



# Managing Groundwater Use and Sustaining Aquifer Recharge through Village-level Interventions

**Udaipur:** MARVI project has been running for more than seven years in Rajasthan and Gujarat. There have been a number of important outputs and they are being launched widespread use by Shri Rajendra Singh jThe The MARVI project is focused on developing a village level participatory approach, models and tools to assist in improving groundwater supplies and reducing its demand through the direct involvement of farmers and other affected stakeholders.

Unique feature of MARVI is the use of scientific measurements by citizens through the engagement of Farmer volunteers, called BJs (Bhujal Jankaar – a Hindi word meaning 'groundwater informed'). With appropriate training and capacity building, BJs monitor groundwater levels and quality, making sense from a village perspective of what is happening to village groundwater availability. BJs convey this information to farmers and others in their own language.

Groundwater level represents the integration of recharge, pumping and flow processes and is a direct measure of groundwater availability and the success of any collective management practices. BJs are an effective, trusted and valuable interface between

village communities and government agencies, NGOs and researchers.

The first phase during 2011-2017 and the second phase is for another three years.

The total funding from Australian Centre for International Agricultural Research (ACIAR) was \$1.28 million over four years. The additional funding of \$223,000 has been provided by ACIAR and Australian Water Partnership (DFAT) for second phase of the project.

MARVI project was led by Western Sydney University and the Project Leader is Professor Basant Maheshwari. CSIRO Land & Water was a collaborative partner from Australia.

The partners from India included Maharana Pratap University of Agriculture and Technology, International Water Management Institute, Development Support Centre, Arid Communities and Technologies and Vidya Bhawan Krishi Vigyan Kendra. The other partners who joined later were Mekong Futures Institute (Laos) and Carnegie Mellon University (Adelaide).

There were a total of 32 researchers and 36 farmer researchers in this project

The research in MARVI project focused on two multi-village watersheds, the



Meghraj watershed in Aravali district of Gujarat and the Dharta watershed in Udaipur district of Rajasthan. Both watersheds have hardrock aquifers.

The main aims were: (i) enable local villagers to monitor groundwater (ii) design participatory processes to assist village level discovery and implementation of solutions for sustaining groundwater use and improved livelihoods; (iii) establish a comprehensive database about groundwater level fluctuations, availability and river bed structures to augment recharge (iv) advance groundwater knowledge and understanding of farmers, local communities (including schools) and decision makers; and (v) provide tools for estimating annual groundwater recharge, water availability and crop demand. Overall, the focus is to improve

cooperative decision making for sustainable groundwater use.

Watertable fluctuations in 110 wells in the Meghraj watershed and 250 dug wells in the Dharta watershed were monitored by BJs and groundwater sensors over four years. A number of checkdams were monitored to understand their recharge performance and effects on groundwater availability on nearby wells.

An SMS based data collection system and a smart phone app called MyWell, for both Android and iOS platforms, was developed to assist in the easy collection of watertable depth and rainfall data and to visualise data and make them available on the web.

A detailed socio-economic study, along with crop demonstrations, engagement through PhotoVoice and community

forums, was conducted to understand farmers' needs and capacities and explore what changes will work for future groundwater management strategies.

Aravali and Udaipur districts at the beginning and now it is spreading in different parts of Gujarat, Rajasthan, Maharashtra and Andhra Pradesh.

1. What were the baseline water scarcity conditions?

The groundwater levels were declining and farmers were in despair as to what is the way forward to maintain their livelihood. Farmers in the two watersheds had hardly any data on the groundwater level fluctuations, rainfall and water quality for their villages. As such, they were feeling hopelessness in terms of their groundwater futures and many of them have given up hope and encouraging their chil-

dren to go cities in search of employment.

2. The villages and districts benefited by the MARVI Project

The MARVI project helped them to monitor groundwater level and understand how groundwater is fluctuating, what are the options to use less water and still produce crops and improve livelihood.

3. Funding

The funding for this study was provided by Australian Centre for International Agricultural Research; \$1280000.

4. Impact of the initiative on the livelihood of the local communities

An approach for community based, participatory groundwater monitoring and management has been developed through a close collaboration with research and development agencies and village communities.

Watertable data monitored by both farmer volunteers and sensors have enabled the estimation of local hydro-geologic parameters and the development of a simple groundwater balance.

The monitoring of rainfall and water levels in checkdams has led to partition of aquifer recharge due to checkdams and natural recharge in relation to subsequent ground-

water use.

The MyWell App developed will help in easy collection of watertable, rainfall and checkdam water level data from any location in India and making those data available on the web.

Local farmer volunteers are proving to be significant change agents and through their scientific measurement, understanding and communication in the two watersheds. They are also an important interface between researchers and village communities.

As result of the effective engagement of village communities and evidence shown through local data collected over the last four years, there is an indication that farmers now have started to understand their local groundwater system, accept that groundwater is limited and that the falling watertable is a village level issue and it needs to be tackled at the village level.

The work through MARVI has strengthened the farmers' view that individual effort alone will not work to solve their groundwater problem. The groundwater level data reveals that deepening wells or installing deeper tubewells is like snatching each-others' groundwater, and overall no extra water is to be gained by drilling deeper. They have already taken

measures to stop deeper drilling, to remove sediment from recharge structures, to determine rabi crop areas from post-monsoon groundwater levels and to improve mulching and water use efficiency, and diversify crop types.

The farming community in the two watersheds is now debating the concept of sharing groundwater through 'village groundwater cooperatives' (VGC). The concept of water productivity, rather than crop productivity, is gaining momentum among the farmers. These are important outcomes from MARVI.

5. How the self-sustainability of the initiative is ensured?

The formation of Village Groundwater Cooperatives by local communities in both watershed is a sign of moving towards self-sustainability of MARVI in the two watersheds and beyond.

6. Outscaling of MARVI in other parts of India

There have been several visits by government agencies at the State and Central for replication of MARVI in new Jal Shakti initiatives in the country. There have been some follow up from individuals in Maharashtra, Andhra Pradesh, Karnataka, Uttarakhand, West Bengal and other parts of India.

## Grand Ceremony Held in Pacific University Auditorium



**Udaipur:** Dr. Bhagwati Prakash Sharma while addressing as Chief Guest at the grand ceremony held in the auditorium of the Pacific University on the occasion of the 17th session of quality circle forum Rajsamand Chapter, said that strong in the era of global competition, for the international recognition of

India, the quality of our manufacturing and services sector Individual commitment is essential and its important contribution to The convention have Nirmayan the new India share each other's experiences.

Initially, Welcoming the guests, Rai Rakesh Srivastava, General Manager

(Human Resources), J.K Tyre said that the quality circle ideology of the state and national level factories makes a valuable contribution.

On this occasion, the co-organizer of the program was the Provost (Dean) of Pacific University, Prof. Mahima Birla, while highlighting the contribution of Bholaram Agarwal, the founder chairman of the University, highlighted today's program and said that quality mentality is very important for our global presence and competitiveness.

QC F.I.R. Chairman of Rajsamand Chapter Mr. Radhashyam Kedia gave detailed information about the program of Quality Circle of India and explained the benefits of state and national and international quality conventions and participation of industries in them. And underlined that all of this also develops itself. Chairman of Udaipur Chamber of Commerce, Rakesh Singhvi while addressing the distinguished guest said that it is necessary to bring quality con-

scious cultural change in industries and service sectors through such conventions.

Gaurang Shah, Global Head of Quality and Distinguished Guest of Secure Meters, giving an example of India's space programs, described how he is learning the failures and today is celebrating success in the world. Every one of you is capable of doing this.

Dr. Narendra Kumar Sharma, Secretary of the Forum said that in the session today, 42 quality groups of 11 institutions from ten in the morning to five in the evening, 350 delegates will present their works in four parallel rooms which will be judged by 12 judges and all will be evaluated on the basis of But it will be rewarded.

Guests honored 12 judges and 30 poems, posters, essay participants and representatives were honored by Mr. Kedia and Birla. The program was coordinated by Dr. Subhash Sharma of Pacific University.

## Seagram's Royal Stag with Jasprit Bumrah

**Udaipur:** Seagram's Royal Stag made the grand addition of the world's leading bowler into their dream team. Jasprit Bumrah, India's new pace sensation has joined the Royal Stag stable. Riding high on his excellent performance in the ICC Cricket World Cup & in the recently held West Indies tour, Bumrah is an embodiment of talent & extraordinary potential & fits in well with the philosophy of the brand.

Cricket has always been central to Royal Stag's brand communication. Over the years, the brand's continuous association with the world's top cricketers has strengthened its engagement with cricket lovers across the country.

True to its iconic status & philosophy around crick-

et, the brand entered into a 5 year association with the ICC in 2018 & is currently endorsed by leading cricketers stars from across the globe- South Africa's Faf du Plessis, England's Ben Stokes, India's KL Rahul, West Indies' Andre Russel, New Zealand's Kane Williamson, Australia's Mitchell Starc.

Welcoming Jasprit to the Royal Stag dream team, Kartik Mohindra, CMO, Pernod Ricard India, said "Royal Stag has always been an iconic brand that has inspired people to dream, achieve and make it large in life. We are extremely excited to have Jasprit Bumrah on board. His journey from debut till today, has been inspirational, where now, he is unanimously acknowledged

as one of the greats of the game across all formats. He is a source of inspiration to the millions across the country who are ambitious, embody self-belief and are willing to go the distance to fulfil their dreams".

Joining the Royal Stag Team, Jasprit Bumrah said, "I am delighted to be associated with a brand that constantly inspires India with the power of sports & spirit of make it large. I feel that my journey as a cricketer and my achievements were driven by an underlying passion of Making it Large irrespective of the challenges & hurdles I faced".

Capturing the essence of Seagram's Royal Stag, young pacer Jasprit Bumrah will soon be seen in a full-fledged 360 degree marketing campaign.

## The habit of submerging garbage not changed

**Udaipur:** Water has come new but our old habit of throwing garbage in water has not changed. Some people put plastic, polythene, bottled and other garbage in the lakes. This concern was expressed in the Sunday Shramdan Dialogue Program held in partnership with Lake Mitra Sansthan, Lake Conservation Committee and Gandhi Manav Kalyan Samiti.

The program was attended by Drupad Singh, Kushal Rawal, Digamber Singh, Krunal Koshi, Tej Shankar Paliwal, Nand Kishore Sharma, Anil Mehta and local citizens. Lake lovers took out the weeds and miscellaneous wastes from Pichola in the Daiji Pulia area.

## 61 teachers- awarded Nation Build Award



**Udaipur:** In a ceremony organized by Rotary Club Udaipur at Rotary Bajaj Bhavan, 61 teachers teaching in various disciplines working in the district were honored with the National Build Award. The chief guest of the function was Vice Chancellor of MPUAT, Dr. NS Rathore.

Dr. Rathore said that the teacher has always been revered everywhere. Not only is the teacher teaching in the classroom, but every person is a teacher from whom the person is educated. If teachers stop teaching today, tomorrow will be useless. The field of education has become challenging. The teacher's contribution to society is huge. The only teacher can bring change in the society. If the change is not made with time, any institution can reach the brink of closure.

He was awarded the Nation Build Award to sixty teachers

a few of them are - Dr. Raksha Sharma, Dr. Bhawanibai Singh, Dr. Rashmi Mathur, Dr. Rod Singh Deora, Dr. Dilip Singh Chauhan, Shubhra Surana, Dr. Govind Singh Shaktawat, Dr. Ritu Bhatnagar, Prakash Vaya, Dr. Neelam Bhandari with Upama, Shavli, Souvenirs and Shripal.

Presiding over the function the club president, Dr. Pradeep Kumawat, said that our Indian culture does not say that teachers should be teachers only. Now the teacher's ways have changed. He will have to fulfill his post-Guru responsibility by becoming a Guru. The store of knowledge has gone to smart-phones today. The disciple has come to know more from the teacher. The replacement of values and values by adapting to their life will keep the teacher alive in society and school.

He said that the way the education policy of the country is undergoing change. Seeing that, the duty of the teacher increases. In such a situation, all of us should take a pledge to start a new change. The message of truth should be traveled. On this occasion,

Krishnavatsal Pandya, Bhuvanesh Ameta, Hemant Mehta was honored at the ceremony. Finally, Secretary Sanjay Bhatnagar proposed a vote of thanks. Initially, Manmohan Bhatnagar and Kadambari presented Ish Vandana. The program was conducted by Vandana Sharma.

## 64th district level swimming competition

**Udaipur:** Kanishka Raj Singh Ranawat of Maharana Mewar Public School excelled in the 17-year student section in Udaipur. In 64th district-level swimming competition in 2019. Ranawat won three gold medals in the 400m, 800m freestyle and 200m butterfly strokes to win the individual championship He has achieved this for the second consecutive year. Also, he has been selected for the upcoming state-level swimming competition quota. He is currently under the direction of swimming coach Mahesh Paliwal.

## Opening of "Food Circle" Restaurant

**Udaipur:** The "Food Circle" restaurant in Fatehsagar Devali was inaugurated by the Rajsamand MLA Smt Kiran Maheshwari and Maali MLA Dharam Narayan Joshi. Jointly

in a grand ceremony

On this occasion, the restaurant chief, Chetan Sanadhya, former councilor told that many friends including Lokesh Dwivedi, former state working committee member Govind Dixit, former councilor Vijay Prakash Vipulvi, former councilor Girish Srimali graced the function

## Karmanya ranked first

**Udaipur:** Karmanya Gupta of Udaipur secured first place in Rajasthan in the state level Mental Economical Competition of IP Abacus held in Jaipur. Karmanya holds the Grand Master degree at Abacus. Karmanya's parents said that he gives correct answers to maths questions in a very short time and has also received many awards in the National Olympiad.

## Udaipurites makes Purple Run a grand event



**Udaipur:** Forum Purple Run is India's first-ever run organized by Forum group with a motive of creating awareness about Alzheimer's disease. This run is held to create a sense of consciousness, sympathy, and poise towards this disease. Forum Purple Run was organized on 15 September '19 across 8 Malls situated in 6 Major Cities Unprecedented enthusiasm was seen among the Udaipurites towards this run. Around 1300 people participated including people aged 6 to 70. Each one of them participated with great enthusiasm. The run commenced at 6:00 am with flag off, from the Celebration Mall and finished again at the Celebration Mall via RK Circle, Shobhagpura Circle, 100 Feet Road.

In 10 km: Under Men's category – First position was bagged by Rajendra Vyas, second by Pannalal Kharadi, and third by

Rambharosh. Under Women's category – First positioned was bagged by Sunita Jat, second by Ritu Kumari Sharma, and third by Bishnu Kumari. While In 5 km: Under Men's category – First position was bagged by Praveen Kumar, second by Gopal Lal Kumawat, and third by Gulshan Meena. Under Women's category – First position was bagged by Kiran Janwar, second by Lalita Vyas, and third by Dimple Lohar. The winners were awarded medals.

## US TRADE DEFICIT WITH INDIA AN ISSUE, LIKELY TO BE ADDRESSED

**New Delhi:** United States of America on Friday expressed its concern on its increasing trade deficit with India in the last couple of years and hoped that with Indo-US Business CEO Forum meeting here in New Delhi sometimes in early future would explore possibilities to strike a suitable balance between the bilateral trade of India and US for better tomorrow.

The aforesaid observations were made by Minister Counselor for Commercial Affairs US-FCS Ms Aileen Nandi while addressing 15th Indo-US Economic Summit under aegis of Indo-American Chamber of Commerce- North India Council (IACC-NIC), exuding confidence adding that the bilateral trade would progress with balancing approach in future.

She was of the view that since the political relationship between India and US have begun to grow and diversify with conciliatory mode and big ticket Indian businessmen aggressively making their investments in US, the two way trade would flourish in a manner that would address the concern of increasing trade deficit of US towards India. Ms. Nandi also observed that with Indo-US Business CEO Forum, having its interface regularly, the issues of mutual concerns relating to Indo-US trade would get resolved and investments from India to United States and a vice-versa would apportion as per expectations of trade and business of the two countries. According to her, the targeted trade between India and US for immediate future would be achieved with corrective measures in place and even exceed the way the two nations are progressing in their trade advancement negotiations. She hoped that both India and US would accelerate their trade in defence, agriculture, Goods & Services of multiple dimensions including IT and IT-enabled services.