Project Title: Efficient Water Quality Analysis & Prediction using Machine Learning **Project Design Phase-I - Solution Fit Template** **Team ID:** PNT2022T2022TMID21280

Define CS, fit into CC

1. CUSTOMER SEGMENT(S)

CS

Public peoples and Governmentt sector Authorities,Domestic,Industrial Users

6. CUSTOMER CONSTRAINTS

CC

Sustainability of infrastructure. The resources in terms of finan as well as manpower are inadequate. Analysis results needs in-depth validation. Low flow and no flow conditions prevail during summer months at number of locations. Lack of training for data management and statistical tools. Lack of software to analyse the data for trend analyses and data validation

5. AVAILABLE SOLUTIONS

AS

We conduct the water quality assessment to measure concentration of the constituents in quantity for characterization of water for different uses

Advantage:Flexiblity ,Cost-Effectiveness,Potential to Reduce Nonpoint Source Pollution

Disadvantage:Uncertainty Can Cause Low Trading Volume,Potential for Pollution Hotspots,Imperfect Modeling of Nonpoint Source Pollution

Explore AS, differentiate

Focus on J&P, tap into BE, understand RC

2. JOBS-TO-BE-DONE / PROBLEMS

J&P

How the quality and quantity of water in a water body relate to the requirements of users. How the quality and quantity of water in a water body relate to established water quality standards.The capacity of the water body to assimilate an increase in waste discharges without causing unacceptable levels of pollution. Whether or not existing waste discharges conform to existing standards and regulations.

9. PROBLEM ROOT CAUSE

RC

To meet the objectives and goals, highly selective network of strategically located monitoring stations is created and operated in the major, medium and minor watersheds of rivers, lakes, ponds, tanks, creeks, drains, canals and subsurface aquifers in the country. Three types of monitoring stations are set up for monitoring i.e. baseline, trend and impact or flux stations

7. BEHAVIOUR

BE

Directly related:Analysis the water quality model,verify about benefits;
Indirect associated:Add more samples to predict appropriate analysis on water quality.

Focus on J&P, tap into BE, understand RC

3. TRIGGERS

TR

user can **concentrations that, if exceeded, would indicate a potential environmental problem**, and so 'trigger' a management response", such as further investigation and/or remedial actions.

10. YOUR SOLUTION

SL

To removing unwanted micro organisms ,ph level of water, Hardness, Solids, Chloromines, Sulfate, Conductivity, Organic Carbon, Trihalomethanes, Turbidity were the parameters. To depict the water quality, these parameters are used as a feature vector as prediction purpose.

8. CHANNELS of BEHAVIOUR

CH

8.1 ONLINE
User do data preprocessing, data splitting model training and testing, and results evaluation

8.2 OFFLINE
Collecting sample for test

4. EMOTIONS: BEFORE / AFTER

EM

Before:There are risks to use recycled water for drinking
After:I am comfortable with drinking recycled water.