



!! पढमं नाणं तओ दया !!

SHRI JAIN VIDYA PRASARAK MANDAL
COLLEGE OF EDUCATION

ESTD 8/9/1927

Fattechand Marg, Chafeker Chowk Chinchwad, Pune 411033. Tel.: 020-27352274,

APPROVED BY NCTE, GOVT. OF MAHARASHTRA & AFFILIATED TO SAVITRIBAI PHULE PUNE UNIVERSITY

NCTE CODE- 123228/2015

SPPU ID CODE: PU/PN/B.Ed./240/2006

Website: www.sjvpmcoe.in

Email: sjvpmbed@gmail.com

Dr. Kothawade P.L.

(B.Sc. , M.A. , M.Ed. , Ph.D.) , Principal

Ref.

Date :

**7.1.4 INSTITUTION HAS WATER MANAGEMENT AND
CONSERVATION INITIATIVES IN THE FORM OF**

- 1. RAIN WATER HARVESTING**
- 2. WASTE WATER RECYCLING**
- 3. RESERVOIRS/TANKS/ BORE WELLS**
- 4. ECONOMICAL USAGE/ REDUCED WASTAGE**

**DOCUMENTARY EVIDENCE IN SUPPORT OF THE
CLAIM**



CERTIFICATE OF COMPLETION

This is to certify that


Shree Jain Vidya Prasarak Mandal, College of Education, Chinchwad has successfully completed detailed energy Audit in month of June 2024. The study was conducted by Enertek Solutions India Private Limited. Institution has agreed to implement the energy saving measures for reduction in energy consumption.



Thanking You,

Anand Dande (CEA – 29574)
Director
Enertek Solutions India Private Limited
Pune – 411 002




PRINCIPAL
Dr. Kothawade P.L.
Shri Jain Vidya Prasarak Mandal
College Of Education (B.Ed)
Chinchwadgaon Pune-33

Report on Energy Audit for Shree Jain Vidya Prasarak Mandal, College of Education

by:

**Enertek Solutions India Pvt. Ltd.,
615 – B, Nana Peth, Nr. Parasi Agyari,
Pune – 411 002**

June 2024




PRINCIPAL
Dr. Kothawade P.L.
Shree Jain Vidya Prasarak Mandal
College Of Education (B.Ed)
Chinchwadgaon Pune-33

Acknowledgement

Team Enertek wishes to thank trust members and staff members of Shree Jain Vidya Prasarak Mandal, College of Education, Chinchwad and the ever-helping team members of administrative team. Team Enertek wishes to express their gratitude for all the help extended to our team members.


Team Enertek



Anand Dande – CEA 29754

BEE Certified Energy Auditor




PRINCIPAL
Dr. Kothawade P.L.
Shree Jain Vidya Prasarak Mandal
College Of Education (B.Ed)
Chinchwadgaon Pune-33

Chapter 7

Rain Water Harvesting:

The system of rain water harvesting is an integral part of any educational institution. This system helps to conserve the rain water and to use during the time of its desirable. This system helps the students to understand the basic concepts of rainwater harvesting system and their effective use in the real life.

It is seen that there is a natural slope at the Institute campus, such natural slope can be used to take the water through some specific path and absorb under the ground. There is one empty bore well in the Institute campus, such empty bore well can be charged with the use of rainwater harvesting system. In addition to this some ring wells can be prepared and rainwater, gray waste water from all the building can be taken through some specific path in these ring wells and used to charge under the ground to maintain the ground level water.

7.1. Advantages of rain water harvesting –

- (a) Promotes adequacy of underground water
- (b) Mitigates the effect of drought
- (c) Reduces soil erosion as surface run-off is reduced
- (d) Decreases load on storm water disposal system
- (e) Reduces flood hazards
- (f) Improves ground water quality / decreases salinity (by dilution)
- (g) Prevents ingress of sea water in subsurface aquifers in coastal areas
- (h) Improves ground water table, thus saving energy (to lift water)
- (i) The cost of recharging subsurface aquifer is lower than surface reservoirs
- (j) The subsurface aquifer also serves as storage and distribution system
- (k) No land is wasted for storage purpose and no population displacement is involved
- (l) Storing water underground is environment friendly



Prepared by: Enertek Solutions India Private Limited


PRINCIPAL
Dr. Kothawade P.L.
Shri Jain Vidya Prasarak Mandal
College Of Education (B.Ed)
Chinchwadgaon Pune-33

7.2. Rain water harvesting potential –

The total amount of water that is received in the form of rainfall over an area is called the rain water endowment of that area. Out of this, the amount that can be effectively harvested is called rain water harvesting potential.

All the water which is falling over an area cannot be effectively harvested, due to various losses on account of evaporation, spillage etc. Because of these factors the quantity of rain water which can effectively be harvested is always less than the rain water endowment. The collection efficiency is mainly dependent on factors like runoff coefficient and first flush wastage etc. Runoff is the term applied to the water that flows away from catchments after falling on its surface in the form of rain.

Runoff depends upon the area and type of catchment over which it falls as well as surface features. Runoff can be generated from both paved and unpaved catchment areas. Paved surfaces have a greater capacity of retaining water on the surface and runoff from unpaved surface is less in comparison to paved surface. In all calculations for runoff estimation, runoff coefficient is used to account for losses due to spillage, leakage, infiltrations catchment surface wetting and evaporation, which will ultimately result into reduced runoff. Runoff coefficient for any catchment is the ratio of the volume of water that run off a surface to the total volume of rainfall on the surface.

The runoff coefficient for various surfaces is given in following table –

Sr. No.	Type of catchment	Coefficient
1.	Roof Catchment	
	Tiles	0.8 – 0.9
	Corrugated metal sheets	0.7 – 0.
2.	Ground Surface Coverings	
	Concrete	0.6 – 0.8
	Brick Surface	0.5 – 0.6
3.	Untreated ground catchments	

	Soil on slope less than 10 %	0.0 – 0.3
	Rocky natural catchments	0.2 – 0.5

Based on the above factors, the water harvesting potential of site could be estimated using the following equation:

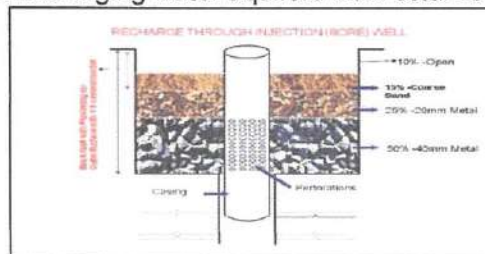
Rain Water harvesting potential = Amount of Rainfall x area of catchment x Runoff coefficient

7.3. Rain water harvesting methods –

- (a) Storing rain water for direct use
- (b) Recharging ground water aquifers, from roof top run off
- (c) Recharging ground water aquifers with runoff from ground area

According to the site of Institute the method of recharging ground water aquifers from roof top run off may be suitable. Recharging ground water aquifers from roof top run off. Rain water that is collected on the roof top of the building may be diverted by drain pipes to a filtration tank (for bore well, through settlement tank) from which it flows into the recharge well, as shown in following Figure. The recharge well should preferably be shallower than the water table. This method of rain water harvesting is preferable in the areas where the rainfall occurs only for a short period in a year and water table is at a shallow depth.

The schematic diagram of recharging water aquifers from solar roof top run off is as follows -




7.4. Existing Situation –

Institute has not Installed rain water harvesting setup at building. Enertek Recommends to install rain water harvesting setup.

Prepared by: Enertek Solutions India Private Limited




PRINCIPAL
Dr. Kothawade P.L.
Shri Jain Vidya Prasarak Mandal
College Of Education (B.Ed)
Chinchwadgaon Pune-33