

## Contribution of rooftop rainwater harvesting to the water supply-demand balance in London

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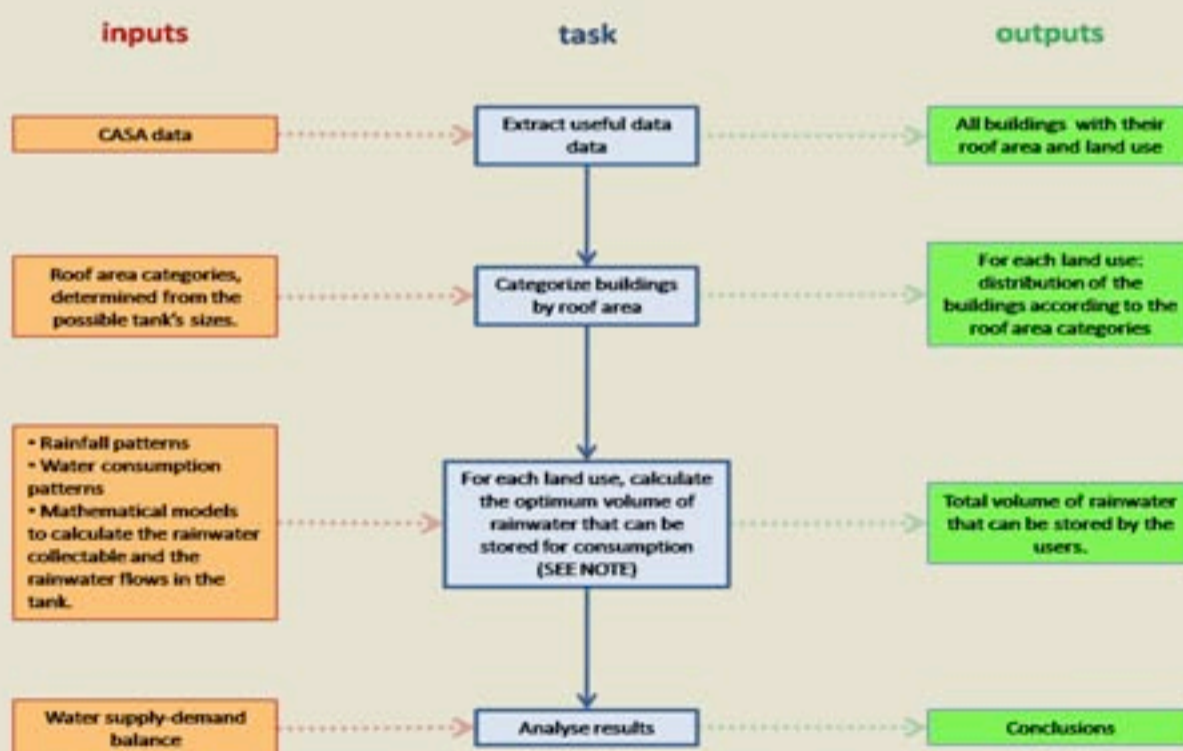
### Introduction

Climate change is not only affecting water demand and supply in urban areas, but also increasing rainfall variability. Although the average rainfall in London is only 600mm a year, rainwater harvesting (Caption 1) seems a sustainable alternative to alleviate water supply problems.

Therefore this work has the aim to evaluate the impacts of rooftop rainwater harvesting on the water supply-demand balance in the city of London.



Caption 1: Schematic of a typical rainwater harvesting system (source: www.swiftps.com)



Caption 2: Model flowchart

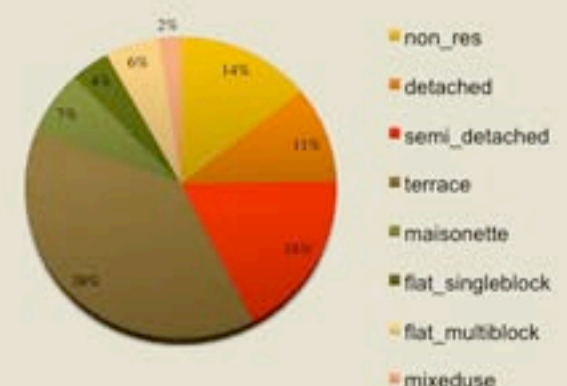
### Methodology

The methodology used in this work is presented in caption 2. For this study it has been used geospatial data from CASA that correlate the land use with the physical structures. The model distributes all these structures according to roof area categories, in order to allow the calculation of the optimum volume of rainwater that can be stored for consumption in tanks. This volume is then used to quantify the potential contribution of rainwater harvesting to the water supply-demand balance in London.

NOTE: The initial method assumes that 60% of the rainwater collected from the roof is stored in the tank as it considers overflows and insufficient demand (EA UK). For model improvement, a more precise method will be used: it calculates the daily volume of rainwater flowing in and out the tank and requires daily rainfall patterns and water consumption patterns.

### Partial Results

Caption 3 shows the composition of the rainwater that can be stored for consumption in London. The total volume was found to be 122 MI/day, which represents about 9% of the current water consumption in London.



Caption 3: composition of the volume of rainwater that can be stored (122 MI/d)