



Catch the Rain
Where It Falls, When It Falls

Campaign In Urban Odisha

Rainwater Harvesting Structures



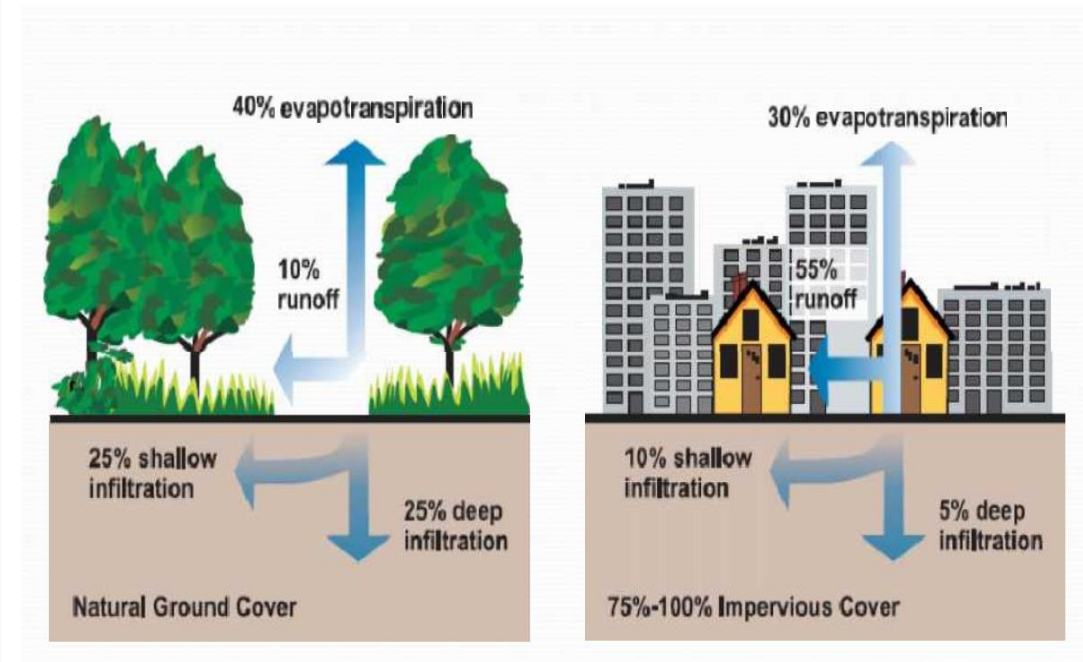
Catch the Rain Campaign in Urban Odisha through RWHS

Background

- Odisha is a Water surplus State with average annual rainfall of 1400 mm.
- Two Distinct Divisions: Highland Regions (Northern, Western & Southern Odisha) and Lowland Region (Coastal Odisha)
- Distribution of Rainfall in most part of the State is Uneven and Erratic (Rain-shadow regions in Western Part of the State)
- Runoff is very High in Urban areas (as high as 50 %)

Envisaged Benefits

- In-Situ Water Conservation and Groundwater Recharge
- Addressing Challenge of Water Scarcity in Cities in Highland Region
- Managing Floods in Coastal ULBs in Rainy Season
- Restoration of Urban Eco System



This initiative has been taken under "*Mukhya Mantri Karma Tatpara Abhiyan (MUKTA)*", a scheme to provide wage employment opportunities for the poor and needy people staying in urban areas of the State.

RWHS Campaign

MISSION

RWHS in all the 2035 Wards across 114 ULBs of the State of Odisha

PRIME OBJECTIVE

Water Conservation through Rainwater Harvesting and Groundwater Recharge

FOCUS AREAS

Public Parks, Playgrounds, Open space/Vacant land, Premises of School, College, Hospital and other Institutions.

TARGET

~ 10,000 RWHS before Onset of Monsoon

NAC: 5 RWHS/ Ward, Municipality : 10 RWHS/ Ward, Corporation : 20 RWHS/ Ward

TIMELINE

Commencement Date: 15th April 2021

Completion Date: 30th June 2021

(For a Period of 75 Days)

Highlights of RWHS Campaign Strategy

1

- Constitution of a Core team at the State level

2

- Orientation to 114 ULB level teams consisting of MC/EOs, Engineers and Professionals

3

- Setting of RWHS Target for the State (~ 10000) and ULB wise fixing of Targets
- 5 RWHS/ Ward in NAC
- 10 RWHS/ Ward in Municipality
- 20 RWHS/ Ward in Corporation

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- Mapping of 256 Engineers in all 111 ULBs and fixing Engineer wise target

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- Co-opting Community based Institutions (CBO) as Implementing Partners (WSHG & SDA)

6

- Standardisation of the Implementation Process for Up-Scaling &
- Preparation of Model Plan & Estimate for various Catchment areas

Highlights of RWHS Campaign Strategy

7

- Technical Training to 256 Engineers on Site selection and Preparation of Plan & estimate. To train as Master Trainers for CBOs and ULB teams

8

- Training to CBOs (~ 7600 SHG & SDA) on implementation of RWHS

9

- Selection of suitable and technically feasible sites for construction of RWHS

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- Issuance of work orders to Implementing Agencies (MSG/ALF/SDA)

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- Fund transferred directly to the accounts to SHG in 2 to 3 stages based on progress in a hassle-free manner. Mostly payment is done to workers on a weekly basis through DBT by Implementing Agencies

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- Upon completion Ward level committee verifies the works and gives a certificate in a prescribed format

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- Technical verification by Engineers of nearby ULBs as part of Third-party Verification. A Toolkit has been developed by State Core team for the Technical Verification process

RWHS IN PARK & OPEN SPACE TECHNICAL ASPECTS

Pre-Conditions of the Model

Groundwater Table should be more than 3 meter below Ground Level (1.8 mt. through Filter Media & 1.2 mt. through Natural Soil Surface)

STRUCTURE OF THE MODEL

1. Leading Channel of 0.6 mt. Depth filled with Sand and Granite Chips
2. Recharge Pit of 1.8 mt. depth filled with Sand and Granite Chips
3. Abandoned or defunct bore wells can be utilised as Recharge Pits
4. The spacing and number of Recharge Pits are decided based on porosity & permeability of soil below 1.8 mt., annual average rainfall, intensity & duration of rainfall.
5. **For average conditions, one recharge Pit of 1.2 mt. diameter and 1.8 mt. depth with 15 mt. leading channel are adequate for 250 Sq. Mt. of Catchment Area.**

RECHARGE MECHANISM

1. Partial Recharge of Rainwater from the catchment happens through Leading Channel
2. Surplus Rainwater received from the leading channel and rainwater from the area surrounding the Pit recharged through filled media
3. Sand layer acts as the filter media like any other conventional surface water filtration media. To support the sand layer broken granite chips are provided underneath the sand layer
4. The sand layer filters out and retains the suspended solids and provides a base for the grey/black blanket formed over the sand due to filtering of clay, silt and colloidal particles
5. The filter media in the leading channel and recharge pits act like porous membrane which allows partially filtered rainwater to reach the soil media interface
6. The underneath soil layer acts as a natural filter which facilitates micro filtration of rainwater before it reaches the groundwater table
7. Over a period, these grey/black reduce the recharge efficiency. These top sand layers are removed and replaced with new sand layers
8. **The removed sand layers are rich with organic nutrients may be utilised for filling the plantation sites in the Park and Open space area**

MODEL SELECTION AND ISSUES OF SUSTAINABILITY

THE CHALLENGE

1. Varied hydro-geological/subterranean conditions impede model creation
2. Techno-heavy models are difficult to execute, replicate and maintain
3. Prospect of maintenance and sustainability reduces without community participation

THE STRATEGY

1. Formation of Technical group to devise a simple terrain-neutral model
2. Identification of a model which involves least cost of maintenance and no technology
3. Execution and maintenance through community for capacity building and sustainability

THE PRODUCT








1. Model: Simple “Pit and Burrow” with porous lining and appropriate casing
2. Cost per unit : ~ ₹35,000/-
3. Execution Time: ~ 7 to 10 days
4. Technology involved: Nil
5. Maintenance: Cost effective and technology free (Just removal and replenishment of sand and pebbles annually or biennially)

THE OUTCOME

Achievement of milestone: > 10,000 RWHS in a record period of 75 days with community partnership without compromising efficacy or transparency

Progress so far

As on 26th July 2021

 Site Selection Completed:	14,806
 Plan & Estimate Prepared:	14,716
 Estimated Value :	70 Cr.
 Work Order Issued:	14,206
 MSG & SDA Engaged:	7,606
 Work Started:	13,304
 RWHS Completed:	12,056



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Kavisuryanagar







Media Coverage

Odisha Scales Height In Rainwater Harvesting, Builds 10K Structures In 75 Days

ଭାରତର ପୂର୍ବ ଉପକୂଳର ଅବସ୍ଥିତ ଓଡ଼ିଶା ଆମର ଦେଶର ଦକ୍ଷିଣ ଭାଗରେ ପରିଗଣିତ । ଏହା ଦେଶର ଓଡ଼ିଶାର ସରକାରୀ ଭାଷା ହେଉଛି ଓଡ଼ିଆ ଏବଂ ଏହାର ସରକାରୀ ଭାଷା ହେଉଛି ୧୨୦୦ ମିଲିନିୟନ ୧୮୦୦ ମିଲିନିୟନ ମଧ୍ୟରେ ବର୍ଷିକ । ଏହି ଓଡ଼ିଆର ଆକାରର ଦୃଶ୍ୟର ୧୪୦୦ ମିଲିନିୟନ ପରିମାଣ ବୋଲି, ଏହା ବିଶ୍ୱର ସର୍ବାଧିକ ଭାଗରେ ବ୍ୟବହୃତ । ଏହି ମଧ୍ୟଭାଗର ସେହିଭଳି ମଧ୍ୟରେ ମଧ୍ୟରୁ ଓଡ଼ିଆ ପ୍ରାୟ ୨୬%



THANK YOU