

## **ABSTRACT**

Rainwater Harvesting Systems (RHS) are a possible solution to achieve a sustainable management of the water resources we have in Portugal. The purpose of this dissertation is to analyse, in the family context, the profitability of RHS for non-potable use in the Lisbon Metropolitan Area, where about a quarter of the Portuguese population lives.

From this perspective this paper starts with a general framework about water and rainwater harvesting, followed by a survey of several studies about harvested rainwater quality and treatment options. This paper also comprises an overall characterization of RHS and a description of its main components.

The investment project is analysed for a case study created based on national average statistics (new single-family residence, inhabited by three people). In this analysis nine variants are considered for different water storage capacities, future cash flows are estimated and the main profitability criteria are calculated for each scenario.

Results indicate that installing RHS for non-potable use in new single-family buildings is neither profitable nor financially viable in the Lisbon area, unless these projects are subsidized.

**Keywords:** Rainwater Harvesting Systems (RHS); Profitability Analysis; Investment Project; Profitability Criteria.