

Formation and evolution of Chaancun landslides of Dalian city in China

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1 Introduction

Chaancun landslide of Dalian city (Fig.1) is located at the heartland of Dalian Xicheng International tourism business district which is the throat position of tourist attractions. Development of tourist attractions is affected by Chaancun landslides. Formation mechanism of landslide has the direct influence on estimation of landslide stability and prevention effect. Based on investigation and analysis, it is concluded that the current active landslide which is induced by human activity and rainfall is a part of old landslide and it is important to note that the stability of both the current active landslide and the old landslide should be taken into account when the landslide is controlled.



Fig.1 View of Chaancun landslide of Dalian city

2 Characters of landslide deformation

The continuous cracks at the crown and flank edge of the current active landslide were developed. By simple monitoring, it reveals that the crown crack was developed with width of 80cm on August 14, 2009 and width of 110cm on August 22, 2009. There was another new crack which is parallel to former crown crack. Compared with the former crown crack, the new crack extended a distance of 20~30m toward to the north.

3 The boundary of old landslide

Geomorphology of old landslide is like round-backed armchair. There is a gully at both east and west flank of old landslide, respectively. Overlooking from the north crown of the sliding body, the sliding body was just like a tongue from mouth. The crown of old landslide was at the intersection of both gullies where Quaternary low-lying land was. Bedrock exposed from the crown to the top of the northern hill. The toe of old landslide extended to Wangjiadian reservoir.

4 The formation of current active landslide

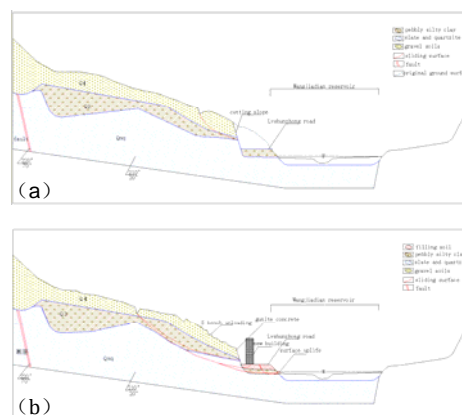


Fig.3 (a) a shallow landslide occurred at the beginning of 2006 (b) Following drag of the front slip mass, sliding surface extend backward and downward, and surface uplift was found at bank slope toe of Wajiadian reservoir.

5 Conclude

The current active landslide which is induced by human activity and rainfall is a part of old landslide and it is important to note that the stability of both the current active landslide and the old landslide should be taken into account when the landslide is controlled.