Rainwater Harvesting, FSM, DWWT in Sheohar and Nalanda Districts of Bihar

Impact Workshop
August 11, 2021

Vivek Sharan, Water For People
ABOUT WATER FOR PEOPLE INDIA

VISION

A world where every person has access to reliable and safe water and sanitation services.

MISSION

Lasting impact towards promoting reliable drinking water and sanitation services, accessible to all and locally sustained by strong institutions, government and private sector players.

Globally: Work in nine countries with the approach called ‘Everyone Forever’
Everyone Forever: 1.5 million people.
- Safe and Locally Sustained Drinking Water Services (Water Security): 14 million people

Safe Sanitation Services and Sustaining Behaviour Change in Sanitation

Cross-Cutting themes: Pilots and Innovations; Behavior Change Communication, Institution Building; Gender and Social Inclusion; and Decentralized Monitoring

Sustainable Sanitation at Scale through Market System Development (Rural Latrine Building approach and Fecal Sludge Management):

In Bihar we are working in Sheohar and Nalanda district to improve the quality of life for the people in the district through access to safe and reliable drinking water and sanitation with “Everyone Forever” approach.
Organizational Achievement after training in Bihar
(Rooftop Rainwater Harvesting, Liquid waste Management & FSM)
CSE association

• Training attended at CSE
  • a) Planning & Designing of Rainwater Harvesting systems, February 2021
  • b) Faecal Sludge Management & DWWTs, December 2019

• Impact project
  • Project Sheohar (2018) and
  • Mission Paani, Nalanda (2021),
  • Local CSO partners, Government and community
Presentation Flow

• Making Water Everyone's concern – Organization, Government, Community

• integrated approach of RWH and grey water recycling

• Making FSM in Forefront

• SFD

• Way Forward
Staff orientation on RWH & SLWM
Meeting with Block official - Rajgir & Biharsharif
Meeting with Community

Capacity Building Training of Farmers

Workshop with PRI member
Request Letter for Development of RTRWH System
The Design

Fabrication Grill of Rainwater Filter

Free Board for Storm Water

Activated Carbon for Impurities Arrest

60 mm, Ø Gravel
40 mm, Ø Gravel
25 mm, Ø Gravel
15 mm, Ø Gravel

Course River Sand
Fine River Sand

Activated Carbon for Rest Impurities Arrest

Cross Section of Rainwater Filter

Plan of Rainwater Filter

All Dimensions are in Meters.

Prepared By: Prakash Chandru Nayak, Civil Engineer-Water For People
SWR Plumbing work to catch the Rain & Filter system

Manual Filter system made with local available resources like (Overburn brick, Charcoal, Grable, Sand, Stone Chips) to filter the rainwater before storage
Rainwater storage and recharge

Under ground water storage Tank of 17000 Ltr Capacity to store the filtered Rainwater

500 Litter storage tank to lift and store the water from underground storage tank for drinking after filtration
Water Purifier system to reuse the water for drinking purpose
Increasing demand of Rooftop RWH System in Schools

<table>
<thead>
<tr>
<th>School Name</th>
<th>District</th>
<th>Block</th>
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</thead>
<tbody>
<tr>
<td>Govt High School Ranabigha</td>
<td>Nalanda</td>
<td>Biharsharif</td>
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<tr>
<td>Middle School Sathopur</td>
<td>Nalanda</td>
<td>Biharsharif</td>
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<tr>
<td>A.K.A High School Andwas</td>
<td>Nalanda</td>
<td>Rajgir</td>
</tr>
<tr>
<td>Middle School Andwas</td>
<td>Nalanda</td>
<td>Rajgir</td>
</tr>
<tr>
<td>Town High School Bihar Sahrif</td>
<td>Nalanda</td>
<td>Biharsharif</td>
</tr>
<tr>
<td>Adarsh kanya Vidyalaya, Sohsarai</td>
<td>Nalanda</td>
<td>Biharsharif</td>
</tr>
<tr>
<td>Middle School Haweli</td>
<td>Nalanda</td>
<td>Biharsharif</td>
</tr>
<tr>
<td>Middle School Skaraul</td>
<td>Nalanda</td>
<td>Biharsharif</td>
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Ward Wise GP Workplan for Liquid Waste Management, Sheohar

<table>
<thead>
<tr>
<th>Ward</th>
<th>Workplan Details</th>
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<tbody>
<tr>
<td>Ward 1</td>
<td>Water source identification and mapping</td>
</tr>
<tr>
<td>Ward 2</td>
<td>Waste segregation at source</td>
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<tr>
<td>Ward 3</td>
<td>Waste transportation</td>
</tr>
<tr>
<td>Ward 4</td>
<td>Waste treatment and disposal</td>
</tr>
<tr>
<td>Ward 5</td>
<td>Monitoring and evaluation</td>
</tr>
<tr>
<td>Ward 6</td>
<td>Community participation</td>
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<tr>
<td>Ward 7</td>
<td>Waste awareness and education</td>
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<tr>
<td>Ward 8</td>
<td>Waste reduction strategies</td>
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<tr>
<td>Ward 9</td>
<td>Waste management in emergencies</td>
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<tr>
<td>Ward 10</td>
<td>Waste management plan review</td>
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</tbody>
</table>
In Pilot GP - Basant Jagjivan of Purnahiya Block, under the leadership of ward member, community members collected INR 2250 for wastewater management for constructing waste water disposal cum recharge soak pit and initiated the work of one soak pit construction. Around 150 people were benefitted from this initiative.

Later with the facilitation of Water For People and initiation of ward members and community members, 3261 soak pits and 13705 feet of drainage cum recharge channel have been constructed with the support from Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) in GPs where VWSSP has been done till March 2021.

Soak pits have been constructed for wastewater disposal from water points and recharge of groundwater at the same time

APPROX. CALCULATION OF GROUNDWATER RECHARGE

HP extraction of water 6400 L. (6.40 Cum) Per day

Out of this about 2500 L. (2.50 Cum) per day going to soak pit helping recharge. i.e., the effective extraction per day is reduced to 3900 L per day per water point by proper management of water disposal
### Consultation Process for FSM in Sheohar

**Stakeholders Consulted as part of Situation Assessment**

<table>
<thead>
<tr>
<th>Elected Representatives</th>
<th>Service Providers</th>
<th>Citizens</th>
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<tbody>
<tr>
<td>Mukhiyas and Members of GP</td>
<td>Cesspool Operators</td>
<td>Households and Farmers</td>
</tr>
<tr>
<td>Government Officials</td>
<td>Sanitation Workers and Masons</td>
<td>SHG’s and NGO’s</td>
</tr>
<tr>
<td>District Magistrate, Sheohar</td>
<td>Financial Institutions working in sanitation</td>
<td></td>
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<td>Deputy Development Commissioner, Sheohar</td>
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<tr>
<td>EO of Sheohar Nagar panchayat</td>
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<td>Block Development Officers (BDOs)</td>
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<td>GP Secretaries</td>
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<td>District Water and Sanitation Committees</td>
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<td>Village Water and Sanitation Committees</td>
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Stakeholder Consultation

Consultation with DM
Consultation with Mukhiyas
Consultation with Households
Consultation with Households
Consultation with SHGs
Desludging Pattern in Sheohar Nagar Panchayat

Types of Desludging

- Non mechanised desludging: 9%
- Mechanised desludging: 91%

Desludging pattern

- Regular desludging (within 5 years): 0.5%
- Moderate desludging (5-10 years): 88.9%
- Low desludging (more than 10 years): 10.5%
- No desludging: 0.0%

Highlights

- ~66% HHs have constructed toilet in the last 4-5 years
- ~22% HH have never gone for desludging
- There could be huge demand of desludging in coming years
- Desludging requires breakage of structure
- 9% of households have undergone Non mechanised desludging.

“We are working in such hazardous environment, we should be provided with PPEs and annual health checkup should be arranged for us” – Sanitary worker, Sheohar
# Proposed intervention

**Faecal Sludge Treatment Plant (FSTP)**
- Clustering plan for GPs
- Estimation of land area and devise selection criteria
- Selection of treatment technology
- Preparation of DPR
- Construction of FSTP
- O&M model and approach for FSTP

**Cesspool Vehicles**
- Procurement of desludging vehicles considering access to narrow lanes
- GPS enablement of existing & new Cesspool vehicles
- Procurement of vehicles as per demand

- Area to be allotted for setting up of FSTP (1-2 Acres) based on clusters of different GPs
- To work out the affordable cost which can be bear by citizens to go for schedule desludging

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**Intervention Timeline**

- **Short term intervention** (0-6 months)
- **Medium term intervention** (6-12 months)
- **Long term intervention** (12-24 months)
### Awareness and Capacity building

<table>
<thead>
<tr>
<th>Access to toilets</th>
<th>Capacity building</th>
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<tbody>
<tr>
<td>Conversion from pits to scientific septic tanks</td>
<td>Capacity building of masons (Toilet construction and retrofitting)</td>
</tr>
<tr>
<td>At least one Public Toilet in each GP or each market</td>
<td>Building capacity of CBOs such as SHGs and Ward Sanitation Committees</td>
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<td>Drainage to collect overflow from containment system and grey water</td>
<td>Strengthened monitoring at community level of Ward Sanitation committee, CSTF and SHG</td>
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<tr>
<td>Providing Point of Purchases (POP) for procuring sanitary items</td>
<td>Capacitate GPs, Blocks, NP and district officials to increase their involvement</td>
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<td></td>
<td>Exposure visits to learn leading practices</td>
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- **Short term intervention (0-6 months)**
- **Medium term intervention (6-12 months)**
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Behaviour Change

- Motivate people to convert insanitary toilets to sanitary ones using incentive provided under SBM
- Disseminate information on OSS solutions available in market which are economical, retrofitable and quicker to implement
- Communication of harmful impact of non-mechanized emptying and indiscriminate dumping to relevant stakeholders
- Identify ways to increase penetration of information to citizens on mechanized emptying service providers
The concept of water security has wide intuitive appeal as it expresses the main goal of water management, which is to improve the quality of life for EVERYONE FOREVER.

THANK YOU..!!