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Natural Solutions

Offers services in the areas of sewage/effluent treatment; rain water harvesting; environmental pollution control and groundwater & surface water replenishment

Natural Solutions was established in 2003 by Dr. Ajit Gokhale, proprietor/chief consultant. The company is headquartered in Mumbai. The company offers services in the areas of sewage/effluent treatment; rain water harvesting; environmental pollution control and groundwater & surface water replenishment.

"I was always interested in water bodies, ponds, lakes, rivers, and of course the sea. I saw sweet water well on a small island fort in Arabian Sea at the age of about 11. I was fascinated by this and wanted to understand how it works. My studies of Botany took me to places where I understood the link between well water and pond water. Later on my work life took me to M/s Ion Exchange (I) Ltd- a water treatment major. There I understood that the only non-polluting way of getting sweet water is to harvest rain water. That was the beginning of my work on rain water harvesting," avers Dr. Gokhale.

Main Projects

Speaking about the main projects that the company handles, Dr. Gokhale says, "Rain water harvesting for village communities is our most favorite project. So far, we have studied over 160 villages (From steep sloping Western Ghat and Mel Ghat regions of Maharashtra and Rajasthan) and given the site specific plans of making them drought free, and increase the availability of drinking water so that they do not face scarcity of water in summer months. These villagers and their supporting NGOs have made these structures and the villages have become self reliant about their drinking water needs."

He further adds, "The other projects which we like are wastewater recycling. If we get a green field project we start from rain water harvesting, help designing in best plumbing practices, and further help our clients in waste water recycling. If we have already built projects which seek our advice, we provide them with site specific solutions to problems of rain water harvesting as well as wastewater recycling."

The company also helps in establishing Waste Water Treatment Plant (WWTP). "Generally if the clients have area we suggest reed bed systems/constructed wet land systems. If the area available is limited, we suggest advanced semi automated reed beds. Only if extremely space constrained, we suggest activated sludge systems of various kinds," informs Dr. Gokhale.

Rain Water Harvesting

Rain Water Harvesting is scientific management of available rain water so as to meet water needs during as well as after the monsoon. "We can adopt rain water harvesting everywhere. It is important to know that appropriate rain water harvesting practices differ from site to site. Urban as well as rural rain water harvesting in appropriate ways is the solution to water scarcity. Besides making water available, it can reduce, or even reverse, migration of rural population to urban slums as this harvested rainwater can give them food and water security," he adds.

Some of the traditional as well as modern practices of rain water harvesting include:

Dr. Ajit Gokhale

Rural Rain Water Harvesting

Traditional: Dr. Gokhale maintains India is a world leader in rural rain water harvesting. "The methods used usually included making ponds and lakes in and around the villages. These water bodies used to recharge the ground. Villagers used to harvest this recharge throughout the year from the wells in the vicinity. This, not only provided drinking water but also water for irrigation. In places of greater scarcity ingenious ways of harvesting roof top rain water were developed. These can be seen in places like Rajasthan, Kutchh, Saurashtra, and hill as well as maritime forts."

Modern: In many parts of rural India rain water harvesting is being rejuvenated. "Tarun Bharat Sangh is doing it in Rajasthan and parts of Kutchh. Paani Panchayat, Paanlot Vikas, WOTR and associated organizations are working for the same in Maharashtra and Karnataka, BAIF and related NGOs in their project areas in Tamil Nadu. Madhya Pradesh government has championed the cause through their activities in Rajiv Gandhi Water Harvesting Mission. The results are spectacular. We are doing it through SHARE-SCESA-Rotary and Natural Solutions in high rainfall areas of Western Ghats of Maharashtra," maintains Dr. Gohale.

Urban Rain Water Harvesting

In the urban sector, Germany is world leader in rain water harvesting. "In India, Chennai has taken lead in Urban Rain Water Harvesting. The city was plagued with even drinking water scarcity. By 1995-96 the city took to rain water harvesting. Because of their conducive geo-morphology, they have used earth as a storage structure for their harvested rain water. By now, they

have gone ahead and it has become a movement in almost entire Tamil Nadu. Other cities like Delhi, Bangalore, Mehsana and Hyderabad are following suit and are starting to reap the benefits of harvested rains," avers Dr. Gokhale

Rain Water Harvesting Practices

Following are the rain water harvesting practices followed:

• ***Harvesting for later usage:***

Rain water can be harvested for use during dry summer months. This can be done in two ways: storage in earth and storage in constructed storage structures. Storage in earth can be done by making various ground-water recharge structures, which include recharge pits, trenches, wells, bore wells etc. Ponds and lakes also act as recharge structures. Constructed storage structure requires tank space to store all the rain water for future use. As the entire available roof top rainwater is sought to be collected, the cost of adopting this method becomes very high.

• ***Harvesting for immediate use:***

Rain water can be harvested for immediate use. This is a practice where rains are evenly spread through out the year. Here the cost of the storage structure is minimal. This practice is used in equatorial climates like parts of north eastern sates in India and in Far Eastern countries. This needs tankage suitable for up to 1-4 days of storage volume.

• ***Harvesting for immediate use combined with later use:***

This is a combination of the above two practices. This is needed where the geomorphology is not very conducive for recharge, rain fall is considerable and assured but seasonal and where alternative water sources are available during the dry seasons. This requires tankage for up to 1-4 days of storage volume plus ground water recharge structures. Appropriately designed rain water harvesting systems may have pay back period of just over a year. For extensive areas and larger requirements the cost may be higher and ROI longer.

Organic Farming

Speaking about the company's role in encouraging organic farming amongst farmers, Dr. Gokhale says, "We help in spreading literacy about organic farming. We have already helped two of our friends in developing their farms organically, one 23 acres and the other 5 acres from barren land to lush green bio-diverse productive farms. Further, in the villages, where we work, we try to induce the villagers to start second cropping organic. We have a few clients whom we are helping in converting their vegetable farms and orchards into organic ways."

Solid Waste Management

Solid waste management involves converting food waste and garden waste into compost. Dr. Gokhale suggests situ aerobic composting, NADEP and vermicomposting for solid waste management. The company only converts industrial wastewater into usable water. "We have not so far done any industrial solid waste projects. We forward those inquiries to another company ECO RECO," he informs.

Trained Personnel

"We have a trained team of people for executing various projects," maintains Dr. Gokhale. "We have 6 persons in our core team and we execute several projects (particularly water harvesting) through various NGOs including their people strength our team (extended team) is over 60," he adds.

Natural Solutions provided rain water counseling in over 650 locations all over India, the major ones are in and around Maharashtra. They provided counseling on water management to over 400 housing societies, institutions etc in Mumbai and Maharashtra, select projects in other states, and 160 villages in Rajasthan and Maharashtra. Some of their prominent corporate clients are Eureka Forbes, Bharat Petroleum, Hindustan Petroleum and Jindal Steel beside others. The company helps in setting up water management plants.

Dr. Gokhale is an M Sc., PhD in Botany. He also has Diploma in Environmental Management and ISO 14000. He has over 19 years of experemce in this field. "I worked for Ion Exchange India Ltd and there we had this training from Cranfield School of Water Management," he avers.

Our Correspondent