“Catch the Rain”-Shallow Aquifer Recharge’ Practical ‘RWH’

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RWH – Cost effective Terrain based Solutions

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Nature’s Gift - Rain

- Nature gives Abundant Rain
- The power of Soil to absorb Water is Enormous
- Let us feed the Mother earth , with Rain water ,
  in a distributed manner.
- Our Mother , will take care of our Water Needs for ever

Water Scenario - India

- **Our Country Receives Annual Average Rain fall of around 100 to 110 cm.**
- **(Utilization is around 08% of Rainfall)**

- **Most of our Cities need only, around 50 % of Rainfall falling on the City area.**

- **NWM Campaign : *"Catch the Rain , where it falls, when it falls"***

  by effective Rain Water Harvesting (RWH)

City Woes

The Flooded Roads in Rains

Thirsty Summers

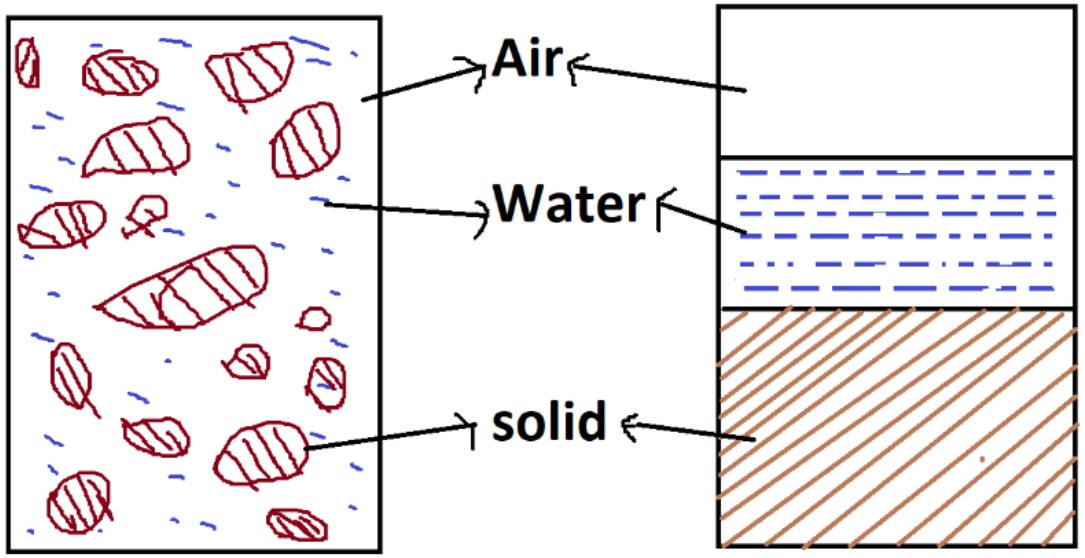
“Let us Recharge the Soil” with Rain water …..
Soil becomes the ‘Reservoir of Fresh Water’

Can Our Cities have its Own Water ?

Holistic Approach - Soil, Water, Vegetation – the Climate

- Soil is the largest reservoir of fresh water in our Planet Earth.
- Soil Holds 6 to 8 times fresh water of all River basins put together.
- ***"The soil is a living being "*** nurtures the Vegetation, Life giver for micro-organisms, Our Planet…
- Enabling the Positivity and Reducing the Impact of Climate change

Soil (3 Phase Diagram)



Soil (One Unit)

One Unit of Soil

Approx:

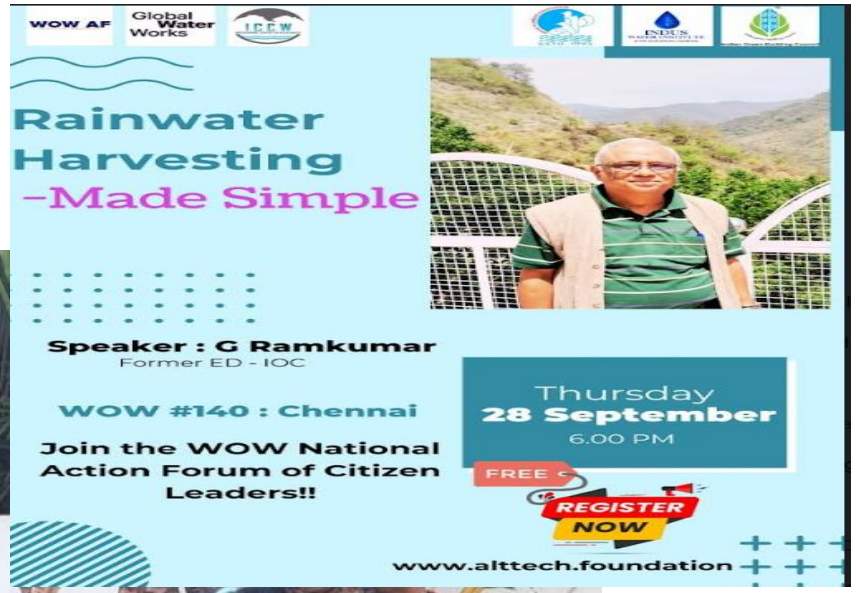
Solid Soil 50 %

Water 25 %

Air 25 %

(Varies with Soil Type)

Awareness ..... Joining Hands



Can we Recharge Rain at the Concrete Areas / Roads ?

Yes, We Can.....

The Soil itself is a “Shallow Aquifer” -

Enabling Natural Recharge to Deep Aquifers too

- **Mostly the present Storm Water Drains (SWD) are Conduits for carrying water from one place to another. Overflows during Rains too**
- **The implementation of “Rain Harvesting Storm Water Drains” (RH- SWD) with Micro Graded Gravel pits within the Storm Water Drains itself at Plots, Complexes, Industries, Societies, Muncipal /City Roads.**
- **Recharges & Gives Life to Soil . Reduces Road Flooding**

Implementations : Corporate Building (IndianOil, Chennai -2021)

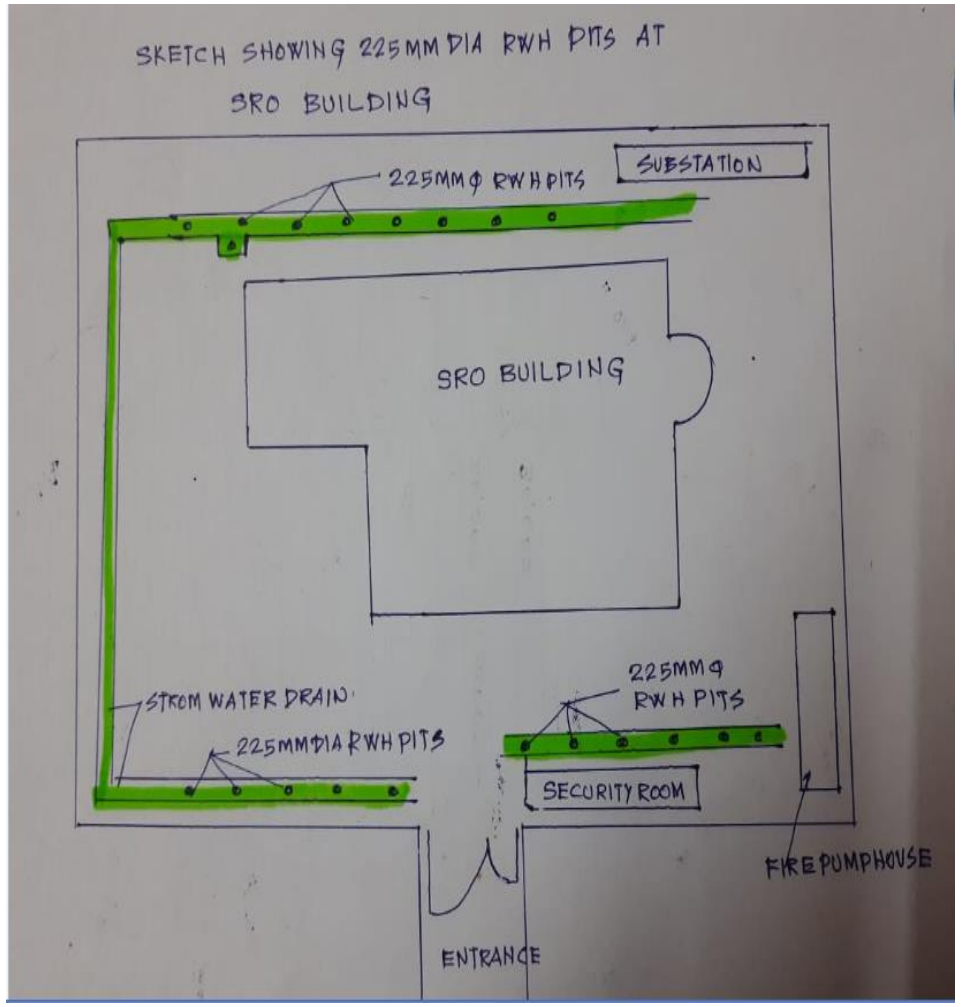
RWH : Water Positive Model & Holding Rain within the Plot

- Nungambakkam high road
- Area - 6500 sq. m.
- Quantity Rainfall - 9170 cu. m/yr
- Consumption 5400 cu.m/yr
- RWH Pits - 29 nos.
  - 9 inch dia. x 10 ft deep within Storm water drains plus tube well
- Recharge achieved
  - **~ 80% rainwater falling on the plot to ground**
- Benefits
  - **Purchase of 2 nos. tankers (approx. 20 cu.m /day) eliminated ie. about Rs. 1.2 lakhs/month**

Rain water recharge is greater than consumption ie. *Water Positive Model*

Rain Harvesting Storm Water Drains (at Concreted Areas)

Corporate Building (IndianOil, Chennai -2021)



RWH in concreted area - Use of Existing Storm Water Drains, Multiple Micro Graded Gravel Pits for Distributed Water Recharge .

Outcome – Water Demands met, Water Flooding Reduced

Micro Graded Gravel pits within the Storm Water Drains

Corporate Building (IndianOil, Chennai (2021)

Aesthetical Merging - Rain Harvesting Storm water Drains

Effective RWH.....No Water Logging

Corporate Building (IndianOil, Chennai -2021)

During Rains - Nov / Dec 2021

Surrounding Areas - Water Logged

IOC - Clean driveways - Rain Harvesting Storm water Drains, with Graded Gravel RWH Pits.

LPG Bottling Plant, Ennore, Chennai

(Yr 2000)

Pic yr 2024
Courtesy: IndianOil

Initially : Extremely Salty ground water
Area : 50 acres of land

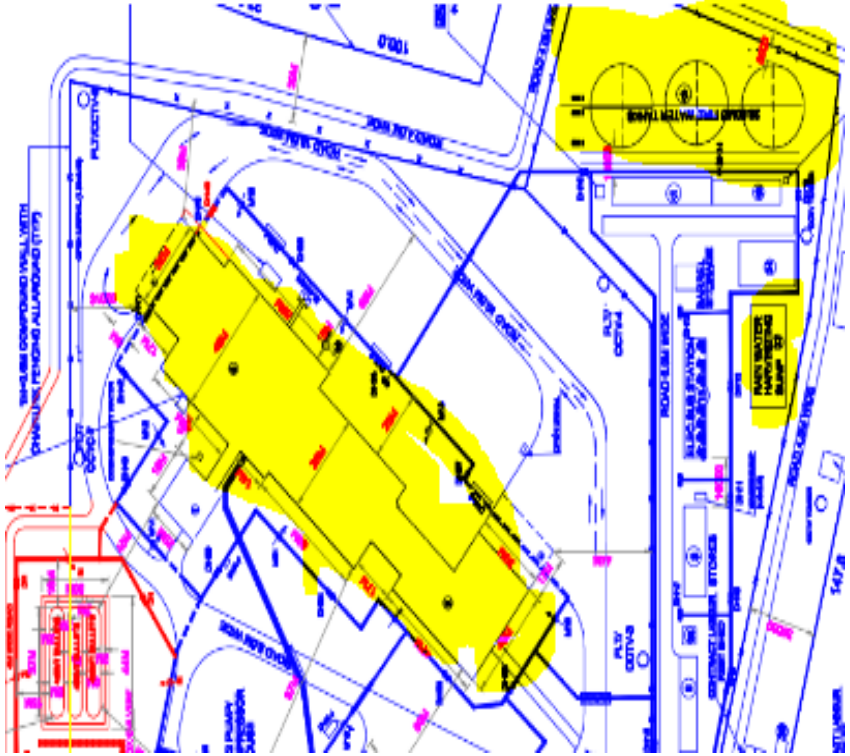
Roof Rain Water Catch, to meet water needs

RWH – improving Surface water to Service water quality.

After Implementation Outcome : A Lush Green Plot with water comfort

Roof Water Catch to ‘Lined Reservoir’

LPG Bottling Plant, Ennore, Chennai (yr 2000)



Filling shed roof (7,300 Sqm) with rain water down pipes to Channelise to the lined reservoir cap 3 Million litres (50m X 30m x 2m)

Direct Catching of Rain 10 million litres (10,000 Kl) per Yr Meeting 60% of the Plant’s Water Requirements

RWH – Graded Gravel Pits, Recharge Wells

LPG Bottling Plant, Ennore, Chennai (yr 2000)

Storm water drains are connected to Graded Gravel Pits & Recharge Wells (54 Nos) for Soil Recharge

Saline Ground Water (25,000 TDS) improves to
Service Water Quality (TDS < 500 ppm in Rains, < 1000 ppm in Summers)
A Plot in year 2000, without a drop of good water ,becames Water Comfortable

Graded Gravel RWH Pits (GGPs) at Open / Green Belt areas Holding maximum Rain Water within Plot

(Implemented At Many Sites)

Graded Gravel RWH Pits (1m x 1m x 2m deep) filled with Graded Gravel/Blue metal nominal size 50 mm at Lower half , 25 mm at Top half
(RWH Pits Dimensions Vary as per Site)

Outcome – Improved Water Table & Quality in the Area, Reduction in Water Logging.

Residential Complex - Rain Harvesting Recharge Cum Source Well (yr 2010)

Recharge Source cum Well - Roof /Terrace water channelised to Well
Outcome : Improved the earlier Saline Water quality (TDS 20,000 ppm) to Service Quality Water (TDS < 500 ppm Rains, < 1000 ppm in Summers)
Holding Rain water > 90% of the Precipitation inside the Plot

RWH Merging with Landscape

Source
Alive projects,
Thiruvanthapuram

Let Us Join Hands.....for water Comfort...

Harness The magic of Rain &
the power of Soil to Absorb Water ,

with Nature Based, distributed,
Practical cost - effective RWH Solutions

To Meet Our Water Needs for Ever....

Thank You

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