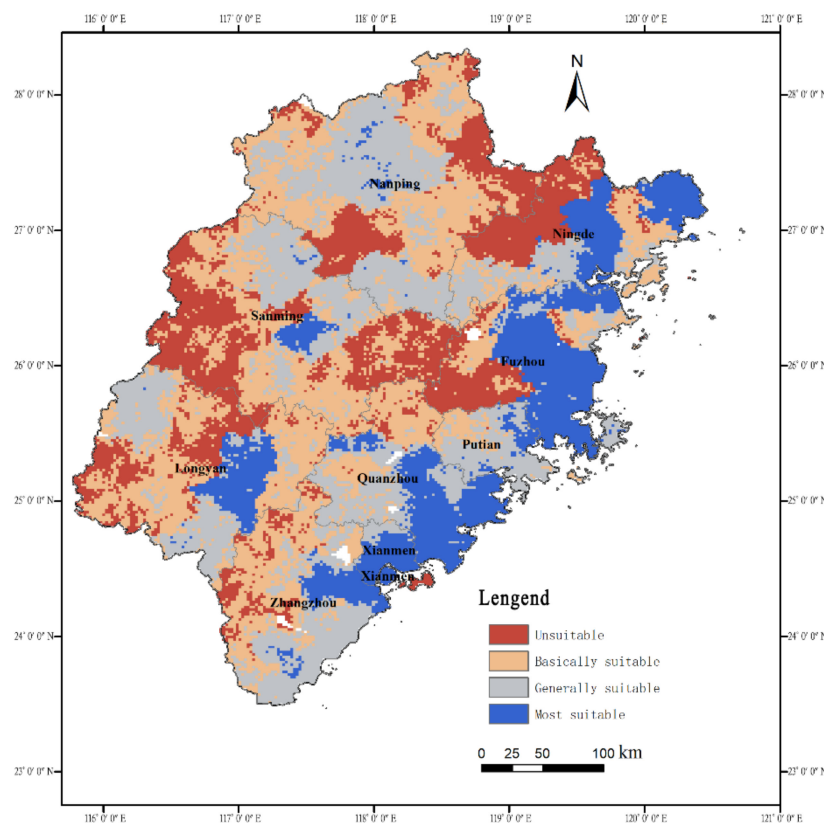


Figure 6. Grid map of suitability evaluation values of ethnic minority villages in Fujian Province.

Table 4. Classification standard for suitability evaluation of ethnic minority villages in Fujian Province.

Grade	Threshold Division	Suitability Classification
I	6.8392–8.3835	Most suitable
II	5.0695–6.8392	Generally suitable
III	3.4753–5.0695	Basically suitable
IV	2.2846–3.4753	Unsuitable

**Figure 7.** Classification of the suitability evaluation of ethnic minority villages in Fujian Province.**Table 5.** Statistical results of suitability classification of the ethnic minority village in Fujian Province.

Grade	Area Percentage	Number of Villages	Percentage of Quantity
I	21.05%	134	24%
II	33.59%	292	51%
III	28.20%	77	14%
IV	17.16%	64	11%

The statistical results of the suitability classification of ethnic minority villages are analyzed according to the municipal administrative divisions (Table 6). The number of minority villages in Xiamen is small and has no reference value. Ningde has the most significant number of ethnic minority villages, accounting for 43.03%; most of them are in grade I, II, and III suitable areas, and only 2.24% are in unsuitable areas. The number of ethnic minority villages in Fuzhou accounts for 14.46%, but all ethnic minority villages are in grade I, II, and III suitability areas. The proportion of ethnic minority villages in Longyan, Nanping, Quanzhou, Sanming, and Zhangzhou is similar. Among them, ethnic minority villages in Longyan and Quanzhou are in grade I, II, and III suitable areas, and ethnic minority villages in the other three cities are in unsuitable areas. Among them, ethnic minority villages in Nanping account for 8.47%, but 4.13% are in unsuitable areas, and the proportion of ethnic minority villages in Sanming is relatively high, reaching 2.51%.

Table 6. Statistical results of suitability classification of ethnic minority villages in cities of Fujian Province.

City	Number of Ethnic Minority Villages	Percentage	Percentage			
			Grade I	Grade II	Grade III	Grade IV
Fuzhou	82	14.46%	3.20%	9.42%	1.84%	0.00%
Longyan	51	8.99%	0.00%	4.05%	4.94%	0.00%
Nanping	48	8.47%	0.00%	1.85%	2.49%	4.13%
Ningde	244	43.03%	18.25%	20.87%	1.67%	2.24%
Putian	11	1.94%	0.00%	1.75%	0.19%	0.00%
Quanzhou	50	8.82%	6.56%	1.94%	0.33%	0.00%
Sanming	43	7.58%	0.00%	2.11%	2.95%	2.51%
Xiamen	2	0.35%	0.35%	0.00%	0.00%	0.00%
Zhangzhou	36	6.35%	0.92%	4.23%	0.62%	0.58%

From the above analysis, Ningde City and Quanzhou City are the most suitable cities for the development of ethnic minority villages. Among many cities, Nanping City is the least suitable city for the development of ethnic minority villages, followed by Sanming City. The number of ethnic minority villages in these two cities is small, and more than half of the villages are distributed in areas unsuitable for development.

5. Discussion

5.1. Advantages of Spatial Distribution Suitability Evaluation Model Based on Geodetector and AHP

- (1) The spatial distribution suitability of ethnic minority villages is affected by many factors. The suitability analysis factors of villages in different regions are different, especially in Fujian, where there are many mountains and hills, the natural conditions are complex and changeable, and disasters occur relatively frequently. The selection of factors should be more targeted. In the past, due to the limitations of various conditions, the evaluation indicators usually selected terrain, roads, towns, rivers, etc., with less consideration of disasters and economy [14]. According to the topographic characteristics of Fujian Province, this paper constructs an evaluation indicator system by integrating 13 factors such as landslide sensitivity, flood sensitivity, and cultural heritage, which improves the scientific and rationality of the evaluation results to a certain extent.
- (2) Compared with only using the AHP method to establish the suitability evaluation model, the evaluation model of Village Spatial Suitability through geographical detectors and the AHP method is more scientific. In the study, the relative importance of each factor is ranked numerically, that is, the relative importance of the distance from the road (A), the distance from the County Center (B), the per capita income of the village (C), the urbanization rate of the county where the village is located (D), the slope (E), the altitude (F), the landslide sensitivity (G), the distance from the river (H), the flood sensitivity (I), the number of ethnic minorities in the village (J), the number of intangible cultural heritage (K), the number of material cultural heritage (L), and the per capita cultivated land area (M) are sorted, The results were $C > D > J > K > L > M > H > F > E > I > G > B > A$, which is inconsistent with the ranking results of the relative importance of factors given based on the experience of researchers [52]. The intensity relationship of the intermediate index layer is calculated by factor interaction. The intensity relationship of social economy, natural geography, and cultural life is 9:7:10; this is not consistent with the result of the indicator layer strength relationship given based on the experience of researchers [14,15]. Therefore, it makes up for the deficiency in the evaluation model of AHP, that is, relying on the experience of researchers or experts to determine the relationship between factors, to obtain the weight assignment, which will cause deviation in the results.

5.2. Ethnic Minority Villages in Each City Should Be Planned According to the Suitability Difference of Spatial Distribution

According to the results of the suitability evaluation and classification of ethnic minority villages in Fujian Province, ethnic minority villages are preliminarily divided into ethnic minority villages in the most suitable areas, generally suitable areas, basically suitable areas, and unsuitable areas. The development strategies of ethnic minority villages are reasonably formulated according to the zoning results of ethnic minority villages:

1. Ethnic minority villages in the most suitable areas have a better location, economic and traffic conditions, fewer natural disasters, complete infrastructure, relatively complete functions, and the fastest urbanization process. For example, Fuzhou and Quanzhou should avoid the excessive urbanization of ethnic minority villages, which leads to the disappearance of the cultural characteristics of ethnic minority villages. They should not adopt the development strategy of emphasizing economy over culture. They should promote industrial integration and take a green and high-quality development path. There are many ethnic minority villages in Ningde City. In the process of developing the village economy, we should strengthen the protection of build-style and form a regional development model for ethnic minorities.
2. The economic, transportation, urbanization, population, and other conditions of ethnic minority villages in general suitable areas are all driven by the radiation of the most suitable areas. The terrain is relatively flat, and there are few natural disasters. Governments at all levels should do a good job in resource allocation between the most suitable and general suitable areas. They should take the villages in this area as the key development object, strengthen the protection of their ecological environment, and highlight the characteristics of ecology and livability.
3. The economic conditions of ethnic minority villages in the basically suitable area are relatively backward, lack development momentum, and it is difficult to maintain long-term development. Moreover, the average altitude is high, and the infrastructure construction is difficult, which is limited by natural disasters. More than half of the ethnic minority villages in Longyan city are distributed in this area. It is necessary to strengthen the emergency management of ethnic minority villages for natural disasters and improve the infrastructure construction of villages in this area as much as possible.
4. The minority villages in the unsuitable area are surrounded by mountains, poor location conditions, poor traffic conditions, and low economic level, which lead to the serious loss of the village population and accelerates the decline of villages. More than half of the ethnic minority villages in Nanping City are in this area. The provincial and municipal governments should strengthen intervention in this area and reasonably promote the village merger and population migration.

6. Conclusions and Future Work

Based on the analysis of the spatial distribution characteristics of ethnic minority villages in Fujian, this study establishes a suitability evaluation model by using GeoDetector and AHP to analyze the suitability of ethnic minority villages in Fujian. The ethnic minority villages in Fujian are divided into four categories: the most suitable, generally suitable, basically suitable, and unsuitable. The main conclusions are as follows:

1. Thirteen factors of socio-economy, natural geographical, and culture life are selected for superposition analysis with the spatial distribution points of ethnic minority villages. Through the quantification of underground detectors, it is concluded that the per capita income factor has the greatest impact on the spatial distribution suitability of Fujian minority villages. The urbanization rate, the number of ethnic minorities, and the amount of intangible cultural heritage of the county where the village is located also have a great influence. Through comprehensive evaluation, the impact of cultural life indicators on the suitability of the spatial distribution of the village is

greater than that of socio-economic indicators and natural geographical indicators. The intensity relationship is 9:7:10.

2. The high suitability value is distributed in the southeast coastal and central areas of Fujian Province, and gradually decreases from east to west. The southeast coastal area of Fujian Province is flat, with a small impact of natural disasters and a dense population. Driven by the strong social economy, it is the most suitable area for ethnic minority villages to live. The regional area accounts for 21.05%, and 24% of ethnic minority villages are distributed in this area; the central and western, northwest, and southwest regions of Fujian Province have low average altitude, convenient transportation, and suitable environment, which are generally suitable for the development of ethnic minority villages. The regional area accounts for 33.59%, and 51% of ethnic minority villages are distributed in this region; the central and northern, central, and southern regions of Fujian Province have high average altitude and high sensitivity to natural disasters, which limit the economic development and construction of villages. They are basically suitable for the development of ethnic minority villages. The regional area accounts for 28.20%, and 14% of ethnic minority villages are distributed in this area; the northern and western regions of Fujian Province are surrounded by mountains and hills, far away from the southeast coastal areas with strong economic strength and low sensitivity to natural disasters. However, they are far from the County Center, with a sparse road network and inconvenient traffic. They are not suitable for village development. The regional area accounts for 17.16%, and 11% of ethnic minority villages are distributed in this region. In general, 82.84% of the area in Fujian Province is suitable for the development of minority villages, and the number of minority villages distributed in suitable areas accounts for 89%.
3. Ningde City and Quanzhou City are the most suitable cities for the number of ethnic minority villages because the ethnic minority villages in these two cities are mostly distributed in areas relatively close to the central urban area, with good economic conditions, flat terrain, and convenient transportation. Among many cities, Nanping City is the most unsuitable city for the development of ethnic minority villages, followed by Sanming City. Restricted by the terrain, Nanping City has a backward economy, sparse road network, inconvenient transportation, and does not have good development conditions, resulting in serious village population loss.

It should be noted in future research that ethnic minority villages are formed by the coordination of ethnic minorities with nature, society, and other factors in the long-term production and life practice. The suitability evaluation has the attribute of dynamic evolution. This study is limited to the data at a single time point to carry out static research on ethnic minority villages; less consideration is given to the dynamic evolution process of villages, and the indicator level and factor level are not included in the current planning strategies. In addition, the study area is mountainous and hilly terrain with frequent occurrence of natural disasters such as landslides and debris flows. The indicators of village toughness should also be considered in future research.

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Appendix A

Table A1. Statistical data of each factor classification.

No.	Name	Y	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Huanghuagang	Y3	A3	B5	C4	D5	E3	F3	G2	H5	I3	J5	K4	L5	M4
2	Emei	Y3	A3	B5	C4	D5	E2	F4	G2	H4	I3	J5	K4	L5	M3
3	furong	Y3	A3	B4	C4	D5	E3	F3	G2	H4	I3	J5	K4	L5	M3
4	Dangyang	Y4	A2	B4	C4	D5	E2	F3	G1	H2	I3	J5	K4	L5	M3
5	Rixi	Y4	A2	B4	C4	D5	E3	F5	G1	H2	I3	J5	K4	L5	M3
6	Dongping	Y4	A3	B4	C4	D5	E5	F3	G1	H3	I3	J5	K4	L5	M3
7	Nanfeng	Y4	A3	B4	C4	D5	E3	F3	G1	H3	I3	J5	K4	L5	M3
8	Shanxiuyuan	Y4	A3	B2	C4	D5	E4	F4	G1	H3	I3	J5	K4	L5	M4
9	Liujin	Y3	A2	B2	C4	D3	E3	F4	G1	H3	I3	J4	K5	L4	M1
5	Tianzhu	Y3	A5	B5	C5	D2	E3	F5	G1	H3	I2	J2	K3	L1	M2
11	Houguan	Y3	A5	B3	C5	D2	E3	F5	G1	H3	I2	J2	K3	L1	M2
12	Hongfeng	Y4	A4	B5	C5	D2	E2	F4	G1	H2	I2	J2	K3	L1	M2
13	Qiuci	Y3	A4	B5	C5	D2	E3	F4	G1	H3	I2	J2	K3	L1	M2
14	Zhenru	Y4	A5	B5	C5	D2	E3	F4	G1	H2	I2	J2	K3	L1	M2
15	Xili	Y4	A4	B5	C5	D2	E3	F5	G1	H3	I2	J2	K3	L2	M2
16	Dongyan	Y4	A3	B5	C5	D2	E2	F5	G2	H4	I3	J2	K3	L2	M2
17	Tangban	Y4	A3	B4	C5	D2	E3	F5	G2	H4	I3	J2	K3	L2	M2
18	Gaoyue	Y4	A3	B4	C5	D2	E3	F5	G1	H3	I3	J2	K3	L2	M2
19	Lanshan	Y4	A4	B5	C5	D2	E2	F3	G1	H3	I3	J2	K3	L2	M2
20	Zhouxi	Y4	A5	B5	C5	D2	E2	F5	G1	H2	I3	J2	K3	L1	M2
21	Xianping	Y4	A4	B4	C5	D2	E3	F5	G1	H1	I3	J2	K3	L1	M2
22	Linchang	Y4	A3	B4	C5	D2	E3	F3	G2	H2	I3	J2	K3	L1	M2
23	Chishi	Y4	A3	B4	C5	D2	E3	F4	G1	H3	I2	J2	K3	L1	M2
24	Huangjia	Y3	A5	B3	C5	D2	E3	F5	G1	H3	I3	J2	K3	L5	M2
25	Zhen'an	Y2	A5	B2	C5	D2	E3	F5	G1	H2	I3	J2	K3	L5	M2
26	Dongfeng	Y4	A3	B4	C5	D2	E4	F4	G2	H3	I2	J2	K3	L5	M2
27	Qili	Y4	A3	B2	C5	D2	E4	F5	G1	H3	I3	J2	K3	L1	M2
28	Liyang	Y4	A3	B2	C5	D2	E3	F5	G1	H3	I3	J2	K3	L1	M2
29	Shangtugang	Y4	A5	B5	C5	D4	E3	F4	G1	H2	I2	J4	K5	L4	M5
30	Qianfang	Y4	A5	B3	C5	D4	E3	F5	G2	H3	I3	J4	K5	L4	M5
31	Zhuli	Y4	A5	B3	C5	D4	E2	F5	G2	H3	I3	J4	K5	L4	M5
32	Bajing	Y4	A5	B3	C5	D4	E3	F5	G2	H3	I3	J4	K5	L4	M5
33	Baishui	Y4	A5	B3	C5	D4	E2	F5	G2	H3	I3	J4	K5	L4	M5
34	Tingyangban	Y4	A5	B3	C5	D4	E2	F3	G1	H3	I2	J4	K5	L4	M5
35	Cao long	Y4	A5	B3	C5	D4	E2	F5	G2	H3	I2	J4	K5	L4	M5
36	Huangjiawan	Y4	A5	B3	C5	D4	E2	F5	G2	H3	I3	J4	K5	L4	M5
37	Tanaka	Y4	A5	B3	C5	D4	E1	F5	G2	H3	I3	J4	K5	L4	M5
38	Yangye	Y4	A5	B3	C5	D4	E3	F3	G2	H2	I3	J4	K5	L4	M5
39	Shuikouyang	Y4	A4	B3	C5	D4	E2	F5	G2	H3	I3	J4	K5	L4	M5
40	Toad stone	Y4	A3	B4	C5	D4	E4	F4	G2	H1	I3	J4	K5	L4	M5
41	Feizhu	Y4	A5	B3	C5	D4	E2	F5	G2	H3	I3	J4	K5	L4	M5
42	Guanluxia	Y4	A3	B4	C5	D4	E1	F4	G2	H2	I3	J4	K5	L4	M5
43	WangYan	Y4	A4	B5	C5	D4	E3	F4	G2	H1	I3	J4	K5	L4	M5
44	Yuanding	Y3	A5	B4	C5	D4	E5	F3	G1	H2	I2	J4	K5	L4	M5
45	Zhongxia	Y4	A5	B5	C5	D4	E5	F4	G2	H1	I3	J4	K5	L4	M5

Table A1. Cont.

No.	Name	Y	A	B	C	D	E	F	G	H	I	J	K	L	M
46	Meiyang	Y4	A4	B5	C5	D4	E3	F5	G2	H1	I3	J2	K3	L1	M2
47	Daxiang	Y4	A5	B5	C5	D4	E3	F4	G2	H2	I3	J4	K5	L4	M5
48	Nanyang	Y4	A5	B3	C5	D4	E3	F4	G2	H2	I3	J4	K5	L4	M5
49	Ethnic	Y4	A4	B5	C5	D4	E3	F4	G3	H2	I3	J4	K5	L4	M5
50	Guan	Y4	A4	B5	C5	D4	E3	F5	G3	H2	I3	J4	K5	L4	M5
51	Chexi	Y4	A4	B5	C5	D4	E3	F4	G3	H2	I3	J4	K5	L4	M5
52	Shibiexia	Y4	A3	B4	C5	D4	E2	F4	G2	H3	I3	J4	K5	L4	M5
53	Xilan	Y4	A4	B5	C5	D4	E2	F4	G2	H2	I3	J4	K5	L4	M5
54	Xu Yang	Y4	A4	B5	C5	D4	E3	F4	G2	H1	I3	J4	K5	L4	M5
55	Gangwei	Y3	A2	B2	C5	D4	E3	F4	G1	H4	I3	J4	K5	L4	M5
56	Chuanbian	Y3	A2	B2	C5	D4	E3	F3	G1	H4	I3	J4	K5	L4	M5
57	Fuhu	Y4	A2	B2	C5	D4	E2	F5	G2	H4	I3	J4	K5	L4	M5
58	Dongyuanting	Y4	A2	B2	C5	D4	E3	F3	G1	H4	I3	J5	K4	L5	M4
59	Dawangli	Y3	A2	B2	C5	D4	E3	F5	G1	H5	I3	J4	K5	L4	M5
60	Wang TingYang	Y4	A2	B2	C5	D4	E3	F5	G1	H4	I2	J4	K5	L4	M5
61	Xiqian	Y4	A2	B4	C5	D4	E2	F5	G2	H3	I3	J4	K5	L4	M5
62	Shanlongwan	Y3	A2	B2	C5	D4	E3	F5	G1	H4	I3	J4	K5	L4	M5
63	Lisheng	Y2	A5	B3	C5	D1	E4	F5	G1	H2	I2	J1	K1	L3	M1
64	Yamada	Y2	A5	B5	C5	D1	E2	F3	G1	H3	I3	J1	K1	L3	M1
65	Xin	Y2	A5	B3	C5	D1	E2	F5	G1	H2	I2	J1	K1	L3	M1
66	Qingfeng	Y2	A4	B3	C5	D1	E2	F3	G1	H2	I3	J1	K1	L3	M1
67	Taro pit	Y2	A5	B3	C5	D1	E5	F3	G1	H2	I3	J1	K1	L3	M1
68	Xiexing	Y2	A5	B5	C5	D1	E3	F4	G1	H3	I2	J1	K1	L3	M1
69	Bajiao	Y2	A5	B5	C5	D1	E5	F4	G1	H2	I3	J1	K1	L3	M1
70	Tanhou	Y2	A5	B3	C5	D1	E4	F5	G1	H1	I2	J1	K1	L3	M1
71	Hexi	Y2	A5	B3	C5	D1	E2	F5	G1	H2	I3	J1	K1	L3	M1
72	Yanmen	Y2	A5	B5	C5	D1	E3	F3	G1	H2	I2	J1	K1	L3	M1
73	Dongxi	Y2	A4	B4	C5	D1	E3	F3	G1	H2	I3	J1	K1	L3	M1
74	Ruiying	Y2	A4	B5	C5	D1	E3	F3	G1	H2	I3	J1	K1	L3	M1
75	Tai Po	Y2	A5	B3	C1	D2	E1	F5	G1	H4	I3	J5	K2	L4	M3
76	Qishan	Y2	A5	B3	C1	D2	E3	F5	G1	H4	I3	J5	K2	L4	M3
77	Zhongcuo	Y1	A4	B2	C1	D2	E2	F5	G1	H1	I2	J5	K2	L4	M3
78	Dongsheng	Y2	A5	B5	C1	D2	E3	F5	G1	H3	I2	J5	K2	L4	M3
79	Dongshan	Y2	A4	B4	C1	D2	E1	F5	G2	H1	I3	J5	K2	L4	M3
80	Zhenbian	Y2	A5	B5	C1	D2	E3	F5	G1	H3	I3	J5	K2	L4	M3
81	Xincang	Y2	A5	B3	C1	D2	E3	F5	G1	H4	I3	J5	K2	L4	M3
82	Qinjiang	Y1	A5	B3	C1	D2	E2	F5	G1	H1	I2	J5	K4	L5	M1
83	Zhongzhai	Y1	A4	B3	C1	D5	E2	F5	G1	H1	I3	J1	K5	L5	M2
84	Chentang	Y1	A5	B3	C4	D3	E2	F5	G1	H2	I3	J3	K2	L1	M5
85	Hongdao	Y1	A4	B5	C4	D5	E3	F5	G1	H4	I3	J3	K1	L2	M3
86	Songzhou	Y1	A4	B5	C4	D5	E3	F5	G1	H5	I3	J3	K1	L2	M3
87	ChaPu	Y1	A5	B5	C4	D5	E1	F5	G1	H4	I2	J3	K1	L2	M3
88	Podou	Y1	A4	B5	C3	D2	E2	F5	G2	H3	I2	J2	K5	L5	M5
89	Jingnomura	Y3	A4	B2	C5	D2	E3	F5	G1	H3	I2	J4	K3	L3	M1
90	Fengqing	Y3	A4	B4	C5	D2	E2	F5	G1	H1	I2	J4	K3	L3	M1
91	Shanhou	Y3	A4	B4	C5	D2	E3	F5	G1	H1	I2	J4	K3	L3	M1
92	Suxi	Y3	A4	B4	C5	D2	E3	F5	G1	H1	I2	J4	K3	L3	M1
93	Dingtian	Y3	A4	B4	C5	D2	E2	F5	G1	H1	I2	J4	K3	L3	M1
94	Houdong	Y3	A3	B5	C5	D2	E2	F5	G1	H3	I2	J4	K3	L3	M1
95	Yang Mei	Y3	A4	B2	C5	D2	E3	F5	G1	H3	I2	J4	K3	L3	M1
96	Youkeng	Y3	A3	B4	C5	D2	E3	F5	G1	H3	I3	J4	K3	L3	M1
97	Qianyuan	Y3	A3	B4	C5	D2	E3	F5	G1	H3	I3	J4	K3	L3	M1
98	TUTA	Y3	A3	B4	C5	D2	E2	F5	G1	H2	I3	J4	K3	L3	M1
99	Dahang	Y3	A3	B4	C5	D2	E2	F5	G1	H2	I3	J4	K3	L3	M1
50	Shikeng	Y3	A4	B5	C5	D2	E2	F5	G1	H4	I2	J4	K3	L3	M1
51	Chiling	Y3	A3	B4	C5	D2	E3	F5	G1	H2	I3	J4	K3	L3	M1
52	Shiyi	Y3	A3	B4	C5	D2	E2	F5	G1	H3	I2	J4	K3	L3	M1
53	Shanping	Y3	A4	B4	C5	D2	E3	F5	G1	H3	I3	J4	K3	L3	M1

Table A1. Cont.

No.	Name	Y	A	B	C	D	E	F	G	H	I	J	K	L	M
54	Xiapu	Y1	A5	B5	C5	D2	E2	F5	G1	H1	I3	J4	K3	L3	M1
55	Lancuo	Y2	A5	B5	C5	D2	E3	F5	G1	H5	I2	J4	K3	L3	M1
56	Hekeng	Y1	A5	B5	C5	D2	E1	F5	G1	H5	I2	J4	K3	L3	M1
57	Shibuxi	Y3	A4	B4	C5	D2	E1	F5	G1	H2	I3	J4	K3	L3	M1
58	Sidu	Y1	A5	B5	C3	D1	E2	F5	G1	H2	I2	J3	K3	L2	M4
59	Gangtou	Y2	A5	B3	C3	D1	E2	F5	G1	H2	I2	J3	K3	L2	M4
15	Taiping	Y1	A5	B4	C3	D1	E3	F5	G1	H1	I3	J3	K3	L2	M4
111	Meiying	Y2	A5	B3	C3	D1	E2	F5	G1	H1	I2	J3	K3	L2	M4
112	TingYang	Y2	A4	B5	C3	D1	E2	F5	G1	H1	I3	J3	K3	L2	M4
113	Shenhu	Y2	A4	B5	C3	D1	E3	F5	G1	H1	I3	J2	K3	L5	M5
114	Hexi	Y1	A5	B4	C3	D1	E3	F4	G3	H1	I3	J3	K4	L3	M2
115	Tutian	Y1	A4	B5	C3	D1	E3	F5	G2	H1	I2	J3	K4	L3	M2
116	Guanshe	Y1	A5	B5	C3	D2	E3	F3	G3	H2	I3	J2	K4	L2	M3
117	Pingshui	Y1	A4	B4	C3	D2	E2	F2	G2	H4	I3	J2	K4	L2	M3
118	Yushang	Y2	A5	B5	C1	D3	E1	F5	G1	H1	I2	J1	K2	L5	M3
119	Xincuo	Y1	A5	B5	C3	D2	E2	F4	G3	H3	I2	J2	K4	L2	M3
120	Hongxing	Y2	A5	B4	C1	D3	E2	F5	G1	H1	I2	J1	K2	L5	M3
121	Daping	Y1	A4	B4	C4	D1	E3	F2	G2	H1	I2	J1	K5	L3	M5
122	Xingzhai	Y3	A5	B3	C3	D2	E2	F5	G2	H3	I2	J5	K5	L4	M2
123	Guantou	Y3	A5	B3	C3	D2	E3	F5	G2	H3	I3	J5	K5	L4	M2
124	Tangxi	Y3	A5	B3	C3	D2	E3	F5	G2	H3	I2	J5	K5	L4	M2
125	Cuodou	Y2	A3	B5	C3	D2	E2	F4	G2	H2	I3	J5	K5	L4	M2
126	Yuanfeng	Y3	A5	B3	C4	D2	E2	F5	G2	H2	I2	J5	K5	L2	M1
127	Zhongcuo	Y2	A5	B3	C4	D2	E2	F5	G2	H1	I3	J5	K5	L2	M1
128	Longshan	Y2	A5	B3	C4	D2	E1	F5	G1	H2	I3	J5	K5	L2	M1
129	Liuting	Y2	A5	B3	C4	D2	E1	F5	G1	H1	I3	J5	K5	L2	M1
130	Guocuo	Y2	A5	B3	C4	D2	E1	F5	G1	H1	I3	J5	K5	L2	M1
131	Xiaoba	Y2	A5	B5	C4	D2	E3	F5	G2	H1	I2	J5	K5	L1	M1
132	Tuzhai	Y3	A4	B3	C1	D4	E2	F5	G2	H1	I3	J5	K2	L3	M3
133	Qianguo	Y3	A4	B3	C1	D4	E2	F5	G2	H4	I3	J5	K2	L3	M3
134	Xinting	Y3	A5	B3	C1	D4	E2	F5	G2	H1	I2	J5	K2	L3	M3
135	Reception	Y3	A5	B3	C1	D4	E1	F5	G2	H3	I3	J5	K2	L3	M3
136	Shantan	Y1	A5	B5	C4	D1	E2	F3	G4	H3	I2	J1	K5	L3	M5
137	Hengping	Y1	A5	B2	C4	D1	E4	F3	G4	H4	I2	J1	K5	L3	M5
138	Shengfu	Y1	A5	B2	C4	D1	E5	F3	G4	H5	I2	J1	K5	L3	M5
139	Jincheng	Y2	A5	B3	C4	D1	E2	F5	G3	H4	I2	J1	K5	L3	M5
140	Nanmei	Y2	A5	B3	C4	D1	E2	F5	G3	H4	I2	J1	K5	L3	M5
141	Jincheng	Y2	A5	B5	C5	D3	E3	F4	G2	H3	I2	J4	K5	L3	M5
142	Nanmei	Y2	A4	B5	C5	D3	E2	F4	G2	H3	I2	J4	K5	L3	M5
143	Daxi	Y1	A3	B4	C3	D4	E2	F4	G3	H4	I2	J3	K3	L2	M2
144	Longta	Y1	A5	B2	C3	D4	E3	F4	G4	H3	I3	J3	K3	L2	M2
145	Liandai	Y3	A5	B5	C1	D4	E2	F5	G1	H2	I3	J5	K2	L3	M3
146	Lichun	Y3	A5	B5	C1	D4	E2	F5	G1	H2	I3	J5	K2	L3	M3
147	Baiqi	Y3	A5	B5	C1	D4	E2	F5	G1	H2	I3	J5	K2	L3	M3
148	Houhai	Y3	A5	B5	C1	D4	E2	F5	G1	H2	I3	J5	K2	L3	M3
149	Xiadai	Y3	A5	B5	C1	D4	E2	F5	G1	H2	I3	J5	K2	L3	M3
150	Qiankeng	Y3	A5	B3	C4	D5	E2	F5	G1	H3	I3	J2	K3	L2	M1
151	shinong	Y3	A4	B5	C4	D5	E2	F5	G1	H1	I3	J2	K3	L5	M5
152	Guokeng	Y3	A4	B3	C4	D5	E2	F5	G1	H1	I3	J2	K3	L2	M1
153	Shiyu	Y3	A4	B5	C4	D5	E2	F5	G1	H1	I3	J2	K3	L2	M1
154	Huatingkou	Y3	A5	B3	C1	D3	E3	F5	G1	H3	I3	J3	K3	L1	M2
155	Xibian	Y3	A5	B3	C1	D3	E2	F5	G1	H2	I3	J3	K3	L3	M2
156	Jiangtou	Y3	A5	B3	C1	D3	E1	F5	G1	H2	I3	J3	K3	L3	M2
157	Guo Cen	Y2	A5	B4	C1	D3	E1	F5	G1	H2	I3	J3	K3	L3	M2
158	Chaodai	Y2	A5	B4	C1	D3	E1	F5	G1	H2	I3	J3	K3	L3	M2
159	Xiamei	Y3	A5	B3	C1	D3	E1	F5	G1	H2	I3	J3	K3	L3	M2
160	Houxi	Y3	A5	B3	C1	D3	E2	F5	G1	H2	I3	J3	K3	L1	M2

Table A1. Cont.

No.	Name	Y	A	B	C	D	E	F	G	H	I	J	K	L	M
161	AndAu	Y3	A5	B3	C1	D3	E2	F5	G1	H2	I3	J3	K3	L1	M2
162	Fulin	Y3	A5	B3	C1	D3	E2	F5	G1	H3	I3	J3	K3	L2	M2
163	Nishibaka	Y3	A5	B3	C1	D3	E3	F5	G1	H3	I3	J3	K3	L1	M2
164	Pengtou	Y3	A5	B3	C1	D3	E2	F5	G1	H2	I3	J3	K3	L2	M2
165	Sijing	Y3	A5	B3	C1	D3	E2	F5	G1	H2	I3	J3	K3	L1	M2
166	Kennei	Y2	A4	B5	C1	D3	E1	F5	G2	H2	I3	J2	K3	L4	M2
167	Fengmei	Y2	A4	B5	C1	D3	E2	F5	G2	H1	I3	J2	K3	L4	M2
168	Fenglian	Y2	A4	B4	C1	D3	E3	F5	G2	H1	I3	J2	K3	L4	M2
169	Puqian	Y2	A5	B4	C1	D3	E3	F5	G2	H1	I3	J2	K3	L4	M2
170	Wukeng	Y2	A5	B3	C1	D3	E3	F5	G1	H2	I3	J2	K3	L4	M2
171	Shuangfu	Y1	A5	B3	C5	D4	E3	F5	G1	H3	I3	J2	K4	L1	M1
172	Nanxia	Y2	A4	B5	C5	D4	E3	F5	G1	H2	I3	J5	K3	L1	M4
173	Batou	Y2	A3	B4	C5	D4	E1	F4	G2	H3	I3	J5	K3	L1	M4
174	Compass	Y2	A2	B2	C5	D1	E3	F5	G1	H2	I2	J2	K2	L3	M5
175	Qinshan	Y2	A3	B3	C5	D2	E2	F5	G4	H4	I3	J5	K1	L5	M3
176	Cangxi	Y2	A5	B5	C5	D2	E2	F5	G1	H1	I3	J5	K1	L5	M3
177	Lishan	Y2	A4	B5	C5	D2	E2	F5	G4	H2	I3	J5	K1	L5	M3
178	Xinyao	Y2	A5	B5	C5	D2	E2	F5	G2	H2	I3	J5	K1	L5	M3
179	Youyang	Y2	A3	B2	C5	D2	E3	F3	G4	H1	I3	J5	K1	L5	M3
180	Liuyuan	Y1	A3	B2	C5	D2	E4	F1	G2	H3	I3	J5	K1	L5	M3
181	Qianxi	Y1	A3	B2	C5	D2	E4	F1	G2	H2	I3	J5	K1	L5	M3
182	Baishui	Y1	A5	B3	C3	D5	E4	F2	G3	H4	I3	J5	K5	L2	M2
183	Yangshan	Y1	A5	B3	C5	D5	E5	F3	G3	H4	I3	J4	K4	L5	M2
184	Songxi	Y2	A5	B5	C3	D2	E3	F4	G1	H2	I3	J1	K3	L2	M2
185	Qingxi	Y2	A5	B5	C3	D2	E3	F4	G1	H3	I3	J1	K3	L2	M2
186	Jitou	Y2	A5	B3	C3	D2	E3	F4	G1	H1	I3	J1	K3	L2	M2
187	Taishan	Y2	A5	B3	C3	D2	E5	F4	G1	H2	I3	J1	K3	L2	M2
188	Quanyong	Y2	A3	B2	C3	D1	E3	F4	G1	H3	I3	J2	K1	L4	M2
189	Xibei	Y2	A5	B5	C3	D1	E3	F4	G2	H1	I3	J2	K1	L4	M2
190	Jiudun	Y2	A5	B5	C3	D1	E2	F4	G1	H1	I3	J2	K1	L4	M2
191	Xikeng	Y2	A5	B3	C3	D1	E3	F4	G1	H2	I3	J2	K1	L4	M2
192	Sikeng	Y2	A5	B5	C3	D1	E2	F3	G2	H2	I3	J2	K1	L4	M2
193	Sixi	Y2	A3	B4	C3	D1	E3	F3	G2	H2	I3	J2	K1	L4	M2
194	Xiasha	Y2	A5	B5	C3	D1	E3	F4	G1	H3	I3	J2	K1	L4	M2
195	Miaoqian	Y2	A3	B4	C3	D1	E3	F4	G1	H2	I3	J2	K1	L4	M2
196	Nifang	Y1	A5	B2	C3	D1	E3	F3	G3	H1	I3	J2	K1	L4	M2
197	Dongqiao	Y1	A5	B2	C3	D1	E5	F3	G3	H3	I3	J2	K1	L4	M2
198	Pingpu	Y2	A3	B2	C3	D1	E4	F3	G2	H2	I3	J2	K1	L4	M2
199	Guangming	Y2	A3	B4	C3	D1	E3	F2	G1	H2	I3	J2	K1	L4	M2
200	Shefu	Y2	A4	B4	C3	D1	E3	F3	G2	H2	I3	J2	K1	L4	M2
201	Mud pit	Y2	A3	B4	C3	D1	E3	F2	G2	H3	I3	J2	K1	L4	M2
202	Zhiping	Y2	A4	B4	C3	D1	E4	F3	G2	H3	I3	J2	K1	L4	M2
203	Hubeijiao	Y2	A4	B4	C3	D1	E4	F3	G2	H3	I3	J2	K1	L4	M2
204	Xiaping	Y2	A3	B4	C3	D1	E5	F2	G1	H1	I3	J2	K1	L4	M2
205	Gaofeng	Y2	A3	B4	C3	D1	E5	F2	G1	H2	I3	J2	K1	L4	M2
206	Highland	Y2	A3	B2	C3	D1	E5	F2	G2	H2	I3	J2	K1	L4	M2
207	Dongban	Y2	A4	B4	C3	D2	E3	F2	G3	H2	I3	J5	K2	L3	M2
208	Shanchuan	Y1	A4	B5	C3	D2	E2	F2	G3	H2	I3	J5	K2	L3	M2
209	Houping	Y1	A5	B4	C3	D1	E4	F4	G4	H3	I3	J2	K3	L3	M4
25	Changrong	Y1	A5	B5	C5	D4	E2	F3	G3	H1	I3	J4	K1	L3	M1
211	Guanfang	Y2	A3	B2	C2	D2	E2	F2	G2	H2	I3	J2	K2	L5	M4
212	Qi	Y1	A5	B3	C2	D1	E4	F4	G4	H2	I3	J4	K3	L5	M3
213	Cai Di	Y2	A4	B4	C5	D4	E4	F3	G2	H3	I3	J1	K4	L1	M1
214	Dake	Y2	A5	B4	C5	D4	E4	F3	G2	H3	I3	J1	K4	L1	M1
215	Linshan	Y2	A4	B5	C5	D4	E4	F3	G2	H3	I3	J1	K4	L1	M1
216	Qingshui	Y2	A3	B4	C5	D4	E3	F2	G3	H2	I3	J1	K4	L1	M1
217	Tinghai	Y2	A4	B2	C5	D4	E5	F2	G3	H1	I3	J5	K2	L3	M2
218	Canghai	Y2	A5	B3	C5	D4	E4	F5	G2	H2	I3	J1	K4	L1	M1

Table A1. Cont.

No.	Name	Y	A	B	C	D	E	F	G	H	I	J	K	L	M
219	Jitou	Y2	A5	B4	C5	D4	E4	F4	G2	H2	I3	J1	K4	L1	M1
220	Baiqiqu	Y2	A5	B3	C5	D4	E4	F5	G2	H2	I3	J1	K4	L2	M1
221	Sanfang	Y2	A4	B2	C5	D4	E3	F2	G4	H2	I3	J1	K4	L2	M1
222	Luoxi	Y2	A4	B2	C5	D4	E3	F2	G4	H2	I3	J1	K4	L2	M1
223	Huangjingshan	Y2	A3	B4	C5	D4	E4	F2	G3	H3	I3	J1	K4	L2	M1
224	Keshan	Y2	A3	B4	C5	D4	E5	F2	G3	H2	I3	J1	K4	L2	M1
225	Bingling	Y1	A5	B3	C5	D4	E4	F4	G3	H3	I3	J3	K5	L2	M1
226	Shuijingke	Y1	A5	B5	C5	D4	E3	F5	G3	H3	I3	J3	K5	L2	M1
227	Jiyang	Y1	A5	B5	C5	D4	E4	F5	G2	H4	I3	J3	K5	L2	M1
228	Yanghou	Y2	A2	B4	C5	D4	E3	F4	G2	H2	I3	J3	K5	L2	M1
229	Kengmen	Y2	A3	B4	C5	D4	E4	F4	G2	H1	I3	J3	K5	L1	M1
230	Xilan	Y2	A4	B3	C2	D2	E4	F4	G3	H3	I3	J1	K2	L3	M5
231	Yudun	Y2	A5	B3	C2	D2	E5	F4	G3	H2	I3	J1	K2	L3	M5
232	Jinglong	Y2	A5	B3	C2	D2	E3	F4	G3	H3	I3	J1	K2	L3	M5
233	Xiasha	Y2	A5	B3	C2	D2	E3	F5	G3	H3	I3	J1	K2	L3	M5
234	Xiefang	Y2	A5	B3	C2	D2	E5	F4	G3	H3	I3	J1	K2	L2	M5
235	Xiakeng	Y2	A5	B5	C2	D2	E4	F4	G3	H1	I3	J1	K2	L3	M5
236	Tianping	Y2	A5	B3	C2	D2	E4	F4	G3	H2	I3	J1	K2	L3	M5
237	Jihui	Y2	A4	B5	C2	D2	E3	F5	G3	H1	I3	J1	K2	L3	M5
238	Shangfeng	Y2	A5	B3	C2	D2	E3	F5	G3	H3	I3	J1	K2	L1	M5
239	Xiuyu	Y2	A5	B4	C2	D2	E4	F4	G3	H1	I3	J1	K2	L2	M5
240	Jiangdun	Y2	A2	B2	C2	D2	E4	F3	G2	H3	I3	J1	K2	L1	M5
241	xi	Y1	A5	B5	C3	D1	E2	F4	G2	H1	I3	J4	K1	L5	M5
242	Jiangyuan	Y2	A5	B4	C3	D2	E3	F4	G2	H3	I3	J3	K4	L4	M5
243	Guanqiao	Y2	A4	B2	C3	D2	E3	F4	G2	H2	I3	J3	K4	L4	M5
244	LEIYU	Y1	A2	B2	C3	D1	E4	F2	G2	H3	I3	J1	K5	L4	M2
245	Zhaoshajia	Y1	A2	B4	C3	D1	E3	F4	G3	H3	I3	J1	K5	L4	M2
246	Yuanshan	Y1	A2	B2	C3	D2	E5	F3	G2	H4	I3	J2	K4	L4	M3
247	Xijin	Y2	A1	B2	C2	D2	E4	F3	G1	H3	I3	J2	K4	L4	M3
248	Chixia	Y1	A1	B1	C2	D4	E3	F2	G1	H4	I3	J2	K5	L1	M2
249	Erdu	Y1	A1	B1	C2	D4	E5	F3	G1	H1	I3	J2	K5	L1	M2
250	Geying	Y1	A2	B4	C2	D4	E3	F4	G1	H2	I3	J2	K5	L2	M2
251	Gaizhu	Y1	A1	B1	C2	D4	E4	F3	G1	H3	I3	J2	K5	L1	M2
252	Liqian	Y1	A1	B2	C2	D3	E3	F3	G1	H3	I3	J4	K3	L2	M5
253	Jiyuan	Y1	A1	B2	C2	D2	E5	F3	G1	H2	I3	J3	K2	L2	M5
254	Wu Dayuan	Y1	A1	B1	C2	D2	E2	F4	G1	H1	I3	J3	K2	L2	M5
255	Waiyang	Y1	A3	B4	C2	D2	E4	F3	G3	H2	I3	J3	K2	L2	M5
256	Anguosi	Y1	A5	B5	C2	D2	E4	F4	G3	H4	I3	J3	K2	L2	M5
257	Maodian	Y1	A4	B5	C2	D3	E4	F3	G2	H4	I3	J2	K3	L5	M5
258	Three Gorges	Y1	A5	B5	C2	D3	E3	F5	G2	H2	I3	J2	K3	L5	M5
259	Chen Yuan	Y1	A3	B2	C3	D3	E4	F4	G2	H3	I3	J2	K3	L5	M5
260	Nancha	Y1	A3	B5	C3	D3	E3	F4	G1	H1	I3	J2	K3	L5	M5
261	Duihou	Y1	A4	B5	C3	D3	E5	F3	G2	H3	I3	J2	K3	L5	M5
262	Huanghu	Y2	A2	B2	C3	D2	E5	F3	G2	H3	I3	J3	K2	L4	M4
263	Southeast	Y2	A5	B2	C3	D2	E3	F4	G2	H1	I3	J1	K2	L2	M4
264	Shangdeng	Y3	A4	B2	C3	D2	E4	F5	G1	H1	I3	J1	K2	L2	M4
265	Sujiapo	Y1	A4	B4	C3	D2	E5	F4	G2	H3	I3	J1	K2	L2	M4
266	Shuangxi	Y3	A5	B5	C3	D2	E3	F4	G2	H3	I3	J1	K2	L2	M4
267	Xibei	Y3	A5	B2	C3	D2	E2	F4	G1	H3	I3	J1	K2	L2	M4
268	Chen He	Y3	A5	B2	C3	D2	E4	F4	G1	H1	I3	J1	K2	L2	M4
269	Bitian	Y3	A3	B4	C3	D2	E5	F4	G1	H3	I3	J1	K2	L2	M4
270	Gukeng	Y3	A3	B2	C3	D2	E3	F3	G2	H2	I3	J1	K2	L2	M4
271	shiche	Y3	A2	B2	C3	D2	E5	F4	G2	H2	I3	J1	K2	L2	M3
272	Wenguang	Y3	A3	B2	C3	D2	E3	F3	G2	H2	I3	J1	K2	L2	M4
273	Tukeng	Y2	A4	B4	C5	D2	E5	F2	G1	H2	I3	J1	K2	L2	M4
274	Dagui	Y3	A5	B5	C3	D2	E4	F3	G3	H2	I3	J1	K2	L2	M3
275	Ruixiang	Y2	A4	B3	C5	D2	E4	F4	G1	H3	I3	J1	K2	L2	M4
276	Xinfang	Y3	A5	B2	C5	D2	E3	F3	G1	H1	I3	J1	K2	L3	M4

Table A1. Cont.

No.	Name	Y	A	B	C	D	E	F	G	H	I	J	K	L	M
277	Southwest	Y3	A5	B4	C5	D2	E2	F4	G1	H2	I3	J1	K2	L3	M4
278	Jiutai	Y3	A5	B4	C5	D2	E3	F4	G2	H3	I3	J1	K2	L3	M4
279	Nanling	Y2	A4	B5	C5	D2	E3	F4	G1	H3	I3	J1	K2	L3	M3
280	Caimin	Y3	A4	B5	C5	D2	E4	F4	G2	H2	I3	J1	K2	L3	M4
281	Gufang	Y3	A5	B5	C5	D2	E3	F4	G2	H1	I3	J1	K2	L3	M3
282	Jiazhuang	Y3	A5	B3	C5	D2	E2	F4	G2	H1	I3	J1	K2	L3	M3
283	Ji'an	Y2	A5	B3	C5	D2	E2	F4	G2	H2	I3	J1	K2	L3	M3
284	Chongxia	Y2	A5	B2	C5	D2	E4	F3	G1	H3	I3	J1	K2	L3	M3
285	Huajia	Y2	A5	B4	C5	D2	E3	F4	G1	H3	I3	J1	K2	L2	M3
286	Qiu Hui	Y2	A4	B4	C5	D2	E3	F3	G1	H3	I3	J1	K2	L2	M3
287	Huazhu	Y3	A5	B5	C5	D2	E4	F4	G2	H2	I3	J1	K2	L2	M3
288	Guihe	Y3	A5	B3	C5	D2	E2	F5	G1	H2	I3	J1	K2	L2	M3
289	Xinmin	Y3	A4	B5	C5	D2	E3	F4	G1	H2	I3	J1	K2	L2	M3
290	Xinfeng	Y3	A3	B1	C5	D2	E4	F2	G1	H1	I3	J1	K2	L2	M4
291	Zeng Si	Y3	A5	B4	C5	D2	E3	F3	G2	H3	I3	J1	K2	L2	M4
292	Dekang	Y3	A4	B4	C5	D2	E4	F4	G1	H4	I3	J1	K2	L2	M4
293	Fengle	Y3	A4	B5	C5	D2	E4	F4	G2	H1	I3	J1	K2	L2	M4
294	Liyang	Y3	A3	B4	C5	D2	E4	F4	G1	H3	I3	J1	K2	L2	M3
295	Fengji	Y3	A5	B5	C3	D2	E4	F3	G3	H2	I3	J1	K2	L2	M4
296	Fengkang	Y3	A5	B4	C5	D2	E2	F2	G1	H1	I3	J1	K2	L2	M4
297	Fuyang	Y3	A4	B4	C5	D2	E4	F4	G2	H1	I3	J1	K2	L2	M4
298	Shuren	Y3	A4	B4	C5	D2	E4	F4	G2	H4	I3	J1	K2	L2	M3
299	Qili	Y3	A3	B2	C5	D2	E1	F4	G2	H3	I3	J1	K2	L2	M4
300	Huangtou	Y3	A4	B4	C5	D2	E5	F4	G2	H3	I3	J1	K2	L2	M4
301	Fuquan	Y3	A4	B2	C5	D2	E2	F4	G2	H3	I3	J1	K2	L2	M3
302	Zhubao	Y3	A4	B4	C5	D2	E3	F4	G2	H4	I3	J1	K2	L2	M4
303	Goat	Y1	A4	B2	C5	D2	E3	F4	G2	H3	I3	J3	K1	L4	M4
304	Shima	Y2	A5	B5	C5	D2	E1	F4	G1	H3	I3	J3	K1	L4	M4
305	Kengyuan	Y2	A5	B5	C5	D2	E3	F4	G1	H3	I3	J3	K1	L4	M3
306	Longmen	Y1	A5	B5	C5	D2	E2	F4	G1	H3	I3	J3	K1	L4	M3
307	Lingdou	Y2	A5	B5	C5	D2	E3	F4	G1	H3	I3	J3	K1	L4	M3
308	Chengkou	Y2	A4	B4	C5	D2	E5	F4	G1	H3	I3	J3	K1	L4	M3
309	zhongcun	Y1	A4	B2	C5	D2	E3	F4	G2	H3	I3	J3	K1	L4	M3
310	Keshan	Y1	A4	B4	C5	D2	E3	F4	G2	H4	I3	J4	K5	L3	M5
311	Xiangliao	Y2	A4	B4	C5	D2	E3	F4	G2	H4	I3	J3	K1	L4	M4
312	Changlong	Y2	A3	B2	C5	D2	E3	F4	G2	H3	I3	J3	K1	L4	M4
313	Youjiatang	Y4	A3	B2	C5	D3	E3	F4	G2	H2	I3	J4	K2	L1	M4
314	Jitou	Y4	A5	B3	C3	D3	E2	F5	G2	H2	I3	J4	K2	L3	M3
315	Jinchui	Y5	A3	B2	C3	D3	E4	F3	G2	H2	I3	J4	K2	L3	M4
316	Xinlou	Y5	A4	B4	C3	D3	E3	F3	G2	H1	I3	J4	K2	L3	M3
317	Dongling	Y4	A5	B2	C3	D3	E5	F4	G3	H3	I3	J4	K2	L3	M4
318	Nanshan	Y4	A4	B2	C3	D3	E4	F3	G2	H4	I3	J4	K2	L3	M3
319	Houshan	Y4	A4	B2	C3	D3	E3	F4	G1	H1	I3	J4	K2	L3	M4
320	Jiuxian	Y4	A5	B4	C3	D3	E5	F4	G1	H1	I3	J4	K2	L3	M3
321	Xipang	Y4	A4	B2	C3	D3	E4	F3	G3	H2	I3	J4	K2	L3	M3
322	Songling	Y4	A3	B2	C3	D3	E2	F3	G2	H3	I3	J4	K2	L3	M4
323	Tingping	Y4	A3	B2	C3	D3	E3	F4	G2	H2	I3	J4	K2	L3	M3
324	YuanHou	Y4	A5	B3	C4	D3	E1	F5	G2	H1	I2	J4	K2	L3	M3
325	Leidong	Y5	A5	B5	C4	D3	E2	F3	G2	H3	I3	J4	K2	L3	M4
326	kitayama	Y4	A5	B5	C4	D3	E2	F5	G1	H1	I3	J4	K2	L3	M4
327	Xinfeng	Y5	A5	B4	C4	D3	E3	F5	G1	H2	I3	J4	K2	L1	M4
328	Han Dan	Y5	A5	B4	C4	D3	E5	F4	G2	H5	I3	J5	K5	L5	M3
329	Badou	Y3	A5	B3	C4	D3	E3	F5	G1	H2	I3	J4	K2	L1	M4
330	Xiangyangli	Y4	A5	B3	C4	D3	E2	F5	G2	H2	I3	J4	K2	L1	M3
331	Pingta	Y4	A5	B4	C4	D3	E3	F5	G2	H4	I3	J4	K2	L1	M3
332	Wukeng	Y4	A5	B3	C4	D3	E3	F5	G2	H3	I3	J4	K2	L2	M3
333	Shangjinbei	Y4	A5	B3	C4	D3	E3	F5	G2	H3	I3	J4	K2	L2	M4
334	Banzhu	Y5	A5	B3	C4	D3	E2	F5	G2	H3	I3	J4	K2	L2	M4

Table A1. Cont.

No.	Name	Y	A	B	C	D	E	F	G	H	I	J	K	L	M
335	Qiongtang	Y4	A5	B3	C4	D3	E3	F4	G2	H3	I3	J4	K2	L2	M4
336	Zhongqian	Y4	A5	B5	C4	D3	E4	F5	G2	H1	I3	J4	K2	L2	M4
337	Shangtang	Y5	A5	B3	C4	D3	E4	F5	G2	H2	I3	J4	K2	L2	M4
338	Xilin	Y5	A5	B5	C4	D3	E5	F5	G1	H1	I3	J4	K2	L2	M3
339	Nangang	Y4	A5	B4	C4	D3	E5	F4	G1	H2	I3	J4	K2	L2	M4
340	Minkeng	Y5	A5	B4	C4	D3	E4	F3	G2	H5	I3	J4	K2	L2	M3
341	Jinfeng	Y4	A5	B3	C4	D3	E4	F5	G2	H1	I3	J4	K2	L2	M4
342	Puling	Y4	A5	B3	C4	D3	E2	F5	G2	H3	I3	J4	K2	L2	M3
343	Xinyan	Y4	A5	B5	C4	D3	E3	F4	G2	H4	I3	J4	K2	L2	M3
344	Chaikeng	Y5	A5	B3	C4	D3	E2	F4	G2	H3	I3	J4	K2	L1	M4
345	Waiyang	Y4	A5	B4	C4	D3	E4	F3	G2	H5	I3	J4	K2	L1	M3
346	Banshan	Y5	A5	B3	C4	D3	E3	F5	G2	H3	I3	J4	K2	L1	M3
347	Jinhan	Y4	A5	B3	C4	D3	E5	F3	G2	H4	I3	J4	K2	L2	M4
348	MABAN	Y4	A5	B5	C4	D3	E1	F5	G1	H1	I3	J4	K2	L2	M3
349	Houdun	Y5	A5	B3	C4	D3	E1	F5	G2	H2	I3	J4	K2	L1	M4
350	Daping	Y5	A5	B3	C4	D3	E3	F5	G2	H3	I3	J5	K5	L5	M3
351	Mayang	Y4	A5	B4	C4	D3	E4	F5	G1	H3	I3	J2	K2	L1	M4
352	Qingfu	Y4	A5	B3	C4	D3	E3	F2	G2	H4	I3	J2	K2	L1	M3
353	Qibaoyang	Y4	A5	B3	C4	D3	E4	F5	G1	H2	I3	J2	K2	L1	M4
354	Tomb bucket	Y4	A5	B5	C4	D3	E3	F4	G1	H2	I3	J2	K2	L1	M3
355	Badouwu	Y4	A5	B5	C4	D3	E5	F5	G2	H3	I3	J2	K2	L1	M3
356	Dasha	Y4	A5	B5	C4	D3	E5	F5	G2	H3	I3	J2	K2	L2	M3
357	Lingtou	Y4	A5	B4	C4	D3	E4	F5	G1	H3	I3	J2	K2	L2	M3
358	Dongshan	Y4	A5	B3	C4	D3	E2	F5	G2	H3	I3	J2	K2	L2	M4
359	Chakeng	Y4	A5	B5	C4	D3	E2	F4	G2	H2	I3	J2	K2	L2	M4
360	Houmu	Y4	A5	B4	C4	D3	E4	F5	G1	H3	I3	J2	K2	L2	M4
361	Nanmenshan	Y4	A5	B4	C4	D3	E5	F3	G1	H3	I3	J2	K2	L2	M4
362	Daping	Y4	A4	B3	C3	D3	E4	F3	G1	H2	I3	J2	K2	L2	M4
363	Sidou	Y3	A5	B3	C3	D3	E2	F5	G2	H3	I3	J2	K2	L1	M4
364	Fahua	Y3	A5	B3	C3	D3	E4	F4	G2	H3	I3	J2	K2	L1	M4
365	Dan Dou	Y3	A5	B3	C3	D3	E3	F5	G1	H3	I3	J2	K2	L1	M3
366	Doumen	Y3	A5	B3	C3	D3	E2	F5	G2	H3	I1	J2	K2	L1	M4
367	Nanban	Y4	A4	B3	C3	D3	E2	F5	G1	H2	I1	J4	K3	L5	M5
368	Longwan	Y4	A4	B3	C3	D3	E4	F3	G2	H3	I3	J2	K2	L1	M4
369	Xiaoma	Y4	A3	B5	C3	D3	E2	F5	G2	H1	I3	J2	K2	L3	M4
370	Sanping	Y4	A2	B4	C3	D3	E5	F5	G2	H2	I3	J2	K2	L3	M4
371	yiceng	Y3	A3	B4	C3	D3	E2	F5	G1	H1	I3	J2	K2	L3	M4
372	Bailukeng	Y4	A3	B4	C3	D3	E3	F4	G1	H2	I3	J2	K2	L2	M4
373	Damuli	Y4	A4	B5	C3	D3	E4	F5	G1	H2	I3	J2	K2	L3	M4
374	Lukeng	Y4	A2	B2	C3	D3	E5	F4	G1	H1	I3	J2	K2	L3	M4
375	Erkeng	Y3	A2	B4	C3	D3	E4	F4	G1	H2	I3	J2	K2	L2	M4
376	Fengjiang	Y3	A3	B5	C3	D3	E4	F4	G2	H2	I3	J2	K2	L2	M4
377	Banyueli	Y4	A2	B4	C3	D3	E4	F5	G2	H1	I3	J2	K2	L2	M4
378	Xikeng	Y4	A3	B4	C3	D3	E2	F5	G1	H1	I3	J2	K2	L2	M4
379	Daling	Y4	A4	B4	C3	D3	E4	F5	G1	H2	I3	J2	K2	L2	M4
380	RuanYang	Y4	A4	B5	C3	D3	E2	F5	G1	H1	I2	J2	K2	L2	M4
381	Xizhai	Y4	A3	B5	C3	D3	E4	F4	G2	H2	I3	J2	K2	L3	M4
382	Panqian	Y3	A2	B4	C3	D3	E4	F4	G1	H1	I3	J2	K2	L3	M4
383	Wuyan	Y3	A3	B4	C3	D3	E4	F5	G1	H2	I3	J2	K2	L3	M4
384	Erpu	Y4	A4	B3	C3	D3	E3	F5	G1	H2	I3	J2	K2	L2	M4
385	Nantang	Y4	A3	B4	C3	D3	E4	F5	G1	H1	I3	J2	K2	L3	M3
386	Yao'ao	Y4	A2	B4	C3	D3	E4	F3	G1	H1	I3	J2	K2	L3	M4
387	Wayaotou	Y4	A2	B5	C3	D3	E4	F5	G1	H1	I3	J2	K2	L3	M4
388	Yangbian	Y4	A5	B5	C3	D3	E3	F4	G2	H3	I3	J2	K2	L1	M4
389	Xisheng	Y5	A3	B4	C3	D3	E3	F4	G3	H2	I3	J2	K2	L1	M3
390	Wanggaodian	Y4	A3	B5	C3	D3	E4	F4	G3	H1	I3	J2	K2	L2	M3
391	Chagang	Y4	A3	B5	C3	D3	E4	F5	G3	H1	I3	J2	K2	L2	M3
392	Qing'ao	Y4	A3	B4	C3	D3	E2	F3	G2	H3	I3	J2	K2	L1	M3

Table A1. Cont.

No.	Name	Y	A	B	C	D	E	F	G	H	I	J	K	L	M
393	Banling	Y4	A3	B2	C3	D3	E4	F4	G1	H1	I3	J2	K2	L2	M3
394	Qidoucha	Y4	A3	B2	C3	D3	E4	F4	G1	H2	I3	J2	K2	L1	M4
395	Huli	Y4	A5	B5	C3	D3	E4	F4	G2	H3	I3	J2	K2	L2	M4
396	Dam	Y4	A4	B4	C3	D3	E2	F5	G1	H1	I3	J2	K2	L1	M4
397	Changhu	Y4	A4	B4	C3	D3	E3	F5	G1	H1	I3	J2	K2	L2	M4
398	Xin	Y4	A5	B5	C3	D3	E4	F5	G1	H2	I3	J2	K2	L2	M3
399	Shangshui	Y4	A5	B5	C3	D3	E2	F4	G1	H3	I3	J2	K2	L1	M4
400	Xiaping	Y4	A5	B5	C3	D3	E4	F4	G2	H2	I3	J2	K2	L1	M3
401	Xiping	Y4	A4	B5	C3	D3	E5	F5	G2	H1	I3	J2	K2	L2	M4
402	Jianxia	Y5	A3	B3	C3	D3	E2	F4	G2	H3	I3	J2	K2	L2	M3
403	Banlu Zhang	Y4	A3	B3	C3	D3	E4	F4	G2	H2	I3	J2	K2	L2	M4
404	Lanxia	Y4	A3	B5	C3	D3	E3	F4	G2	H3	I3	J2	K2	L2	M3
405	Shiban	Y2	A3	B5	C3	D1	E2	F4	G2	H3	I3	J5	K4	L2	M4
406	Shifeng	Y2	A3	B5	C3	D1	E4	F4	G2	H3	I3	J5	K4	L2	M3
407	Fuda	Y2	A3	B5	C3	D1	E3	F4	G2	H3	I3	J5	K4	L2	M4
408	Meiping	Y1	A3	B5	C3	D1	E2	F3	G2	H4	I3	J5	K4	L2	M3
409	Xiyuanli	Y2	A4	B5	C3	D1	E3	F5	G2	H3	I3	J5	K4	L2	M4
45	Xinjian	Y2	A4	B5	C3	D1	E3	F4	G2	H2	I3	J5	K4	L2	M4
411	Bati	Y1	A4	B5	C3	D1	E5	F5	G2	H2	I3	J2	K3	L3	M3
412	Waiyang	Y4	A5	B3	C3	D1	E4	F3	G2	H3	I3	J3	K5	L2	M1
413	Li Jiayang	Y3	A4	B4	C3	D1	E3	F3	G2	H2	I3	J3	K5	L2	M1
414	Li Jiayang	Y3	A5	B3	C3	D1	E4	F4	G2	H3	I3	J3	K5	L2	M1
415	beishan	Y4	A3	B5	C3	D1	E3	F4	G2	H2	I3	J3	K5	L2	M1
416	Batou	Y2	A4	B3	C3	D1	E2	F4	G1	H1	I3	J3	K5	L2	M1
417	Xingfu	Y3	A3	B5	C3	D2	E3	F2	G1	H2	I3	J1	K1	L2	M5
418	Yunmen	Y4	A4	B5	C3	D3	E2	F3	G1	H3	I3	J4	K2	L1	M4
419	Lingfengshan	Y4	A4	B5	C3	D2	E5	F2	G2	H2	I3	J1	K1	L2	M5
420	Dongxi	Y4	A4	B3	C3	D3	E4	F2	G1	H1	I3	J2	K4	L1	M4
421	Baojianzhai	Y3	A3	B5	C3	D3	E3	F3	G1	H2	I3	J2	K4	L1	M4
422	Ke Ling	Y3	A5	B3	C2	D3	E4	F2	G3	H3	I3	J2	K4	L1	M4
423	Chawan	Y3	A5	B4	C2	D3	E4	F4	G3	H2	I3	J2	K4	L1	M3
424	Wanli	Y4	A5	B4	C2	D3	E3	F3	G3	H2	I3	J2	K4	L1	M4
425	Chunleiyun	Y5	A5	B4	C2	D3	E3	F3	G3	H2	I3	J5	K5	L5	M3
426	Lingwei	Y5	A4	B4	C2	D3	E4	F3	G3	H1	I3	J5	K5	L5	M4
427	Shantouzhuang	Y5	A5	B5	C2	D3	E3	F2	G2	H2	I3	J5	K5	L5	M4
428	Guoyang	Y5	A5	B3	C2	D3	E3	F2	G3	H1	I3	J5	K5	L5	M4
429	Xiaoling	Y5	A5	B4	C4	D3	E5	F5	G2	H4	I3	J5	K5	L5	M3
430	Hecuo	Y5	A4	B5	C2	D3	E3	F2	G3	H3	I3	J5	K5	L5	M4
431	Tongkengli	Y5	A3	B5	C2	D3	E4	F3	G3	H2	I3	J5	K5	L5	M4
432	Xiachi	Y5	A5	B3	C2	D3	E3	F2	G2	H4	I3	J5	K5	L5	M4
433	Kengmen	Y5	A5	B3	C2	D3	E4	F2	G2	H4	I3	J5	K5	L5	M4
434	Zhangwo	Y5	A5	B5	C2	D3	E4	F3	G4	H3	I3	J5	K5	L5	M4
435	Zhangling	Y5	A5	B5	C2	D3	E5	F3	G4	H3	I3	J5	K5	L5	M3
436	Wangkeng	Y5	A5	B4	C4	D3	E3	F5	G1	H3	I2	J5	K5	L5	M4
437	Golden belt	Y5	A5	B4	C4	D3	E4	F5	G2	H3	I3	J5	K5	L5	M4
438	Tongwanyang	Y5	A5	B4	C4	D3	E3	F4	G2	H5	I3	J5	K5	L5	M4
439	Henri	Y5	A5	B4	C4	D3	E5	F5	G2	H4	I3	J5	K5	L5	M4
440	Zhangkeng	Y5	A5	B4	C4	D3	E4	F4	G2	H4	I3	J5	K5	L5	M4
441	Changyang	Y5	A5	B4	C4	D3	E4	F5	G2	H4	I3	J5	K5	L5	M4
442	Longtan Mian	Y5	A5	B4	C4	D3	E5	F3	G2	H5	I3	J5	K5	L5	M4
443	Nanshantou	Y4	A4	B5	C4	D3	E4	F5	G1	H1	I3	J5	K5	L5	M4
444	Licha	Y5	A4	B5	C4	D3	E5	F5	G1	H1	I3	J5	K5	L5	M3
445	Shangshan	Y5	A5	B3	C4	D3	E2	F5	G3	H3	I3	J5	K5	L5	M3
446	Eshan	Y4	A5	B4	C4	D3	E1	F3	G1	H2	I3	J5	K5	L5	M3
447	LinYang	Y5	A5	B4	C4	D3	E2	F5	G1	H2	I2	J5	K5	L5	M3
448	Mashan	Y5	A5	B4	C4	D3	E4	F5	G1	H1	I3	J5	K5	L5	M3
449	Lantian	Y5	A5	B4	C4	D3	E2	F4	G1	H1	I3	J5	K5	L5	M4
450	Baisha	Y5	A5	B4	C4	D3	E2	F5	G1	H1	I3	J5	K5	L5	M4

Table A1. Cont.

No.	Name	Y	A	B	C	D	E	F	G	H	I	J	K	L	M
451	Qishan	Y5	A4	B5	C4	D3	E5	F4	G1	H2	I3	J5	K5	L5	M4
452	CHANGKENG	Y5	A5	B5	C4	D3	E3	F5	G2	H2	I3	J5	K5	L5	M3
453	Kenglikeng	Y4	A5	B4	C4	D3	E4	F4	G2	H2	I3	J5	K5	L5	M4
454	Qinkan	Y4	A5	B5	C4	D3	E4	F4	G4	H3	I3	J5	K5	L5	M4
455	Yuxiyang	Y4	A5	B5	C4	D3	E5	F4	G3	H2	I3	J5	K5	L5	M3
456	Kanxia	Y5	A5	B5	C4	D3	E5	F4	G3	H1	I3	J5	K5	L5	M4
457	Yue Xiu	Y5	A4	B4	C4	D3	E2	F4	G4	H4	I3	J5	K5	L5	M4
458	Xiazhuang	Y5	A4	B3	C4	D3	E3	F3	G3	H1	I3	J5	K5	L5	M4
459	Dongping	Y5	A5	B3	C4	D3	E4	F5	G3	H4	I3	J5	K5	L5	M4
460	Hengkeng	Y5	A5	B5	C4	D3	E2	F5	G3	H4	I3	J5	K5	L5	M4
461	Ronglingtou	Y4	A5	B3	C4	D3	E2	F5	G3	H3	I3	J5	K5	L5	M3
462	Pan Yang	Y5	A5	B5	C4	D3	E2	F5	G3	H4	I3	J5	K5	L5	M4
463	Daping	Y5	A4	B5	C4	D3	E3	F5	G1	H1	I2	J5	K5	L5	M4
464	Xie Lingxia	Y5	A5	B5	C4	D3	E4	F4	G3	H1	I3	J5	K5	L5	M4
465	Shihe	Y5	A3	B4	C4	D3	E4	F5	G1	H1	I3	J5	K5	L5	M4
466	Xianshi	Y5	A5	B5	C4	D3	E4	F4	G4	H3	I3	J5	K5	L5	M4
467	GUAXI	Y5	A5	B4	C4	D3	E3	F5	G1	H1	I3	J5	K5	L5	M4
468	Caihuaqiao	Y5	A5	B5	C4	D3	E3	F5	G3	H5	I3	J5	K5	L5	M4
469	Zhuzhoushan	Y4	A4	B5	C4	D2	E2	F5	G3	H5	I3	J1	K1	L2	M5
470	Xita	Y5	A5	B4	C4	D3	E4	F4	G2	H2	I3	J5	K5	L5	M4
471	Shanli	Y5	A4	B5	C4	D3	E4	F4	G2	H1	I2	J5	K5	L5	M4
472	Yangmian	Y5	A4	B5	C4	D3	E4	F4	G4	H3	I3	J5	K5	L5	M4
473	Banyu	Y5	A5	B5	C4	D3	E5	F4	G3	H2	I3	J5	K5	L5	M4
474	Chi tou	Y5	A5	B5	C4	D3	E4	F4	G4	H3	I3	J5	K5	L5	M4
475	Xibei	Y5	A5	B3	C4	D3	E3	F4	G3	H2	I3	J5	K5	L5	M4
476	Zhangjiashan	Y5	A5	B4	C4	D3	E4	F4	G1	H2	I3	J5	K5	L5	M4
477	Niushanwan	Y5	A5	B5	C4	D3	E2	F5	G3	H4	I3	J5	K5	L5	M4
478	Zhuwo	Y5	A4	B5	C4	D3	E5	F4	G2	H5	I3	J5	K5	L5	M4
479	Litan	Y5	A4	B5	C4	D3	E5	F5	G2	H1	I2	J5	K5	L5	M4
480	Kehou	Y5	A5	B5	C2	D3	E4	F4	G3	H2	I3	J5	K5	L5	M4
481	Yanke	Y5	A5	B5	C4	D3	E4	F5	G3	H3	I2	J5	K5	L5	M4
482	Chayang	Y5	A5	B5	C4	D3	E4	F3	G3	H2	I3	J5	K5	L5	M4
483	Kengyuan	Y5	A4	B3	C4	D3	E5	F3	G3	H1	I3	J5	K5	L5	M4
484	Banling	Y5	A4	B4	C4	D3	E2	F5	G1	H1	I2	J5	K5	L5	M4
485	Houyang	Y4	A4	B4	C4	D3	E2	F3	G2	H1	I3	J5	K5	L5	M4
486	Lianling	Y5	A5	B3	C4	D3	E2	F5	G3	H4	I3	J5	K5	L5	M4
487	Yankeng	Y5	A5	B5	C4	D3	E4	F4	G2	H4	I2	J5	K5	L5	M4
488	Huang Ru	Y5	A4	B5	C4	D3	E1	F5	G1	H1	I3	J5	K5	L5	M4
489	Hutou	Y5	A5	B3	C4	D3	E2	F5	G3	H3	I3	J5	K5	L5	M4
490	Yangping	Y5	A5	B5	C4	D3	E2	F5	G3	H2	I3	J5	K5	L5	M4
491	Banshan	Y5	A5	B3	C4	D3	E4	F4	G3	H3	I3	J5	K5	L5	M4
492	Changtan	Y5	A5	B5	C4	D3	E2	F5	G3	H3	I3	J5	K5	L5	M4
493	Tingdou	Y5	A5	B5	C4	D3	E5	F5	G2	H1	I3	J5	K5	L5	M4
494	Jiangjiadu	Y5	A4	B4	C4	D3	E3	F5	G1	H2	I3	J5	K5	L4	M4
495	Rizhai	Y5	A4	B4	C4	D3	E5	F5	G1	H1	I3	J5	K5	L5	M4
496	He'an	Y5	A4	B5	C4	D3	E4	F4	G4	H4	I3	J5	K5	L5	M4
497	Pengjiayang	Y5	A5	B3	C4	D3	E2	F5	G3	H3	I3	J5	K5	L5	M4
498	Wellhead	Y5	A4	B5	C4	D3	E5	F4	G3	H1	I3	J5	K5	L4	M4
499	Houmen Ping	Y5	A5	B5	C4	D3	E5	F4	G3	H2	I3	J5	K5	L5	M4
500	Xu Yang	Y5	A5	B5	C4	D3	E1	F5	G3	H3	I3	J5	K5	L5	M4
501	Dalin	Y5	A5	B5	C4	D3	E2	F5	G3	H3	I3	J5	K5	L5	M4
502	Xiayan	Y5	A5	B5	C4	D3	E4	F5	G3	H3	I3	J5	K5	L4	M4
503	Tiehu	Y5	A5	B3	C4	D3	E2	F5	G3	H3	I3	J5	K5	L5	M4
504	Meiyang	Y5	A5	B3	C4	D3	E4	F5	G3	H4	I3	J5	K5	L5	M4
505	Hanyang	Y5	A5	B3	C4	D3	E3	F5	G3	H3	I3	J5	K5	L5	M4
506	Chayang	Y5	A5	B3	C4	D3	E4	F3	G3	H3	I3	J5	K5	L5	M4
507	Fengyang	Y5	A5	B3	C4	D3	E4	F4	G3	H3	I3	J5	K5	L5	M4
508	Lingkeng	Y5	A5	B3	C4	D3	E5	F3	G3	H3	I3	J5	K5	L5	M4

Table A1. Cont.

No.	Name	Y	A	B	C	D	E	F	G	H	I	J	K	L	M
509	Gaoling	Y5	A5	B3	C4	D3	E4	F4	G3	H2	I3	J5	K5	L5	M4
55	Zhongao	Y5	A4	B3	C4	D3	E4	F4	G3	H2	I3	J5	K5	L5	M4
511	Waicuo	Y5	A5	B3	C4	D3	E3	F4	G3	H2	I3	J5	K5	L5	M4
512	Hongping	Y5	A5	B3	C4	D3	E3	F4	G3	H3	I3	J5	K5	L5	M4
513	Jindouyang	Y5	A5	B3	C4	D3	E4	F5	G3	H3	I3	J5	K5	L5	M4
514	Baikeng	Y5	A5	B3	C4	D3	E3	F5	G3	H3	I2	J5	K5	L5	M4
515	Baolin	Y5	A4	B2	C4	D3	E5	F5	G1	H2	I3	J5	K5	L5	M4
516	Yanxia	Y5	A4	B2	C4	D3	E5	F4	G1	H2	I2	J5	K5	L5	M4
517	WangLichun	Y5	A5	B5	C4	D3	E5	F5	G2	H1	I2	J5	K5	L5	M4
518	DaPingLi	Y5	A5	B5	C4	D3	E3	F4	G3	H3	I3	J5	K5	L5	M4
519	Wanglou	Y5	A4	B5	C4	D3	E4	F5	G3	H1	I3	J5	K5	L5	M4
520	Shangyang	Y5	A5	B5	C4	D3	E4	F5	G3	H3	I3	J5	K5	L5	M4
521	Nanshan	Y5	A5	B3	C4	D3	E3	F4	G3	H3	I3	J5	K5	L5	M4
522	Wenyan	Y5	A4	B5	C4	D3	E5	F3	G3	H2	I3	J5	K5	L5	M4
523	Dongshan	Y5	A5	B5	C4	D3	E3	F4	G3	H4	I2	J5	K5	L5	M4
524	Qiuling	Y5	A5	B3	C4	D3	E3	F4	G3	H3	I3	J5	K5	L5	M4
525	Zhiping	Y5	A5	B3	C4	D3	E4	F4	G3	H2	I3	J5	K5	L5	M4
526	Lushan	Y5	A4	B4	C4	D3	E3	F4	G1	H2	I2	J5	K5	L5	M4
527	Fuling	Y5	A5	B5	C4	D3	E1	F5	G4	H2	I3	J5	K5	L5	M4
528	Chamen	Y3	A5	B3	C4	D3	E2	F5	G3	H3	I3	J5	K5	L5	M2
529	Ke Ling	Y3	A5	B4	C4	D3	E4	F3	G2	H2	I3	J5	K5	L5	M2
530	Yangli	Y3	A5	B5	C4	D3	E5	F4	G3	H2	I3	J5	K5	L5	M2
531	Qiaoting	Y3	A4	B5	C4	D3	E5	F3	G3	H2	I2	J5	K5	L4	M2
532	Kangshan	Y3	A5	B5	C4	D3	E5	F2	G3	H3	I3	J5	K5	L5	M2
533	Fuyao	Y3	A4	B5	C4	D3	E5	F3	G3	H2	I3	J5	K5	L5	M2
534	Chixi	Y4	A5	B5	C4	D3	E5	F4	G3	H4	I3	J5	K5	L4	M2
535	Zhuyang	Y3	A5	B5	C4	D3	E4	F4	G3	H4	I3	J5	K5	L4	M2
536	Tangyang	Y3	A5	B5	C4	D3	E5	F5	G2	H1	I3	J5	K5	L5	M2
537	Xiangyang	Y3	A5	B4	C4	D3	E1	F5	G1	H1	I3	J5	K5	L5	M2
538	Longtouwan	Y3	A4	B4	C4	D3	E5	F4	G2	H1	I3	J5	K5	L4	M2
539	Ruiyun	Y3	A5	B5	C5	D3	E5	F3	G3	H2	I3	J5	K5	L5	M2
540	Fuliu	Y3	A5	B3	C5	D3	E2	F5	G3	H2	I3	J5	K5	L5	M2
541	CaiBao	Y3	A2	B4	C5	D3	E2	F5	G2	H2	I3	J5	K5	L5	M2
542	Jingtou	Y1	A3	B5	C5	D4	E4	F5	G2	H1	I3	J5	K5	L5	M2
543	Niuchengxia	Y3	A3	B5	C5	D3	E4	F5	G2	H2	I3	J5	K5	L5	M2
544	ZiBei	Y3	A2	B4	C5	D3	E4	F5	G2	H3	I3	J5	K5	L4	M2
545	Chaoyang	Y3	A2	B4	C5	D3	E5	F5	G2	H1	I3	J5	K5	L5	M2
546	Tingbian	Y3	A5	B3	C5	D3	E4	F5	G3	H3	I1	J5	K5	L5	M2
547	Jiayang	Y3	A5	B5	C5	D3	E2	F4	G3	H1	I3	J5	K5	L5	M2
548	Luochun	Y3	A3	B5	C5	D3	E5	F5	G3	H1	I3	J5	K5	L5	M2
549	Shangan	Y3	A3	B5	C5	D3	E3	F4	G2	H3	I3	J4	K3	L4	M5
550	Fangjiashan	Y3	A2	B4	C5	D3	E3	F4	G2	H1	I2	J5	K5	L5	M2
551	Shuanghua	Y3	A5	B3	C5	D3	E3	F4	G3	H2	I3	J5	K5	L5	M2
552	gaoshan	Y3	A2	B4	C5	D3	E2	F5	G2	H2	I3	J5	K5	L5	M2
553	Jiashan	Y3	A3	B5	C5	D3	E3	F3	G2	H2	I2	J5	K5	L5	M2
554	Paiyang	Y3	A4	B5	C5	D3	E3	F4	G2	H3	I2	J5	K5	L5	M2
555	Houao	Y3	A2	B4	C5	D3	E4	F5	G2	H2	I3	J5	K5	L5	M2
556	Youkeng	Y3	A3	B4	C5	D3	E2	F5	G2	H1	I2	J5	K5	L4	M2
557	Yutang	Y1	A5	B5	C5	D1	E4	F3	G3	H1	I3	J4	K1	L5	M5
558	Zhenbian	Y1	A3	B5	C5	D1	E3	F4	G2	H2	I2	J4	K1	L4	M5
559	Xiaojia	Y1	A3	B4	C5	D1	E4	F5	G2	H1	I3	J4	K1	L5	M5
560	Ocean	Y1	A3	B5	C5	D1	E5	F4	G2	H3	I3	J4	K1	L5	M5
561	Kengkou	Y1	A2	B2	C5	D1	E1	F3	G2	H1	I3	J4	K1	L4	M5
562	Qiaowan	Y2	A2	B4	C5	D2	E3	F5	G2	H2	I2	J3	K4	L4	M5
563	Taiyin	Y2	A3	B5	C5	D2	E4	F3	G2	H3	I3	J3	K4	L4	M5
564	Siqian	Y2	A3	B5	C5	D2	E3	F4	G2	H2	I3	J3	K4	L4	M5
565	Dunshang	Y2	A3	B4	C5	D2	E3	F4	G2	H1	I3	J3	K4	L5	M5

Table A1. Cont.

No.	Name	Y	A	B	C	D	E	F	G	H	I	J	K	L	M
566	Dongshan	Y2	A5	B3	C5	D2	E4	F5	G3	H3	I1	J3	K4	L4	M5
567	Wanchang	Y2	A3	B4	C5	D2	E3	F4	G2	H2	I3	J3	K4	L4	M5

The nuclear density of ethnic minority villages (Y); the distance from the road (A); the distance from the county center (B); the population of the county where the village is located (C); the annual GDP value of the county where the village is located (D); the urbanization rate of the county where the village is located (E); the slope in the natural geographical environment (F); the altitude (G); the sliding slope sensitivity (H); the distance from the river (I); and the flood sensitivity (J); the number of intangible cultural heritage (K), the number of material cultural heritage (L), and the per capita cultivated land area (M).

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