Chapter 8

Application of UAV Technology to Planning Study on Chinese Villages in Guanzhong

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ABSTRACT

Driven by the state strategy of rural revitalization, Chinese rural areas receive unprecedented opportunities for development. However, China’s Guanzhong region faces numerous problems in its rural planning research, such as 1) lack of terrain maps of most villages, 2) satellite maps collected from open platforms are inaccurate and fail to support a more detailed spatial analysis, 3) data and information are 2-dimensional, 4) data collection is inefficient. And, most villages consist of several village groups that are usually 400~500 m apart. Areas of Guanzhong are located on the plain, with low architectural height and an excellent environment of net clearance. In addition, there are no large-scale factors, mineral areas, and industrial facilities, which means low interference from the magnetic field. Compared with urban regions, such rural areas have a better work environment for UAV and better conditions of collecting needed data.

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INTRODUCTION

In recently years, the development of Chinese rural area have been focused by the national: *Urban and Rural Planning Law of the People’s Republic of China* have been promulgated at the year of 2008, which is confirm the rural status equally to urban by the law; The model of Construction of Beautiful Village have been promoted strongly by Chinese government; as well as *The Report of 19th National Congress of the Communist Party of China on October 24, 2017* that is declare the balance urban and rural development, rural development has been raised to a new height. All the changes of policy mean the status of rural development have been changed deeply, the rural area would be get more and more chances form national police.

Guanzhong area is located in central Shaanxi Province and the geographical center of inland China. The distance stretching from the east to the west is about 300 km. Guangzhong area reaches Tongguan in the east, Baoji in the west, Qingling Mountains in the south and North Mountain ranges in the north. Located between Hanguguan and Dasanguan, Guanzhong gained its name in ancient China (meaning the central pass in Chinese). Weihe River is known as Qinchuan. Hence Guanzhong area is also referred to as “800-li Qinchuan”. This area which has been easy to hold but hard to attack since surrounded by mountains that is good natural military barrier on three sides. The Guanzhong area has fertile and abundant land, with well-developed river system and flourishing agricultural, so, it had been one of the most rich agriculture areas in China from ancient times to the present, as well as good traffic condition, it is also a densely populated area in China. There were 13 dynasties have established capitals in the Guanzhong area which have the longest capital history of 1,200 years in Chinese history. since the Zhou Dynasty (1136 BC) because well military defense conditions and agricultural foundation. So Guanzhong area that was the starting point of the Silk Road with profound historical and cultural significance, witness one of the most prosperous periods in Chinese history. So, Guanzhong area become the key area where is to be study the development mode of Chinese cities and towns.

Under the rapid urbanization development in China and the strategy of national rural revitalization, as the center inland area of China, the Guanzhong area have been became the has been taken the steps to speed up large-scale village planning where in poor regions zone in a short time and in a wide range. Nevertheless, it is hard to finish the large-scale village investigation with common pattern that is to acquire and analysis date because the investment and the local economic, consequently, it would be provided the new ideas that adapted to the new era by the new technical route and analysis procedure.
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