Rain Water Harvesting(RWH)

Rain Water Harvesting Technique, Management& Planning Services

Rainfall is one of the most important natural resources. However, the rains appear for short periods in a year, and the amounts received may be less than enough for agriculture. In many dry areas, the number of rainy days in a year rarely exceeds four (4) in a year. Considering that one year has 365 days, this means that there is no rain for a period of 361 days!

Moreover, rainfall can be easily lost through runoff and evaporation. Thus rainwater is easily lost if it is not conserved. A farm with no conservation practices can loose up to 70% of rainwater (Figure 1)

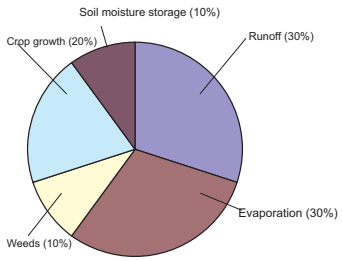

Figure 1: Typical case of semi arid areas

Rainwater harvesting is important in areas where water for various uses from normal sources (e.g. rivers, taps, wells) is unavailable or inadequate.

This situation can be caused by the following:
(i) Inadequate rainfall
(ii) Unfavourable rainwater partitioning (Figure 1)

WEMA has developed RWH methods/systems of collecting and storing rainwater for various uses before it is lost through evaporation or runoff. WEMA RWH methods/systems gives a flexibility for water to be stored and used in the same place or harvested from one place and stored in a different place later use.

WEMA approach to all RWH problems is simple and straight forward. Before undertaking the problem, thepurpose and mode of utilization is requested from our client. As far as our experience is concern, we have been able to undertake Rainwater harvesting projects for range of uses including:

1. Domestic use (drinking, cooking, washing)
2. Livestock
3. Crop production
4. Pasture improvement

Our recent break through on RWH was the positive results on our test project on:

5. Recharging of ground saline water reservoirs and washing saline aquifer to provide fresh water.

WEMA has recently managed to undertake and construct RWH structures for artificial Ground Water recharge (AGWR) and for Saline Aquifer Washing (SAWA) in boreholes. This approach is a powerful water resource management tool especially for the current fresh water demanding situation in semi arid areas. As groundwater regulations become more stringent, as demand for fresh water increases, and as environmental impacts become less acceptable, options of RWH for AGWR in areas with limited ground water recharge and high runoff, or RWH for SAWA in areas with saline aquifer will become increasingly important.

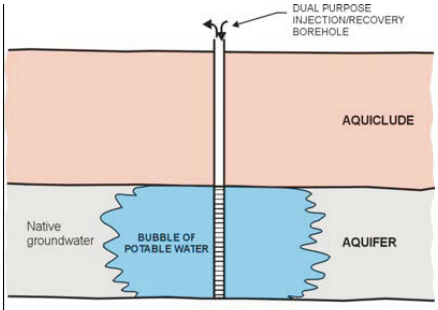

Figure 2 AQUIFER STORAGE RECOVERY (ASR)

Rain Water Harvesting

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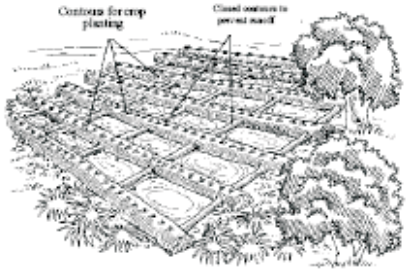
Roof harvesting



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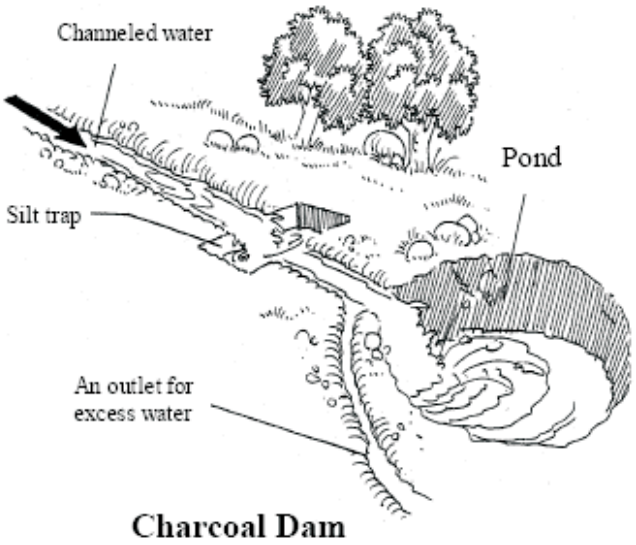
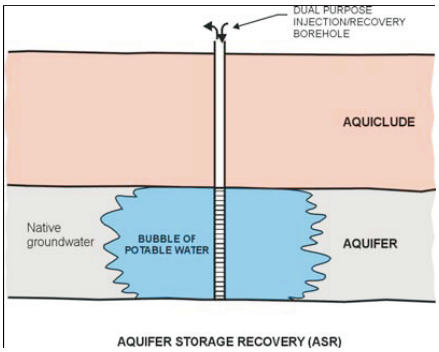


Charcoal Dam



AQUIFER STORAGE RECOVERY (ASR)