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Contribution to the Earth Slopes and Earth Works Stability with a View to Environmental Protection

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Summary

The thesis approaches the topic of the earth slopes stability through theoretical and practical methods from scientific domains like engineering, construction, geo-techniques and environmental protection.

The thesis comprises an introductory chapter referring to the basic aspects of the earth slopes stability as characteristics of the slopes subject to instability, the stress status, factors causing and favoring the slope instability and classification of earth slopes displacements.

The chapter dedicated to the impact of the slope instability on the environment is structured in two parts, one regarding the impact of the natural slopes displacement and sliding on environment, and the other referring to the impact of landfills and tailings sliding on environment.

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As part of the theoretical part, a comprehensive and well structured synthesis of the technical solutions for ensuring the slopes and earth works stability and hazard mitigation is presented (reshaping the area, soil moisture reducing, earth retaining walls, special measures for soil consolidation, using the geo-synthetics, etc). An entire chapter deals with modern principles and specific devices for monitoring the earth slopes subject to instability. Within the aforementioned chapter, several Geographical Information Systems (GIS) - based techniques for mapping the landslides hazard and mitigation are dealt with.

Another part of the thesis comprises case studies for waste disposal facilities and their impact on the environment.

The thesis is concluded by general conclusions with perspectives for scientific solutions for protecting the environment factors subject to instability.

Keywords: earth slopes and earth works stability, impact on environment, geo-synthetics, landslides monitoring, mapping.

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