
SUCCESS STORIES OF ARTIFICIAL RECHARGE IN WEST BENGAL AND SIKKIM

The Success stories of the Artificial Recharge Structures in West Bengal implemented by the Centre for Ground Water Studies, Tagore Society for Rural Development, Institute For Motivating Self-Employment and Institute of Environmental Studies and Wetland Management are some of the institutes / organization who have played proactive role in the state.



- Construction of Rain water Harvesting Structure in 20 schools of West Bengal.
- Tagore Society For Rural Development
- A Success Story of Rainwater Harvesting Project In the District of Birbhum
- Rain water schemes by Institute of Environmental Studies and Wetland Management (IESWM)

Name of the project: Construction of Rain Water Harvesting Structures in Twenty Schools of West Bengal

Designed by : Centre for Ground Water Studies

Sponsored by : M/s Coca - Cola Beverages Pvt. Ltd.

Scheme: National Ground Water Recharge Scheme

Districts: Bankura and Birbhum, Puruliya and Darjeeling districts and Loreto Girls' School, Entally, Kolkata
Bankura District

Name of the School	Roof Area in sq.m	Recharge Efficiency	Quantity of Recharge in litres
1.Bishnupur High School	213.00	0.68	1,73,808
2.Rajgram Vivekananda Hindu Vidyalaya	302.00	0.68	2,46,432
3.Dubrajpur Uttarayan Vidyatan (High School)	635.00	0.68	5,18,160
4.Bankura Municipal High School	650.00	0.68	5,30,400
5. Mejia High School	364.00	0.68	2,97,024

Birbhum District

1.Kirnahar Shiv Chandra High School	120.00	0.68	97,920
2.Kirnahar Tarapada Smriti Girls' High School	281.00	0.68	2,29,292
3.Satyanarayan Siksha Niketan Girls High School, Labpur	240.00	0.68	1,95,840
4.Ahmadpur, Joydurga High School	215.00	0.68	1,75,440

Darjeeling & Jalpaiguri Districts

1. Bagha Jatin Vidyapith, Siliguri	225.00	0.68	3,06,000
2. Siliguri Deshbandhu Hindu High School	220.00	0.68	3,00,000
3. Phansidewa High School	178.00	0.68	2,42,000
4. St. Mary's Girls' High School, Kamala Bagan	260.00	0.68	3,54,000
5. NJP Railway Girls High School, Jalpaiguri	250.00	0.68	3,46,000

Purulia District

1. Manbazar Girls' High School	195.00	0.68	1,46,250
2. Hutmura High School	350.00	0.68	2,62,500
3. Raghunathpur Girls' High School	350.00	0.68	2,62,500
4. Gar Jaipur R.B.B. High School	520.00	0.68	3,90,000
5. Chittaranjan High School, Puruliya	360.00	0.68	2,70,000

Remarks :

Two Storage Tanks of 5000 litres capacity each, earmarked for Two Schools, have been diverted and fitted with Loreto Girls' School, Entally as approved by the Coca-Cola Authority. A provision for recharging about 3,50,000 litres of water through a 80 m deep recharge well has been made.

These twenty schools where ground water recharging through roof-top rain water harvesting were effected in the year 2005-2006, were further inspected in 2008. A general impression gathered from the School Authorities reveal that these structures would successfully recharge the shallow aquifers and Water logging could be prevented in some school buildings as the water incident on the roofs could be recharged underground. Besides, a lot of awareness could be generated amongst the students and teachers regarding the necessity of rain water harvesting.

Designing of Rain Water Harvesting Structures in the Coca-Cola Campus of Raninagar (Jalpaiguri District), West Bengal:

Centre for Ground Water Studies designed Rain Water Harvesting Structures for Ground Water Recharging in for the Roof-tops of the Factory at Raninagar, Jalpaiguri District, West Bengal of M/S Coca-Cola India Ltd. In Raninagar Campus, ground water recharging to the tune of 15 lakh litres through suitably designed recharge wells down to the depth of 40 m are working satisfactorily.

RAIN WATER HARVESTING AND ARTIFICIAL RECHARGE BY TAGORE SOCIETY FOR RURAL DEVELOPMENT (TSRD)

Designed by : Tagore Society for Rural Development (TSRD)

Sponsored by : Council for the Advancement of Peoples' Action and Rural Technology (CAPART)

Scheme: Development of Agricultural infrastructure for irrigation & Greening Program

Pond Excavation Program:

Before our intervention all the Project areas suffered from severe deficit of water for drinking, washing and irrigation.

Sunderbans: Thanks to an ambitious project promoted by the Sundarban Development Board, Govt. of West Bengal, the excavation of Tanks/Ponds for harvesting rain water in this area has received a major fillip. TSRD is the single biggest implementer of this program, specially in Sagar, Basanti and Gosaba blocks. These new tanks/ponds are on private lands. Thus, individual households now have access to water for year long irrigation, domestic purposes and the promotion of livelihood options through cash cropping, kitchen gardening, horticulture, pisciculture and duck rearing.

Drought prone areas: Regular drought and lack of irrigation infrastructure made it difficult to cultivate land for agriculture in our remaining project areas. Thus, most of the villagers were poor and frequently faced unemployment and starvation. Large numbers of people migrated to other states for off season employment. TSRD's interventions to promote water conservation through excavation of Tanks, Ponds, Canals, Kharis, construction of waste weirs on canals and Kharis proved beneficial to the local people.

Integrated Water Shed Management improved the socio-economic scenario as cash crops, water for human use and livestock rearing were automatically promoted. Conservation of rain water through these improved water bodies helped recharge ground water in these areas. Green fields can be seen in these areas both in summer and winter.

Watershed management in Pakur and Patamda in East Singhbhum, Jharkhand means regeneration of soil water by recharging under ground aquifers, improved livelihoods through farming and agriculture.

Over the years, the Society excavated and re-excavated more than 1000 ponds, tanks, canals, Kharis, nullahs, etc. spread over all the project areas for enhanced water storage capacity. During the last 2 years, the Society has re-excavated more than 700 derelict tanks in Sagar, Gosaba and Basanti blocks of South 24-Parganas District, West Bengal.

- Constructed rain water reservoirs in some places of Jharkhand projects.
- Constructed check weirs on kharis, canals and nullahs to store run off rain water, both for irrigation and recharging ground water.
- Introduced in situ moisture conservation process by a network of run off management structures and devices in large stretches of upland and mid land for recharging ground water.
- Under TSRD's Greening Program, about 10 lakh saplings are planted annually to check run off, prevent soil erosion and promote percolation of water.

Awareness Generated:

- Formation of Implementing teams (Excavation/Planting etc.) was around the creation of village based assets and community dynamics
- Maintenance and Usage by local communities
- As these are seen as Community assets
- The access and use of Dalits and Tribal to these assets
- Empowerment of Women and formation of SHGs to maintain these assets.

Type of innovative methodology/technology adopted:

Upland technology – Besides the excavation and re-excavation, the Society adopted small plots-cum-moisture storage pit technology for uplands and midlands where large stretches of uplands are divided into small plots. The Moisture collection pits are dug at the lower most corner of each plot. The pits are spread all over the area to store run off and improved sub-soil moisture. This is done over a large area. In contiguous plots which retains enough moisture and increases the ground water level in low lands. Organization of farmers of contiguous plots and their involvement is an integral part of process.

Plain land technology - 20% of total allotted land is used for water harvesting and storage for irrigating the remaining 80% which is used for farming.

Scope of replication: The fact that the Sunderbans Development Board has proposed to excavate 50,000 ponds and tanks by 2010 is proof of TSRD's vision. In the other areas, which are arid, ponds are the only way out.

Sustainability: As Village Users Committees/SHGs have taken over the use and maintenance of these community assets, sustainability is automatically ensured.

Many other NGOs/CBOs now working in these areas are already replicating these efforts as are local SHGs.

Cost - Benefit Ratio –

Total benefit accrued –

Tangible

- Water for most part of the year
- Increased irrigation and farm productivity
- Pisciculture
- Employment opportunity for byproduct activities

Non-Tangible

- Better health and hygiene
- Easier access to water for women
- Help reduce migration
- Intensive agriculture and its required irrigation ensure the top soil is kept moist throughout the year.

Out put – In West Bengal for last 2 years

(Numbers): 771 ponds excavated/re-excavated

1800 Hectares of lands brought under Greening Program

205 Hectares of lands brought under irrigation

Out comes:

- Increased income
- Recharge of Ground Water
- Greater moisture retention
- Reduced run off
- Reduction of island erosion
- Increase in Wild Life habitat

Investment/Benefit: Rs. 1.9 crores and benefit accrued Rs.38.5 lakhs per annum (approximately) from cultivation – Agriculture & Pisciculture. Man days created 40,000 per annum. In addition to recharge of

rain water and moisture conservation, these ponds provide additional income from Pond Management and Duckery.

A Success Story of Rain-Water Harvesting Project in Schools (Implemented in the districts of Murshidabad, Birbhum & Nadia)

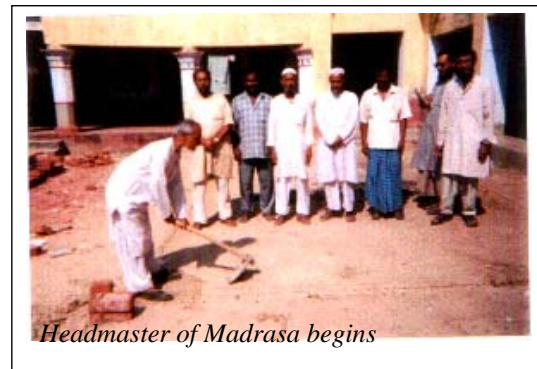
IMSE was given responsibility for construction of rainwater harvesting structures in selected government schools through GRHC, Tilonia, Rajasthan.

Year	Birbhum	Murshidabad	Nadia
2005-06	-	05	05
2006-07	10	10	-

IMSE successfully implemented the projects. The one of the success stories of the projects of Birbhum district has been furnished below :

Gurisha Senior Madrasa's story is a story of success in rainwater harvesting in schools. Gurisha Madrasa is situated in the village of Gurisha, P.S. Ilambazar in the subdivision of Bolpur in the district of Birbhum.

The school is surrounded by villages where during the dry season due to high extraction of groundwater, the water level of the area becomes lower. The surrounding areas face acute crisis of drinking water.



Department of Water Resource Development Research Centre, Government of India sponsored the Barefoot College of Rajasthan for the RWH programme. In collaboration with the Barefoot College IMSE also embarked on the project.

IMSE team visited the affected areas and also found in some areas water was contaminated with Arsenic content where RWH would be a suitable way to solve the problem.

After studying several areas IMSE team approached Gurisha Madrasa authority for the water harvesting programme, where other area suffered from acute water crisis. The school authority immediately agreed with IMSE team. An awareness programme was held with the students, teachers and local villagers participating in a large number. It was explained that within 20 years the world would face acute drinking water crisis. The participants also agreed that rain water harvesting would be a possible solution to face the crisis.



During the implementation committee a beneficiary committee was formed comprising Headmaster of the School, teachers' representative of the school, local NGO, local government official. The Hadmaster of the school was selected as the

convener of the committee, panchayet functionaries earlier a survey was conducted to find out a suitable area where drinking water was contaminated and level of water was lower due to heavy extraction of underground water. A consent letter an undertaking of the authority to maintain the project afterwards was received accordingly.

During the implementation, a purchase committee was formed, awareness campaign was held regarding use of rainwater, and a move to collect local funds was taken up. At the final stage after the completion of the project a social audit was organized where to maintain transparency, villagers were invited to query on expenditure of the project. After the successful implementation of the project the 300 hundred students realized that the rainwater is the only alternative source of drinking water. The people also use the water for worship and call it 'Allahar Pani' or water of God. People think that the RWH programme should be taken up in other areas at community level where the ordinary people would be further benefited.

In this regard this is to add that during the implementation of the project the scientist of Central Ground Water Board, Salt Lake provided us necessary guidance and advice. We are grateful to them.

Rain water harvesting schemes implemented by Institute of Environmental Studies and Wetland Management (IESWM) in Districts of West Bengal.

The schools where the Rooftop Rainwater Harvesting System installed by the Institute. The impact assessment studies are required to be taken up. If any school can handle the system carefully, they can conveniently consume more than double amount of water than storage capacity. Because in our state the rain starts in June and linger upto month of September. The system has been installed in such a way from June to August, the student can use the water continuously ie. Storage and use of water may simultaneously run parallel. From the end of August the water will be stored for use in the dry period i.e during summer.

S. N.	District	Present Status
1.	Bankura	90% of well maintained and functioning smoothly
2.	Birbhum	80% of well maintained and functioning smoothly
3.	Purulia	75% of well maintained and functioning smoothly
4.	North 24 Paragnas	100% of well maintained and functioning smoothly

