

An aerial photograph of a winding river in a dry, hilly landscape. The river is a deep blue color, contrasting with the brown and tan earth. The river flows from the top right towards the bottom left, making several sharp turns. The surrounding land is arid, with sparse vegetation and visible erosion patterns. In the far distance, a range of mountains is visible under a clear sky.

Risk, Reliability and Sustainable Remediation in the Field of Civil and Environmental Engineering

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RISK, RELIABILITY AND SUSTAINABLE REMEDIATION IN THE FIELD OF CIVIL AND ENVIRONMENTAL ENGINEERING

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Effectiveness and efficiency of nano kaolin clay as bitumen modifier: part A

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INTRODUCTION

Increasing traffic volumes and rising cost of bitumen make it necessary to improve the engineering properties and performance of binder through bitumen modification (Liu and Wu, 2011). Various types of modifiers have been employed as bitumen binders in order to improve the properties of the bitumen mixture (Kaloush et al., 2010; Ye et al., 2009), particularly with regard to its resistance to aging, cracks due to fatigue and thermal conditions, moistureinduced damage, and permanent deformation. However, fibers and polymers are common materials used in bitumen modification (Anurag et al., 2009; Liu et al., 2009).

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One-spot collective resource on risks in systems planning and design and reliability analysis techniques in civil and environmental engineering, including practical applications and case studies

Risk, Reliability, and Sustainable Remediation in the Field of Civil and Environmental Engineering illustrates the concepts of risk, reliability analysis and its estimation, and the decisions leading to sustainable development in the field of civil and environmental engineering. The book provides key ideas on the risks in the performance failures and structural failures of all processes involved in civil and environmental systems and evaluates the reliability within its context. It also discusses the implications of measurable indicators of sustainability in important aspects of multitude of civil engineering projects. The book helps practitioners to become familiar with the tolerances in design parameters, uncertainties in environment, applications, and manufacturing fields of civil and environmental systems. It emphasizes the importance of risks involved in the design and planning stages and reliability techniques to discover and remove the potential failures to achieve a sustainable development.

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