Domestic wastewater
How we look at it
Meghalaya story
The scenario

Normal habits where wastewater is let off without any thought of how it could put the surroundings in danger or as how it could still be made use of.
The solution

- The domestic wastewater is allowed to percolate into the surrounding soil through a carefully constructed Soakpit.
- A soakpit consists of a pit dug into the ground of 1 cubic meter dimension filled with boulders of different sizes in different layers.
- The wastewater from the house is led into the lower end of the soakpit through a pvc pipe and the soakpit is fully sealed on the top.
Our practice: Soakpits are mandatory for ODF
Declaration by villages

A presentation at the Regional Workshop on SLWM at Sikkim on 7th September 2018

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The beginning and the pioneers

...way back in 2013
Initial interventions of soakpits for handwashing units in anganwadi centers and household toilets
Samples of simple soakpits constructed by families
The limitations encountered: 1

COMPLAINTS

Foul smell reaching back into the house from the inlet pipe
Blockage of the inlet pipe resulting Backflow of wastewater
Blockage of the inlet pipe resulting into overflowing of the pit

CAUSES:

Solid food waste particles like rice grains and others not screened properly thereby entering the pit and leads to emission of smell and blockage of pipe
Wastewater also contains lot of oils, fats and grease which when entered the pit leads to sealing of the wall of the pit
The Solutions: OIL & GREASE TRAP

A two chambered oil & grease trap unit is installed as primary unit to the soakpit.

A plastic basket sieve is kept on the first chamber to which the outlet pipe from the washing platform is allowed to fall.
Oil & grease trap: how it works and what is its utility.....
The limitations 2

The basket sieve gets blocked after prolonged use due to accumulation of grease and fats thereby sealing off the holes of the basket sieve resulting in households abandon the use of the soakpit.
The Solution: BIO - FILTER

A biomass porous material like betel nut husk, rice husk, grasses or dry leaves is placed in the basket sieve acting as a screening material which retains all the solid waste particles as well as the grease and fats thereby avoiding the problem of blockage of the pipe or the soakpit.
How it works
Limitation 3

The solution

- In certain district, the soil is of rocky structure
- Digging of pits may take days and weeks
- Absorption and percolation rate of the soakpit is very low
- An outlet pipe is inserted in the pit which serves as a safety valve for the wastewater to flow out of the pit
Further Options:
Planted Filters are the solution to the problem of rocky land as these will do away with the need of a soakpit. They are used in conjunction with the oil & grease trap. As it has been observed that the quality of the effluent from the oil & grease trap has fairly improved, its further treatment in a planted filter will render the final quality of the wastewater fit to be discharged in open drains.
Another Options: Possibility of non potable reuse of the domestic wastewater is being tried out with the use of a sedimentation tank considering the improved quality of the wastewater after being passed through the oil & grease trap. A sample of the treated wastewater is found fit for discharge in open drains as per Pollution Control Board Test Report.
In actual use by the families
Sustainability & Behaviour change

How the people maintains ...........
Adoption and Adaptations:
how the families improvised on it .............
Impact of Soakpit Interventions

Before

Oil Trap in construction

After

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Impact of Soakpit Interventions

Before

After
Resulting into visual cleanliness in the village
Hands – on Training to VWSCs

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– Technical details of the Improved Meghalaya Soakpit

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Highlights/Takeaway Points

1. The model of management of wastewater described herein is;
   - ‘an arrangement for safe disposal only’
   - Can be described as an Improved Soakpit
   - Can be referred to as the Meghalaya Improved Soakpit”

2. The biomass filter used in the oil & grease trap can be referred to as a “Bio – Filter”

3. For Meghalaya, use of betel nut husk is highly recommended as it is readily available in plenty in each and every house

4. The oil & grease trap is a highly critical and essential functional component of the domestic wastewater disposal system

5. The quality of the wastewater from the oil & grease trap is fit enough for open discharge or kitchen garden irrigation provided it is allowed to pass through natural grassland or swales before finally reaching water bodies

6. Further treatment of the discharge from the oil & grease trap in a mini sedimentation tank and a constructed wetland may render the quality of wastewater fit for non potable reuse.

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Highlights/Takeaway Points

7. The promising result of treatment of oil & grease free wastewater could contribute towards works of the Department in Jal Jeevan Mission by offering a viable user friendly wastewater treatment and reuse at household as well as community level.

8. The improved soakpit is a test of behaviour change for the people.

9. The mantra for us is “Adoption, Adaptation and Updation”

Key Challenges:

- Implementation of LWM due to SBMG Phase II Guidelines regarding funding norms, considering the topographical conditions, low population density and less nos. of households in the villages of our State with certain exception to the districts in plain belts.
Thank You