Best Practices of Ground Water Harvesting in Different Parts of India

(Central Ground Water Board Initiatives)

G1.	Andhra Pradesh
Title/ Name of work undertaken	**Artificial Recharge Structures on ground water in Chittoor District, Andhra Pradesh**
Location	Vedurukuppam, Karvetinagram, S R Puram, Nagri, Palasundram, Vijaypuram&Madanpalle mandals.
Organisation/NGO/Persons responsible to undertake the work	Irrigation Dept, Govt of Andhra Pradesh (Funded by CGWB under Central Sector Scheme)
Description	27 artificial recharge structures (Check dams-26, Percolation tanks-1)
Outcome	Immediate impact, rise of water levels, has been observed at Karvetinagaram, Kollakadriga (KarvetinagaramMadal); E Settinatham and Pathapalem (SR Puram mandal) and Santhabylu in Vedurukuppam mandals. The most conspicuous feature is the gradual building up of ground water levels/piezometric heads in the zone of influence of artificial recharge structures. An additional irrigated area of 18.5 hectare paddy and 25.4 hectares non-Paddy in Kharif and 23.8 hectares of Non-paddy in rabi has increased due to construction of Artificial recharge structures. The yield of wells have increased from 2500-8500 lph&1666-8000 lph in monsoon and non-monsoon during post-project period respectively
Photographs	

Check Dam at Karvetinagaram Village

Percolation Tank at Pathapalem Village

G2	Chhattisgarh
Title/ Name of work undertaken	Ground Water Recharge in SanaudNala
Location	Sanoudnala, MiliWatershed (Block: Gurur, District: Durg)- Chhattisgarh.
Organisation/NGO/Persons responsible to undertake the work	Water Resources Division, Govt of Chhattisgarh under Central Sector Scheme (Funded by CGWB)
Description	Check Dam with 6 silt traps
Outcome	A total of 9 observation dug wells were established in Gurur block to monitor the change in water levels. The water level data of these selected dug wells indicate improvement in ground water conditions in the Gurur block (108.7531 sq km) after implementation of the scheme. Enquiries with the local residents/ farmers/ panchayat etc from 12 villages in the Gurur block were done which have revealed that theconstruction of artificial recharge in the watershed has improved the sustainability of tube wells in agricultural fields in few villages despite of less rainfall in the block
	Photographs

Village- Bohra

Village- Devkot

Village Dodapara

Village-Palari

Village- Palari

Village- Sangli

G3.	Chhattisgarh
Title/ Name of work undertaken	Artificial Recharge to Ground Water in PatilahNala, Water Shed, Block Bilha, district Bilaspur
Location	PatilahNala, Water Shed, Block Bilha, district Bilaspur
Organisation/NGO/Persons responsible to undertake the work	Water Resources Division, Govt of Chhattisgarh under Central Sector Scheme (Funded by CGWB)
Description	28 structures (Boulder Check Dam – 18, Check Dam with Silt Trap -10)
Outcome	A total of 11 no. of observation dug wells were established / selected in the project area to monitor the changes in water levels. The water level data of these selected dug wells indicate the improvement in water levels in the Bilha block (65.45 sq km) after implementation of the scheme. Enquiries with the local residents/ farmers/ panchayat etc. from 13 villages in Bilha Block were done after one year of implementation of the scheme. The improvement in theperformance of ground water abstraction structures have revealed that construction of artificial recharge structure in the watershed has improved the ground water conditions of both dug wells and bore wells in few villages of study area. Improvements in terms of yields of Tubewells and pumping hours have been reported in five villages. There is increase in vegetative cover in the watershed due to growth of natural vegetation under better soil moisture availability. The vegetative cover over the watershed is expected to improve over the years, resulting in reducedsoil erosion and better percolation of rain water into the sub-surface. Greenery is mainly observed around the structures constructed.
Photographs	

Percolation tank at Bohardih

Boulder Check dam at Podi

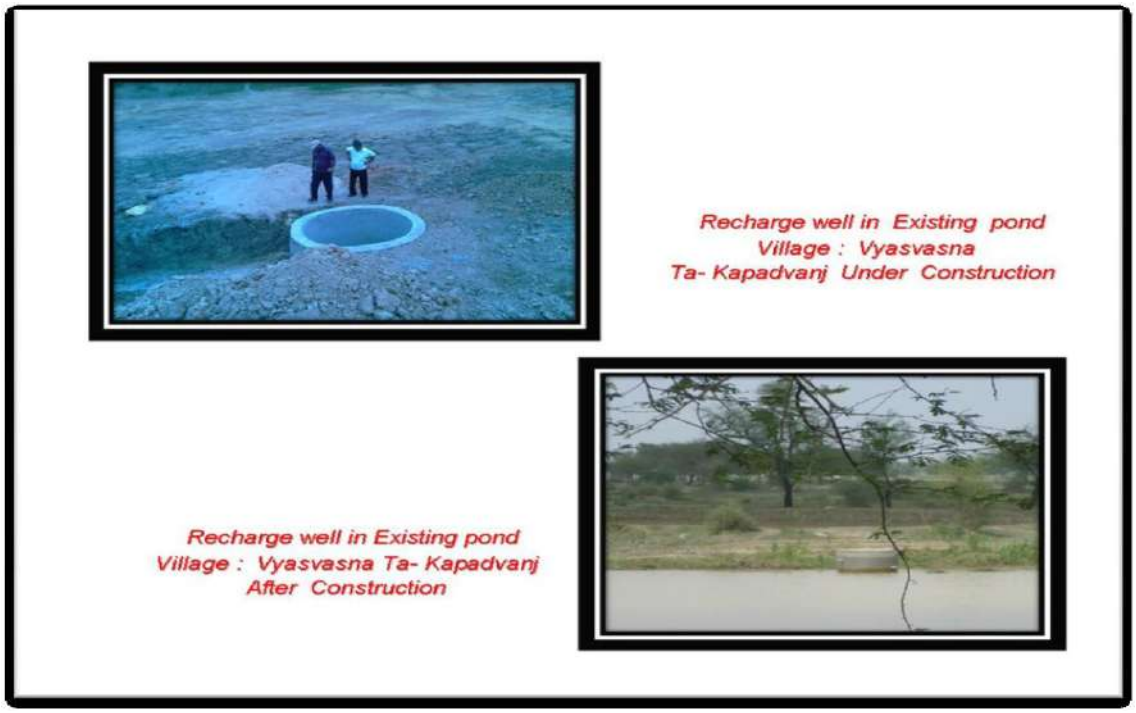
Check dam at Hathni

Boulder Check dam at Hathani

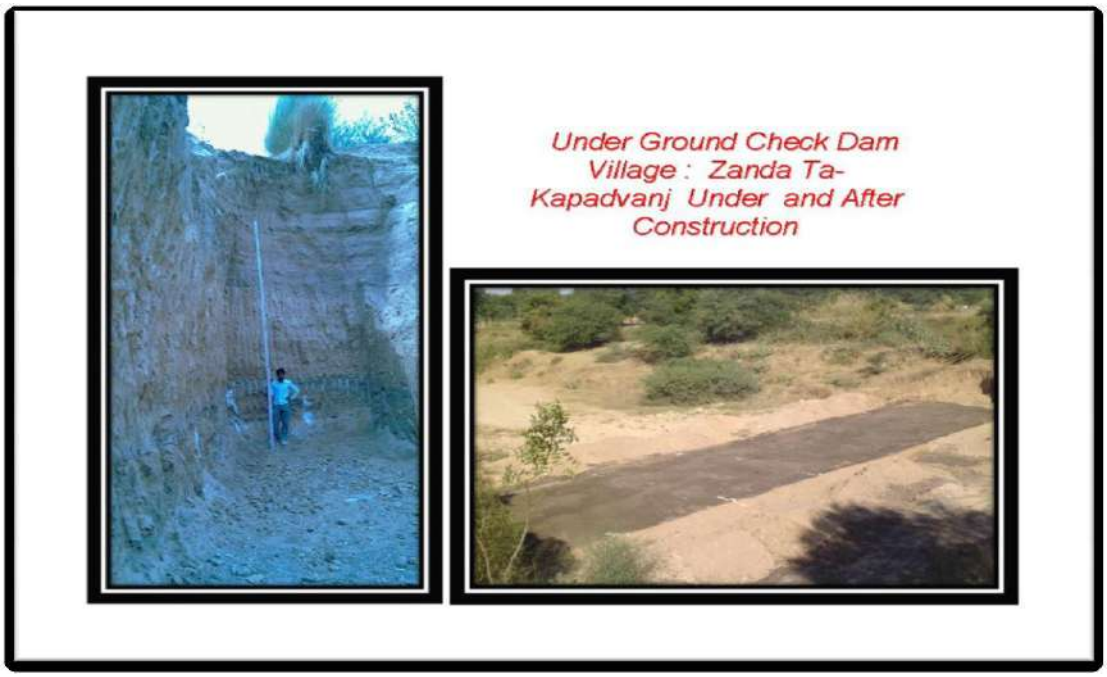
Recharge Shaft at Hathani

Boulder Check in village Bitkuli

G4	Gujarat
Title/ Name of work undertaken	Artificial Recharge structures in Watrak Watershed, Kheda/ Sabarkantha districts
Location	Kapadbanga (Kheda District) / Virpur&Katlal (Sabarkantha District)
Organisation/NGO/Persons responsible to undertake the work	Water Resource Development Corporation, Govt. of Gujarat under Central Sector Scheme (Funded by CGWB)
Description	80 structures (Recharge Trench-18, Abandoned open well-5, Abandoned T.Well-1, Check Dam-4, UGCD-3, Recharge Well (Existing)-41, Recharge Well (New)-8)
Outcome	The rise in average water level is observed in the area annually and seasonally. Comparison between year 2011 and 2013 shows that there is a gradual rise in water level both annually (May to May) and seasonally (May-October). Overall average Rise in Water Level from May 2011 to May 2014 was observed to be 1.15 m in the watershed area which may be attributed to construction of artificial recharge.
Photographs	

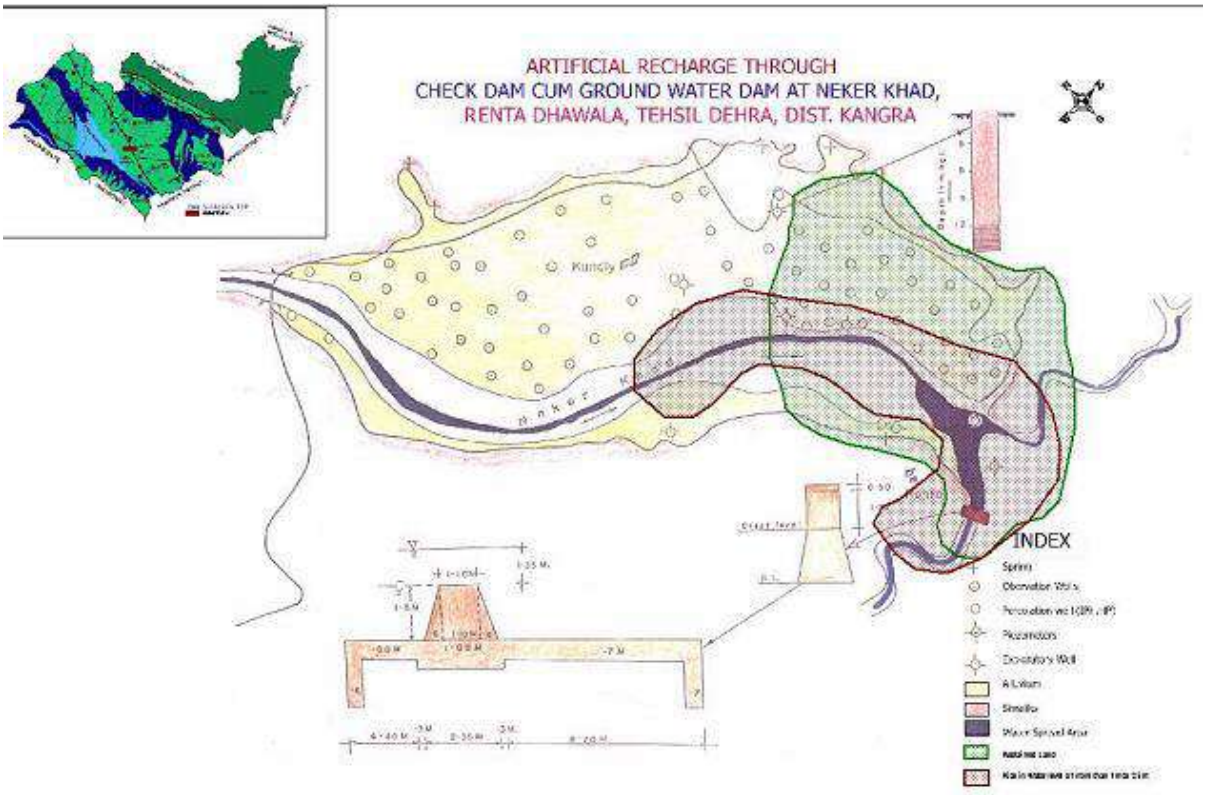


Artificial Recharge structures in Watrak Watershed, Kheda/ Sabarkantha districts



Artificial Recharge structures in Watrak Watershed, Kheda/ Sabarkantha districts

G5	Himachal Pradesh
Title/ Name of work undertaken	Check Dam cum Groundwater Dam at Nakerkhad, village-RentaDhawala, Tehsil-Dehra, District Kangra, Himachal Pradesh.
Location	Village-RentaDhawala, Tehsil-Dehra, District Kangra, Himachal Pradesh
Organisation/NGO/Persons responsible to undertake the work	Irrigation & Public Health Department, Govt of Himachal Pradesh under Central Sector Scheme (Funded by CGWB)
Description	Check Dam cum Groundwater Dam-1 No Peizometer- 6 nos. The holy town of Jwalamukhi and adjoining villages is being supplied water from the Nakerkhad through percolation wells. It is estimated that around 92 lps (about 2 MCM) is being pumped out per day for the whole year to cater the need of water supply to the population of about 75,000 persons and yearly floating population of about 4-5 Lakhs pilgrims to the holy shrine of Jwalamukhi. Due to continuous heavy pumping there is a considerable reduction in the discharge in the percolation wells. During summer the discharge reduces many fold in the percolation wells and this results into acute water scarcity condition. This necessitated urgent need for augmenting the dwindling water supplies and also for sustainable discharge of the percolation wells by augmenting the recharge artificially and conserving the surface and subsurface runoff.
Outcome	• Rise in water level by 0.03m to 4.10 m. • Revival of Shallow wells and springs. • Area experienced rise in ground water level by 25 % • Increase in ground water storage by 25 % • Saving of energy during pumping. • Reclamation of eroded land into agricultural fields. • Generation of employment through Fisheries. • Availability of Construction material. • Recreation activities. • Increased agricultural/ Cash crops
Photographs	



Plan view of the project at NakerKhad

Bird eye view of water impounded behind dam

Panoramic view of check dam cum ground water dam at Naker Khad

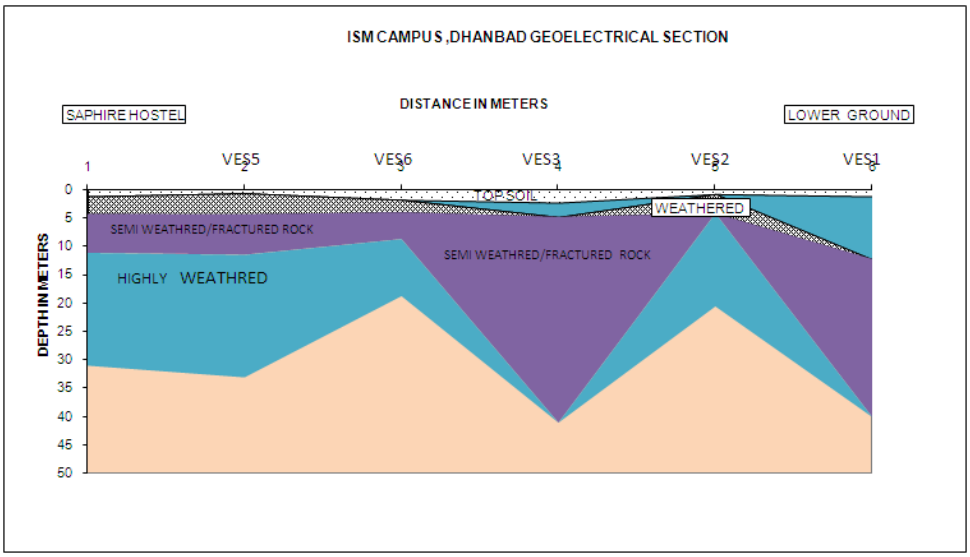
Water impounded behind used for fishing by locals

G6	Jammu & Kashmir
Title/ Name of work undertaken	Artificial Recharge to Groundwater at Phangeri, Tehsil Hiranagar, Kathua Dist.
Location	Village- Phangeri, Tehsil Hiranagar
Organisation/NGO/Persons responsible to undertake the work	Soil Conservation Department, Govt of J & K under Central Sector Scheme (Funded by CGWB)
Description	Check Dam
Outcome	Water level data from the local village wells downstream of the check dam collected from 17.09.2013 to 13.03.2015 shows rising trends trend
Photographs	

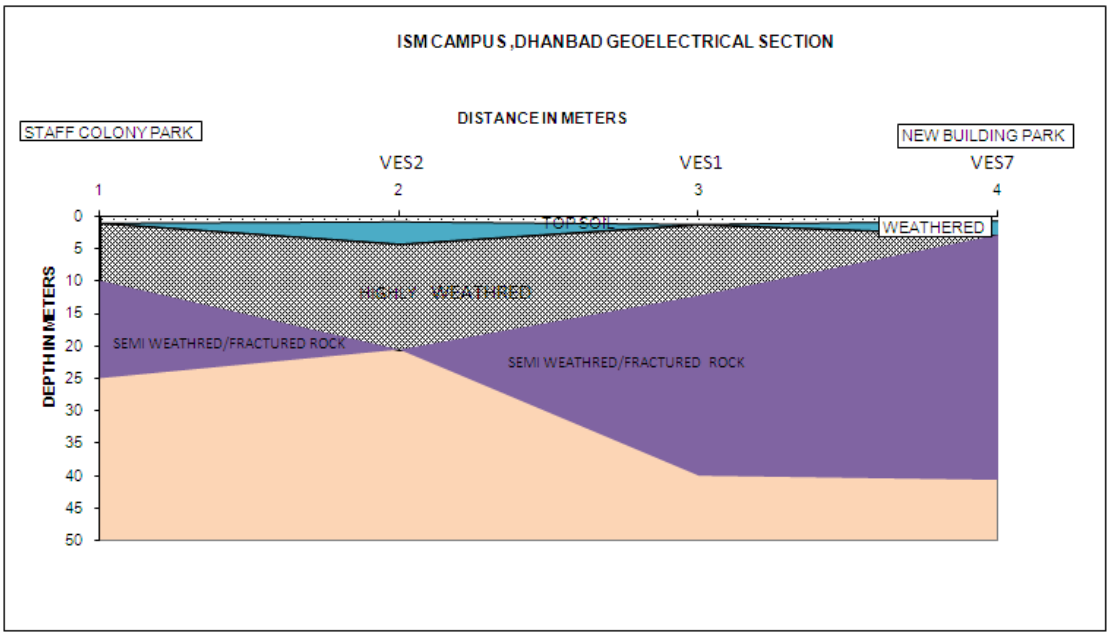
G7	Jammu & Kashmir
Title/ Name of work undertaken	Artificial Recharge to Groundwater at Dabbie, Tehsil Hiranagar, Kathua Dist.
Location	Village- Dabbie, Tehsil Hiranagar
Organisation/NGO/Persons responsible to undertake the work	Soil Conservation Department, Govt of J & K under Central Sector Scheme (Funded by CGWB)
Description	Check Dam
Outcome	Water level data from the local village wells downstream of the check dam collected from 17.09.2013 to 13.03.2015 shows rising trend
Photographs	

Check Dam At Dabbie, Kathua

G8	Jharkhand
Title/ Name of work undertaken	Artificial Recharge & Rain Water Harvesting Structures with in the Compounds of Indian School of Mines (ISM), Dhanbad, Jharkhand
Location	ISM Dhanbad campus, Jharkhand
Organisation/NGO/Persons responsible to undertake the work	CPWD, Govt of India
Description	54 structures(Recharge Pits with Recharge bore)
Outcome	Water level monitoring in the campus of ISM began with 15 recharge wells during the month of May 2013. As more and more recharge wells were constructed during the period of investigation in the study area, these were taken up for monitoring during subsequent monitoring. The data shows a rise in the mean pre-monsoon water level by l.03 m in the year 2014 in comparison to that of the year 2013. During the course of the investigations made during the monsoon period, it was found that there was no overflow from the recharge pits. This suggests that the entire water being diverted to the pits is being recharged into the aquifers through the fractures and/or the weathered zone. As a result of the artificial recharge, increase in discharge of few wells within the campus which had reported very low discharge during the course of drilling has also been encountered. The roof top rainwater harvesting structure has led to zero wastage of water from the overhead tanks located on the roof of the various buildings in the campus of the ISM
Photographs	



Geo-electrical Cross Section along West –East direction in ISM Campus, Dhanbad



Geo-electrical Cross Section along SW –NE direction in ISM Campus, Dhanbad

Design of the recharge pit with a recharge well

G9.	Karnataka
Title/ Name of work undertaken	Demonstrative Artificial Recharge Project in Malur Taluk (Phase-II), Kolar Dist, Karnataka
Location	Malur Taluka, Kolar district, Karnataka
Organisation/NGO/Persons responsible to undertake the work	Water Shed Development Department, Govt. of Karnataka (Funded by CGWB under Central Sector Scheme)
Description	Check dams-40, Percolation tanks-2, Nala Bunds-10
Outcome	Improvement in Water level Dug wells showed rise between 0.77 to 2 m Bore wells showed rise between 1.0 to 1.76 m Change in yield of bore wells There was increase of sustainability of pumping from 50 minutes to one hour. Yield of wells has increased in the range of 0.25 to 2.5 lps. Change in irrigated area The command area of wells in the project area has increased in the range from 0.2 to 2 hectares.
Photographs	

Check Dam constructed at Malur Taluk

Percolation Tank constructed at Malur Taluk

Nala Bund constructed in Malur Taluk

G10.	Karnataka
Title/ Name of work undertaken	Rainwater Harvesting & Artificial Recharge to Groundwater in the campus of University of Agricultural Science, Dharwad, Karnataka
Location	University of Agricultural Science, Dharwad,
Organisation/NGO/Persons responsible to undertake the work	University of Agricultural Science, Dharwad (Funded by CGWB under Central Sector Scheme)
Description	Check dam-1, Farm pond-5, Recharge pit-1, Rooftop rainwater harvesting-11
Outcome	Improvement in Water level: Rise of water level between 0.58 to 2.93 m is observed in bore wells. Change in Quality of Ground water: Reduction in EC value was recorded in the range of 1.38 to 1.23 dS/cm. Water Harvested Annually Average quantity of water harvested annually works out as 80949 m^3. Improvement in Irrigation Potential If this harvested water of 0.08 MCM is used for irrigation purposes it will create an irrigation potential of 8 hectares
Photographs	

Check dam

Farm pond

G11	**Karnataka**
Title/ Name of work undertaken	Artificial Recharge to Groundwater in Gnana Bharti campus, Bengaluru University, Karnataka
Location	Bengaluru University, Jnana Bharathi campus
Organisation/NGO/Persons responsible to undertake the work	Bengaluru University under Central Sector Scheme (Funded by CGWB)
Description	Check dam-5, Recharge Shaft-01, and Rooftop rain water harvesting-1
Outcome	Bengaluru University, Jnana Bharathi campus is spread over an area of about 4.5 sq.km (1,100 acres) in the Arkavathi basin and falls in the village limit of Nayandahalli and Muddayanapalya (57H/9). *Improvement in Water level:* *Rise of water level between 0.58 to 2.93 m is observed in bore wells.* *Change in Quality of Ground water:* *Reduction in EC value was recorded in the range of 1.38 to 1.23 dS/cm.* *Water Harvested Annually* *Average quantity of water harvested annually works out as 80949 m^3.* *Improvement in Irrigation Potential* *If this harvested water of 0.08 MCM is used for irrigation purposes it will create an irrigation potential of 8 hectares*
Photographs	


ARTIFICIAL RECHARGE TO GROUND
WATER IN JNNAMMANATHU CHAPTER

PARLIAMENTARY STANDING COMMITTEE VISIT on 03.06.2016 to the Project Area

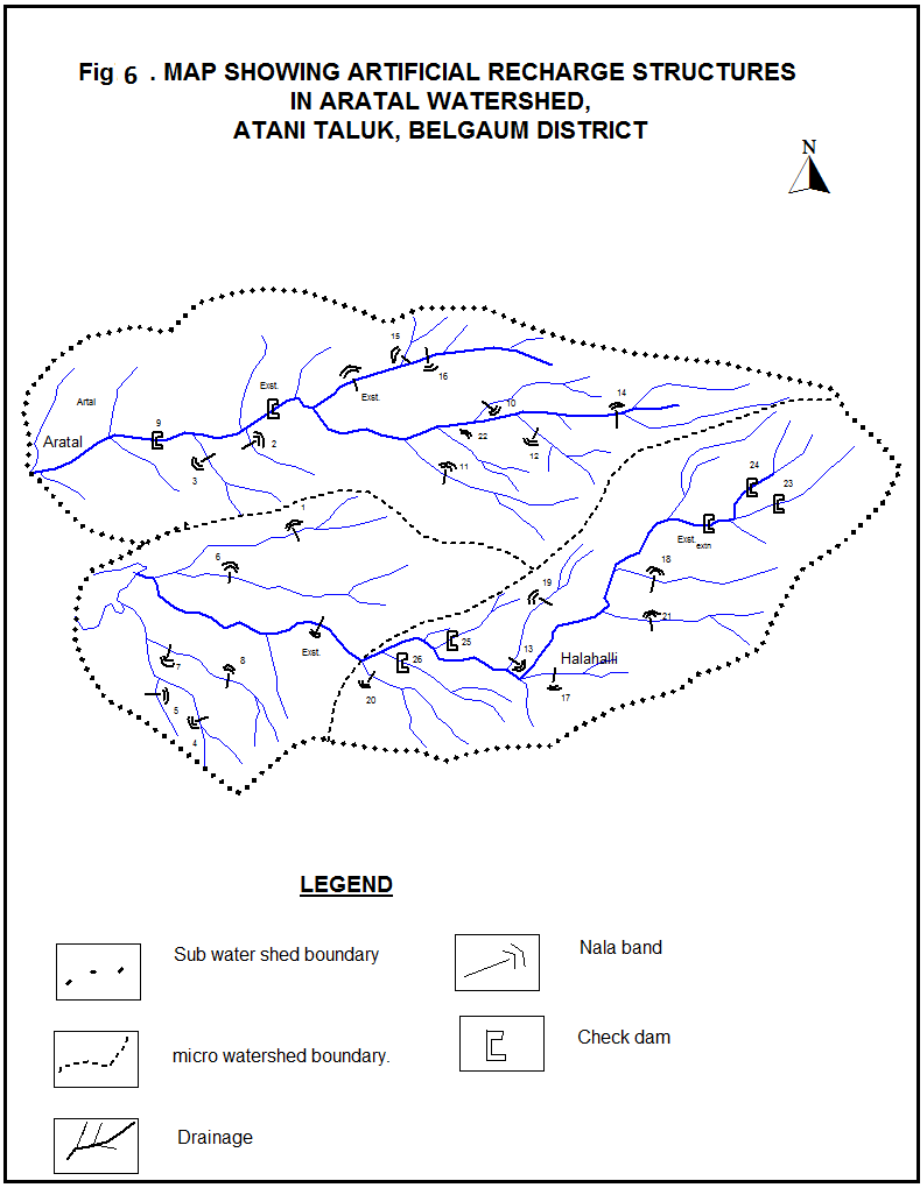
G12	Karnataka
Title/ Name of work undertaken	Rain Water harvesting & Artificial Recharge to Ground Water for Bijapur Campus of University of Agriculture Sciences, Dharwar, Karnataka
Location	Bijapur Campus of University of Agriculture Sciences, Dharwar, Karnataka
Organisation/NGO/Persons responsible to undertake the work	Bijapur Campus of University of Agriculture Sciences, Dharwar, Karnataka
Description	Rooftop rainwater harvesting with associated structures- Farm pond with recharge shafts-2,farm ponds-2, Percolation pond -1,dug wells-1
Outcome	Improvement in Water level: Rise of water level between 0.90 to 6.22 m is observed in bore wells. Change in yield of bore wells: Yield of wells has increased in the range of 20 to 45% (0.10-0.38lps). Many wells which were getting dry are now running round the year. Change in Quality of Ground water: Reduction in EC value was recorded in the range of 0.7 to 18.9% ie EC decreases in the range of 0.01 to 0.16 dS/m.
Photographs	

Recharge Pit with Existing Bore Well

Percolation Pond under construction

Percolation Pond after construction

G13	**Karnataka**
Title/ Name of work undertaken	Artificial Recharge in Aratal Water Shed, Athani Block Belgavi District, Karnataka
Location	Aratal Water Shed, Athani Block Belgavi District, Karnataka
Organisation/NGO/Persons responsible to undertake the work	Water Shed Development Department, Govt. of Karnataka(Funded by CGWB)
Description	26 structures (Check dam-5, Nalabund-21)
Outcome	To study the impact of the scheme, 21 dug wells and 7 bore wells were established for monitoring the water levels. It is observed that all the bore wells and dug wells in the project area have recorded rise of water level after implementation of the project. From the data it is observed that water level in dug wells showed rise in the range of 0.19 m to 3.75m during May 12 - May 13 and bore wells recorded rise in the range of 10.85 to 20.75 in the same period. Six dug wells which were dry since many years in the project area have got water column. Some wells, which were discharging water intermittently, are having continuous flow during the post project period. Yield of bore wells has increased in the range of 1.0 to 6 lps. The pumping duration of the wells has also increased from half an hour pumping to 45 minutes to 4 hr of pumping per day. The wells which are dry for many years and defunct were become active and are in use after the implementation of the scheme. There is a increase in the area of cultivation. There was increase in irrigated area of wells up to 0.75 acres.
Photographs	



Artificial Recharge in Aratal Water Shed, Athani Block Belgavi District, Karnataka

Check dams constructed in the sub watershed

Nala bund constructed in the sub watershed

G14	Kerala
Title/ Name of work undertaken	Artificial Recharge in Kolathur-II, Bedadka Grama Panchayat, Kasargod, Kerala
Location	Bedadka Grama Panchayat, Kasargod, Kerala
Organisation/NGO/Persons responsible to undertake the work	District Collector, Kasargod, Govt. of Kerala (Funded by CGWB).
Description	1 (Recharge pond & RWH storage tank of 1000 Lt capacity)
Outcome	Most of the dug wells near the structure were dry during summer before the construction of the percolation tank. Rise in the water levels of wells located near the structure has been reported after completion of construction of the recharge structure. The pumping duration of the wells surrounding the structure is also increased by 1 to 2 hours/day. Enquiries with the local residents one year after implementation of the scheme on the improvement in the performance of ground water abstraction structures have revealed that the construction of artificial recharge in the premises of the School has substantially improved the sustainability of both dug wells and bore wells in the downstream side of the school. Improvements, both in terms of yields of bore wells and pumping hours have been reported.
Photographs	

A veiw of the site for construction of Percolation pond

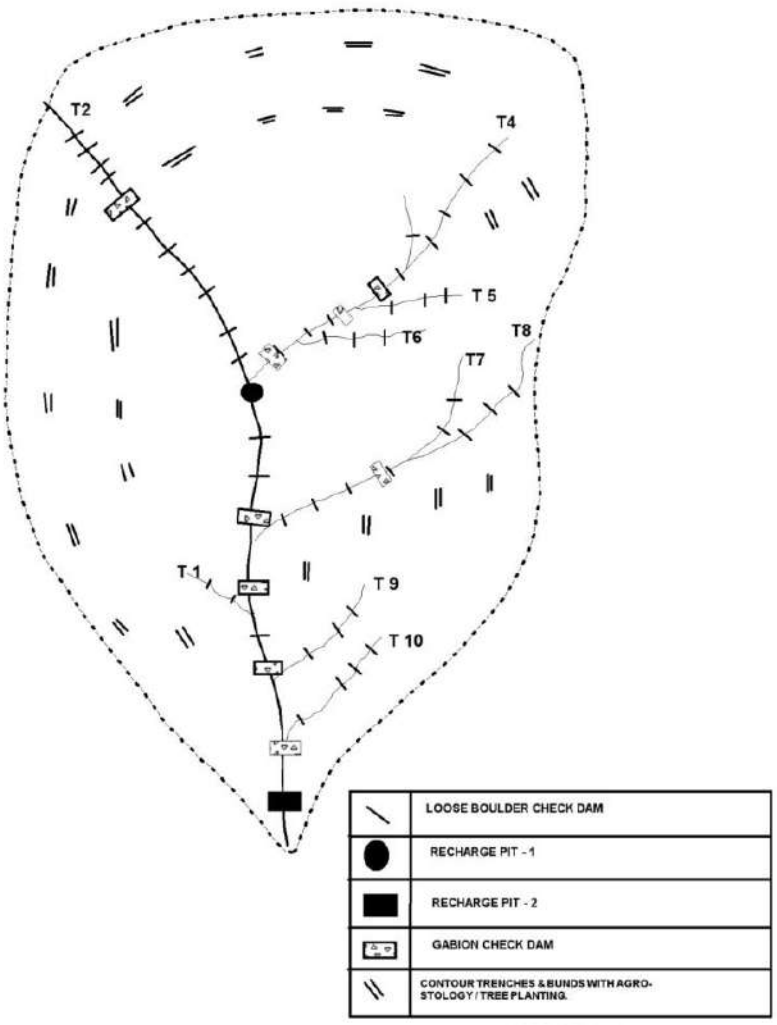
A veiw of the filled Percolation pond

A veiw of the Ferrocement Tank

G15	Kerala
Title/ Name of work undertaken	Artificial Recharge in Manjeshwar Govind Pai Memorial College campus Kasargod, Kerala
Location	Manjeshwar Govind Pai Memorial College campus Kasargod, Kerala, Kasargod, Kerala
Organisation/NGO/Persons responsible to undertake the work	Soil Conservation Department (Funded by CGWB).
Description	56 structures (Loose bolder check dam-46, Gabion Check Dam-8, Recharge tank-2)
Outcome	A total of 9 observation wells were established in the downstream side of the project area to monitor the changes in water levels The water level data and the hydrographs indicate rise in water levels in the ground water abstraction structures in the area after implementation of the scheme, indicating replenishment of the aquifers. Wells which were regularly becoming dry during peak summer have ceased to be so and the water columns available during summer months have increased significantly. The benefits are expected to become clearer within a few more years. **Sustainability of wells** Enquiries with the local residents one year after implementation of the scheme on the improvement in the performance of ground water abstraction structures have revealed that the construction of artificial recharge in the watershed has substantially improved the sustainability of both dug wells and bore wells in the downstream side of the watershed. Improvements, both in terms of yields of bore wells and pumping hours have been reported, prompting the farmers in the area to either increase the command area of wells or to go for more water-intensive crops such as plantain. **Improvement in Vegetative Cover in the Watershed** There is a gradual increase in the vegetative cover in the watershed as a whole, partly due to growth of natural vegetation under better soil moisture availability and partly due to growth of sapling planted as part of agrostology measures taken up during the project. The vegetative cover over the watershed is expected to improve over the years, resulting in reduced soil erosion and better percolation of rain water into the sub-surface.
Photographs	

CENTRAL GROUND WATER BOARD, KERALA REGION, THIRUVANANTHAPURAM
DEMONSTRATIVE ARTIFICIAL RECHARGE SCHEME IN GOVINDA PAI MEMORIAL COLLEGE, MANJESHWAR, KASARGOD DISTRICT

LOCATIONS OF ARTIFICIAL RECHARGE STRUCTURES



NOT TO SCALE

Loose Boulder Check Dam across a small stream

Gabion across a small stream Check Dam across a small stream

Recharge Pond with Check Dam in the middle reaches of the main stream

Check Dam, Artificial Recharge in Manjeshwar Govind Pai Memorial College campus Kasargod, Kerala

A view of the Circular Recharge Pit with out water

A view of the Circular Recharge Pit filled with water

G16	Kerala
Title/ Name of work undertaken	Roof Top Rain Water Harvesting at Jawahar Navodaya Vidyalaya, Kanchangarh, Kasargod dist, Kerala
Location	Jawahar Navodaya Vidyalaya, Kanchangarh, Kasargod dist
Organisation/NGO/Persons responsible to undertake the work	Soil Conservation Department (Funded by CGWB).
Description	2 (Recharge pit and Drainage feeder with Recharge pit)
Outcome	Monitoring of water levels in observation wells A total of 3 observation wells were established in the downstream side of the project area to monitor the changes in water levels. The water level data and the hydrographs did not indicate significant rise in water levels during the period of monitoring due to the fact that the ground water recharged through the structures is yet to replenish the ground water resources in the area on a regional scale. The impact of recharge is expected to become more tangible over a period of time. Sustainability of wells Enquiries with the local residents one year after implementation of the scheme on the improvement in the performance of ground water abstraction structures have revealed that the construction of artificial recharge in the watershed has improved the sustainability of both dug wells and bore wells in the downstream side of the watershed. Improvements, both in terms of yields of bore wells and pumping hours have been reported.
Photographs	

A View of Recharge Pit with collected Rain Water

A view of water flowing through drainage channel to Recharge Pit

A view of the field rain water collection channels

A view of recharge pit before filling

Roof Top Rainwater Collection Arrangements

G17	Kerala
Title/ Name of work undertaken	Roof Top Rain Water Harvesting at Govt. college, Chittur, Palakkad district, Kerala
Location	Govt. college, Chittur, Palakkad district, Kerala
Organisation/NGO/Persons responsible to undertake the work	Groundwater Department, Govt. of Kerala (Funded by CGWB)
Description	Rooftop rainwater harvesting structure with Recharge pit
Outcome	The quantum of rainwater harvested/recharged through the system has been computed as 0.15 MCM **Sustainability of wells** Enquiries with the local residents one year after implementation of the scheme on the improvement in the performance of ground water abstraction structures have revealed that the construction of artificial recharge structures in the campus has substantially improved the sustainability of both dug wells and bore wells in the campus. Improvements, both in terms of yields of bore wells and pumping hours have been reported.
Photographs	

Chittur Govt. College, Palakkad

Ferro Cement Tank with Recharge Pit

A view of the down-pipe for conveying rainwater to the storage tank

G18	Kerala
Title/ Name of work undertaken	Artificial Recharge schemes in Civil Station, Kasargod, Kerala
Location	In the premises of Civil Station, Kasargod, Kerala State
Organisation/NGO/Persons responsible to undertake the work	Public Works Department (buildings), Kasaragod, Govt. of Kerala under Central Sector Scheme (Funded by CGWB).
Description	Artificial recharge from uncommitted surface run off and roof top rain water harvesting was envisaged in the civil station premises of Kasaragod, Kerala State. Work completed during 2000 @ cost of Rs.6 lakhs. The surface run off from barren waste land 120 acre was filtered & diverted to the recharge pit. The roof top rain water from collectorate building after filtration is deviated to the same pit. The estimated surface run-off to the pit is 650m^3/min for 10cm rainfall and the complete water is recharged within 2 days.
Outcome	All dry bore wells started pumping after wards. Farmer at lower reach also got benefit. The entry channel blocked and renovated by district collectors effort, using State fund under CGWB Supervision. Now after maintenance recharge process becomes successful
Photographs	Available

Recharge well filled with water after monsoon

G19	Madhya Pradesh
Title/ Name of work undertaken	Demonstrative project on Artificial Recharge to Groundwater & Rainwater Harvesting in Chotikalisindh Watershed, Dewas district
Location	Chotikalisindh watershed, Dewas district
Organisation/NGO/Persons responsible to undertake the work	PHED, Dewas, Govt.of Madhya Pradesh under Central Sector Scheme (Funded by CGWB).
Description	41 Strucutures constructed. i.e. Stop dam (Masonry) –6, Stop dam (Masonry Weir)-5, Gabion structure-10, Percolation tank-1, Sub-surface dyke1, Recharge shaft -1, Roof top rain water harvesting-2 and Piezometers-15
Outcome	" Upper reaches Chhoti Kali Sindh Watershed" (Dewas Watershed) comprises an area of 294.9 Sq. Km and falls in Survey of India Topo Sheet No. 55A/8 and 55B/1,5, & 9 and area is bounded between N Lat.: 76º17'04" and 76º32'04" and E long: 22º43'08" and 23º02'04". The major part of this watershed falls in Sonkutch block. Some parts of western Tonkkhurd block and Northern part of Bagli block also falls in this watershed. Due to these artificial recharge structures, 100.971 TCM could be harvested in a year and 1514.57 TCM could be harvested during the life of these structures. The quantum of water that could be recharged in a year would be of the order of 75.7283 TCM and during the life of these structures would be 1135.924 TCM. The average cost of water on the basis of cost of these structures and the quantum of water recharged is of the order of unit cost 2.88 Rs/Cu.m
Photographs	

Photographs:

Stop dam, Sarkheda Village

Percolation Tank ,Amlataj Village

Sub-Surface Dyke, Kheriyasahu Vilage

Gabbion Structure , Nanukhera Village

G20	Maharashtra
Title/ Name of work undertaken	Artificial Recharge to Groundwater in Raj Bhawan area, Nagpur, Maharashtra
Location	Raj Bhawan area, Nagpur, Maharashtra
Organisation/NGO/Persons responsible to undertake the work	Dept. of Agriculture, Govt. of Maharashtra (Funded by CGWB).
Description	49 structures (Loose boulder structures-32, Earthen-2, Gabion-8, Earthen NB-3, Cement Nala Bunds -1 and Percolation tanks -03)
Outcome	All the Artificial Recharge and Water Conservation Structures have arrested the runoff significantly as indicated by the thick silt deposit at the base/bottom of each structure. This ultimately enriched the soil moisture content and recharged the ground water. Increase of soil moisture is witnessed by increase in biomass and thick vegetation cover in entire area of Rajbhawan campus. The objective of the project i.e., control of soil erosion and increase in soil moisture content which in turn would help in facilitating recharge and also growth of vegetation of biodiversity park at Rajbhawan was therefore fulfilled. Farm ponds were constructed at lowest level in the campus and during the inspection visit all the farm ponds, were found impounded with water, indicating that the structures is facilitating the recharge to ground water even after the monsoon.
Photographs	Available

Gabion Structure-Before monsoon

Gabion Structure-After monsoon

Cement Nala Bundh-Before monsoon

Cement Nala Bundh -After monsoon

Earthen Nala Bundh-Before monsoon

Earthen Nala Bundh -After monsoon

Gabion Structure-Before monsoon

Gabion Structure-After monsoon

Before Monsoon

After Monsoon

Filled up Farm ponds-Repetitive filling of pond during the monsoon

G21	**Nagaland**
Title/ Name of work undertaken	Artificial recharge to GW through RTRWH in and around Dimapur, Dimapur town & parts of Wokha district, Nagaland (Two Projects)
Location	Dimapur, Dimapur town & parts of Wokha district
Organisation/NGO/Persons responsible to undertake the work	Directorate of Geology & Mining, Govt. of Nagaland (Funded by CGWB).
Description	64 Roof Top Rain water Harvesting structures
Outcome	Total volume of 37,200 m^3/annum rain water has been harvested from the total roof area of about 30,000 sq.m with an average annual rainfall of 1100 mm in Dimapur and 2000 mm in Wokha area. The water in dug wells/shallow wells in and around the recharge wells were not dried up unlike earlier lean period and water levels remain stable. This indicates satisfactory recharging and proper functioning of the recharge structures/wells. The project was implemented with the participation of the people. Conservation and enhancing ground water through artificially recharging to ground water from rain water was a new scheme which was appreciated by the beneficiaries. The project had benefited to scores of needy people institutions/ centers/hospital/community halls & church as they started availing the facilities of rain water harvesting and storage tanks. Public in general around the project have realized the importance of rain water harvesting with advance equipments & materials as well as conservation of ground water through artificially recharging which was the objective of the project.
Photographs	

DLSC Stadium, Dimapur

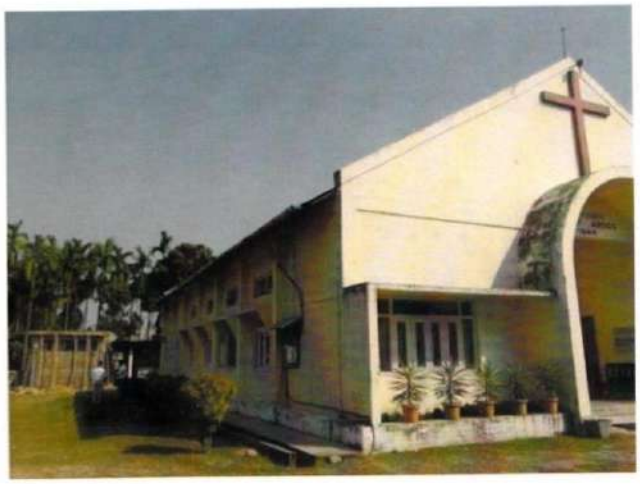
Aoyimkum village Rangapahar, Dimapur

MGM H.S. School, Dimapur

St. Paul H.S. School, Dimapur

DBS H.S. School, Dimapur

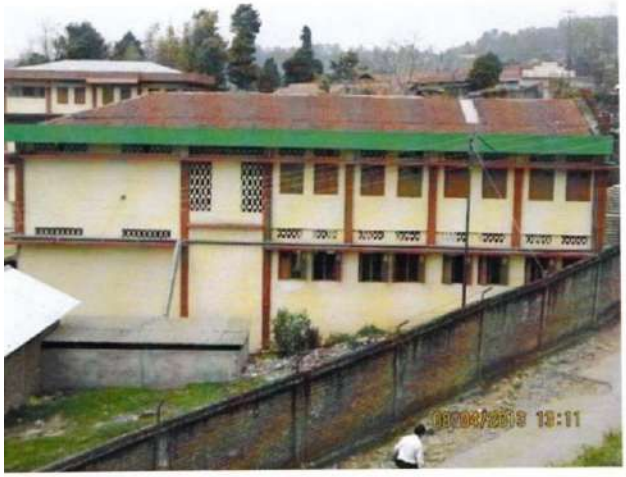
AO Mission High School, Dimapur



Aoyimti Church 3rd mile , Dimapur

Dzukou Water Treatment Plan, Sovima, Dimapur.

Holy Redeemer Hospital Chumukedima, Dimapur



DBHSS Wokha

Don Bosco Youth Centre, Wokha

Civil Hospital, Wokha

G22	Odisha
Title/ Name of work undertaken	Artificial Recharge Scheme for Karmeli mini Watershed , Saintala block, Bolangir dist.
Location	Karmeli mini Watershed , Saintala block
Organisation/NGO/Persons responsible to undertake the work	Directorate of Groundwater surveys & Investigation, Govt. of Odisha (Funded by CGWB under Central Sector Scheme)
Description	Check dam, Percolation tank, Recharge tank, Loose Boulder Check Dam, Recharge pit
Outcome	*The enhanced groundwater recharge has on an average raised the pre-monsoon water table by 0.06 Meters and in post monsoon by 0.21 m. compared to the year average of 2007-2009. This is the most vital environmental aspect of the project. People are also taking up summer crops by lifting water from the recharge structures.* *This ecological impact in the project area has also lead to improvement of soil moisture status and created grassy patches. People are quite happy to find water in their drinking water borewells during the summer. It was estimated to be 6.45 Hectare Metres (HM) of ground water resource has been is augmented during post-project period.*
Photographs	

PERCOLATION TANK- Karmeli mini Watershed , Saintala block, Bolangir dist, Odisha

RECHARGE TANK -Karmeli mini Watershed , Saintala block, Bolangir dist, Odisha

LOOSE BOULDER CHECK DAM--Karmeli mini Watershed , Saintala block, Bolangir dist, Odisha

G23	Odisha
Title/ Name of work undertaken	Artificial Recharge Scheme for Burudi Watershed (Part), Ganjam block
Location	Burudi Watershed (Part), Ganjam block
Organisation/NGO/Persons responsible to undertake the work	Directorate of Groundwater surveys & Investigation, Govt. of Odisha (Funded by CGWB under Central Sector Scheme)
Description	Recharge tank-5
Outcome	The enhanced ground water recharge has on an average improved the pre-monsoon water table from 7.29 to 6.73 meters indicating rise of 0.56 m. This is the most vital environmental aspect of the project. People are also taking up summer crops in limited patches in the vicinity of the recharge structures. This ecological impact in the project area has also lead to improvement of soil moisture and created a verdant landscape in summer. People are quite happy to find water in their wells during the worst part of the summer (April-May).
Photographs	

Pre-Project

Post-Project

G24	Odisha
Title/ Name of work undertaken	Artificial Recharge Scheme for Ganada Watershed (Part), Korei block, Jajpur Dist.
Location	Ganada Watershed (Part), Korei block, Jajpur Dist.
Organisation/NGO/Persons responsible to undertake the work	Directorate of Groundwater surveys & Investigation, Govt. of Odisha under Central Sector Scheme (Funded by CGWB)
Description	1 (Cross bund with 4 recharge wells
Outcome	The impact of recharge through the Recharge Tube Wells and check dam established in the command as well as catchments area of the project were monitored regularly. The pre-project bench marked parameters have been evaluated against the monitoring data of the same parameters of the post-project period to come to the conclusion of the various impact. Localized rain water harvesting systems like check dam, Recharge tank etc. are an effective solution to the water crisis. The most impressive impact of the project is the demand for extension of the project to cover the entire watershed by the people of the locality & their willingness for effective participation. They are now really sensitized for the conservation and management of valuable ground water resources of their locality. Ground Water Resources of the Project Area is augmented by 0.6024 HM Rise in Summer Water Table of the Project Area by 0.06 M
Photographs	

CHECK DAM OVER GANDA NALLAH

RECHARGE TUBE WELL AT BIRAMANIPUR

G25	Odisha
Title/ Name of work undertaken	Artificial Recharge Scheme for Himtira Watershed (Part), Kishornagar block Angul Dist..
Location	Himtira Watershed (Part), Kishornagar block Angul Dist..
Organisation/NGO/Persons responsible to undertake the work	Directorate of Groundwater surveys & Investigation, Govt. of Odisha under Central Sector Scheme (Funded by CGWB)
Description	1 (check dam with associate structures- recharge tank, recharge. Pit and recharge wells)
Outcome	The impact of recharge through the recharge tanks, Recharge Bore Wells and check dam established in the command as well as catchments area of the project were monitored regularly. The pre-project bench marked parameters have been evaluated against the monitoring data of the same parameters of the post-project period to come to the conclusion of the various impact. Localized rain water harvesting systems like check dam, Recharge tank etc. are an effective solution to the water crisis. The most impressive impact of the project is the demand for extension of the project to cover the entire watershed by the people of the locality & their willingness for effective participation. They are now really sensitized for the conservation and management of valuable ground water resources of their locality. Ground Water Resources of the Project Area is augmented by 4.500 HM Rise in Summer Water Table of the Project Area by 0.15 M
Photographs	

CROSS BUND AT TURUDA DURING RAINY SEASON - Himtira Watershed, Kishornagar block Angul Dist, Odisha

RECHARGE TANK AT ANGAPADA Himtira Watershed, Kishornagar block Angul Dist, Odisha

RECHARGE BORE WELL NEAR CROSS BUND AT TURUDA -Himtira Watershed, Kishornagar block Angul Dist,

CHECK DAM AT TURUDA- Himtira Watershed, Kishornagar block Angul Dist

G26	Odisha
Title/ Name of work undertaken	Artificial Recharge Scheme for Ligarkat Watershed (Part), Banerpal block, Angul Dist.
Location	Ligarkat Watershed (Part), Banerpal block, Angul Dist...
Organisation/NGO/Persons responsible to undertake the work	Directorate of Groundwater surveys & Investigation, Govt. of Odisha under Central Sector Scheme (Funded by CGWB)
Description	7 (Check dam-1, recharge tank-4,recharge wells-2)
Outcome	The impact of recharge through the recharge tanks, Recharge Bore Wells and check dam established in the command as well as catchments area of the project were monitored regularly. The pre-project bench marked parameters have been evaluated against the monitoring data of the same parameters of the post-project period to come to the conclusion of the various impact. Localized rain water harvesting systems like check dam, Recharge tank etc. are an effective solution to the water crisis. The most impressive impact of the project is the demand for extension of the project to cover the entire watershed by the people of the locality & their willingness for effective participation. They are now really sensitized for the conservation and management of valuable ground water resources of their locality. **Ground Water Resources of the Project Area is augmented by** **1.174** **Rise in Summer Water Table of the Project Area by** **0.08**
Photographs	

RECHARGE BORE WELLS AT BUDHAPANKA-I & II - Ligarkat Watershed, Banerpal block, Angul Dist,

RECHARGE TANK AT NUASAHI - Ligarkat Watershed, Banerpal block, Angul Dist, Odisha

RECHARGE TANK AT BUDHAPANKA-II - Ligarkat Watershed, Banerpal block, Angul Dist, Odisha

G27	Odisha
Title/ Name of work undertaken	Artificial Recharge Scheme for Uppalairai Desibatia Watershed (Part), Gosani block Gajapati Dist
Location	Uppalairai Desibatia Watershed (Part), Gosani block Gajapati Dist..
Organisation/NGO/Persons responsible to undertake the work	Directorate of Groundwater surveys & Investigation, Govt. of Odisha under Central Sector Scheme (Funded by CGWB)
Description	11 (Check dam-5, recharge tank-6)
Outcome	The ground water table monitoring data for the period spanning last two years (2014-2015) are the key indicators of the impact of the project on the ground water regime of the region. The enhanced ground water recharge has on an average improved the pre-monsoon water table from 8.38 to 7.89 Meters indicating thereby rise of 0.5 m. People are also taking up summer crops in limited patches in the vicinity of the recharge structures. This ecological impact in the project area has also lead to improvement of soil moisture and created a verdant landscape in summer. People are quite happy to find water in their wells during the worst part of the summer (April-May). They have been eagerly explaining the positive effect of the project to all visiting teams of officers representing Govt. of India / Govt. of Odisha with a hope to increase the density of these artificial recharge structures in the watershed so that they can harvest more water to meet their farming requirements.
Photographs	

Pre-Project

Post-Project

G28	Odisha
Title/ Name of work undertaken	Artificial Recharge Scheme for Bolagarh Nallah Watershed , Bolagarh block, Khurda dist.
Location	Bolagarh Nallah Watershed , Bolagarh block, Khurda dist.
Organisation/NGO/Persons responsible to undertake the work	Directorate of Groundwater surveys & Investigation, Govt. of Odisha under Central Sector Scheme (Funded by CGWB)
Description	9 (Recharge tank with Shaft)
Outcome	The post-project period is followed by a very bad monsoon during 2015 experiencing deficit of rainfall. However, as observed during post-monsoon period i.e. during October 2015 there seem to be an impact of such application of recharge technique considering the quantum of rainfall during monsoon season. In the absence of normal monsoon, the project areas did not witness much agricultural activities. However, open wells and bore wells in the project areas has catered the need of the villagers without any significant depletion of ground water levels. The monitoring and assessment of impact of recharge structures constructed in different locations in the project areas shall continue for next 3 to 5 years in order to obtain adequate data to justify their usefulness for the enhancement of ground water storage in the area, particularly during summer. It is expected that there shall be visible impact of recharge due to constructed structures during 2016.
Photographs	

***Pre-Project*- Bolagarh Nallah Watershed , Bolagarh block, Khurda dist**

***Post Project*-Bolagarh Nallah Watershed , Bolagarh block, Khurda dist**

***Pre Project*- Bolagarh Nallah Watershed , Bolagarh block, Khurda dist**

***Post Project*-Bolagarh Nallah Watershed , Bolagarh block, Khurda dist**

***Pre Project*- Bolagarh Nallah Watershed , Bolagarh block, Khurda dist**

***Post Project*-Bolagarh Nallah Watershed , Bolagarh block, Khurda dist**

G29	Odisha
Title/ Name of work undertaken	Roof Top Rain Water Harvesting in the DRDA Office Building in Collectorate Campus, Khurda dist.
Location	DRDA Office Building in Collectorate Campus, Khurda dist.
Organisation/NGO/Persons responsible to undertake the work	Directorate of Groundwater surveys & Investigation, Govt. of Odisha under Central Sector Scheme (Funded by CGWB)
Description	Rooftop rainwater harvesting with Recharge Shaft & Trench
Outcome	The average normal rainfall of Khurda Municipality is 1184.00 mm. The total roof area of the building is 730 sq. m. So the total water available for recharge is 864.00 Cum during the year. Assuming that 70% of this available water i.e 604 Cum can be recharged during the year. The additional ground water to be made available is worked out to be 181.2 Cum approx
Photographs	

COLLECTION PIPE LINES ON BACK SIDE OF DRDA OFFICE BUILDING, COLLECTORATE CAMPUS, KHURDA DIST.

[ON-LINE FILTER INSTALLED] **OFFICE BUILDING, COLLECTORATE CAMPUS, KHURDA DIST**

[RECHARGE BORE WELL INSTALLED IN DRDA OFFICE CAMPUS] **OFFICE BUILDING, COLLECTORATE CAMPUS, KHURDA DIST**

[RECHARGE BORE WELL] **OFFICE BUILDING, COLLECTORATE CAMPUS, KHURDA DIST**

G30	Odisha
Title/ Name of work undertaken	Roof Top Rain Water Harvesting in the Govt. Women's Polytechnic Hostel Building, Berhampur, Rangeilunda block Ganjam dist.
Location	Govt. Women's Polytechnic Hostel Building, Berhampur, Rangeilunda block Ganjam dist.
Organisation/NGO/Persons responsible to undertake the work	Directorate of Groundwater surveys & Investigation, Govt. of Odisha under Central Sector Scheme (Funded by CGWB)
Description	Rooftop rainwater harvesting with Recharge Shaft & Trench – 3 structures
Outcome	Ground Water Resources of the Project Area is augmented by 0.35 ha-m(hectare meter) Rise in Summer Water Table of the Project Area by 0.33 m
Photographs	

Pipe Line

Filter Cum Collection Chamber

Roof Top Rain Water Harvesting in the Govt. Women's Polytechnic Hostel Building, Berhampur, Rangeilunda block Ganjam dist.

G31	Rajasthan
Title/ Name of work undertaken	Roof Top Rainwater Harvesting structures at Govt. Mahila Polytechnic College, Bikaner city, Dist Bikaner
Location	Govt. Mahila Polytechnic College, Bikaner city, Dist Bikaner
Organisation/NGO/Persons responsible to undertake the work	Water Resource Dept, Govt. of Rajasthan (Funded by CGWB)
Description	2 structures (Reservoir tank - 1 , Bore well & filter chamber - 1)
Outcome	The total annual quantity of rain water to be harvested /recharged from existing structure will be 1474 m^3 per year which will be available for drinking and other domestic use Enquiries with the local residents one year after implementation of the scheme on the improvement in the performance of ground water abstraction structures revealed that the construction of artificial recharge in the area has substantially improved the sustainability of wells in the surrounding area.
Photographs	

Circular Recharge Pit with filter pit & recharge tube well

Reservoir (collection) Tank

De-silting Pit

Water Channel with siphon pit.

G32	Rajasthan
Title/ Name of work undertaken	Roof Top Rainwater Harvesting structures at Govt. Polytechnical College (Boys), Bikaner city, Dist Bikaner
Location	Govt. Polytechnical College (Boys), Bikaner city, Dist Bikaner
Organisation/NGO/Persons responsible to undertake the work	Water Resource Dept, Govt. of Rajasthan (Funded by CGWB)
Description	2 structures (Reservoir tank - 1 , Bore well & filter chamber - 1)
Outcome	The total annual quantity of rain water to be harvested /recharged from existing structure will be 717 m^3 per year which will be available for drinking and agriculture use. Enquiries with the local residents one year after implementation of the scheme on the improvement in the performance of ground water abstraction structures revealed that the construction of artificial recharge in the area has substantially improved the sustainability of wells in the surrounding area.
Photographs	

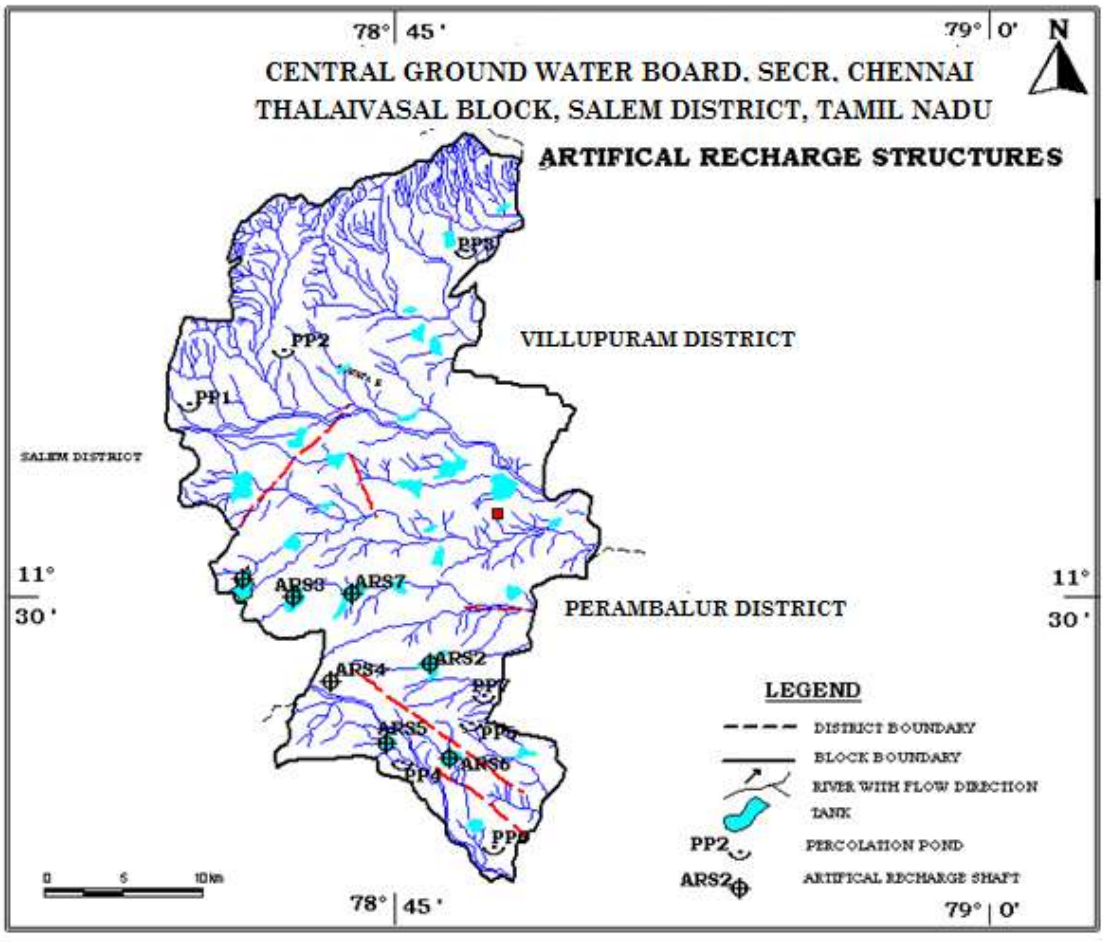
Circular Recharge Pit with filter pit & recharge tube well

De-silting Pit

Siphon Pit

Channel for roof top run off collection

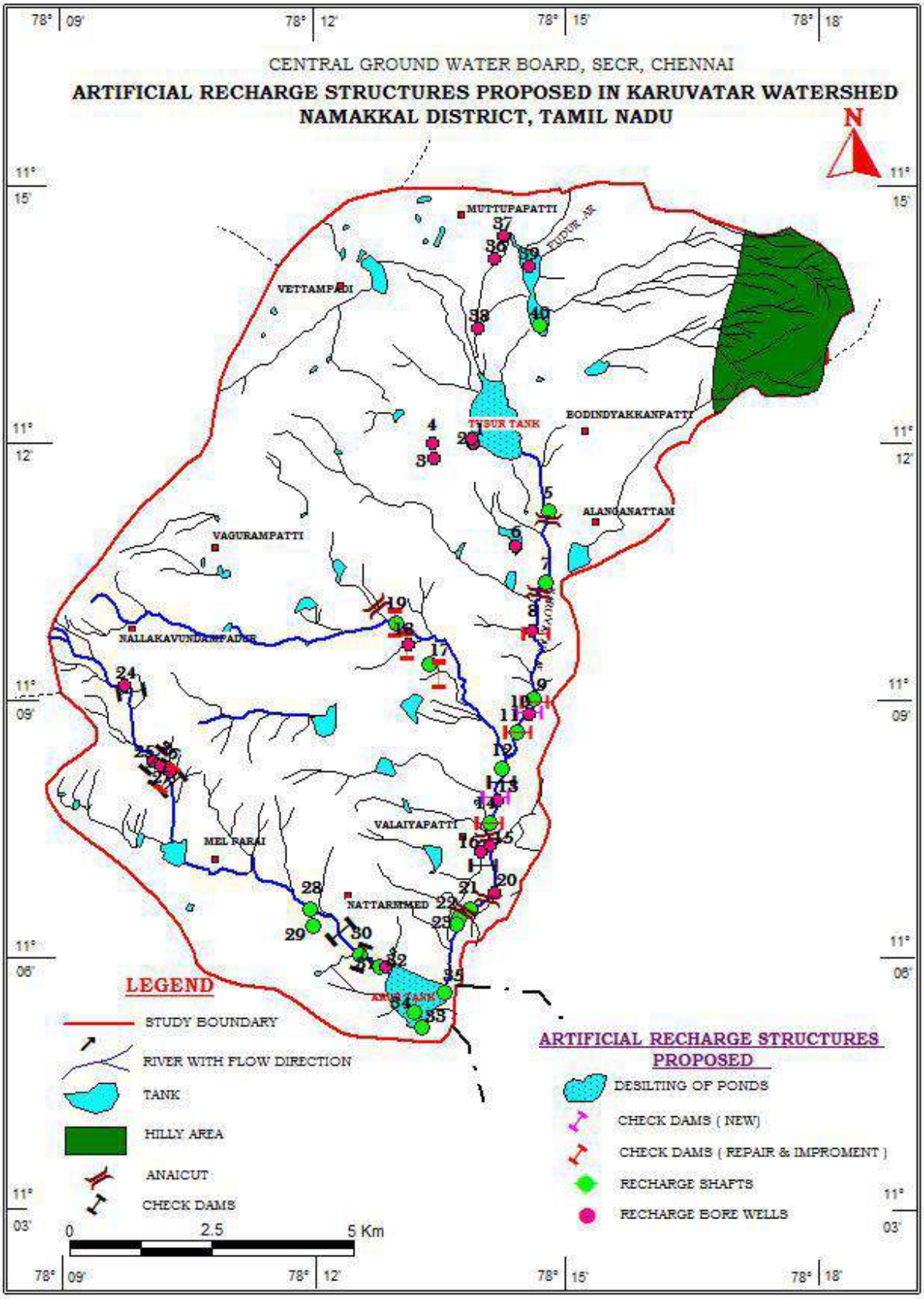
G33	Tamil Nadu
Title/ Name of work undertaken	Artificial Recharge to Groundwater in Thalaivasal Block, Salem District, Tamil Nadu
Location	Thalaivasal Block, Salem District, Tamil Nadu
Organisation/NGO/Persons responsible to undertake the work	PWD, Water Resources Organisation, Govt of Tamil Nadu (Funded by CGWB)
Description	27 structures (Recharge Pit with Bore well-25, Rech.Shaft-2)
Outcome	Sixteen dug wells have been fixed as key wells near by the Artificial Recharge Structures in Thalaivasal Block. The minimum rise in water level is 0.29 m and the maximum rise in water level is 9.97 m. The average rise in water level is 3.119 m. The cropped are increased from 44 to 58 Acres, about 13 acre i.e., 130% (includes second crop).
Photographs	



Kattukottai Percolation Pond- Thalaivasal Block, Salem District, Tamil Nadu

MANIVIZHANDAN PERCOLATION POND- Thalaivasal Block, Salem District, Tamil Nadu

G34	**Tamil Nadu**
Title/ Name of work undertaken	Artificial Recharge to Groundwater in Karuvatur watershed, Namakkal Dist
Location	Karuvatur watershed, Namakkal Dist
Organisation/NGO/Persons responsible to undertake the work	PWD, Water Resources Organisation, Govt of Tamil Nadu (Funded by CGWB
Description	Recharge shaft with BW-20, Check dam-10, De-siltation tank-2
Outcome	*mbgl is meters below ground level 30 Nos. of dug wells were fixed, as key wells, near the Artificial Recharge Structures in Karuvatar Watershed. Prior to implementation of the scheme depth to water level during pre monsoon was deeper (in the range of 4.55 to 20.86 mbgl) whereas during post implementation it has become relatively shallow (in the range of 2.10 to 17.55 mbgl). Like-wise Prior to implementation of the scheme depth to water level during post monsoon was deeper (in the range of 0.95 to 16.10 mbgl) whereas during post implementation it has become relatively shallow (in the range of 0.20 to 12.95 mbgl). Hence there is Positive Impact on groundwater levels. The annual fluctuation between the pre-monsoon periods showed rise in the range of 0.84 to 3.40 m. The post-monsoon rise was also noticed in the range of 0.55 to 3.90 m only. Improvement, both in terms of yields of bore wells and pumping hours, have been reported in the dug wells and bore wells available in the vicinity of the structures, after implementation of the scheme. Enquiries with the local farmers confirm the substantial improvement in the sustainability of dug wells and bore wells available in the vicinity of the structures. Increase in cropped area and the change in water intensive crops were observed in the vicinity of the structures due to the availability of more groundwater in space and time. Gradual increase in the vegetative cover in the vicinity of the structures was observed due to soil moisture availability. The vegetative cover is expected to reduce soil erosion and better percolation of rain water into the sub-surface.
Photographs	


CENTRAL GROUND WATER BOARD, SECR, CHENNAI
ARTIFICIAL RECHARGE STRUCTURES PROPOSED IN KARUVATAR WATERSHED
NAMAKKAL DISTRICT, TAMIL NADU
N
78° 09'
78° 12'
78° 15'
78° 18'
11° 15'
11° 12'
11° 09'
11° 06'
11° 03'
MUTTUPAPATTI
VETTAMPADI
TISUR TANK
BODINDYAKKANPATTI
ALANGANATTAM
VAGURAMPATTI
NALLAKAVUNDAMPADUR
VALAIYAPATTI
MEL PARAI
NATTARIMED
LEGEND
STUDY BOUNDARY
RIVER WITH FLOW DIRECTION
TANK
HILLY AREA
ANAICUT
CHECK DAMS
ARTIFICIAL RECHARGE STRUCTURES PROPOSED
DESILTING OF PONDS
CHECK DAMS (NEW)
CHECK DAMS (REPAIR & IMPROMENT)
RECHARGE SHAFTS
RECHARGE BORE WELLS
0
2.5
5 Km

Different Stages of Construction of Artificial Recharge Structures

Karuvatur watershed, Namakkal Dist, Tamil Nadu.

Different Stages of Construction of Artificial Recharge Structures Karuvatur watershed, Namakkal Dist, Tamil Nadu

G35	**Tamil Nadu**
Title/ Name of work undertaken	Rain water Harvesting in the premises of the NITTTR, Taramani, Chennai city, Tamil Nadu.
Location	NITTTR, Taramani, Chennai city, Tamil Nadu.
Organisation/NGO/Persons responsible to undertake the work	NITTTR, Taramani, Chennai city, Tamil Nadu.
Description	Roof Top rain water harvesting
Outcome	Rise in water level from pre-monsoon to post-monsoon was 1.55 m during 2013-14 and rise in water level was maintained during May 2014-15 also, i.e., 0.95m. The consecutively the pre-monsoon water level showed a raising trend from 5.9 m to 4.87 m bgl, for the period May-13 to May-15. Storage in sump has a direct bearing on the financial aspect of the Institute. There is a significant savings on the amount of water purchased from the open market. Two loads of water is purchased @ Rs.1,000/- per load. Each load is bringing 12,000 liters of water from outside source. The roof top rainwater harvested and stored in the sump in a year is 44,10,000 liters which makes about 367 loads. Thus Rs. 3,67,000/- will be a sure savings on this component alone. Institute incurs about Rs.7,20,000/- on purchase of water every year. Thus about 50% of the expenditure is saved every year. Apart from rise in the groundwater regime, rain water collected in the pond is also used for watering of green belt area of during lean period and washing purpose
Photographs	

Collection, conveyance and Filtering Unit of roof top rainwater harvesting

Collection, conveyance and Filtering Unit of roof top rain water harvesting in the premises of the NITTTR, Taramani, Chennai city, Tamil Nadu.

G36	Telangana
Title/ Name of work undertaken	Rainwater Harvesting in the premises of Jawaharlal Nehru Technological University(JNTU), Kukatpaali Hyderabad, Ranga Reddy dist, Telangana
Location	Jawaharlal Nehru Technological University(JNTU)
Organisation/NGO/Persons responsible to undertake the work	Jawaharlal Nehru Technological University(JNTU)
Description	Recharge Pond with shafts and associated structures
Outcome	The total quantity of rainwater harvested and recharged through about 13,500 cu.m In order to assess the impact of rainwater harvesting structures three Piezometers each with 30.0 m depth were constructed based on the watershed areas. The perusal of the hydrographs indicates that, in general water level is showing rising trend.
Photographs	

RWH structure with two bore well located near new IST building

Open pond along with two recharge wells

G37	Uttar Pradesh
Title/ Name of work undertaken	Artificial Recharge to Groundwater in Sataon Block of Rae Bareli District. Uttar Pradesh
Location	Sataon Block of Rae Bareli District.
Organisation/NGO/Persons responsible to undertake the work	Minor Irrigation Dept, Govt. of Uttar Pradesh (Funded by CGWB).
Description	28 structures (Checkdam-16, Rech.wells-12 with associated structures)
Outcome	During Nov'11 rise in water levels is observed in all the 24 stations analysed with respect to water levels of Nov'10. Five stations show a rise of 0 to 0.20 m, eight stations show rise in the range of 0.20 to 0.40 m and three stations show rise between 0.40 & 0.60 m. eight monitoring station show rise of more than 0.80 m. The water level data of Mar'12 & Mar'11 has also been compared and results indicate a rise in water levels in 18 stations out of 23 stations analyzed (about 78%). Out of these 18 stations 16 stations show a rise from 0.05 to 0.45 m and 2 stations show rise in the range of 080 to 1.00 m. It is observed that after about one and a half year of project implementation there is improvement in water levels indicated by a rise of about 0.20 m in general. Thus considering an area of 240 sq.km of the block & 0.10 as specific yield of the formation, there is about 4.8 MCM built up of ground water resource.
Photographs	

G38	West Bengal
Title/ Name of work undertaken	Artificial Recharge in Murai & Nalhati Blocks, District Birbhum, West Bengal
Location	Chandapara Mouza, Murarai-I Block, District-Birbhum, West Bengal.
Organisation/NGO/Persons responsible to undertake the work	State Water Investigation Department, Govt. of West Bengal
Description	Nala Bundh
Outcome	Conservation of water in the water scarce tract of Birbhum district has improved local water level. It has significantly enhanced the irrigation potential and agricultural productivity. 10 hectares of land has been brought under irrigation.
	Photographs

G39	Odisha
Title/ Name of work undertaken	Roof Top Rain Water Harvesting in the premises of the Office Building of Hydrogeologist, GWS & I Division at Danipali, Dhankauda block, Sambalpur dist.
Location	Office Building of Hydrogeologist, GWS & I Division at Danipali, Dhankauda block, Sambalpur dist
Organisation/NGO/Persons responsible to undertake the work	Directorate of Groundwater surveys & Investigation, Govt. of Odisha under Central Sector Scheme (Funded by CGWB)
Description	Rooftop rainwater harvesting with Recharge Shaft & Trench
Outcome	The Water level monitoring shows that in pre-monsoon, there is a rise of 0.29 to 0.33 m in water level and in post -monsoon, there is a rise of 0.34 to 0.36 m in water level in comparison to pre scenario and present water level status.
Photograph