An Investigatory Project for CBSE Regional Level Science Exhibition

Sub-Theme: Energy

Title: Utilization of discarded water from domestic RO System

Background/Principle of investigation

Reverse Osmosis is commonly used to purify drinking water. On passing water through the RO system membrane, larger molecules of some dissolved solids as well as a portion of the water that does not pass through it are discarded. Most RO systems discard 4-5 liters of water to obtain only about 1 liter of filtered water. This rejected water is directed straight to drains. This rejected water needs to be diverted and should be utilized.

Unique Points of investigations

- Comparison of unfiltered normal water and discarded water from RO based on certain parameters like-TDS count, PH, presence of heavy metals, organic contaminants.
- Fitness status of the discarded water to check that whether it can be used for purposes other than drinking and cooking.
- Feasibility of diluting discarded water by mixing it into the main supply of water.

Methodology

- Chemical-testing for presence of heavy metals and other organic substances.
- TDS (total dissolved substances) count by using TDS meter.
- PH testing

Scope and Use of investigation

- Investigation will evaluate draining out of RO reject water and justify its mixing to main water supply.
- It can be made mandatory to the RO manufacturers and or buyers to divert RO reject water for useful purposes with in safe limits.
- Ways can be established to filter discarded water and utilize it for ground water recharging.
- This would be a great step towards conservation of water.