

A NGO's Initiative on Community Participation on Water Management

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Background information on the Vigyan Vijay Foundation

In 2001, The Vigyan Vijay Foundation (VVF) came into being when three engineers and a sociologist deliberated and made up their minds to work for community improvement. The mission quickly gained support from a doctor, community persons and other voluntary workers. Our objectives are to assist individuals, communities, and organizations in harnessing the benefits of science and technology while simultaneously developing appropriate principles and practices to improve the quality of living in communities, habitats and ecosystems.

VVF outreach programs strive towards the growth of strong communities made up of empowered individuals. Our inclusive and integrated rehabilitation approaches will ensure that the entire community is self-actualized and becomes part of the program.

VVF aims to uphold the objectives below:

1. To promote awareness through basic adult education
2. To support programs on skill-development, self-employment, micro-credit, etc.
3. To assist communities in achieving economic self-reliance through need-based projects
4. To involve communities in environmental conservation and restoration issues
5. To improve water, sanitation, and solid wastes in light of health and hygiene problems within the community

Water, Sanitation and Waste Experience

VVF works on watershed improvement projects at both urban and rural sites. Recent projects in collaboration with community members were undertaken with holistic approaches to improve the quality of life for community members and livestock alike. For example, VVF has worked in Churu District. In Rajasthan with the Rotary Conservation Trust in 45 villages to implement appropriate principles and practices for water conservation to include water harvesting in tankas, thalais, and thalabs. Additionally, awareness and participatory programs were carried out in many communities on bio-waste compost and in association with educational institutions for women and children aspiring to achieve good results in MDGs. VVF also addresses environmental issues and total sanitation campaigns through community education programs.

Regional Water Issues and Interventions

Most communities are water stressed as both the rural and urban sectors reveal a gross deficiency of water resources. In order to ease this shortage, people rely largely on groundwater and other alternatives.

With rapid population growth and the development of modern technologies, the demand for water has substantially increased. Water availability is neither adequate nor equitable to all human beings across India.

The water bodies and rivers that played a large role in forming and sustaining communities are under a threat with alarming consequences. Decentralized groundwater is used widely for agriculture and for habitat sustenance causing the depletion of sub-soil water around the country. This, in turn, makes the groundwater vulnerable to pollution with adverse impacts.

Local municipal water bodies supply clean and safe drinking water to meet basic human and livestock needs, but deficient water quality leads to health and hygiene problems with dire impacts and other consequences. Community efforts have been afforded to both urban and rural eco-systems to replenish groundwater reserves and also to rejuvenate rivers and other water bodies.

The quality of living in some urban and rural communities has been revamped with adequate water supplies and safe disposal mechanisms for solid and liquid wastes. Water-borne diseases and their effects on women, children, and communities at large

have been monitored and arrested. Through self-realization, communities have made efforts to optimize available water resources.

Schools and colleges within urban communities in Delhi promote student awareness and volunteer efforts. These initiatives have propagated environmental conservation awareness throughout the community.

Environmental and Watershed Projects

Rainwater Harvesting

The implementation, operation and maintenance of rainwater harvesting systems in both the rural and urban sectors has been executed through community initiatives in urban societies, housing complexes, institutions and other sites. The concept of recharging groundwater aquifers has been augmented with store and use systems. On some institutional campuses, ponds have been created to function as a sink for storing rainwater and recycled waste water. The purified water is used for landscape irrigation, flushing toilets and other secondary uses.

Rainwater harvesting units come in many forms. From our experience, we've gathered that it is beneficial to assess the possibility of saving costs in order to achieve optimum benefits. Old village type dug wells, which have become dried up or defunct bore wells, are often used as recharge bores linked to the rainwater catchments. After having implemented and maintained more than 200 rainwater harvesting units, we are aware that most urban and rural areas are familiar with the technology, and local grass-roots nongovernmental organizations are able to carry out the task of implementation easily. Additional training is provided for operating and maintaining the systems when needed. Wherever the systems are implemented, awareness and participation is sought from stake holders and the community as a whole. It is also ensured that only clean and safe rainwater is collected to recharge the ground water. The concept of performing maintenance is propagated and community participation is encouraged.

Recycling Water for Secondary Uses

In locations where considerable amounts of marginally polluted water are seen in the drain channels, efforts have been made to recycle this wastewater for uses of lesser importance. Eco-friendly natural treatment methods – to include, for example, decentralized wastewater treatment systems – are employed for this purpose.

These systems are encouraged and propagated by VVF in the communities we work with. We have implemented eight waste water recycling systems which are now in operation; their stake holders are very appreciative and are more water-secure as a result. In the first system, urban drain water is sourced and channeled through the treatment process and is used in colony parks at Vasant Vihar, a Delhi colony. In the second plant, waste water is sourced from a drain which receives the processed water from a sewage treatment plant. This is located in IIT (Delhi) and is used for supplying recycled water for horticulture and development research. The third plant is at the Center for Science and Environment, a nongovernmental organization. The sewage water from the building is processed and recycled for watering gardens on their campus. This treatment plant is also used for demonstration and the propagation of similar systems through workshops and seminars. VVF has also developed five more plants producing recycled water through similar mechanisms.

Research with Academia and Other Institutions

Results from our watershed projects have been provided to research institutions, namely IIT Delhi, JNU, IIT-BHU, DCE, IIT Roorkee, on the hydro-geo-chemical aspects of our work. We hope this will help the field of watershed development arrive at sustainable solutions for communities to become more water secure in the future. Also, networking with prominent nongovernmental organizations in the fields of watershed and environmental development will expand our working knowledge.

Water-Literacy Within Rural Villages

In the rural sector, villagers are encouraged to use village ponds for all water needs. We have had good experience upgrading village ponds. Take, for example, Dharampur which is 20 kilometers outside of Gurgaon. There, a medium sized pond was de-silted and rainwater channels were made to bring all rainwater catchments to the pond. Also, household waste water went through treatment processes and this recycled water was used for local agriculture and the irrigation of vegetable gardens.

Working on these projects led us to do more probing and finally create a sustainable system for treating village wastewater. Villagers are appreciative of this holistic system, and they hold an annual spring festival near the temple pond. The cattle owners and their herds access the pond from one location only, and a drinking water facility has also been provided for the cattle near the pond. This village is near the Sultanpur National Bird Sanctuary and the upgraded habitat has drawn foreign migratory birds.

Solid Waste Management and Bio-Composting

We've also gained experience with solid waste management through the propagation of on-site composting of clean bio-wastes and bio-compost. Manure is treated as 'wealth from waste' and taken for horticulture uses. Additionally, we've adopted the concept of green campuses where green buildings are developed. Through these measures, communities are made aware of the value of recycled waste and the initiatives are promoted. The city's load for solid waste management is also reduced due to these decentralized initiatives.

- Bharati College: All the bio-waste generated on the college campus is collected and segregated for composting; and, due to the large amount of compost generated, this becomes a viable means of income generation for the college. This is a self-sustaining method of waste management and also sets a good example for others to replicate.
- Pathways School: Initiatives have been taken in the school to segregate and manage the waste. Bio-composting at the school has been set-up with our help. As a result, the school at large is motivated for this action based activity.
- Botanic Garden: The biodegradable waste collected from the garden is taken for vermi-composting. This working model of bio-composting is used as a display for the school and college students to create awareness, impart their knowledge of waste management and to motivate others to take similar initiatives in their respective sites and institutions.

"Youth for Environment" and Water Development

Water Innovators: Youth have both special concerns and unique responsibilities with regards to the environment. Many environmental risks and hazards affect young people who have to live with the deteriorating environment bestowed upon them by earlier generations. Youth have been encouraged to engage in new forms of activism that will generate effective responses to ecological challenges. Many people, especially young children, are particularly vulnerable to environmental risks to include, for example, limited access to clean and safe drinking water. The youth will thus become the agents of change in the present world as they come to understand the causes and effects of environmental degradation and are also willing to work for a better environment in the future. Acting with an environmental ideology, youth have been encouraged to work for water and its conservation. Youth volunteers generate awareness and work in the various communities for water development tactics. We have lead volunteers at various

schools and colleges to include Bharti College, Lady Irwin College, Institute of Home Economics, D.C.E., Harola School, etc. These volunteers go out into the community to promote awareness of the importance of water and the apt principles and practices of conservation (i.e.: the four R's: reduce, reuse, recycle and recharge).

Our Greatest Barrier to Clean Water Access

At present, India is a water-stressed nation. Adequate water resources on the surface and in the sub-soil aquifers are challenged not only by tremendous water stress and shortage with looming consequences, but also by increased costs and expenses to the communities. Both the rural and urban sectors consume more water than what is required for their needs from a deficient supply and one with ever increasing demands.

In the agricultural sector, the most efficient way of farming has yet to be introduced. Water gobbling and costlier agri-produce should be shifted to areas of ample water resources and appropriate agri-farming should be employed in water deficient and stressed regions. Water conservation measures are adopted wherever possible by the use of sprinklers and drip irrigation systems.

A supply side management assessment indicates a gross deficiency of surface water resources. To ease the water supply shortage, the nation as a whole now relies on groundwater more than surface waters. Decentralized groundwater is available where required and hence also draws heavily on the electric power supply and costs. This resource is largely used for agriculture and for human habitats in most cities and villages and for industrial purposes as well.

The privatization of natural resources has led to the degradation of age old practices of water management and conservation, thus leading to the deterioration of natural resources. There has been a change in mind-set and the traditional practices of conservation have not been upgraded to reflect this change; therefore, we've witnessed a gross failure of water management in all sectors. This adds to the deterioration of our water situation.

VVF's Future Goals and Initiatives

As an extension of our activities for urban renewal, plans are in the works to formulate appropriate city development plans for water, sanitation and appropriate waste disposal. VVF has played a pivotal role in these sectors. For example, Delhi is to host

Commonwealth Games in 2010, and we have been associated with the environmental development work to include groundwater improvement, river front uplifting, institutional development, etc. We also plan to continue networking with lead nongovernmental organizations on watershed development and sharing our experience with environmental projects during workshops, seminars, conferences etc.

Youth for water programs: We plan to promote networking among youth volunteers and to motivate more youths to volunteer for water conservation causes. Thus, targeting a greater number of communities to spread awareness is essential. VVF believes our youth are the medium for change in the present world as they are willing to work for a better environment for the future.

Our Impressions on the Water Crisis in India and Some Suggested Solutions

Water is required for domestic purposes, irrigation, and industry which are all vital to the survival and progress of Indian society. This is why important civilizations have grown and prospered around perennial rivers and other water bodies. It will only be possible to change our current situation through community participation and decentralized water resource management tactics. Communities should be motivated to apply the four R's of conservation to support the water development cause.

Urban colonies are water deficient, and, therefore, rainwater should be used to recharge groundwater aquifers or for store and use models. Rural ponds and lakes are to be de-silted and maintained in order to retain adequate volumes of rainwater to recharge groundwater levels. Awareness and participation of students, communities and their residents must be garnered for the success of our cause.

Linkages of rivers and basins with adequate water levels are judiciously derived to refill dried water bodies. Similarly, the inter-linking of groundwater reserves should be attempted where feasible. Surface water is exposed to all vagaries of pollution and is susceptible to contamination, but the groundwater is in many ways more protected, and, with some caution, it can easily be used wherever need arises. This natural resource is time tested and should be cherished and used prudently under apt legal strictures.

India has adequate surface and sub-soil water for present and future needs, but community members need to be made aware of management principles and sustainable

solutions to manage its use judiciously.