

Subject code:EC801

Subject: Basic Environmental Engineering

By Dr. Prahlad prasad

Department of Civil Engg, NIT Jamshedpur



Rainwater harvesting

Collection of rain water from paved or GI corrugated roofs and paved court yards of houses either in storage tanks or in the ground water reservoir is known as **rain water harvesting**.

This technique for water conservation, where there is scanty rainfall and other sources of water (e.g. water table of under ground goes down during summer period) is also limited is best way to resolve water shortage problems.

Direct and indirect application of rain water has been an innovative approach in the recent past for meeting urban water scarcity problem solution.

Identification and quantification of rain water at annual basis is popularly known as Annual rainwater harvesting potential (ARHP).

AHRP can be easily compute for a given are by using the simple equantion

Annual rain water harvesting potential (AHRP)

$$\text{AHRP} = C.I.A$$

Where

C = Run off coefficient (% age)

A = Area in sqm

I = Annual rainfall in m

Problem: Calculate annual rain water harvesting potential from a house having the following data:

Total catchment are = 500 m^2

Roof area = 140 m^2

Paved area = 160 m^2

Kutchra area = 200 m^2

Average annual rainfall = 60 cm

Using:

$$\begin{aligned} \text{ARH} &= C.I.A. = [C_1A_1 + C_2A_2 + C_3A_3]I \\ &= [0.8 \times 140 + 0.7 \times 160 + 0.1 \times 200] \times 0.6 \\ &= 146.4 \text{ m}^3 \end{aligned}$$

Thank You

