SOUTHWEST CHINA’S WATER CRISIS: RETHINKING THE URBAN GROWTH MODE

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Abstract: Based on a case study of droughts in Southwest China, this paper intends to analyze the fundamental reasons behind the disasters, and review the cognitive problems of urbanization patterns, knowledge management systems, water strategies, and the water system. The drastic water crisis now facing China calls for a knowledge convergence that can be preliminarily defined as urban ecology and includes a wide variety of different disciplines, such as geography, meteorology, urbanology, engineering, economics, and political science. In some cases, “soft” knowledge, such as religion, sociology, and anthropology, is needed to solve China’s urban ecological problems.

Keywords: droughts in Southwest China, water ecology, cognitive crisis, urbanization, urban hydrology

I. The Water Crisis behind the Drought in Southwest China

In the spring of 2010, five provinces in Southwest China suffered severe droughts which affected more than 50 million people and nearly 5 million hectares of crops, including 400,000 hectares with complete crop failure. Furthermore, 20 million people were facing a shortage of drinking water. According to statistics from the Yunnan Provincial Forestry Department, the continued drought affected about 7.5 million mu (1 mu ≈ 0.067 hectare) of nature reserves in the province, with about 100,000 mu suffering severe droughts, seriously hampering Yunnan’s biodiversity conservation. The province’s forest pest occurrence area reached 3.44 million mu, 1.7 million mu of which were above a moderate degree.²

As was recognized by Chinese scientists and some government officials, the droughts in southwestern China started in September 2009. But

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1 This paper is one of the outcomes of the 2010 special research project of the Friends of Nature Green Paper, which was sponsored by the Delta Environment and Education Foundation.

2 There are a huge amount of news reports about the drought in the Southwest. The data used in this paper are cited from Netease News, http://news.163.com/special/00014868/drought2010.html.
because of the unique Chinese political conditions and the weak capacity of self-help among the public, the disaster continued to spread for three seasons, until it developed to such a serious level that the government began to pay attention to it.

During the droughts, the negative effects of urbanization were particularly apparent. Due to the improper urbanization mode and resource mobilization mechanisms, the negative effects of the drought have accumulated. Take Yunnan for example, which was surveyed by the author. The southwestern province is suffering from an all-round water ecology dilemma: its megacity development mode—with tremendous energy consumption—misguided the direction of urbanization in this region, and turned Southwest China into a black hole that absorbed energy, water, and other resources. As a result, major local projects emerged to make up a high-risk model of development with a huge volume but inferior structure. The construction and development strategy, featuring Kunming, Lijiang (丽江), Yuxi (玉溪), Dali (大理), Baoshan (保山), and other regional centers, have exhausted the region’s ecological capacity and recovering capabilities. The construction mode of megacities resulted in the huge demand for water, soil, air, and energy, and along with the amplifying effect of megacities, continued to cause serious ecological and environmental impacts.

The scholar Zeng Nianchang (曾念长) has pointed out that the drought affecting large areas in five southwestern provinces was soon followed by flooding covering a larger area, which indicates that the natural water regulating system of southern China is suffering a staggering failure. An ecological regulating system, consisting of vegetation, soil, and water, should become part of people’s scientific knowledge defended as their ethical bottom line.³

In addition, improper urbanization patterns and views on modernization have led to the continuous inter-regional water transfer in southwestern China, such as the water transfer from Zhangjiu River, (掌鸠河) Qingshui Lake (清水海), and Niulan River (牛栏江) to Kunming to address its urban water supply. On the one hand, the dynamic water cycle system was closed, resulting in the ecological degradation of part of the neighboring areas. On the other hand, the process of urbanization did not include urban network reconstruction, efficient water use, water recycling, or the concepts of a water-saving or smart city. It also expanded