

Environmental, socioeconomic, and cultural management consideration related to new mountain roads in Yunnan Province, China

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Northwestern Yunnan is formerly a poor and remote mountainous region of China, but is now experiencing rapid growth due to tourism and rural economic development. Yunnan Province consists of 15 protected areas (in eight geographic clusters). It extends over a total area of 1,698,400 ha, encompassing the upper portions of the Yangtze (Jinsha), Mekong (Lancang) and Salween (Nujiang) river basins. The three rivers run roughly parallel (north to south) within about 30 km through steep gorges which are called the cradle of “river culture” in Yunnan Province. The latter two rivers flow through other Southeast Asian nations; the former is tributary to the Yangtze River.

With increasing demand of tourism, the government has recently expanded and constructed mountain roads in northwestern Yunnan along the three parallel rivers. A new 28 km road was built in 2001-2002 (Weixi – Shangri-La road) through the steep mountains along the headwaters of the Mekong River to expedite travel to Weixi. The former road which originated near the divide between the Jinsha and Mekong River basins and traversed through higher elevations to the town of Weixi was 44 km long and was

impassable during limited periods in winter. Nevertheless, the road cut through unstable hillsides without attention to optimal road location, construction practices, and erosion control measures and contributed heavy loads of sediment to these rivers because of the poor planning and construction. This road alone has contributed between 1412 to 33,450 t ha⁻¹ yr⁻¹ of landslide sediment depending on the location. Surface erosion ranged from 91 to 2121 t ha⁻¹ yr⁻¹ depending on location. Such high levels of landslide and surface erosion impart a legacy of sedimentation in this headwater stream as well as in the downstream Mekong River, and may cause casualties and extensive property damage.

We assessed the impacts of road construction on environmental, socio-economic, and cultural issues in the headwaters of these three great river systems in Yunnan province in two ways: (1) calculating the landslide sediment and estimating the effects of flooding; and (2) analyzing the impact of the Weixi – Shangri-La road construction through the different perspectives of stakeholders.



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