

Resilience of Traditional Agricultural Landscape and its Responses to Major Public Health Events

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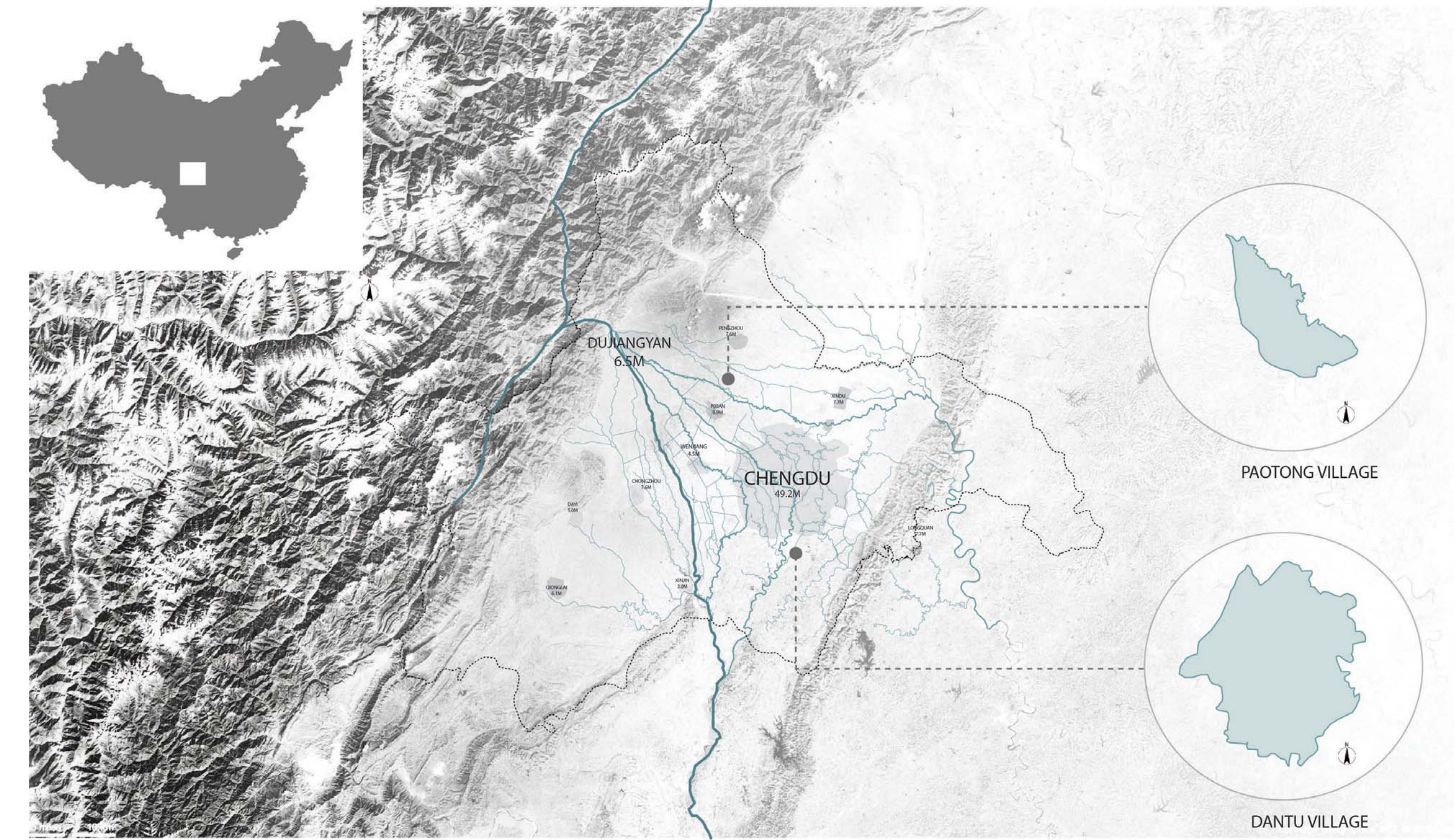
Linpan Landscape



Introduction

The rapid expansion of COVID-19 in the world is threatening every aspect of human society and incurring the re-thinking of our capacity in responding to the impacts of serious public health events such as pandemic. For urban and rural planning, the traditional concepts and visions should also be reviewed. Given that the less developed rural communities are often more vulnerable, it is necessary to address the issues relating to socio-ecological resilience of traditional agrarian society while external pressures or shocks coming.

Location Map



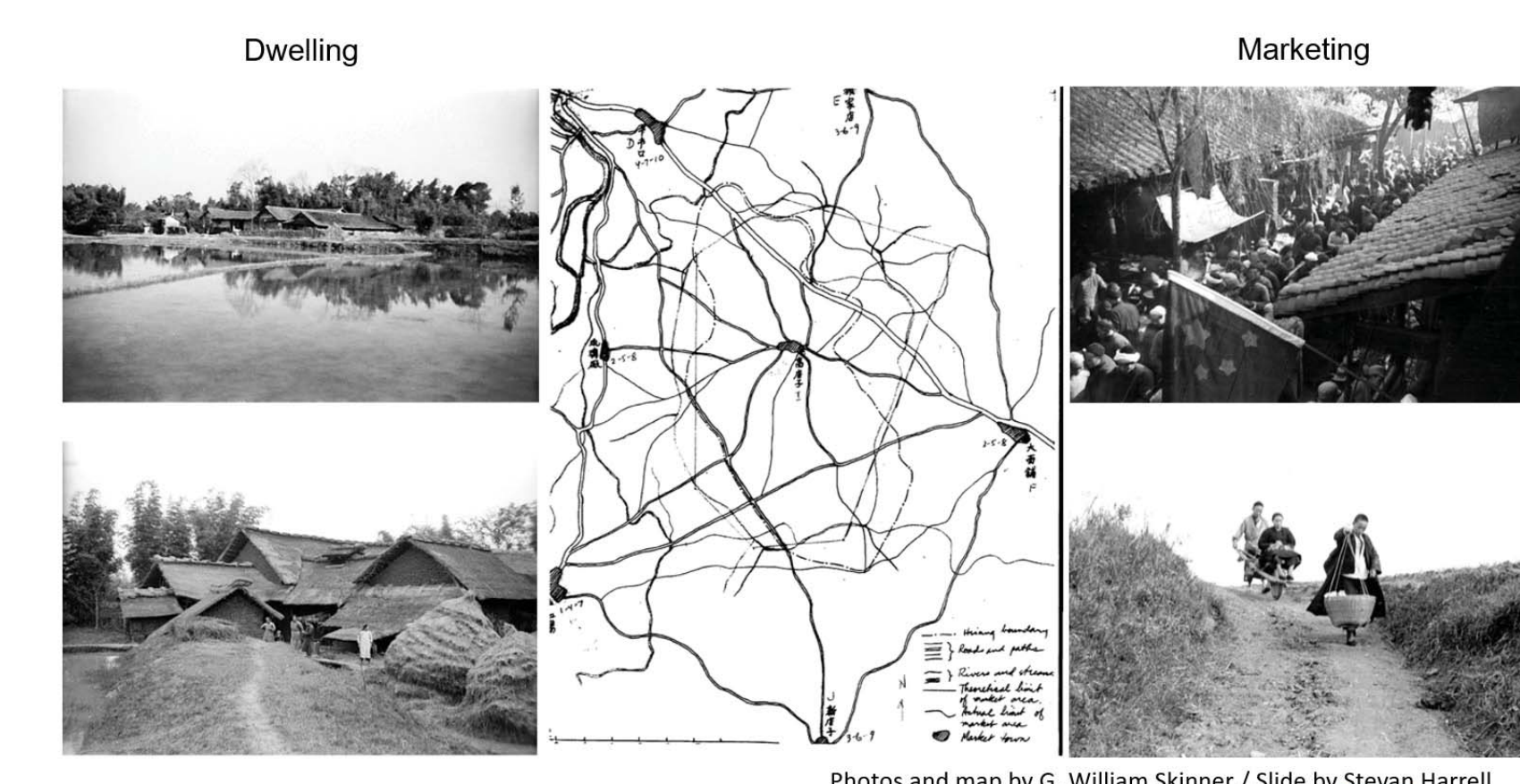
Rural landscape – maintaining ‘social distance’



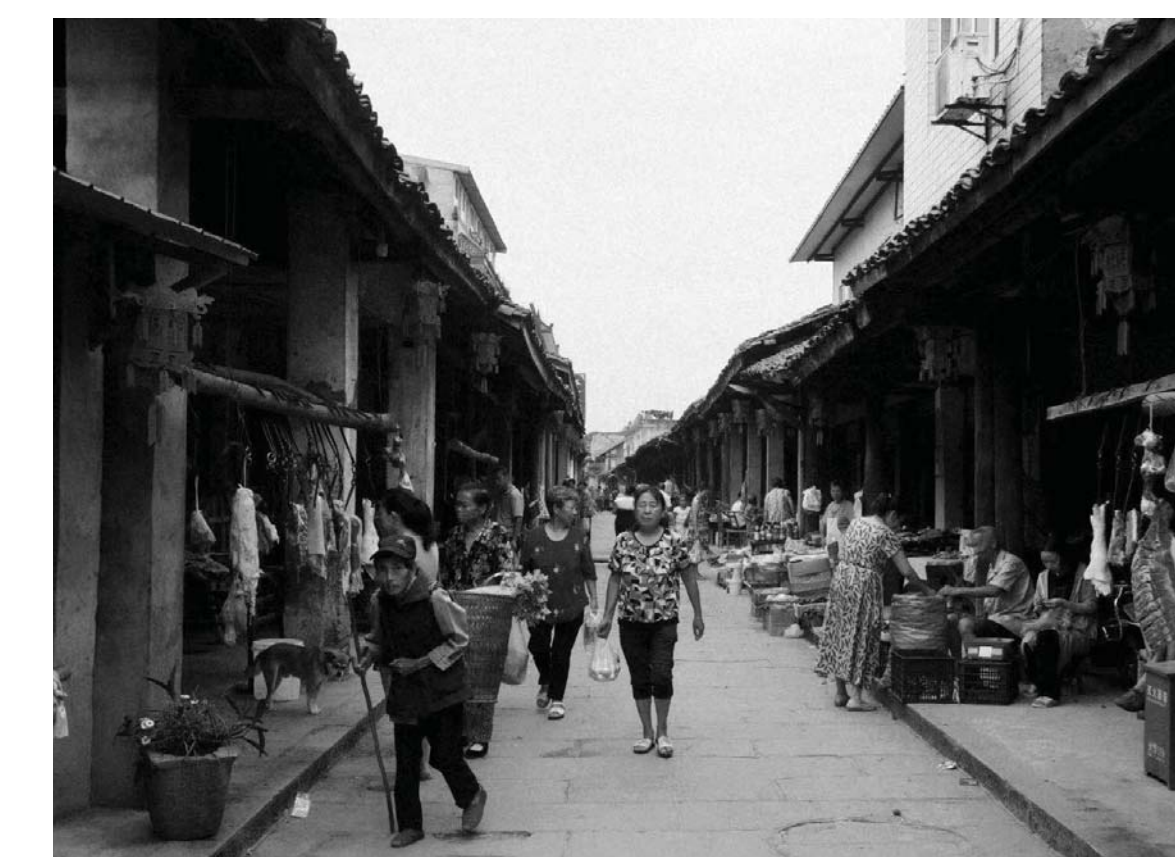
Dispersed Farmhouses
→
Centralized Apartments



Rural Markets - maintaining ‘social connections’



Traditional pattern of linpan and rural markets in Chengdu Plain (surveyed by G.W. Skinner at the end of 1940s).

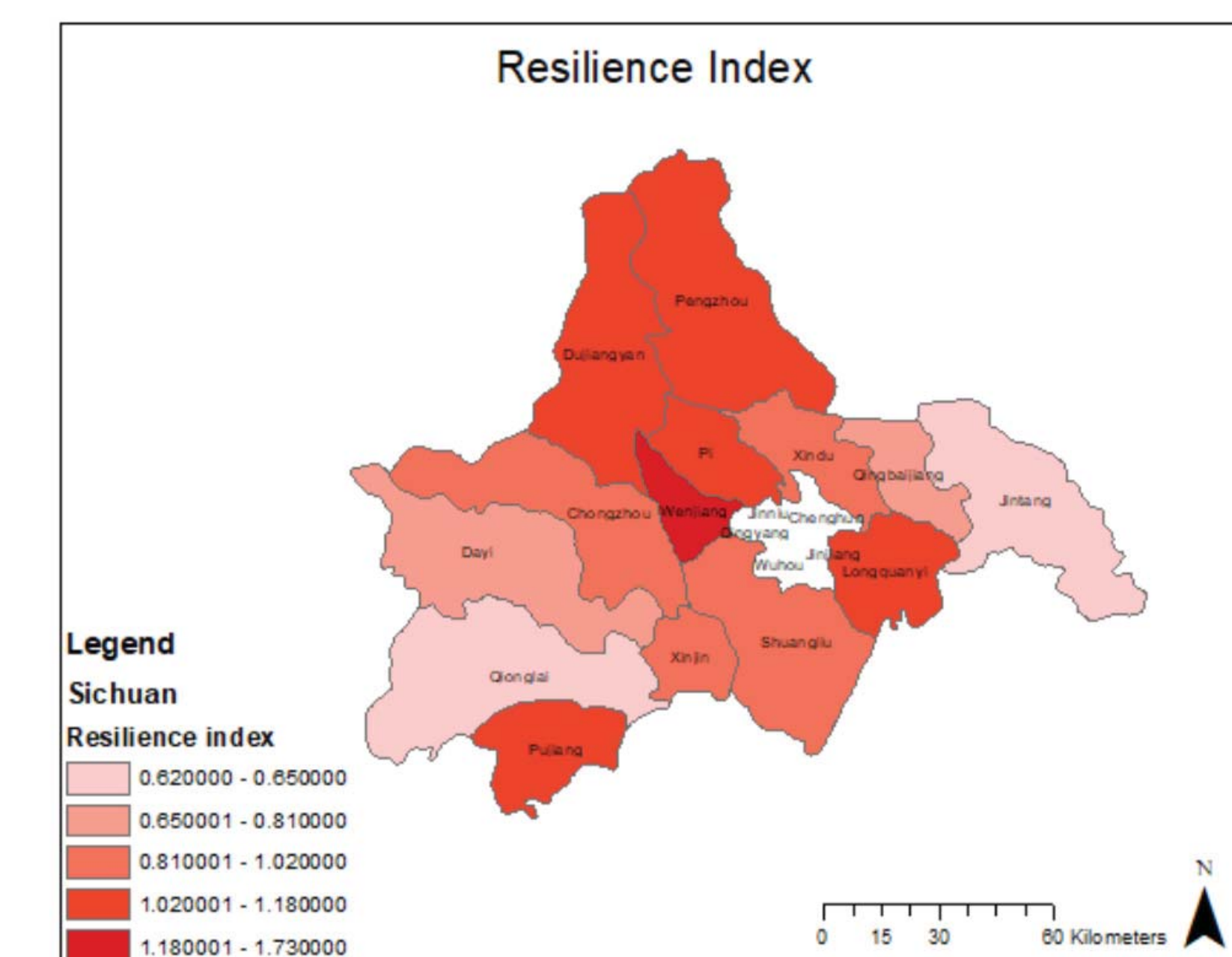


Dantu market street in 2019.

The periodic markets in rural Chengdu play an important role in not only economic connection of agrarian society but also providing social services such as health care as well as epidemic prevention, where administrative agencies, clinics and farmers' associations could support the capacity building, knowledge sharing and in-time dissemination of prevention materials (e.g. face mask, disinfectant) while pandemic occurring.

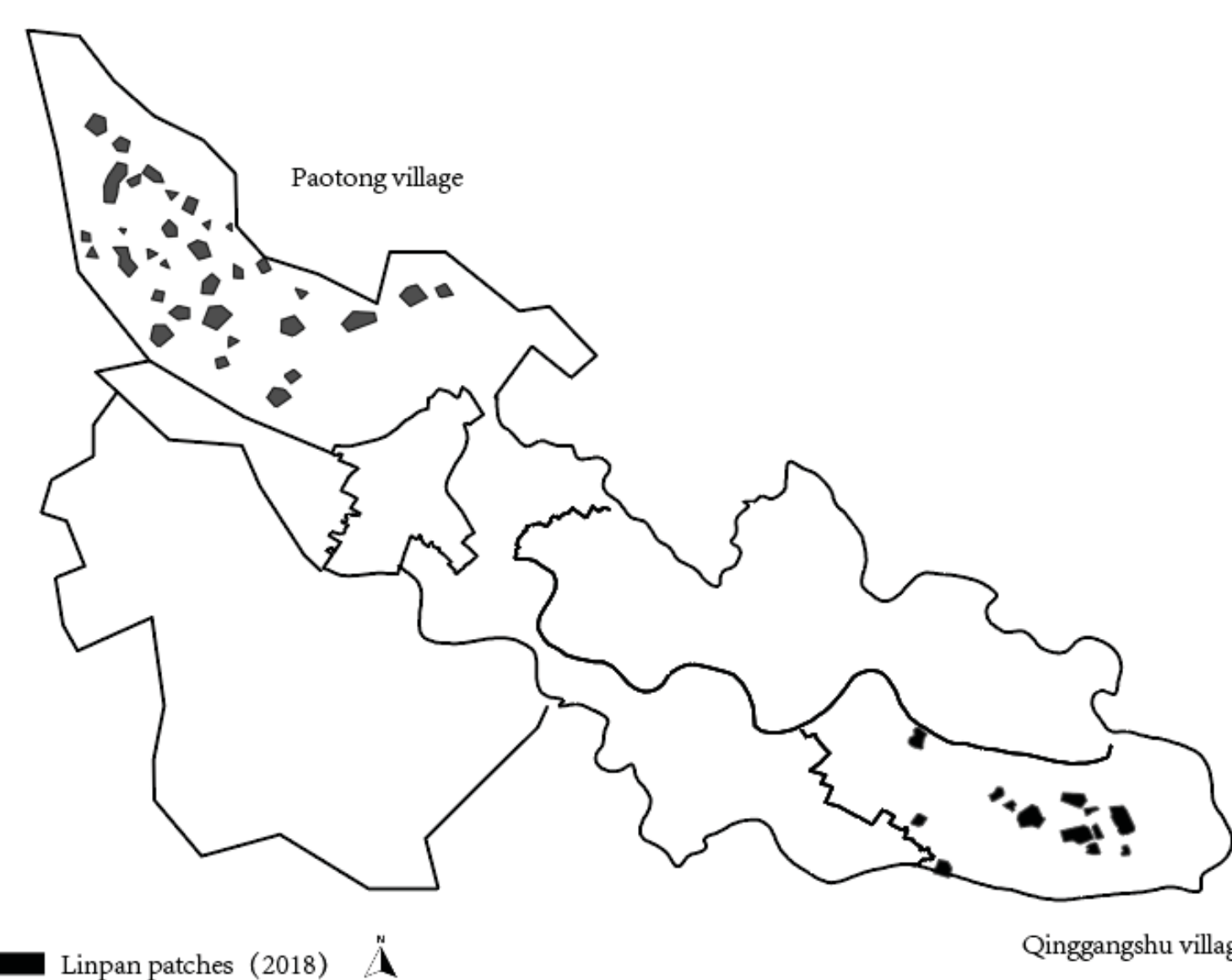
Next step - mapping COVID-19 resilience in rural Chengdu

For rural societies the epidemic events including COVID-19 have impacted the agricultural production and human life. Within a definite area the potential capacity in coping with these events is closely related to some basic conditions such as number of hospitals, doctors, hospital beds, health insurance holders, and staff working in prevention stations. Based on the official statistics, we can collect these data and calculate an integrative index relating to the prevention capacity, which could be regarded as resilience index of public health.



Above: Dantu village during COVID-19.

Below: Arcgis map showing resilience index in different rural counties in Chengdu.



Linpan landscape (“wooded lots”), located in Chengdu Plain, China, is a kind of cultural landscape with high agricultural productivity and dense population but dispersed settlements

Now, this landscape is experiencing a great change due to the rapid modernization. For example, although Paotong village and Qinggangshu village have roughly the same population and area, Paotong remains its traditional pattern of linpan distribution but another lost the dispersed settlements due to the concentrated “New Village” living mode (see left figure and table).

The centralized living mode would not only reduce the convenience of farming activities, but also shorten the ‘social distance’, thereby increase the spreading possibility of infectious diseases in rural areas. Therefore, traditional knowledge and practice scattering settlements sparsely on the landscape should be integrated into future rural development planning so that the interval space could be maintained for better epidemic prevention. of large dispersion and small concentration.

Table 1 Comparison of Paotong and Qinggangshu village in 2018

	Paotong	Qinggangshu
Area	2.17 km ²	2.4 km ²
Population	2332 people	2251 people
Population density	1074 people/ km ²	936 people/ km ²
Linpan density	15.2 unit/ km ²	5.4 unit/ km ²

Conclusion:

Based on the analysis of spatial pattern of linpan and the functions of rural periodic markets as the socio-economic nexus in the landscape, this study suggested that the spatial interval of linpan settlements should be maintained in the future development planning, and enough attentions be paid to the role of grass-root communities played in controlling and defending epidemic diseases. It is hoped that these traditional knowledge or practices could be integrated into future planning and preservation efforts, enhance the resilient capacity of rural landscape against external pressures or shocks, and contribute to the sustainable development in densely populated agricultural regions.

“Connectivity in the habitat network was high enough to prevent the negative consequences of isolation but not so high as to allow rapid spread of disease.”

Minor and Urban, 2008. “A Graph-Theory Framework for Evaluating Landscape Connectivity and Conservation Planning”