

‘SOLUTIONS REQUIRED TO ADDRESS CHALLENGES FACED IN CLEAN WATER SUPPLY’

Abhishek Tewari¹, Roshan Rai², Adil Khan³, Rajeev Singh⁴

^{1, 2, 3} UG Student, Department of ECE, BBDITM LUCKNOW, INDIA,

⁴Assistant Professor-Department of ECE, BBDITM LUCKNOW, INDIA

ABSTRACT – This Paper presents the Problems, Challenges, Solutions, Real life examples, Project Prototypes in the unified goal of supplying clean and safe drinking water.

KEYWORDS: Water Crisis, Pollution, Rainwater Harvesting, RO Water Filter, Delivery Cost.

I. INTRODUCTION

Drinking water is a basic requirement for life and a determinant of standard of living. However, besides government efforts, supply and demand side factors of both surface and groundwater determine the level of drinking water available to people. The supply and demand factors increase with the natural and human factors like pollution. This limits drinking water supply provision and raises the delivery cost.

II. CHALLENGES

More than 2.8 billion people will be living in either water-scarce or water-stressed regions of the world by 2025. Nearly 2 million people—the vast majority children under five—die from diarrhea each year, and nearly 90 percent of diarrhea is attributed to unsafe drinking water, inadequate sanitation, and poor hygiene. 95% of wastewater around the world is discharged into the environment without treatment.

III. SOLUTIONS

- Rainwater Harvesting
- Reducing Delivery Cost
- RO Water Filter
-

IV. WHY CLEAN WATER?

Decline in groundwater table and availability of surface water, particularly in summer months, has put large number of people in risk for drinking water. Poor water quality problem has also been observed in more number of habitations. In general, water stress is greatest in areas with very low precipitation (major deserts), large population density (like India & China) or both, water scarcity is also highest in these areas.

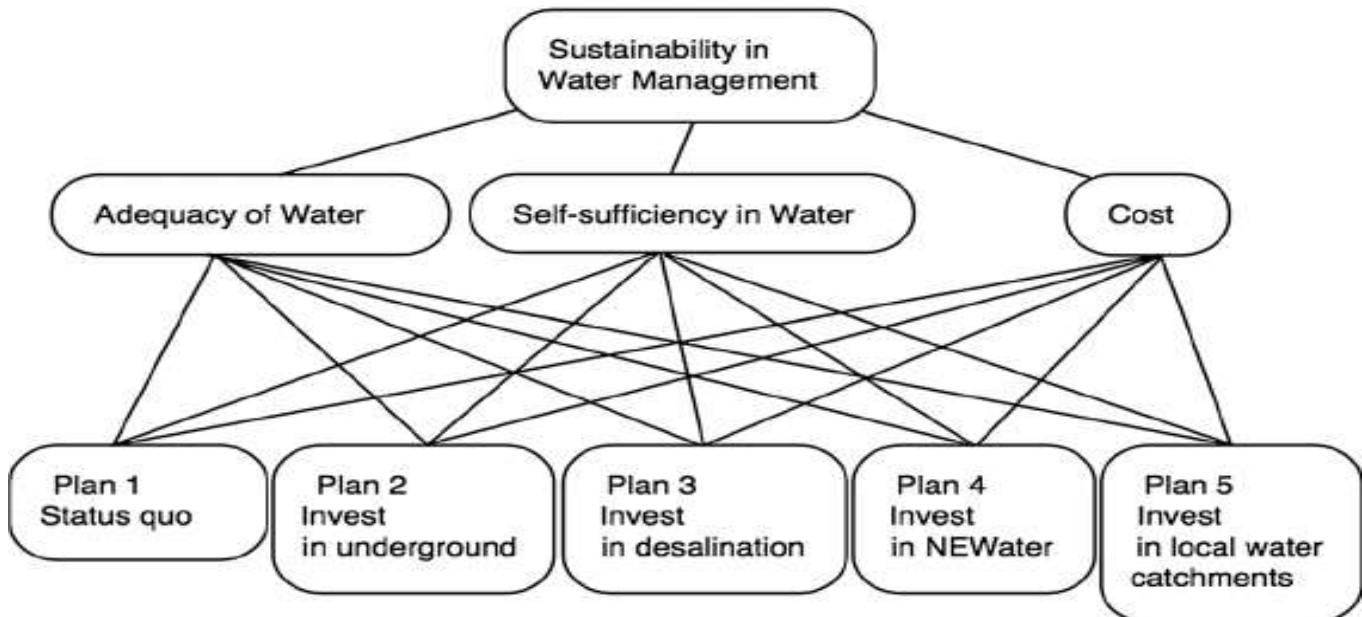


Figure 1.1 Hierarchy of sustainable water resources management

The figure shows the main processes and useful techniques in water preservation.

V. COMMUNICATION

The communication between seller and consumer is most important, the idea of providing cheap and clean water should be understood by each and every individual from high class to low class then only it can work, so communication is very important.

VI. METHODOLOGY

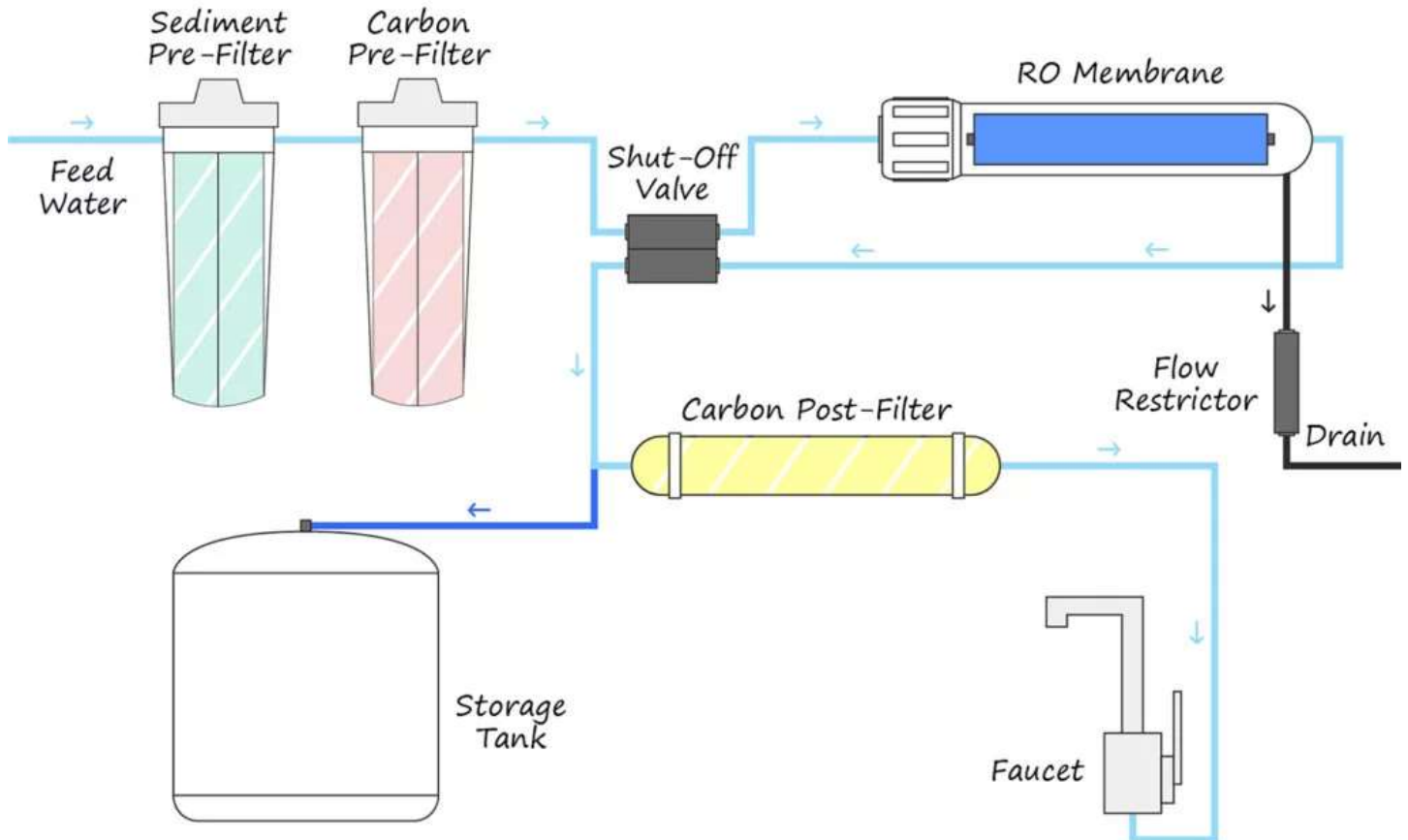


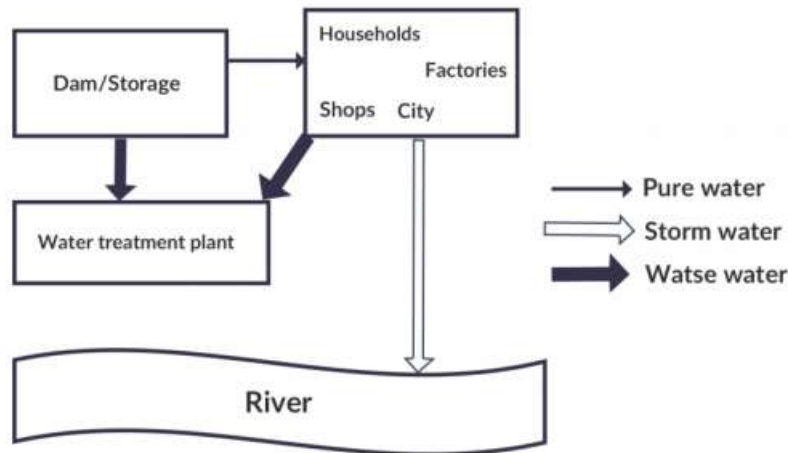
Figure 1.2 Design of RO Water Filter

RO WATER FILTER

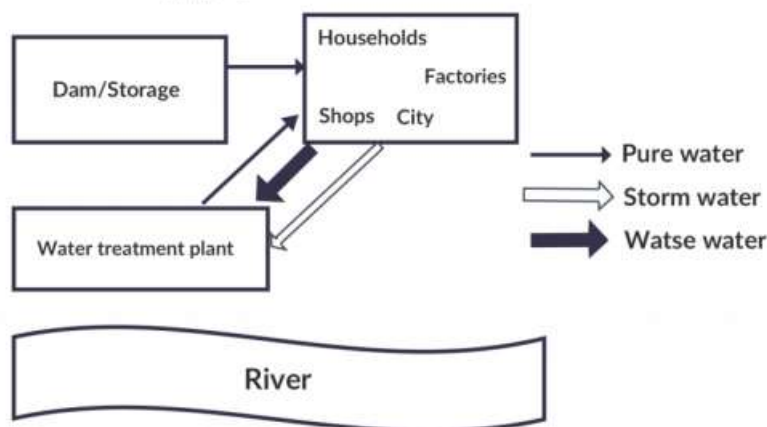
RO stands for reverse osmosis it is an integral and most important part of water filter.

- It is mainly divided into five parts.
- 1st is SMPS or switch mode power supply.
- 2nd one pressure switch.
- 3rd one is booster pump.
- 4th is solenoid valve.
- 5th is float switch or valve

Present water supply



Future water supply system



The water treatment plant can now be modified by miniature water treatment plants like RO Water Filters in every home.

Cheap and affordable RO will make life of every individual healthy, and healthy mind make healthy society.

Question Rises,

Is it okay to buy a unbranded RO?

Yes, if it has these 7 stages of filtration

Pre Sediment Filtration

Post Sediment Filtration

Pre Carbon Filtration

RO Filtration

UV Filtration

Post Carbon Filtration

UF Filtration

Figure 1.3 Block Diagram of water supply network

VII. Main Goal of Process

- The main goal is to provide RO water filters in every household.
- Making water filter cheap and affordable should be a priority.
- Educating people about necessity of water purifiers.
- Initial and setup cost should be low.
- Developing awareness about diseases which could happen as a result of not drinking clean water.

VIII. QUALITY

Quality of water is very important that's why -

- RO should have 7 stages of filtration.
- UV membrane should be checked regularly.
- Censors in rainwater harvesting should be absolutely accurate.

IX. IMPLEMENTATION

Implementation means to implement the process and make RO a household product, for that

- Cheap and affordable design.
- Very low initial and setup cost.

X. CONCLUSION

Our effort behind making this project is to make sure every individual gets clean drinking water, especially the poorer people they really need to know the importance of clean drinking water in our lives. To make this possible awareness is very important about the diseases we can get because of unhygienic water. Cheap and affordable RO are the future.

XI. FUTURE

- 1) Making people healthier will contribute to healthy society.
- 2) Diseases would be stopped after providing clean drinking water.
- 3) The setup would be useful even if the location is changed.

XII. REFERENCES

- 1) Bangalore Water Supply and Sewerage Board (BWSSB) (2001-02), Annual Performance Report, Bangalore
- 2) Census of India (2001), 'Tables on Houses, Household Amenities and Assets', Registrar General of India, Government of India
- 3) United Nations Development Programme (UNDP) (2003), Human Development Report 2003: Millennium Development Goals - A Compact Among Nations to End Human Poverty, published by UNDP.
- 4) Rajasekar D. (2003), 'Roles of Rural Local Organizations', research project report at the Institute for Social and Economic Change, Bangalore.
- 5) Rajamarthanda (1998), Behavior of Depth to Water Level between 1978-97 in Karnataka State, Department of Mines and Geology, Bangalore.
- 6) Puttaswamaiah S and Shashanka Bhide (2004), 'Grama Panchayats and Basic Public Health Services: Expenditure Analysis in Two Districts of Karnataka', project report 'Restructuring Local Environment Management for Better Health Outcomes: Towards A District Pilot in Karnataka', Institute for Social and Economic Change, Bangalore.
- 7) Government of India (2002), The National Water Policy, Ministry of Water Resources, New Delhi.