5. DISCUSSION AND CONCLUSIONS

In total, large-scale debris flow catchments, located in the lower reaches of the Jinsha River, were investigated. Using 3S technologies (GIS, GPS, and RS), it was possible to determine nine factors of influence in the debris flow catchments. These factors reflect various geological, topographical, and excitation conditions of the catchments, namely: loose material volume per square kilometer; loose material supply length ratio; maximum elevation difference of catchment; average gradient of the main channel; curvature of the main channel, drainage density; maximum daily rainfall; population density; and the ratio of poor vegetation area.

A hazard assessment for debris flows was carried out using a catastrophe progression method. Debris flow is a natural disaster that occurs suddenly under a specific set of geological, topographical, and excitation conditions. Thus, it is appropriate to use a catastrophe progression method to determine debris flow hazard levels. The results showed that the debris flow hazard of the Aibagou catchment was high, twelve catchments had moderate hazard levels, the hazard of the Yindigou, Xiushuihe, Zhiligou catchments was low, and the other eleven catchments had very low hazard values. Hazard assessment represents an important criterion for investigators to understand the overall situation of a debris flow catchment. Adopting prevention projects for debris flow catchments with higher hazard possibility as a priority is an effective way to avoid economic loss and fatalities.

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