

Characterization of Ancient Cob Wall of Madagascar for Potential Green and Economical Construction

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Abstract - Earthen constructions have existed for thousands of years in the world. In Madagascar, remains of over 300 years of construction still exist today and are part of the « Malagasy » heritage. Currently, the construction methodology and the know-how around the constructions with cob are almost in-existent. The purpose of this research is not only to find the techniques to rebuild with raw earth and to reduce the carbon footprint in civil engineering in Madagascar, but also to provide an economic alternative to concrete constructions. Various samples have been taken and analyzed to determine the formulation of the « Malagasy » cob and to demystify the misleading idea that these types of constructions contain additives of animal origin. Building with earth will definitely reduce cost and maintain sustainability, and once the right composition is determined, it will be possible to provide various architectural designs with a life span of 50 to 100 years, depending on implementation techniques used. Finally, this will lead to the use of abundantly available material locally, hence reduce additional transportation and related costs, yielding recyclable and economical structures.

Keywords: Cob wall, carbon footprint, concrete, sustainable, green construction.