: SUCCESS STORY UNDER GENERAL SCHEME (FY-24-25) WEST JAINTIAHILLS DISTRICT

Success stories ofRCC Roof Top Rainwater Harvesting System

1. Project Area:DongmihsngiLocality

2. NameofProject: Conservation Works in Urban Areas.

3. TotalProjectCost: Rs 2,97,300.00

4. TypeofStructure: RCC Roof Top Rainwater Harvesting Storage Tank, two chamber filter tank of three layersfilter media, Polyvinyl chloride (PVC) Pipe of 2.5 mm in diameter, CPVC 3x4 inch.

5. Benefitted Beneficiaries: Dongmihsngi Dorbar Chnong and Dongmihsngi SSA LP School

6. GPS Coordinates- Latitude - 25.449692°

Longitude -92.202433°

TheDongmihsngiLocality is situated in Jowai, the district headquartersofWestJaintiaHills under Thadlaskein block district in the state of Meghalaya. The locality is inhabited by the Pnar community with 360households and a population of 1800approx. Majority of the people living here are entrepreneurs, owning businesses like food stall, tea stall, grocery shop and some are government servant, teacher, daily wages labourer etc.

Dongmihsngi SSA LP School is located adjacent to the building of the community hall where the structure is constructed. The school consists of Grades from class Nursery to class Five (5). The enrollment of students in the school is about 70 students approx. The source of Drinking Water in the school is Tap Water and the school is also providing and prepared mid-day meal within the school premises.

Water supply through the PHE department though, available but inadequate due to the increase number of students enrollment every year hence,couldnotcater to the dailyrequirements. The Office of the Dorbar shnong Dongmihsngi seesthatthereis a strong need to harvest and store the excess rain water, decides toseek assistancefrom the office of the Divisional Soil & Water Conservation Officer.As Dongmihsngi falls under urban area,aplanwaspreparedtoinitiatedifferentinterventionsthatwilladdresstheissueholisticallyanduplifttheliving conditionsofthepeopleespecially the students.

So,duringFY2024-25, under the General Scheme, Conservation Work in Urban Areas,the following innovative were taken up to address the issues:-

A rainwater harvesting system comprises components of various stage- transporting rainwater through pipe, filtration and storage in tank for reuse. The overflow from the storage tank will be use for ground water recharge.

- In this project, the catchment of a water harvesting system is a roof made of reinforced cement concrete (RCC) which directly receives the rainfall and provides water to the system.
- Construction of an underground RCC rooftop rainwater-harvesting storage tank measuring 14 feet (length) × 7 feet (breadth) × 9 feet (depth).

- Coarse mesh at the roof to prevent passage of debris.
- Installation of Polyvinyl chloride (PVC) pipe 2.5 mm in diameter and 16 mlongChannels allaround the edge of a sloping roof to collect and transport rainwater first to the two chamber filter tanks and then to the storage tank.
- Semi-circular gutter of PVC material is prepared by cutting the pipes into two equal semi-circular channels. This gutter is fixed to the edge of a roof to carry away the rain water. The size of the gutter due to high intensity rain in the project area is make of 10% oversize.
- Installation ofPVC conduits 2.5 mm in diameter and 20 feet in lengthto carry rainwater from the rooftop area to the harvesting system.
- A valve is installed to ensure that runoff from the first spell of rain is flushed out and does not enter the system.
- The rainwater is collected first in a two-chamber filter tank, with a length and breadth of 4 feet x 2.5 feet respectively, which is of three layers of filter media. The filter unit is filled with pebble and coarse river sand from Myntang river added with gravel in a three layers system separated using mesh wire.
- After the rainwater passing through the two chambers filter tank. The filter rainwater is passing through the PVC Pipes and store in the underground Rainwater Harvesting Storage Tank.
- Installation of3x4 inch CPVC pipelines for pumping the water from the main storage tank to the rooftop Sintex tank, ensuring water supply to the school and Dorbar chnong facilities.
- The average annual Water holding capacity of the Rainwater Harvesting Storage Tankis estimated to be about25000 litres annually (approx.). This is will more than enough for the school to cater the water need for daily requirements and the Dorbar shnong toutilize the water during the Dorbar shnong programs and function like social gathering events, Christmas and New Year celebration.
- Installation of rooftop rainwater harvesting systemsat Dongmihsngi Community Hallnot only assured supply of potable water for students but also instilled values of sustainability and responsible water management from a young age. Furthermore, it reduced operational costs for educational institutions by lowering dependence on external water supply.

Operation & Maintenance (O & M): For the purpose of O & M of the project the locality had taken it upon themselves for the repairing of wear and tear, etc.

The initiative as taken up by some of the Dorbar shnong

1. Collection of a minimal sum from the beneficiaries monthly for the purpose of cleaning and maintaining of therooftop rainwater harvesting systems.

2. Community cleaning drive of the asset created is taken up every six months or as andwhen required.

Conclusion:

As our state continues to face water challenges exacerbated by climate change and population growth, these initiatives can serve as inspiration for addressing water scarcity in urban area and

enhancing community resilience. By promoting policies, incentives and community participation, rooftop rainwater harvesting systems cum ground water recharge structure can be scaling up to achieve sustainable water management and ensure water security for all. Rooftop rainwater harvesting systems cum ground water recharge structure not only conserves water but also fosters environmental stewardship and strengthens community bonds, paving way towards a water resilient future. By providing an assured supply of potable water, the project will significantly improve the quality of life for residents, reducing their dependency on expensive water tankers and ensuring access to clean water for daily needs.

Photo of RCC Rooftop Rainwater Harvesting Systems at Dongmihsngi Community Hall - Water Conservation Work in Urban Areas

Before Construction

During Construction

After Construction

After Construction

Success stories of spring source management.

1. **Project Area:Loompyrdi IongpiahLocality**
2. **NameofProject:** Conservation Works in Urban Areas.
3. **TotalProjectCost**: Rs 4, 60, 390
4. **TypeofStructure**: CC Facewall, CC Flooring (2 nos), CC retaining wall, RCC Facewall.
5. **NumberofBenefitted Households:** 150 nos

The Loompyrdi IongpiahLocality is situated in Jowai, the district headquartersofWestJaintiaHills under Thadlaskein block district in the state of Meghalaya. The locality is inhabited by the Pnar community with 165 households and a population of 1115 approx. Majority of the people living here are entrepreneurs, owning businesses like food stall, tea stall, grocery shop and some are government servant, teacher, daily wages labourer etc.

The main sources of drinking water in the locality are from springs located in various corner or part of the locality. These springs play a significant role in supply drinking water to the residents of the locality especially during the lean season. The other water supply for the residents of the locality is through the PHE department. Water supply through the PHE department though,

available but inadequate due to disrupted services and apoorconnectionhence,couldnotcater to the dailyrequirements. Moreover,withtheincreaseinthenumber of households, thewaterneeds have also increased manifold and lacking of functional piped water supply, means the people have to buy the required need of water especially during lean season from other sources through the water tanker supplier.

Um-Iongpiah spring source is community owned and locatedatthefootofthe hill of Loom Mooliksoo. This is one of the oldest spring in the locality and have a religious significant among the believers of indigenous faith called 'Niam-tre'. According to legends, storytelling by various elders of the locality this particular spring not only used for domestic purposes and other activities but also for religious purposes. A very popular folktale story about the spring i.e Um Iongpiah is that, Um Iongpiah is water where the Grandmother name Beipun Rangkit a fairy used to bath in the water source during the night. Beipun Rangkit is considered sacred by the people who practice indigenous religion (Niam-tre). They believed that this water could heal their sickness. While entering this spring people should remove their shoes as it is considered as sacred water. Also in this Drinking Water, spitting and mistreat is not allowed, at the same time the gate should never be closed day and night. If closed, the water will turn into red colour. It needs to cover beetle leaves (Siang pati), so that the water will be re-purified.

Out of 165 households in the locality, 150 households are depending on this spring for a source of drinking water. Which means 90% of the people living in the locality depends on this spring for supply of drinking water. The approximate spring discharge is recorded to at 11.1 LPM. During the rainy season the surface runoff from the upper drainage enters the spring chamber and contaminated the water source. Hence, the Office of the Dorbar Shnong Loompyrdi Iongpiah decides toseek assistancefrom the office of the Divisional Soil & Water Conservation Officer.

So,duringFY2023-24, under the General Scheme, Conservation Work in Urban Areas,the following innovative were taken up to address the issues:-

a. Construction of protection walls to prevent runoff from the hills from enters the spring, thereby mudding the water.

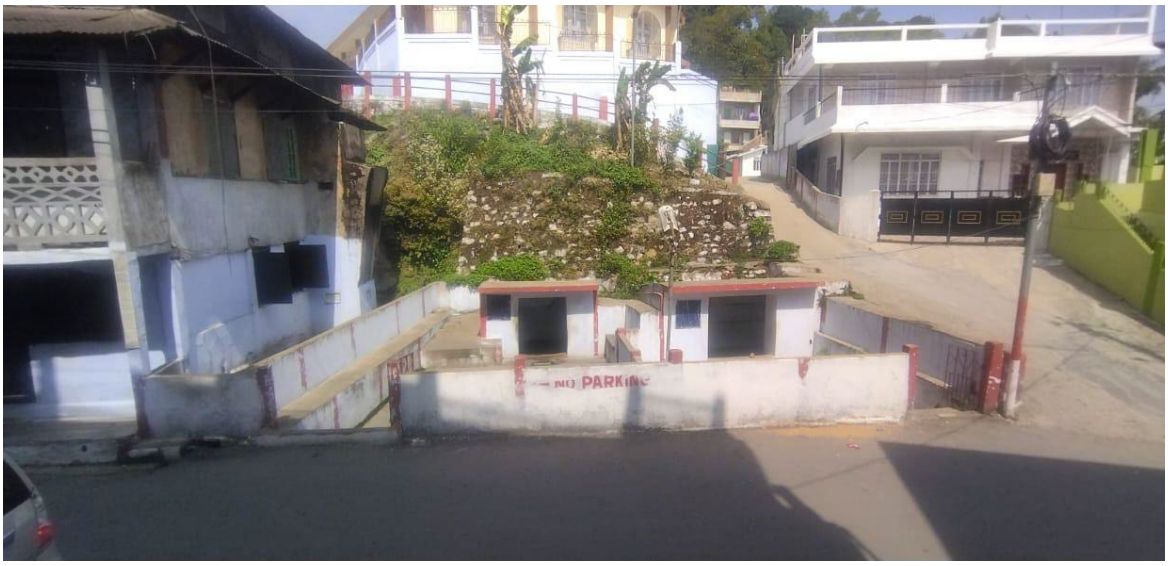
b. Construction of barrier in order to protect the spring water from contaminated by stray animals.

c. A major concerning issue as reported by the people in their fear that the old loose boulder protection wall behind the spring will burst any time as sign is showing and such an event will lead to the spring being totally destroyed and covered up by earth rendering the people without their major water source. These fear had make the Dorbar shnong to approach the office for needful intervention.

d. Through this project Construction of proper drainage for waste water to flow was also taken up, solving the long standing issue of water stagnation.

A total of 150 Nos. of household in the locality benefits from the project and an additional household from the nearby locality like Dulong, Loomiongkjam, Panaliar, also benefits from the project, since the location of the spring is in the centre between this three localities of Jowai town. The source can supply drinking water around 12-13 hours a day. During winter time people started to fetch water from 2:00 am in the morning.

Photo of Loompyrdi Iongpiah - Water Conservation Work in Urban Areas



Before Restoration

During Construction

After Construction

<u>Project Area</u>: **Tympang Iawmusiang**

1. **NameofProject:**Conservation Works in Urban Areas.
2. **TypeofStructure**: Spring Chamber, CC Drain, Fencing, RCC Footpath, Grill.
3. **TotalProjectCost**: Rs. 4,14,510
4. **NumberofBenefitted Households:** 115 nos

Wah chor Spring situated in the foot hill. The Wah chor spring is a life source used to be the life source of water supply to the people of Iawmusinag Jowai and the innumerable numbers of shops in the Iawmusiang market. The people from all over the locality and collect water from the spring for the various household need. However, with the construction of a PWD road leading from DC point upto Lad Wahnangbah the spring source was totally destroyed and the spring water is diverted deep underground. This has caused an uproar among the people of the locality and the various shopkeepers from all over the town.

The Dorbar Shnong Tympang Iawmusing sees that there is a strong need to revive the spring as the people reside in the locality faced big problems with safe drinking water. Hence, the Dorbar Shnong decides to seek assistance from the office of the Divisional Soil & Water Conservation Officer and aschemewaspreparedtoinitiatedifferentinterventionsthatwilladdresstheissueholisticallyanduplift thelivingconditionsofthepeople.

So,duringFY2023-24, under the General Scheme Water Conservation Work in Urban Areas, the office took steps to address the issues and adopt innovative measures in order to increase the discharge and at the same time to providing safe drinking water to the one hundred fifteen households who are residing in the nearby spring.

<u>Process of construction:</u> The following actions were undertaken in order to achieve objectives:

1. After carefully studying the area the sources from where the water exude was located and after digging to about 8 feet the main water sources was located and a spring chamber was constructed in the area.

2. Fencing net and gate is constructed around the spring chamber to prevent stray animal from entering in to the area and for the people from throwing garbage near the spring.

3. Since the spring chamber is not easily approachable a RCC Footpath is constructed for that purposed and in order to improve walking condition for the people especially the womenfolk's and children during the rainy season.

4. Proper drainage and protection wall in and around the spring chamber was constructed in order to prevent runoff water and drainage water from sipping in to the spring chamber.

A total of 115 approx Nos. of household in the locality benefits from the project and an additional many shopkeepers benefits from the spring since it are located in the market area. The approximate spring discharge recorded during lean period is around 9.5 LPM.

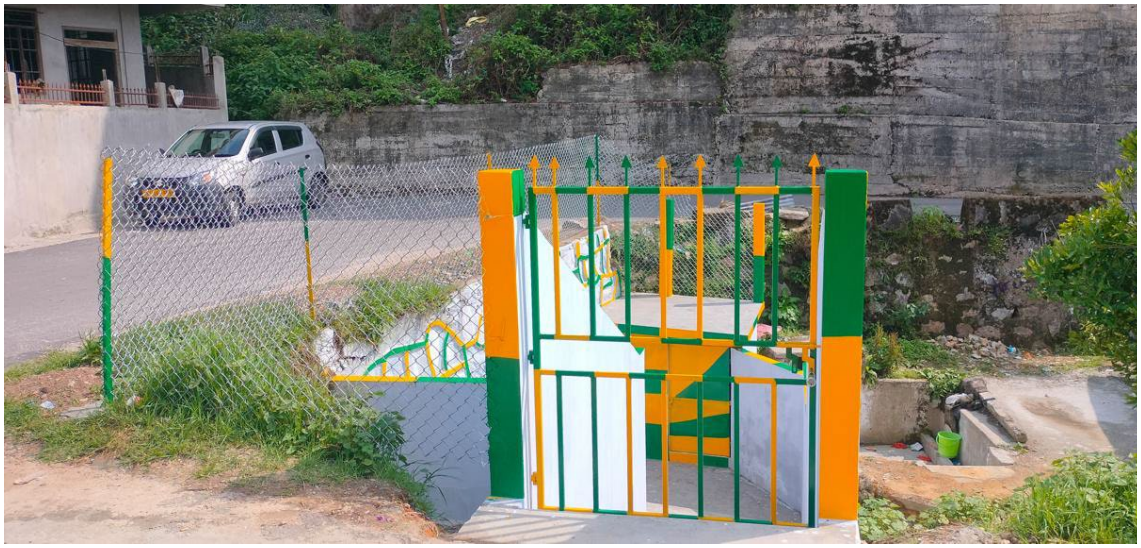
The features of the structures constructed are as follows: -

- Spring Chamber: 1 No.
- CC Drain: 1 No.
- RCC Footpath: 1 No.
- Fencing: 1 No.
- Grill: 1 No.

Photo of Tympang Iawmusiang - Water Conservation Work in Urban Areas

Before Construction

During Construction



After Construction

Operation & Maintenance (O & M): For the purpose of O & M of the project the locality had taken it upon themselves for the repairing of wear and tear, etc.

The initiative as taken up by some of the Dorbar shnong

1. Collection of a minimal sum from the beneficiaries monthly for the purpose of cleaning and maintaining of the water source.
2. Community cleaning drive of the water source is taken up monthly or as and when required.

Conclusion:

These interventions have proven to be very beneficial for the locality as a whole who has been struggling with water shortage considerably, but now it is pleasing to witness the people getting reliable water supply throughout the year. Residents of the locality expressed their happiness and gratefulness to the Department with the success of the project, the residents of the locality through the project had been aware about the importants of protecting the springshed area in order to ensure un-interrupt water flow in the spring chamber, the people taking active steps to protect their catchment areas and are carrying out regular tree plantation drives. It is worth mentioning that, the Headman of the project areas are fully content and extremely grateful to the Government for helping them addressing the water issues in their community through the simple but affective intervention.