



Dear All,

At the outset, we wish you all a very happy and fruitful year 2024. Welcome you to the Jan 24 issue of our newsletter.

The year 2023 showed India making strides in economic growth as well as social parameters like electricity coverage, financial inclusion, etc. We also emerged as a nation with highest population. This large and predominantly young population has aspirations which are a great asset, but we also have several challenges in sustainable development, particularly for water, agriculture and nutrition, in spite of many efforts.

This brings to centrestage WIN's vision of empowered communities, which use innovation to improve their standard of living and recreate a sustainable living ecosystem around us. Our Indian traditional knowledge systems in these areas made India a leading civilization and economic power till the 16th century. However, in today's scenario of high population and widely different needs and aspirations, our communities need to adopt new technology, products and services, for uplifting their living standards and create sustainable ecosystem.

The Science in Action series in this issue talks about challenges faced at various levels in this process of adoption of innovation at grassroots, and possible solutions. While WIN Foundation has worked with several startups, institutions and NGO partners to introduce innovations to the grassroots, adoption success can only be achieved through sustained efforts to overcome lack of knowledge, go through refinement of products, and create a sustainable economic value chain for the local population. As a vast and diverse country, we need hundreds of independent efforts at diverse locations, to generate successful products and their models for adoption and scaling.

WIN and its partners have worked over the years for the above. We have seen very encouraging results, but we see further need to deepen adoption. It is in this drive that we have also realised the synergies between our projects in water conservation, smart farming and women led nutri-gardens. The small plots of nutri-gardens have allowed women to progress in measuring and improving soil health through organic inputs, grow diverse nutritious vegetables and herbs and add to their family nutrition, with added potential for external sale. They are also trying out low cost evaporative cooling systems for better storage of perishable products for their own use and sale. This will allow the learning through this women led pilots to then be introduced in their main farms for better soil health, greater productivity and diversity, and higher incomes. WIN and its partners lay great stress on continuous training during this process, so that the village population takes ownership to adopt these innovations.

We also report on major events and programs notably the Vishwakarma innovation prize finale at IIT Delhi which saw many promising student innovative projects and the Field workshop on smart agriculture in Kutch with active participation of startups, smart and natural farming experts, our partners, WIN and rural farming communities, including women.

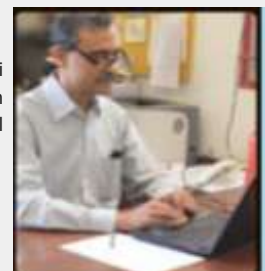
We look forward to your feedback or suggestions and also potential to collaborate.

Sincerely,

Paresh Vora
Director - India Operations

Contents :

- Latest Updates
- Science in Action Series 8
- Technology transfer - Need, challenges and impacts
 - An overview by WIN Foundation
 - ACT and Innovations in Village communities - Challenges and Strategies
- An Interview with Vishwakarma Awards 2023, Best Product Design Winner
- Event and Programs



Nutrition - Mother and Child Health

Our various Nutrition projects with Saath Charitable Trust, Samerth Charitable Trust, Chetna Foundation and Arid Communities and Technologies are progressing towards our desired impact with sustainability.



Nutripreneurs from various central kitchens are putting in their efforts to rigorously prepare nutritious food products in larger quantity, and adopting better packaging, branding and marketing to sell it to the community as well as outside market through multiple channels. They have generated a good revenue during the Diwali and Uttarayan festive season from direct sales as well as tie-ups with external organisations for gift hampers. Parallely, trials are also being carried out for the new products with the help of Prof. Bhaskar Datta and Team from IIT Gandhinagar.

At present more than 250+ nutripreneurs are involved with us, we are extending support for setting up their individual entities, training and pushing them towards branding and product market development.



We are extremely happy that Saath Charitable Trust under the brand Urmila received approval certificate from FSSAI for selling our nutritious products in the market, Samerth has also registered with FSSAI and Chetna Foundation is in process of registration. This will enable greater acceptance of their products, in turn enabling greater volumes.



Women led nutri-gardens in the clusters of Abdasa, Bidada, Bhuj and Rapar talukas have adopted organic practices for better soil health and have started seeing good results with increased yields. Around 350+ nutri-gardeners are involved under these projects and getting training and guidance from domain experts on nutritional plants, soil nutrition, benefits etc. We are now planning an integrated "Soil health --> Plant health --> Nutrition" training for the women nutri-gardeners to take them to the next level and also create microentrepreneurship opportunities for them.

Water and Sanitation **Participatory Groundwater Management**

PGWM projects with Arid Communities and Technologies in the areas of (i) Mandvi- Kutch, (ii) Khambhaliya, Dwarka District, (iii) Abdasa-Kutch, (iv) Mehsana District, continue to make progress in the current extended 5th year, with greater focus on sustainability alongwith community empowerment through the training of men and women Bhujal Jankars and also the development of local village level leadership.

Under the Water conservation project with Samerth Charitable Trust, water conservation structures have been completed across 8 villages in Rapar taluka of Kachchh district. Jaldoots under Samerth have undergone training for PGWM activities in their respective villages. RRWH structures at Samakhiali brought substantial changes in the villages post monsoon in water quality. The sarpanch and the villagers have appreciated the interventions for fulfilling their need of safe drinking water.



Post monsoon seasonal monitoring in New Villages at - Khambhaliya

As we are in the 5th year of our PGWM project, one of our major focuses is on measuring the impact of our interventions and suggest future directions. As part of this, a baseline study has been done by a bachelors student from Urban design program at CEPT UNIVERSITY. Now a deeper study is underway, by a team led Prof. Deepak Singhania, IIT Gandhinagar. Prof. Singhania has strong experience in socio-economic impact studies.

Innovative Technologies :

WIN Foundation signed an agreement with Planthro Pvt. Ltd., a startup established by Prof. Bhaskar Dutta, IIT Gandhinagar. It works in the area of socially impactful products and processes, bringing Research and Development being separately pursued at the institute for new generation of nutritious products with minimal processing and using natural ingredients. Prof. Datta's team will support our nutripreneurs with expertise and technology for new products, production process, trials, nutritional analysis, etc.

Rukart, a startup in evaporative cooling systems, with the support of WIN Foundation installed a subjee cooler in the village Mota Bhadia, Mandvi, Kutch which will be used by a community nutripreneurs to store the surplus vegetables. Subjee cooler is an innovative product developed by Rukart (RuKart's youtube channel "RuKart Technologies" - https://www.youtube.com/watch?v=pw1_cnFvKTW).



Programs and Events :-

S M Sehgal Foundation invited Mr. Paresh Vora, Director - India operations, WIN Foundation as a guest speaker and Chairperson for the

The Vishwakarma Awards 2023 Grand finale was held on 6th Jan'24 at IIT Delhi. The shortlisted finalists showcased their innovative solutions to a distinguished jury panel. The two teams from each track were awarded the prizes for the best design and innovative products.

More details on above are in section on Programs and Events

Subjee Cooler beneficiary voice :



'We have been using Sabjee Cooler for 20 days. We are happy that our vegetables like dudhi, brinjal, etc. stays fresh for 4 to 6 days and leafy vegetables like palak, methi, coriander, etc. stays fresh for 3 to 4 days thereby reducing wastage and getting enough time to store and consume within the family and to sell surplus vegetables in the community'

-Gadhvi Jetbai Bharmal, Mota Bhadia, Mandvi, Kutch

Science in Action Series - 8 Technology transfer - Need, challenges and impacts

Technology transfer: Possibilities in resource management

An overview by WIN Foundation

(Author: Ms.Aishani Goswami)

'What gets measured, gets managed' is a quote often used in sustainable resource management discussions. Regular monitoring of land cover change, conducting tree and animal census forms the basis for forest management. Traditional agricultural practices were based in indigenous knowledge, organic inputs, and involved practice / experience based on people's science. With advancements in science and increase in the scale of agriculture, use of technology in the farms becomes imperative. And in this context measuring parameters like soil moisture, water availability, soil and water quality, weather prediction will help farmers make educated decisions at her farm.

With our implementing partner, Arid Communities and Technologies, we envisioned an integrated agriculture-water-soil data monitoring system with an objective to give advisory to farmers to make farm level decisions, such as cropping patterns, water saving techniques, soil health improvement. It incorporates a multi-layered study of local geographic, climatic, hydro-geological, water and soil studies, by creating an integrated system of data collection, storage and analysis.

'Bhujal Jankars', who are community resource persons trained by us in practical applications of hydro-geology, play a key role in this process. They have a good rapport with the community, are scientifically informed and collect data for various parameters using respective instruments. We train them to understand

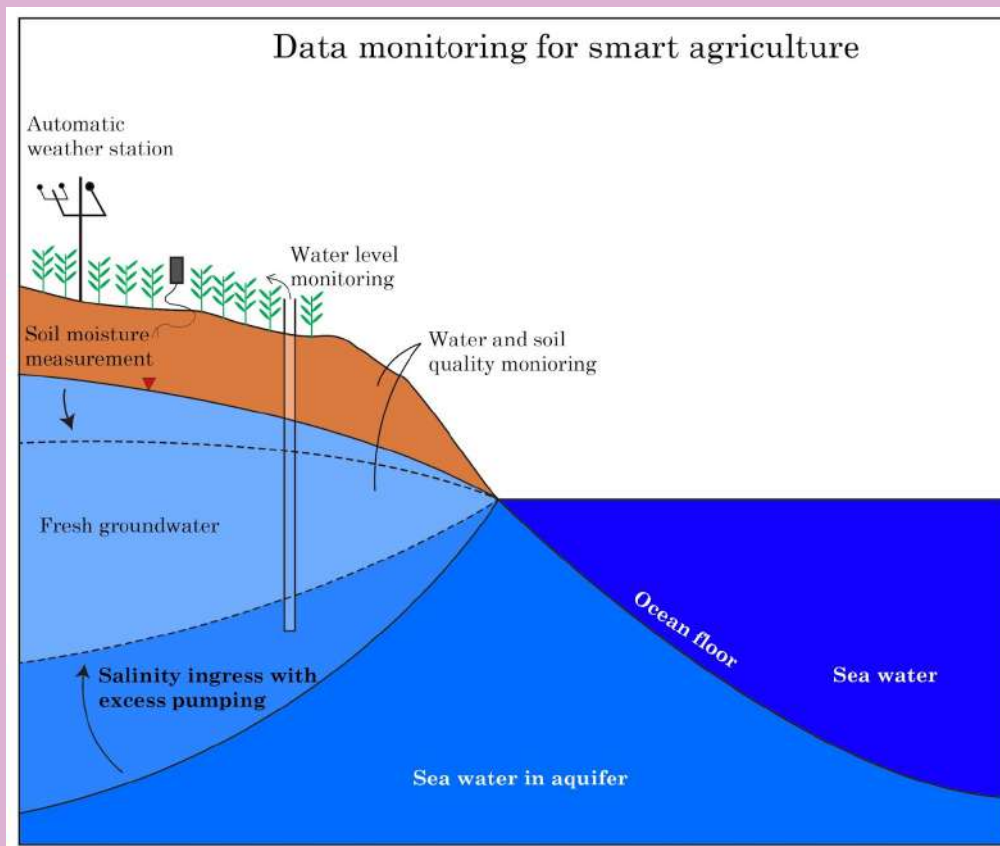


1. The importance of data
2. Science based farming practices
3. Theory of data parameters such as soil moisture, groundwater level, TDS, soil quality parameters
4. Interpreting data of above mentioned parameters
5. Understanding trends and changes in data parameters
6. Communicating and explaining to farmers about collected data

We have evolved data collection and storing techniques. What began as field diary entries, have become structured formats, to google forms and now a [farmer App](#) that we have developed in partnership with SoilSens. This app is connected with SoilSens soil moisture collection equipment, and also stores groundwater level and quality data, soil quality parameters, and weather parameters.



(Field soil testing kit and BJs measuring soil moisture on field)



(Integrated data system to measure different parameters)

Challenges and way forward:

Smart farming is an evolving field, and in our attempts of creating pilot farms implementing smart farming, we have learnt a lot.

- It is important to understand the importance of data and regular data collection, and gradually build a vision around smart farming. In absence of such an understanding, regular data collection can seem to become monotonous and burdensome. So, at regular intervals we organise workshops with experts, farmers, Bhujal Jankars and our staff to build this vision.
- Data can sometimes feel abstract, especially when it is stored on servers. So it is important for farmers and field teams to access data easily and make sense of it through visualisations, discussions with peers and guidance from subject experts.
- It is also important to develop a language to communicate scientific concepts, data parameters and its application in farming to farmers. This language needs to be regional, clear and simple to understand.
- Sometimes smart farming technology can seem daunting, especially to farmers who may not be exposed to it. So, it is important to train farmers in the practical applications of technology and handhold them till they feel confident enough to use and explore on their own.
- As a process smart farming could involve multiple stakeholders including farmers,



scientists, domain experts, startups and technology providers, NGOs, government. It is crucial to develop inclusive partnerships and ensure that the technology reaches the farmers in farmer-friendly ways. To add in next bullet - WIN Foundation in partnership with our partner, ACT organised a field workshop on 'Farmer centric protocols in agriculture practices and role of innovation and technology' in Kachchh October 2023. We invited several partners, met with various farmer groups to discuss issues in agriculture and possible solutions using technology. You can read the workshop output report [here](#).

If this is a topic that interests you, get in touch with us at info@winfoundations.org, we are happy to learn from you and share our experiences.

ACT and Innovations in Village communities - Challenges and Strategies

An interview with Dr.Yogesh Jadeja and Dr.Sezina Bhimani, Arid and Communities Technologies

1. Please give introduction of ACTs role in bringing innovations in the village communities

Natural resource management at village and community level will be a key determinant of the standard of living and overall village development and well being of the communities.

ACT has evolved the concept of Participatory Groundwater Management (PGWM) for water security and sustainability. ACT's long term experiments and success through PGWM program have shown a more sustainable path towards this, by skilling and active participation in the water security planning, monitoring and management. Alongwith water supply augmentation, water demand management is a crucial component of PGWM. The demand side of water management has logically led to the need to introduce smart or precision farming among the small and marginal farmers. This has potential for not just better water security, but also increased farm incomes with better soil health. Women-led initiatives have led to nutri-garden projects, bringing more nutrition to their families and also creating opportunities for barter and microentrepreneurship.



2. Objectives of bringing Innovations to Grassroot rural communities

Water balance is a key to water management that includes many dynamic parameters such as rainfall, runoff, water storage as surface and groundwater, groundwater dynamics. As every component is a part of water cycle and is dynamic, it is essential to maintain the balance of water input vs output through integrated hydrogeological monitoring that has been framed using innovative technologies. Rural communities are adopting innovations and technologies in form of mobile phones, household durables, electric motors, etc. Our village society had evolved practices in water use suitable for different locations. However, in view of vastly higher population and their rising aspirations, there is great need for new innovations to be adopted in management of rural Commons - particularly water sources. Innovations for optimised usage of water for farming arises as a key need due to agriculture being the biggest user of water, roughly 80 to 90% of total usage.

As an example, we have introduced soil testing kits at field level. These are very useful for quick analysis of soil, enabling farmers to determine adding soil nutrients. These are particularly useful for organic farming, since organic inputs, by their very nature, have varying strengths of nutrients, requiring farmers to measure and then fine tune nutrient inputs to achieve optimum level.

Our family nutrition practices have also suffered due to reduced agriculture diversity and lack of knowledge in evolving sustainable nutrition practices suitable for modern lifestyles, affecting even villages.

3. Please tell us about the challenges faced in above objectives

Fortunately, several Indian startups and corporates are introducing new products in the above domains, at affordable prices.

ACT and WIN Foundation have worked together to bring several innovative solutions to the grassroot communities. In this process, we have observed several challenges in (i) initiation and execution, (ii) achieving desired impact and (iii) scaling and replicating the practices.

The major challenges are explained below:

i) Product and services level:

Startups have limited resources and their founders find it very difficult to reach rural areas, for sales and service.

Also innovative products, by their very nature, require extensive trials and refinements, to reach maturity stage.

As the users themselves are not familiar with such products, continuous training, and guidance are required for these trials and feedback needs to be obtained.

Demonstrating the benefits of innovations to users is essential for the continued adoption. This is challenging as impact is often dependent on a series of steps including multiple products, and requiring measurements over a few seasons and explaining the same to users in simple terms. Farmers used to follow the practices and tools available locally and being in used in the respective region widely. Therefore, the tools need to be mainstream in local market and need wide adaptation among the farmer communities.

ACT's participative approach has helped here by training rural young men and women for these tasks. As the variety of products and their technical complexity increases, there is a need to train at least



some rural youth with greater technical skills to install, train users and do basic maintenance. Getting technical assistance from cities is neither affordable nor scalable in the long run.



While we have shown impact of many of the innovations, the challenge to show significant impact to create demand for the products is still not tackled.

We have now launched an integrated project providing a series of innovations and practices towards precision farming, to show major improvements. For this, we are collaborating with multiple partners, including WIN Foundation, Krishi Vigyan Kendra, several startups, to bring increased expertise to rural areas including local capacity building.

We hope to show significant results in terms of better soil health, higher yield and incomes and greater health for local communities. Alongwith this, we aim to create a local village level cadre with skills in leading the villages to adopt these practices at scale.

The next challenge is market linkages. Here again, we have brought innovations like low cost cooling systems, for storage and transport of perishables. In coming years, we aim to train our women nutri-gardeners, to use their surplus to produce nutritious food supplements and products.

For scaling up across a vast number of villages, we are also working on developing local leadership at village level, to enable village level initiatives to take of the vast diversities in our country.

4. Please mention some areas where good innovations are required



We see great need for affordable and mature innovations for soil and water quality and and water quantity with higher efficiency of results.

Soil moisture meter needs to be upgraded with guideline for decision making to schedule irrigation for various crop types.

There is a need of integrated guideline considering different soil types, its quality and suitable crop types.

Water irrigation control for high HP pumpset at a reasonable price with robustness to work in tough rural environment is another unmet need.

Small powered farm implements, for de-weeding, harvesting, removing crop residue after harvesting, etc., in small farms.

Seed bank for local varieties and indigenous seeds.

5. Please mention about ACTs partnership with WIN Foundation to support in bringing innovations

WIN Foundation, through its experience and linkages in startup ecosystem have regularly brought new innovative products and also arranged for training of ACT members in installation and usage.

ACT and WIN Foundation have also conceptualised the program for integration of data services to bring greater value to farmers. Together with other partners, we aim to move towards our goal of taking society to science and enable villages to adopt technologies and products to improve their quality of life and quality and productivity of their work.

Somewhere we need to bring this entire region specific concept in a service mode available locally and easily accessible to farmers.

Dr.Yogesh Jadeja, Founder Director and Geohydrologist at Arid Communities and Technologies
(<https://www.linkedin.com/in/yogesh-jadeja-a703611a6/?originalSubdomain=in>)

Dr.Sezina Bhimani, Founder director and Geohydrologist at Geo science services
(<https://www.linkedin.com/in/sazina-bhimani-96b17718/?originalSubdomain=in>)

Interview with Mr.Satyam (Team EMT Lab, IIT Guwahati) - Best Product Design Prize winners of Vishwakarma Awards 2023

Product : IoT enabled real-time water monitoring system with remote data accessibility.

Innovators : Mr.Satyam, Mr. Tarun gangar

1. Your vision behind developing an innovation - the need and innovation of your product and its impact on social communities.

The vision behind developing our innovative water quality monitoring device stemmed from the pressing need to address the severe environmental threat of water pollution, particularly in developing nations like India. Human activities, such as industrial and agricultural processes, contribute significantly to this issue, necessitating constant monitoring and swift interventions. Our product's impact on social communities lies in its affordability, accessibility, and real-time data transmission capabilities. By providing a cost-effective, multi-parametric, IoT-enabled solution, we aim to empower communities and authorities with the tools needed for effective water resource management and remediation.



2. What is the current status - challenges and opportunities?

The current status of our project reflects the challenges and opportunities inherent in the water quality monitoring market. Challenges include the high costs, limited functionality, and maintenance requirements of existing devices. However, the opportunities lie in our innovative approach, offering a device that is not only affordable but also integrates cutting-edge IoT technology. This positions us uniquely in the market, addressing the constraints that hinder widespread adoption of water quality monitoring solutions.

3. What are your goals in the next 2 to 3 years?

Over the next 2 to 3 years, our goals are to enhance our device by integrating more sensors, ensuring market readiness with necessary certifications and approvals. We envision expanding our impact by reaching a broader audience and contributing significantly to sustainable water resource management on a global scale.

4. How do you view support by a non-profit foundations like WIN Foundation and Maker Bhavan Foundation received through competitions



The support received from non-profit foundations like WIN Foundation and Maker Bhavan Foundation, especially through competitions, is instrumental in propelling our innovation forward. These foundations play a crucial role in fostering innovation and providing a platform for us to showcase our solution. Their support not only validates the significance of our work but also opens doors to further collaboration and networking within the industry.

5. Highlight notable achievements

Notable achievements include the successful development and testing of our prototype, demonstrating exceptional performance and reliability. Our device's affordability, user-friendly design, and environmentally conscious features set it apart in the market. These achievements position us as pioneers in revolutionizing water quality monitoring, contributing to global efforts for sustainable water resource management and remediation.

WIN Foundation - Events and Programs



VISHWAKARMA PRIZE - 2023

A national level event, `Vishwakarma Awards for Engineering Innovation 2023 was launched in May 2023, with three themes: (i) Water & Sanitation, (ii) Clean Technology, and (iii) Smart Mobility. WIN Foundation was the partner and co-organizer in Water and Sanitation track. Over 110+ applications received from all over the country, 26 teams were selected for the stage 1, out of which, 12 teams under watsan shortlisted for stage 2. The 7 teams shortlisted for the grand finale were provided support for fine tuning prototypes and mentored for making impactful pitches.

At the Grand finale held on 6th Jan'24 at IIT Delhi, the finalists showcased their innovative solutions to a distinguished jury panel. Two teams from each track were awarded the prizes for the best design and innovative products, respectively.

It was a memorable event, a testament to the brilliance of young engineering minds.

WIN sponsored award and prize winners under Water and Sanitation track



Best Product Design

Product : IoT enabled real-time Water Monitoring System with Remote Data Accessibility

Team : Team EMT Lab, IIT Guwahati,

Innovators : Mr.Satyam and Mr. Tarun Gangar

Most Innovative Solution

Product : A sustainable solution to floral waste and reducing plastic pollution.
Team : Pushpak, College of Technology and Engineering, Udaipur
Innovators : Mohit Kumar Gupta , Jatin Jain, Anurag Meena, and Harishit Sharma



Appreciation and Special honour by the Jury

Product : Empowering Indian Farmers through Indigenous Web-Based Smart Irrigation and Nutrient Supply Systems for Precision Agriculture
TEAM: SARAS (सारस)IIT BHU , VARANASI
Innovators :Pradeep Kumar, Piyush Rai,Rahul Anthwal,Rakesh Kumar



For more details, please visit: <https://www.winfoundations.org/vishwakarma-award-for-engineering-innovation-2023/>

HWTS Network India Chapter: Learning Exchange 2023

HWTS Network India Chapter: Learning Exchange 2023 event held from November 29 to December 1, 2023, at the S M Sehgal Foundation Auditorium, Gurgaon. The event focussed focused towards learning the need for "Safe Drinking Water for All " through promoting Household Water Treatment and Safe Storage (HWTS) solutions.

1. Knowledge sharing of HWTS Products
2. Innovation and adaptation in HWTS Technologies
3. Entrepreneurship models for HWTS Products
4. Exhibition of innovative HWTS technologies/ approaches and water quality testing technologies



Mr.Paresh Vora,Director - India operations of WIN Foundation, chaired the session on Skilling and Micro-entrepreneurship, and he also made a presentation on "Skilling and microentrepreneurship for Public goods and Services for sustainable Social Impact".

To know more [Click here](#)

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- For feedback and suggestions write to: info@winfoundations.org



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