Success Story of Community Participation for Groundwater Recharge -An Initiative by Vruksha Prem Seva Trust, Upleta, District Rajkot, Gujarat

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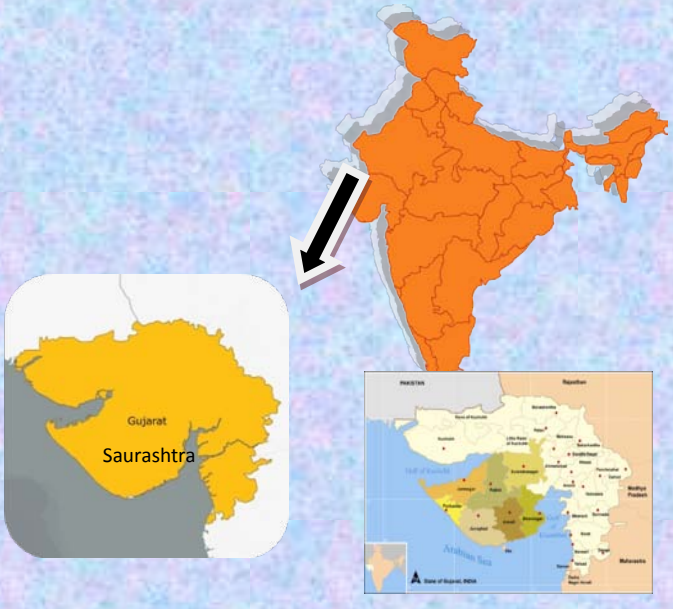
Abstract

Vruksha Prem Seva Trust has implemented Ministry of Rural Development sponsored 30 watershed Projects covering since1995 in talukas of Jamkandorana and Gondal in Rajkot district. A total of 25,000 - 30,000 hectares land has been brought under the watershed development programme. These projects involved construction of 21600 check dams covering 15,000 ha land benefiting around 5500 families. The Trust also undertook the construction of 500 underground tanks for rain water harvesting in 30 villages. The community owned and managed watershed intervention carried out using indigenous and low cost technology has been replicated in 16 more villages. The community participation in the project had positive impact on creating ownership for the project and this is evident in beneficiaries generously donating a part of their land to increase the width of the existing check dams for enhancing their water storage capacity. The paper focuses on the need for community participation using indigenous and low cost technologies in watershed management programmes.



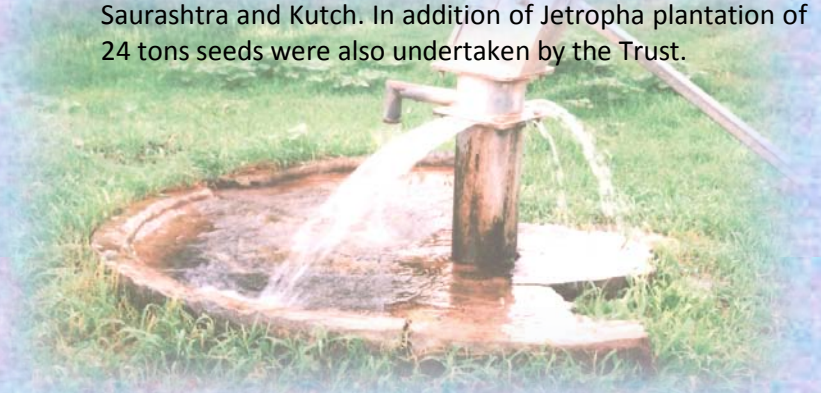
for Groundwater Recharge - An Initiative by Vruksha Prem Seva Trust, Upleta, District Rajkot, Gujarat

As soon as Premji Patel's car enters Maheshpur village in Rajkot district, people rush to give him a warm welcome. The reason – the octogenarian has made it his mission to bring water to parched villages using check dams.

The Vruksh Prem Seva Trust was started by well-known environmentalist Shri Premjibhai Patel in 1968 in the backward area of the Upleta taluka, Rajkot district, Gujarat. He had the burgeoning natural vigor to work for conservation of nature that made him quit his government service to usher in his noble idea of mitigating water scarcity through watershed development. The Vruksh Prem Seva Trust, under his leadership, has been instrumental in launching a campaign for ground water augmentation through well recharge. The most phenomenal achievement has been the initiation of the community contribution for well recharging activity which was as high as 65%.

Achievements in water sector

Vruksh Prem Seva Trust has implemented Ministry of Rural Development sponsored 30 watershed Projects covering from 1995-96 till date in talukas of Jamkandorana and Gondal in Rajkot district. A total of 25,000 - 30,000 hectares land has been brought under the watershed development programme. These projects involved construction of 21600 dams covering 15,000 ha land benefiting around 5500 families. Prior to this, the Trust had undertaken the activity of well-recharging in 6 districts of Saurashtra wherein 50,000 feet lengths of cement pipes were distributed among the villagers. Also demand-driven activity of providing cement support for the construction of check dam was undertaken and 400 check dams were constructed under this initiative in Saurashtra region. Further, the Trust undertook the construction of 500 underground tanks for rain water harvesting in 30 villages in talukas of Jamkandorana and Gondal in Rajkot district. Also as part of afforestation drive to check soil erosion and reduce the run-off of rainwater, 550 tones of seeds of forestry species were sown in 8 districts of Gujarat, Saurashtra and Kutch. In addition of Jetropha plantation of 24 tons seeds were also undertaken by the Trust.



Premji Bhai is also a fast learner. While the government has been deliberating upon the merits of the semi-circular check dam design, Premji Bhai tested it and also replicated it with some location specific improvements. Innovations in check dam designs have become almost a rule with him, rather than an exception. Till date he has built 1,500 check dams for which he has given the complete financial support and 400 other dams for which he has provided the cement. He has also been instrumental in laying out 50,000 feet of pipelines for recharging underground wells. Even at 70, he does this work with fantastic levels of enthusiasm and zeal.

Changing water scenario in Jamkandorana and Gondal talukas of Rajkot district

The Fofal River Watershed Project covers an area of 8910 hectares in 14 watershed villages of Jamkandorana and Gondal Taluka of Rajkot district total of, in series 714 check dams have been constructed on the 35 km long River Fofal. The area is underlain by Deccan Trap basalts.

The pre monsoon water level in the area ranged between 9 to 17 m below ground level during the year 2002 and the stage of groundwater development was 97 % in Gondal taluka and 75 % in Jamkandorna taluka.

Impact of ground water recharge

- Rise in ground water levels in the project area.
- 250% increase in cropped area.
- 150-275% increase in agriculture yield.
- Diversification of 80% of cropped area to cotton from ground nut.
- Self sufficiency in drinking water requirements
- Drought proofing for two consecutive drought years.
- More than 10 times increase in land valuation.
- Improvement in livestock quality and manifold increase in milk production.
- Increased opportunities for employment and reduced migration.
- Reduction in green house carbon gases.
- Benefit cost ratio of the project 1:17.

During the period 2002-07, implementation of watershed development, plantation of forest species for waste land development and checking soil erosion was carried out by the *Vruksha Prem Seva Trust* through involvement of communities. This has resulted into groundwater recharge and the groundwater levels were built up by an average of 3 m in the entire area. Further the groundwater estimation for 2007 revealed that the annual replenishable resources have increased by more than 30 % in Gondal taluka and by about 10 % in Jamkandorana taluka. Although groundwater draft also increased with the increased availability of groundwater, there is an overall reduction in the stage of groundwater development due to increased availability of groundwater because of the implementation of water shed development program.

Innovation in artificial recharge techniques

Arch Dam: The construction of arch dam provides strength to the structure, thereby, increasing its longevity.

Ardha Chandrakar Dam (Semi-lunar dam): It is a low cost structure that allows the greater storage of water.

Sangam dam: The dam is constructed at the very confluence of two streams, thereby, doubling the carrying capacity of both the streams.

Farm pond: This technology allows the water to be stored in a farm land, thereby, allowing the infiltration of the stored water and also preventing the leaching of soil.

A study of long term water level trend shows that before implementation of watershed program there was overall declining trend in both the talukas but after implementation of watershed program the groundwater levels are recording a rising trend in both the talukas. This amply demonstrates the benefits of artificial recharge to groundwater.

The total expenditure incurred on the project till March, 2007 was Rs. 4.65 Crore benefiting around 28,000 families. Owing to the efforts of the Trust, the total area under irrigation is about 8910 hectares. The project has ushered a new life in the area providing increased agriculture yield, more cash crops, manifold increase in land valuation and drought proofing.

Community participation:

Presently, Premji Bhai is concentrating on watershed development through his own organization Vruksha-Prem Seva Sanstha Trust. The work is being done through 150 nature clubs on 1000 hectares of land. The Government had several schemes to encourage the development of check dams on farmers' fields, most of which involved a lot of subsidies. The result was that people often considered these check dams as Government projects and did not own the responsibility for maintaining them.

Premji Bhai introduced a scheme under which people, who united to bear all the costs of construction of check dams except cement, had to apply for assistance. Once he got such requests, Premji Bhai would visit them, look at the location and confirm that the applicants deserved even the help of cement subsidy. Another novel practice he introduced was of asking farmers to think and improve designs by which they could save their labour and cost. Since farmers had to bear much of the cost, they also had the incentive to innovate and there couldn't be more striking contrasts in implementation. While Government schemes had uniform designs with often uniform costing norms, in this case, the variability became the hall mark of cost effectiveness and efficiency.

The costs of construction of these check dams is Rs. 4.10 Crore and the total contribution from the community stands at Rs. 1.02 Crore thereby, accounting for an average significant 28% contribution. The contribution amount from the community has been productively utilized for undertaking more construction work in the areas. The Trust has actually been able to do three times more activities than envisaged in the project.

Sustainability:

The watershed interventions ensured that sources of ground water have sustained for the last 5 years thereby ensuring water security even in drought years. Now the village-based user groups are taking the initiative to raise the height of the dam and undertake its deepening solely on the basis of mobilizing community participation. The agriculture production system due to adequate and timely water availability, is acquiring standardization. The holding capacity of the farmers has increased, thereby, allowing them to formulate their own marketing strategy to earn greater profits. The increasing profits from agriculture have made it a sustainable livelihood option for the farmers.

March Forward:

The community owned and managed watershed intervention carried out using indigenous and low cost technology has been replicated in 16 more villages of Jamkandorma and Gondal talukas of Rajkot district. The community participation in the project had positive impact on creating ownership for the project and this is evident in beneficiaries generously donating a part of their land to increase the width of the existing check dams for enhancing their water storage capacity. Further, the people realizing the benefits of rainwater harvesting have been constructing underground tanks on their own in the premises of new houses for themselves. This project offers great scope of the community managed watershed interventions in other parts of drought-prone areas as well.