ISE 1
Idea Presentation
By

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Presentation Outline

- Problem statement
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Name of Problem Statement

Rain water Harvesting

Who

Who is the target users?

The target users of rainwater harvesting are households, businesses, and communities:

1)Commercial:-The commercial sector is the largest market share for rainwater harvesting systems. Businesses in many industries, like hospitality, manufacturing, and offices, are adopting rainwater harvesting to reduce their reliance on municipal water supplies.

2)Residential:-Rooftop and ground systems are used for residential applications, with rooftop systems having the largest market share.

3)Agricultural:-Farmers and large cultivators use rainwater harvesting to store water for irrigatio which is necessary for maintaining crop yields and dealing with climate calamities like drought.

Who are the track holders involved?

Small farmers, especially those farming on hillsides, could benefit the most from rainwater harvesting because they are able to capture runoff and decrease the effects of soil erosion.

What is the purpose of rainwater harvesting? What

The purpose of a rainwater harvesting system is to capture, store, and use rainwater for various purposes, such as:

- Conserving water:-Rainwater harvesting reduces the demand on the municipal water supply.
- Improving groundwater quality:-Rainwater harvesting recharges groundwater and improves its quality.
- Reducing flooding:- Rainwater harvesting reduces the flow of stormwater and the chances of flooding.
- Reducing soil erosion:- Rainwater harvesting reduces surface runoff
- Being cost-effective:-Rainwater harvesting is a cost-effective alternative to other water recycling methods.

What Features and functionality requires?

A rainwater harvesting system requires several features and functionality, including:

- Collection:-A collection area, such as a roof, to capture rainwater
- Conveyance:-A system of pipes and gutters to move the rainwater to the storage system
- Storage:-A storage tank to hold the collected rainwater
- Filtration:-A filter to remove pollutants from the rainwater
- Overflow:-A drainage spout to allow excess water to drain if the tank is full
- Controls:-A system to monitor the water level and filtration system
- Treatment:-A system to treat the water to make it potable or non-potable
- Pump:-A pump to move the water to where it Will be used
- Water level indicator:-A device to monitor the water level in the storage tank

When

When will the rainwater harvesting be released?

The next rainwater harvesting campaign, Jal Shakti Abhiyan: Catch the Rain (JSA:CTR) 2023, was launched on March 4, 2023. The campaign is an annual initiative by the Government of India to improve water availability.

When will updates and New features be added ?

Here are some recent updates and new features in rainwater harvesting:

1)Jal Sanchay, Jan Bhagidari (JSJB): The Indian government is planning to build one million rainwater harvesting structures, including check dams, percolation tanks, and recharge wells, across water-stressed districts. The initiative aims to enhance groundwater replenishment.

2)Smart rainwater harvesting systems:These systems use learning algorithms to create various storm scenarios and provide real-time control for rainwater management. IoT devices are integrated into barrels or large tanks.

3)Sensor-based and automatic first washing rainwater collection system:This system was developed to reduce water shortage in mega cities.

4)Real-time rainwater harvesting system:This system reduces the risk of urban floods and forms an additional water source in the city.

5)First-flushing:This device ensures that runoff from the first spell of rain is flushed out and does not enter the system.

When will users testing be connected?

Users should test the water quality of a rainwater harvesting system regularly, as required by local ordinances:

1)Frequency:An approved professional should test the water quality annually or at a frequency required by local regulation.

2)Importance:It's important to assess the quality of the collected water before use because it can contain chemical and microbiological contaminants that pose a health risk.

3)Maintenance:The community is responsible for maintaining the system, including cleaning the water tanks, inspecting the storage tank, and monitoring the filtration system.

4)Power supply:The system may use conventional power sources or alternative sources like solar systems.

5)Water level:Monitor the water level in the storage tank and ensure the indicator is working.

6)Backflow preventer:Ensure that the backflow preventer is in place to prevent water from flowing under negative pressure.

Where

Where will users be interesting with the rainwater harvesting?

Users are interesting with rainwater harvesting while they collect rain water at home and their farms.

Where the rainwater harvesting system is available for collect the rainwater?

Rainwater harvesting systems can be used in many places, including:

1)Residential buildings:-Houses, apartments, and condominiums can use rainwater harvesting to collect water from roofs for household use.

2)Community and institutional buildings:-Schools, hospitals, community centers, and other public buildings can use rainwater harvesting for non-potable uses like irrigation and landscaping.

3)Agricultural and rural areas:-Farmers can use rainwater harvesting to capture and store water for crop irrigation during dry spells.

4)Other places:-Rainwater harvesting systems can also be installed in villas, multi-storey buildings, government buildings, industries, factories, mills, IT parks, hotels, restaurants, resorts, swimming pools, and stadiums.

Where is the rain water harvesting primary user base located?

Rainwater harvesting is used in many places, including rural areas, urban areas, and other countries:

1)Rural areas:-In India, rainwater harvesting is a traditional method that allows people to survive in areas with water scarcity.

2)Urban areas:-Rainwater harvesting can help reduce flooding and conserve groundwater resources.

3)Other countries:-Rainwater harvesting is a common practice in countries like Australia and Germany. In South Africa, it helps replenish groundwater and rivers, and improves sanitation. In China, it helps conserve water resources and reduce water shortages.

How

How will users engage with rainwater harvesting system?

Users can engage with a rainwater harvesting system in several ways, including:

1)Collection:-Users can collect rainwater from a catchment area, such as a rooftop, courtyard, or paved or unpaved ground.

2)Storage:-Users can store the collected rainwater in a tank, barrel, cistern, or underground reservoir.

3)Filtration:-Users can filter out any debris, leaves, or other contaminants before storing the rainwater.

4)Distribution and use:-Users can distribute and use the stored rainwater for a variety of purposes, such as irrigation, flushing toilets, washing clothes, or even drinking water.

5)Monitoring:-Users can use smart water technology to monitor and manage their water harvesting systems. This can include using water tank level indicators to gain real-time insights into their water reserves.

How will the Rainwater harvesting system usual element be structured?

A typical Roof-top Rainwater Harvesting System comprises of : Roof catchment • Gutters • Downpipes • Rain water/Storm water drains • Filter chamber • Ground water recharge structures like pit, trench, tubewell or combination