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Prospection of geo-resources for the building of social houses in Cuba

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The Spanish group of the IAPG has one of its strategic areas focused on development cooperation, in order to solve environmental, ethical and social problems related to the management of geological resources. One of the branches of this cooperation focuses on natural materials prospection which can be used as cheap additives in the construction process. As a result of this line, a cooperation project was carried out framed in the program of the Universidad Politécnica de Madrid (UPM) with Latin America, specifically with the University of Moa, province of Holguín (Cuba). This research aims to characterize the deposits of natural pozzolans in the northeastern region of Cuba, and determine their possible applications in the manufacture of cements and mortars for the construction of social housing in that region. The tasks contemplated in the development of this project are divided into two fundamental parts; the first one, which describes the field campaigns in situ in which geological survey and sampling work was carried out, with the assimilation of natural samples from the selected deposits, as well as samples of slag extracted from a steel plant. The second part refers to the laboratory campaign, in which a great variety of tests have been carried out to determine the suitability of the samples, among which are mentioned: X-ray diffraction, scanning electron microscopy, chemical analysis, pozzolanicity, granulometric test, specific surface, real density, freezing, mechanical resistance and determination of the speed of propagation of the ultrasound. After analyzing the results obtained, it is concluded that the samples studied have the properties and characteristics necessary for the manufacture of cements and mortars with pozzolanic characteristics, justifying, in this way, the manufacture of products with a moderate production cost and with the quality for the construction of social housing and infrastructure, so necessary in the study area.