**Problem Statement**

**Problem:**

Currently, for roof top rain water harvesting, people install water storage tanks individually per building/apartment which results in high cost for individuals/groups.

***Research Gap:***

*No mechanism/application is available to find out where such installations are beneficial, which installations can share storage tanks and what would be the required capacity of these shared tanks.*

*Given map and housing data, optimize the location of centralized tanks for rain-water harvesting.The following data should be sufficient to design and implement a model to solve the problem:*

1. **Estimating rainwater harvesting capacity:** 
   1. **Rainfall estimation:** Historical data from rainfall gauges at different places in the target area. {Mainak}
   2. **Catchment area:** Master plan of the city to estimate the catchment area available, e.g open areas like rooftop, courtyard, etc. {Akhil}
2. **Optimizing Water tank placement:** 
   1. **Water demand/Use capacity:** Water supply data can be used to estimate the consumption of harvested rainwater for non-drinking purposes
   2. **Underground map:** Underground map with **stability study** to **identify** **locations** where the **shared tank** can be built. The system should provide the following output from its analysis:
      1. ***Plan for laying out the underground tanks with input and output points defined***
      2. ***Cost-benefit analysis justifying the plan***

3. Plan for distribution of build and maintenance cost of a tank for the parties involved