Study on the application of rock slope protection and ecological restoration technique based on vegetation membrane

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Due to the hard surface and the lack of necessary soil environment for vegetation growth, the rock slope protection and ecological restoration is one of the research focuses nowadays. In this paper, we proposed a flexible slope protection method based on the vegetation membrane to protect the rock slopes including river and road slope. The vegetation membrane is a kind of organic bags which is perfused by a mechanical equipment with plant seeds, soil, sand, vermiculite, rice husk, adhesive material, water retaining agent with water in a certain proportion, forming a suitable environment for vegetation growth. Then the membrane is fixed on the rock slope by the anchor bolt in different specifications and quantities according to the different slope conditions. The results show that the minimum proportions of total nitrogen, phosphoric acid, potassium in the vegetation membrane are 5%, 25% and 10%, respectively. The tension load of the anchor bolt can reach 50 ~ 100 kg in different lengths. The vegetation coverage rate on the rock slope by this method can reach more than 80% in three months and the rock slope is much more stable. Additionally, two demonstrations of different rock slopes protected by this technique are briefly described and the good control effects are obtained. It will provide a new method for protecting steep and rock slopes.