**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.

[LSTM time series based prediction model] Ref ……

* 1. **Catchment area:** Master plan of the city to estimate the catchment area available, e.g open areas like rooftop, courtyard, etc.

1. **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

Upfront Capital Investment [Who will invest]

* Real Estate Companies in their housing project, or
* Municipality

Maintenance Cost [How to recover]

Recovered from user/households in the form of monthly rental /society maintenance charge.

Why to invest:

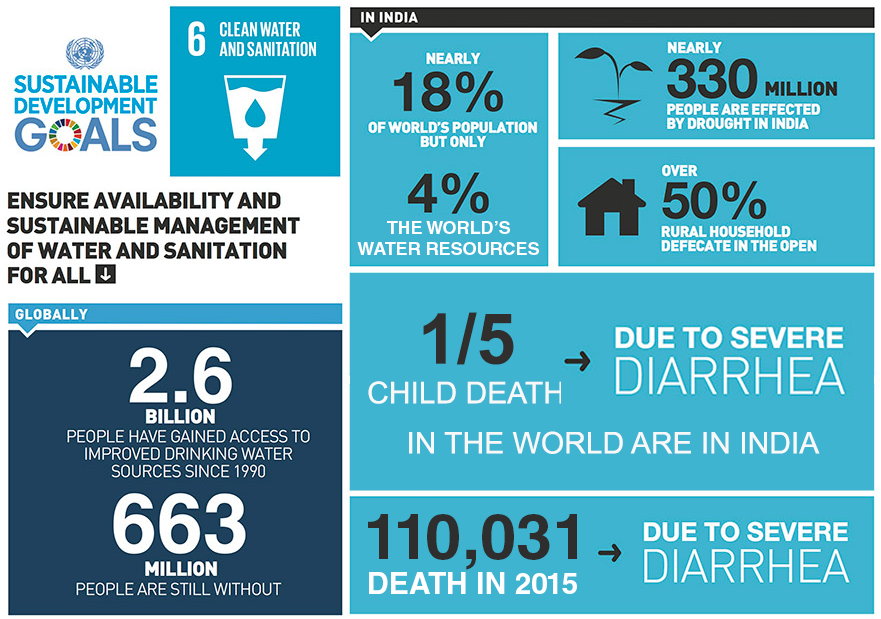


Fig: Sustainable Development Goals, UNGA 2015

Source: http://in.one.un.org/page/sustainable-development-goals/sdg-6/

Economical Motivation

* India has nearly 18% world population but has access to only 4% of the world’s water resources
* As a growing economy presents a huge market for providing water resources and water management services to the population

Ecological Motivation

Break-Even point: Based on the above assumptions, the upfront cost will be recovered in x years and after that project starts giving return on investment.

Analysis shows that, it will benefit the municipality/water supply body in terms of revenue, expanding their service base and ecological benefits are always their.

Future Scope

An app solution could be used to keep track of water consumption and accordingly the slabs could be designed and charged as per their usability.

Both global research and analysis of our customer data proves that communities that have implemented individual metering have reduced their overall water consumption by 35%. Besides, they also save energy costs as lesser water than before is pumped to overhead distribution tanks. Less consumption also means less waste water resulting in multi pronged savings.